

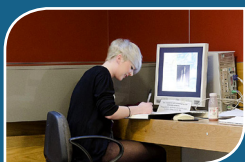
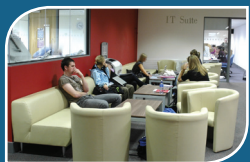
Perspectives on Pedagogy and Practice

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Volume 5 September 2014



Perspectives on Pedagogy and Practice

Volume 5, September 2014

Centre for Higher Education Practice

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Contents

Call for Papers	v
Foreword	viii
Editorial	xi

Papers

Promoting learning and professional development through communities of practice	1
Katarina Mårtensson and Torgny Roxå Lund University, Sweden	
The ESSAPP study: Enhancing Student Self-Assessment on Physiotherapy Placement	23
Conal McGinley and Iseult Wilson University of Ulster	
Professionalising the Civil Service: The Masters in Public Administration	43
Colin Knox and Denis McMahon University of Ulster	
Developing Digital Literacies	65
Catherine Hack University of Ulster	
Student engagement, absenteeism and first year performance:	81
An empirical investigation	
J. Peter Green, Gregory McGrath, Michael Pogue, Abigail Wilson Ulster Business School, University of Ulster	

Pair programming for improved student performance and confidence in formal assessment	99
Ian McChesney University of Ulster	
Comparative analysis of online methods on Blackboard Learn for student feedback in small and large group teaching	117
Ann Moorhead, Diane Hazlett University of Ulster	
Enhancing occupational therapy student learning through problem based learning workshops	135
Jackie Casey and Iseult Wilson University of Ulster	
MOOCs and pedagogy: the challenges and benefits of student centric MOOCs in Higher Education	147
Eleanor Dewar	

CHERP Journal: *Perspectives on Pedagogy and Practice*

The Centre for Higher Education Practice has established an Editorial Sub-Committee to oversee the publication of *Perspectives on Pedagogy and Practice*.

The sub-committee is now seeking articles for the sixth issue of the journal; articles are welcome on a wide range of teaching and learning issues and practices. Papers related to the three CHERP strategic work streams: assessment and feedback; the research and teaching nexus and student engagement are also encouraged

The Editorial Sub-Committee wish to encourage the submission of a variety of types of article to include

Research articles: Pedagogical education research (including action research) supported by appropriate background theory and analysis of data. Submissions to this section receive formative feedback from two members of our Editorial Board , and they work with authors to bring accepted pieces to their fullest potential. The best submissions will demonstrate sustained engagement with the relevant scholarship of learning, and teaching, as well as a critical awareness of their own strengths and limitations. Research articles are normally 10-15 journal ‘pages’.

Descriptive accounts: detailing educational practices that have been “tried and tested” and which include evidence of appropriate assessment and evaluation. The best submissions will address how smoothly the tool worked and detail its strengths and drawbacks; links to online examples of the tool being utilized would be ideal. The suggested length for reviews is 1,500–2,000 words.

Research and descriptive articles will be required to demonstrate appropriate:

- Pedagogical content
- Clearly defined goals and expected student outcomes
- Application to appropriate disciplines
- References to related educational literature

Essay articles: Reviews on key topics related to learning and

teaching within pedagogical education. These may include reviews of current or historical interest in pedagogical education, particularly where they provide support for teaching, or essays on pedagogical education policy matters. They usually comprise or 5-10 journal pages.

Short Communications: describe potential teaching materials or approaches and their uses. People are constantly changing their teaching and as a result good ideas are frequently generated and evaluated, but may not warrant a full paper. Ideally descriptions should be succinct yet sufficiently informative to enable readers to repeat the teaching approach. Where feasible short communications should be supported by preliminary data.

Alternatively short communications may be a discussion piece, such as a dissemination of ideas applicable to pedagogical education. These pieces may be speculative in nature, but in all cases arguments must be focused and clearly placed within the educational setting. Articles submitted as a short communication should be no more than 1,500 words in length and will be subject to review.

Book, Software and Website Reviews: Reviews of books, software or websites appropriate to pedagogical education are welcomed.. As a guide reviews are normally 1-2 journal 'pages'.

Conference Proceedings: A review of the proceedings of a conference relevance to pedagogical research may provide a catalyst for further institutional research or generate ideas for future CHERP events or visiting speakers. Such an article may provide a brief review of the plenary sessions or an overview of the theme of the conference. It would be expected that such articles would be relatively short in nature, perhaps comprising 3-5 journal pages in length.

Provocation Articles: such articles are intended to promote discussion and debate perhaps around a potentially controversial statement. It would be expected that such articles would be relatively short in nature, perhaps comprising 3-5 journal pages in length.

Student Reflections: contributions from students reflecting, perhaps, on specific learning and teaching practices to which they have been exposed or some other aspect of the student experience, for example a cross-cultural experience. It would be expected that such articles would be relatively short in nature, perhaps comprising 3-5 journal pages in length.

Please note that a Style and Referencing guide is available on the Centre website and article contributions should accord with the guidelines. See <http://www.ulster.ac.uk/centrehep/journal.html>

We would also welcome suggestions for themes that might be addressed in future issues and/or proposals for articles/case studies. Please send suggestions and/or proposals to Amanda Platt (aj.platt@ulster.ac.uk)

Articles for consideration for the sixth issue should be submitted to Dr Amanda Platt (aj.platt@ulster.ac.uk) by the 26th October 2014.

Call for Reviewers

The Editorial Sub-Committee for Perspectives on Pedagogy and Practice recognises the value and importance of a peer review process. The review process includes two important aspects:

- * The provision of feedback, in a timely manner, to the Editorial Sub-Committee in terms of the merits and quality of the submissions, and
- * The provision of collegial and constructive feedback to authors to help shape contributions for publication.

If you are interested in becoming a reviewer for Perspectives on Pedagogy and Practice, please contact Roger Theis in the Centre for Higher Education Practice (r.theis@ulster.ac.uk) indicating your areas of interest and expertise.

Mike Pogue,
Chair, Editorial Sub-Committee

Foreword

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

Recognition of the importance of the wider student experience, defined and measured by students' declared satisfaction with their 'journey' through the provider's academic and administrative processes, has grown in recent years regardless of where individual institutions sit in NSS scores and league tables. This emphasis is manifest in the growth of senior management roles with a student experience remit. Ulster is no exception. Whilst previously HEIs may have broadly asserted being 'student centred', the student experience has become a substantive item with both strategic and operational implications and ramifications.

Most current approaches to the student experience reify the notion of the student as – customer or consumer and apply quasi-commercial customer service approaches to the transactional and manageable aspects of delivery. Our Learning and Teaching Strategy (2013/14 – 2017/18) eschews the term customer/consumer in favour of 'partner', recognising that the outcomes of a programme are heavily dependent on the actions, engagement and inputs of the students themselves and critically that such language neglects the implicit mutual commitment between students and university. This requires a rethinking of the total student experience, moving beyond the design and delivery of subject-based courses, to a rich multifaceted and joined-up portfolio of co-curricular, extra-curricular and collaborative and inquiry-based learning experiences. But one size will not fit all. We will also need to tailor and customise the student experience on offer to reflect the diversity of our learners and our markets.

In recent research conducted by Callan Associates, respondents were asked to apportion the contribution made by each of three main components of a student's university life viz academic experience, administration, resources and related services, and social and pastoral facilities and activities. In every case, the

academic experience was felt to play by far the greatest role in the students' experience and satisfaction – at least 50 per cent; on average three times and up to seven times more impactful than the other two main components.

The paradox is that sometimes academics seem to be less engaged and less concerned with the student experience than professional and service support colleagues. But we know that the student's experience is derived from all points of engagement. Any weak link can have a considerable negative effect. All staff, professional, business support and academic have a role to play in both the transactional and relationship-building dimensions.

To move the agenda forward at Ulster, three key questions will need to be addressed:-

- ~ what should the student experience(s) look and/or feel like for Ulster students?
- ~ what are the benefits of this for students, colleagues and the institution?
- ~ how can all staff across the institution play a role in achieving it?

There is a real opportunity over the coming months for colleagues, in partnership with students, to explore and support the student experience as part of our refreshed brand. Our students can expect to be inspired by progressive teaching, encouraged by a nurturing environment and equipped with relevant opportunities in pursuit of rewarding careers. With our students as partners, the value that we place on a collaborative and forward-looking approach to learning and teaching is central to our brand in action. There is also the concomitant need to formulate an overarching staff communications and engagement plan designed to foster awareness and build support across the staff and student bodies for shaping, delivering and enhancing the Ulster student experience, and the bright futures to which our students aspire.

If we can define, articulate and achieve the desired positive relationship with our students, they will be our most effective

advocates, speaking positively about their University, recommending it to others, generating affinity, affection and loyalty, the cornerstones of reputation thereby optimising our distinctiveness and competitive advantage. Papers which explore these and related themes including, inter alia, defining and articulating the optimal student experience, the language, culture and philosophy of students as partners, and case studies in engendering the academic experience would be particularly welcome in future editions.

I also hope that the Journal's readership will be inspired, encouraged and motivated to participate in the CHERP's activities in 2014/15 and consider disseminating relevant pedagogic research and practice through the Centre's Seminar series, conferences and Journal.

Finally, I would like to thank members of the Editorial Board, and in particular, the Journal's Editor, Michael Pogue, who gave generously of their time and talents in bringing this fifth edition to press.

**Professor Denise McAlister CBE
Pro-Vice-Chancellor (Teaching and Learning)**

Editorial: Volume 5, September 2014

I have pleasure in welcoming you to the fifth edition of Ulster's journal learning and teaching journal - *Perspectives on Pedagogy and Practice*. In this issue nine articles, from both internal and external contributors, present different aspects of learning and teaching practice from across the University and beyond.

The two invited external contributions focus upon communities of practice and massive open online courses (MOOCs) respectively. The first article, by Torgny Roxa, CHERP Honorary Fellow, and his colleague Katarina Martensson (both academic developers at Lund University in Sweden) explores the idea of community of practice (CoP) in relation to learning and professional development. The research methodology utilised comprises two authentic cases illustrating how educational developers work together as a CoP to promote change within universities. The article concludes by summarizing some keys to success when communities of practice approaches are used in professional development. The second article, by Eleanor Dewar, an educational practitioner, suggests that pedagogy is a key area that needs to be considered by universities looking to develop MOOCs. The paper briefly outlines the Student Centred Learning (SCL) paradigms of social cultural theory and connectivism and then applies these theories to the MOOC phenomenon. The challenges and benefits of basing a MOOCs pedagogy and design on one of these two theories are addressed.

The internal articles address a range of initiatives which include the development of digital literacies, student self-assessment when on placement, electronic feedback via Blackboard Learn, problem based learning and the impact of student absenteeism.

Hack suggests that the ability to use appropriate technologies for communication and collaboration, information management, learning, scholarship and professional practice is critical for "*living, learning and working in a digital society*" (JISC). One approach for ensuring that students achieve the digital competencies required for employability is to embed them in modules. In this paper two approaches to the development of digital literacies are described:

embedding activities within the curriculum and the development of an extra-curricular Edge Activity. The paper identifies approaches that may be taken by the reader to support students in the evaluation and development of their digital literacies and develop and maintain a positive digital identity.

McGinley and Wilson examine the impact of self-assessment of physiotherapy students whilst on placement in addition to the assessment typically performed by practice educators. Utilising action research methodology both students and educators agreed that the exercise clarified perceptions of ability, helped develop relevant action points, encouraged communication and discussion, should be encouraged for all students on all placements, and was a useful exercise.

The article by Moorhead and Hazlett was underpinned by Ulster's seven Principles of Assessment and Feedback (University of Ulster, 2011) and conducted a comparative analysis of methods on Blackboard Learn for student feedback in small and large group teaching from both the staff and student perspectives. The study concluded that Blackboard Learn is useful and effective for providing feedback to students, and that they prefer online feedback. The need for the greater use of online feedback for students, presents staff with a challenge to use a wider range of feedback methods including online tools. However, with a greater use of e-feedback using online methods, further training in these methods is required both for staff and students.

Casey and Wilson's contribution emanated from a revalidation exercise of the Occupational Therapy degree programme. A specific issue was with regard to the delivery of the module on occupational therapy for children entitled, 'Occupational Performance: The Early Years' which was now delivered during semester one of the first year of the programme. First year students would have a very low baseline to work from, with limited prior knowledge of OT or disability. After reviewing the teaching and learning literature in both OT and higher education, a problem-based learning (PBL) methodology seemed to be the most appropriate for overcoming these challenges. The study concluded that this a really rich way

of working with the students, guiding them through each phase of the OT process. In particular it was rewarding to watch the students develop their knowledge and understanding, and grow in confidence in themselves as they explored the OT process with their child case study.

The study by Green et al revisited previous research published in Volume 1 of the journal which investigated the relationship between student attendance and attainment. The current study added the dimension of student engagement since 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. From the results reported in this study absenteeism has an important and significant negative impact upon student performance in the first year of university study. Whilst monitoring student attendance may not directly encourage student engagement it does enable the early identification of students who may be at risk of failing to progress in their university studies.

Knox and McMahon address the contentious issue of “professionalising the civil service”. They explore the conception and implementation of a collaborative approach to public sector professional learning which seeks to explore some of the most sensitive and important relationships between power, politics and policy. The study addresses three key issues. Firstly, it sets out the pedagogic debate that exists within the discipline of public administration on links between theory and practice and how this translates into the content and delivery of a Masters in Public Administration programme. Secondly, it outlines how, as a result of this pedagogic debate, senior NICS civil servants became an integral part of the design and delivery team for the new Masters programme. Finally it considers how the first cohort of students responded to this collaborative provision and the impact which it had on their professional working experiences.

The final article by McChesney addresses the challenges of learning and teaching associated with introductory computer programming which typically presents difficulties to students as a result of the

abstractions required and the inherent problem solving necessary for all but the most trivial of programming problem. The paper describes the learning and teaching approach taken in a year 1 programming module. The module has incorporated a range of techniques to enhance student learning and performance. Amongst these is the use of pair programming for some practical and assignment work. Initially pair programming was used informally but during 2012/13 a more formal and controlled approach was taken, with the aim of more carefully evaluating the impact of pair programming. Adopting an action research approach to the use and evaluation of pair programming in the module, the aim is to assess and revise its implementation over a number of cycles of module delivery.

The purpose of the journal is to share practice in new initiatives in learning and teaching across the University and contributions to the journal are always welcome, especially from those who are new to pedagogical research. Research articles have, to date, formed the core of the journal but we would also welcome shorter articles, conference proceedings, student reflections, books reviews and provocation articles.

In closing it would be remiss not to mention those people who make the publication of this journal possible including those who volunteer as mentors to the authors, those who serve as reviewers and the members of the Editorial Sub-Committee. Finally a personal word of thanks to Barbara Skinner, my predecessor, who served as Editor for the previous four editions of the journal and has provided guidance during my first year as Editor and also to Amanda Platt for invaluable administrative support.

Mike Pogue
Editor and Chair of
Editorial Sub-Committee

Promoting learning and professional development through communities of practice

Katarina Mårtensson and Torgny Roxå
Lund University, Sweden

This paper explores the idea of community of practice (CoP) in relation to learning and professional development. Two authentic cases illustrate how educational developers during professional development processes work together as a CoP to promote change within universities. The two cases and their results are compared and scrutinized in relation to key features of CoP. Key to the comparison is whether the cases manage to create a community of practice or not. The analysis shows that the cases differ mainly in relation to how they support an emerging shared identity. The text concludes by summarizing some keys to success when communities of practice approaches are used in professional development.

Introduction

This paper relates to learning and professional development through a sociocultural perspective. Two initiatives to support the professional development of educational developers¹ are in focus and in particular their explicit framework of community of practice (CoP) as a designing principle. These attempts are described and compared. The aim is to discuss professional development through the use of CoP. In doing so, we will refer to key features of CoP as described by Wenger (1998, 2000) and Wenger and Snyder (2000). The backdrop to this is the experience that not all professional development initiatives using a CoP approach result in successes in terms of supporting an emerging profession, or the development of the professionals. In this text, by comparing and discussing different features of the two attempts we hope to contribute to a broader discussion about the value of CoP as a tool for professional development.

This text starts by offering an overview of how educational development

¹ In this text the term 'educational development' is used synonymously with the terms 'academic development' and 'faculty development'.

(ED) as an emergent professional field has developed and grown in Sweden. The following section displays some key features within the theory of CoP. Next, the two cases are presented, providing material for the following analysis. We conclude with a brief discussion highlighting some of the results of the analysis.

Swedish educational development – a brief overview

Sweden has had EDs within universities for more than four decades. In the early days - 1970s – they were at the outset engaged within large universities as a service to individual staff members and departments. EDs acted as consultants in relation to other academics and their challenges in relation to teaching and learning. Over the decades many higher education institutions have employed full-time EDs, established educational development units (EDUs), and offered pedagogical courses. Since then, these units have had various organizational homesteads; either as part of the university administration and human resources; or as part of an academic department/faculty, or even as a network of resource persons within different faculties/schools.

Some twenty years ago, when Swedish EDs organized annual meetings, in total they were only a dozen or so individuals. They met from time to time, all in one room, sharing experiences and challenges. All the participants knew each other and each gathering followed a more or less fixed structure, in quite an informal way.

Nowadays, in contrast, there is a professional national network for educational development (Swednet; www.swednetwork.se), similar to that in many other countries (SEDA, AISHE, POD, HERDSA, etc). Swednet has 120 members, representing most higher education institutions in the country. The network organizes annual conferences, it has a website for dissemination of information and resources; it has a steering committee constituted by experienced EDs from across the country, and it collaborates with the national Association of Swedish Higher Education (SUHF). Swednet is also a part of the International Consortium for Educational Development (ICED), with biennial conferences. The current situation is the result of many decades of work supporting academic teachers in their endeavour to support student learning. The number of EDs has

increased and so has the number of activities they are engaged in, from pedagogical courses, to curriculum development, policy work, quality assurance, assessing and rewarding pedagogical competence, educational research etc. This has taken place in times of changes in the higher education sector in terms of massification and decreased funding; a process further fuelled by gradually increasing pressure from the government and student unions demanding that universities should take teaching as seriously as research, resulting in a national requirement of 10 weeks of teacher training in order to get tenure positions in practically all higher education institutions (see Lindberg-Sand & Sonesson, 2008, for a detailed account of this process).

In many ways the overall development in Sweden resembles what is described from other national contexts (Havnes and Stensaker 2006; Gibbs 2013). For example, Gosling (2008) reports on a gradually wider scope for EDUs in the UK, working as much at policy- and strategy-level within institutions as on teaching practitioner level. Sorcinelli and colleagues (2006) describe different 'ages' in educational development in North America, from the age of the teacher (1960s) to the current age of the network.

What does this development imply in terms of professional identity for educational developers? In the Swedish context there is no formal training for this profession; most EDs are academics from various disciplines, some but not all are educational researchers. A key question concerns their professional identity formation as educational developers.. How can this be supported through organized professional development?

There is a massive literature indicating an ongoing debate about the role, identity, and legitimacy of educational developers (Bath & Smith 2004; Blackwell & Blackmore, 2003; Eggins & Macdonald 2003; Harland & Staniforth, 2003; Havnes & Stensaker, 2006; Land, 2004; Rowland, 2007; Roxå & Mårtensson 2008).

In relation to regular academics (not EDs), Crawford (2010) investigated attitudes towards professional development by interviewing 36 academics from different disciplines in two different

UK universities. Her findings indicate – along with the arguments of Knight (2006) – that the need to earn and defend a *professional status* and the influence of *supportive networks* are the most important drivers for professional development. There is no reason to believe that educational developers are different from other categories of academics. One might therefore expect the same aspects – professional status and supportive networks – as important for the professional development of EDs.

As for supportive networks, educational developers across Sweden and from other countries probably have fulfilled this need already. EDs do gather at conferences (nationally and internationally), symposia, workshops et cetera to discuss their work, the rationale for it and its development. Nevertheless, given the increasing expectations on EDs, following the national requirements of teacher training, the Swedish government in 2004 explicitly assigned Swednet the task of addressing the professional development of EDs. The resulting attempts are described in cases 1 and 2 below. But since we rely heavily on Wenger's (1999, 2000) theory on communities of practice (CoP) to analyze and discuss the two cases, we first need to look at some of the key features of this framework.

Communities of Practice – key features

Wenger (2000) states that “knowing is a matter of displaying competences defined in social communities” (p. 226). So when discussing professional learning and the formation of a professional identity of any kind, including that of EDs, this is where we need to look – at the processes where key socially defined competences are constructed.

Wenger & Snyder (2000) define communities of practice as “groups of people informally bound together by shared expertise and passion for a joint enterprise” (p. 139). Membership in a CoP is self-selected, which is not the case for instance with a formal work-group or a project team. (For a comparison between the characteristics of CoPs, formal work groups, project teams and informal networks, see Wenger & Snyder, 2000, p. 142). Although CoPs are fundamentally informal and self-organizing they benefit from *cultivation* (p. 143),

meaning they can be nurtured and supported in different ways. A key-task for a CoP is to *define its domain*. Unless members feel personally connected to the group's area of expertise and interest once it has been defined, they will not fully commit themselves to the work of the community (p. 144). Consequently, this places belonging and, as we shall see, effects on identity at the core of all professional development activities using CoP as a guiding framework.

Wenger & Snyder also highlight that “the effects of community activities are often delayed. Results generally appear in the work of teams and business units, not in the communities themselves” (p. 145). This is also something to bear in mind while designing attempts to nurture CoPs. If used for professional development purposes, effects from CoPs are likely to appear dispersed in various domains and in some cases, after considerable delay—a feature that naturally complicates the evaluation of professional development attempts.

In a CoP *competence* is defined by a combination of three elements (Wenger 2000: p. 229). Firstly, the group needs a *joint enterprise* – to be competent is to be able to contribute to this enterprise. Secondly competence grows through *mutual engagement* – to be competent is to be able to engage with the community and be trusted as a partner in the interactions within the community. Thirdly, over time the community develops a *shared repertoire* of communal resources – language, routines, sensibilities, tools, stories, styles, etc. Competent members should be able to use these resources and to contribute to their further refinement.

Returning to the issue of cultivating a CoP for the purpose of professional development, Wenger (2000, p 230) states: when “designing itself, a community should look at the following elements: events, leadership, connectivity, membership, projects, and artifacts”.

- *Events* concerns bringing members of the community together, including both *type* of activities and *rhythm*, how often the community gathers or interacts. Getting a good rhythm is crucial in order to gain momentum for the group and secure the ongoing interaction.

- In terms of *leadership*, a CoP depends on internal leadership, it is not 'managed' in a corporate way (Wenger & Snyder, 2000). However, the role of a "community coordinator" is crucial. But a community also needs additional and multiple forms of leadership. The balance between these forms of leadership will change over time.

- *Connectivity* means that it is important to enable a rich fabric of connectivity among people; getting people together, introducing new members, creating brokering across the community border; and securing interaction between members through multiple media.

- *Membership*: a CoP needs a critical mass in order to gain enough input for its enterprise. Wenger does not specify any numbers, but he advises that if there are too many members in a CoP then it is better to split up in subgroups.

- *Learning projects*: members of a CoP deepen their mutual commitment when they take the responsibility for a learning agenda, which pushes their practice further. Activities might include exploring a knowledge domain or finding gaps in the community's practice and defining projects to close the gaps.

- *Artifacts*: a community has to consider what artifacts, that is, what tangible traces of learning it needs and who should produce and maintain them so they will remain useful as the community evolves.

In addition to the above, we need to consider a few more aspects of CoPs. The first is that of *boundaries*. Wenger (2000, p. 232) writes that "the boundaries of COP are usually rather fluid. They arise from different enterprises; different ways of engaging with one another; different histories; repertoires; ways of communicating, and capabilities". In order to allow learning across boundaries, there is a need to bridge them. These bridges can, according to Wenger, be of three kinds: 1) people who act as '*brokers*', moving between different CoPs and bring value from one to another; 2) artifacts, or so called '*boundary objects*' – tools, documents, things, representations etc; or 3) *interactions* between people from different CoPs, for instance in joint projects or events.

The final aspect we need to consider concerns *identity*, especially since a prime purpose of the two development activities, described here, was to cultivate a CoP in order to strengthen an emerging

professional identity. Wenger writes “if knowing is an act of belonging, then our identities are a key structuring element of how we know” things (Wenger, 2000, p. 238). Both what we know and why we know it is related to identity. People identify strongly with some communities, while not at all with others. Most people are part of several communities, professionally and privately. In terms of developing identities, Wenger describes some crucial aspects of these processes:

- Connectedness, that is a lived experience of belonging, of being involved in deep connections with others through shared histories and experiences, reciprocity, affection and mutual commitments.
- Expansiveness, which affects the breadth and the scope of an identity over time due to the possibility of multi-membership and membership across multiple boundaries.
- Effectiveness: to what degree does the community enable action and participation?

A crucial point for our investigation is whether an experience of belonging to one CoP, and the resulting identity construction, is profound enough to influence the identity in other socio-cultural settings. If a professional development activity succeeds to create and support a CoP among the participants, will this belonging affect their practices once returning to the every-day professional practice? If the experience is not generalizable enough one can expect only a limited impact in terms of development of regular practices.

Nagy & Burch (2009) relate to such issues as they problematize whether CoP is applicable in higher education, given that most examples from Wenger and colleagues come from corporate business, and higher education differs in many aspects. They conclude that there is “still much to learn about how CoP-iA [Communities of Practice in Academe] can be conceptualized and embedded within university settings” (p. 242). This paper is a contribution to this discussion.

Now let us turn to the two cases. Both cases consist of educational developers coming together from different contexts. Both cases were explicitly designed to cultivate the groups as CoPs. We will first describe the attempts one by one, in order to allow an analysis in relation to the key features of CoP that were highlighted above.

Case 1: ‘Strategic Educational Development’ – a Course for Swedish EDs

A national initiative to promote the professional development of educational developers was launched in 2004, and repeated again in 2005; its background, and results are described in detail in Roxå & Mårtensson (2008). The initiative was, through a decision-making process in Swednet, realised as a course entitled “Strategic Educational Development”. In brief, the theme was chosen because of an increased perception among the organisers that EDs should work beyond individual faculty members. EDs need, it was assumed, to develop scholarly strategies for long-term, large-scale change processes in relation to teaching and learning in higher education institutions. Further, it was an explicit aim to explore and strengthen the professional identity of Swedish educational developers. In other words, the identity-construction of EDs was to be strengthened in relation to the explicit enterprise of strategic educational development, in combination with a promotion of the scholarship of academic development (Eggins & MacDonald, 2003).

The course

The course was designed and run by three EDs from two different institutions. The participants in each course cohort were EDs from institutions across the country. Two important and explicit course objectives were to support collective learning through a CoP focusing on strategic issues in educational development. The participants applied to the course with an outline of a development project. The applications and project drafts were reviewed by four external reviewers, all experienced EDs. Participants were accepted to the course according to the strategic character of their project. A good spread among different institutions was also important. The accepted projects focused for instance on introducing and implementing various institutional policies; investigating effects from teacher training; creating support for academic leaders; and organizing support for educational development. At the end of the course, projects were reported in writing according to regular academic standards. Some literature was read by all: in the first cohort P. Trowler (1998) *Academics responding to change*; and in the second cohort Baume & Kahn (2004) *Enhancing Staff and Educational Development*. Additional literature was chosen for its

relevance for each development project. The final project reports were assessed through peer-review, within the course group, according to criteria pre-formulated by the group.

Participants

Participants were both experienced as well as fairly new EDs. Some participants applied as teams from the same institution, working on a joint project. Even though the initiative had financial support from a national agency for the development of teaching and learning, the participants' universities paid a small fee for each person. The first cohort had 22 participants and the second cohort had 18 (out of 70 applicants over the two cohorts), altogether representing almost 50% of the higher education institutions in Sweden.

Course organization

Each course ran for approximately one year. It had a two-day introductory meeting followed by a five-day retreat in the middle of the course period and a two-day closing meeting at the end of the year. Interim activities, such as discussions, reading, presenting project drafts, and giving feedback took place on a web-based tool as well as through e-mail. Some sub-groups met face-to-face on their own initiative in between organized course events.

Before the introductory meeting, the participants electronically received and were asked to read all project drafts. At the introductory meeting a significant amount of time was spent on forming small support groups, 4-6 persons, with some kind of common themes to their projects. Members of these groups were instructed to help each other's projects to develop continuously throughout the course. They reviewed and critiqued each others' project drafts as these were presented at different stages within the course. Participants discussed and interpreted the literature at face-to-face meeting but also through the web-based platform. Before the five-day retreat, midways, participants updated their project drafts. During the retreat – which for inspiration took place in the beautiful old university town of Oxford, UK - participants continued discussing and writing. The literature read so far was discussed, as well as various identities and roles as EDs. In addition the program at the retreat included seminars with invited guests contributing with international

experience and perspectives on strategic educational development. These discussions continued as more informal interactions during dinners and at an improvised “educational pub”. Before the retreat ended, the entire group agreed upon criteria and processes for peer-review of the final reports. Before the two-day closing meeting there was a new deadline for sharing of final reports. The peer review was organized in groups, different from the previous support groups.

Results and evaluation

Over a period of two years a total of 35 strategic projects were developed and reported. As mentioned above the majority of projects concerned policy implementation, organisation of educational development (units), investigating faculty member’s perceptions of various teaching issues, developing support for academic leaders, or implementation of reward systems in relation to teaching and learning

Beside these described results the initiative has had further outcomes beyond the immediate framework of the course, and in relation to the objective of supporting the scholarship of academic development. In 2007 a one-day conference was arranged, in which alumni from both cohorts participated and some of the projects were presented. All contributions at this conference were collected in a proceedings (Mårtensson, 2008) that was distributed to all EDUs in Sweden, as well as published on the Swednet website. In 2008 a special issue of the A-rated journal *Higher Education Research & Development* was dedicated to Strategic Educational Development in Sweden; it contained six articles developed from reports within the course. A number of projects from the initiative have also been presented at national and international conferences on teaching and learning. As a quantitative outcome, at least partly attributed to the course, Sweden was represented by the largest group proportionally, out of 33 countries at the 2010 ICED conference (Barcelona).

In a follow-up course evaluation 18 months after the first cohort and six months after the second, 28 out of 31 responding participants indicate that the two course objectives – the first related to professional development in general and the second related to the

support of an emergent CoP of Swedish educational developers – were fulfilled to a large extent (Roxå & Mårtensson, 2008, p 161). One participant states about the support of a CoP:

I think the course has been very important in this aspect. The most strategic result from the 'strategic course' is the initiative itself; it has made our [educational developer] role visible, laid the groundwork for building networks, and, thereby, created conditions for developing a shared building of identity. (p. 161)

In another more recent evaluation, five years after the end of the course, a majority of former participants report the following as the most important result of the initiative (not ranked):

- The creation of a network, in which participants continuously seek collaboration and professional support; some respondents explicitly mention a Swedish CoP of ED.
- The introduction of the scholarship of academic development and the documentation of the various projects. For many participants these projects led to publications such as reports within their universities; or to conference contributions, book chapters, or journal articles. One participant explicitly claims that his project paper was a significant contribution to his career promotion as an academic.
- The discussions about the role and the identity as an ED, and the focus on being strategic. The considerations of what this might mean gives a sense of an increase in self-confidence while working at different levels within one's own organisation.
- The vitalization of the national network for EDs in Sweden (Swednet).

Case 2: Strategic Educational Development – an international think-tank

In 2007, the authors of this text initiated an international think-tank focusing on strategic educational development. The aim was to through discussions understand and document the complex processes of large-scale change in higher education institutions. Financial support was again received from a national Swedish agency for the development of teaching and learning.

Participants

Since financial support was given from the Swedish national agency, half of the 15 participants came from Sweden. Three of them had taken part in the initiative described in case 1. Other participants, all experienced educational developers, were invited from UK, Australia, USA, and Canada. Some, but not all, had met before.

The gathering

All participants gathered over five days in May 2008 at Örenäs Castle in southern Sweden. Preceding the gathering all participants had e-mailed a brief document with their biographies and a draft outline (500 words), which indicated their personal interest in the issue at hand. In other words, they had summarized what they considered important while focusing on strategic change. These outlines were distributed to all participants before the gathering. Some common themes emerged instantly from the drafts, for instance: the nature of change itself; motivation and engagement; time issues; culture; context; leadership; the importance of working holistically; structures; and the importance of identifying evidence of change.

Importantly, all participants stayed and interacted intensely in the castle during the five days. Starting with an evening dinner provided the opportunity for informal conversations before the actual work started. It offered all participants some time to relax and to focus on the event. The next morning the think-tank was more formally organized with short introductions and a plenary exercise where key aspects or themes in relation to strategic change were identified and explored. All themes were documented and put on display on a twenty-foot long piece of wallpaper. Some of the themes were:

How can we measure sustainable change?

What do we mean by change?

What theories/models/values/principles guide different change initiatives?

How can various change activities be aligned?

What role does leadership play?

The program continued in smaller groups where participants worked on specific themes. The discussions resulted in ideas/conclusions

that were written on to the wallpaper. Every day started and finished in a plenary, with a lot of discussions in varying groups in between. On the final day, the plenary session focused on what themes seemed interesting or even crucial to elaborate in writing after the retreat. Some of the issues that arose were how the scholarship of teaching and learning could be used as a strategy to enhance university teaching, or what an ideal university would look like, and processes for how to get there. In small groups, participants took on the task of developing different perspectives and two participants agreed to take responsibility for a continued editorial process. No other follow-up was planned for the group, nor did the group itself suggest any.

Results

No particular writing or publication emerged as a direct result of this event, although the organizers originally had such an idea. In a follow-up two years after the event, all participants were asked via e-mail what they had brought back with them from this experience and what had happened in their own institutional context since the event. Responses from about half of the participants indicated in summary the following:

- Meeting other EDs with different national and institutional contexts, and also different perspectives and experiences from educational development is highly valued and has contributed to new ideas, thoughts and insights. According to the responses the event helped the participants to see their own context in a larger setting.
- Being intensely involved in discussions with a rather small group like this, both formally and more informally is much appreciated as a means for the creation of new ideas.
- Creating new contacts and networks was valued. Some of the participants have deepened contacts made during the event even further and collaborated together in different ways, or have used each other in order to create yet new contacts, outside this group.

To our knowledge, two publications explicitly related to the event have been realized (Baume, 2011; Gibbs 2013).

Key feature of CoP	Case 1	Case 2
<i>Joint enterprise</i> : what we want to do together	Strong, since it was constantly negotiated through the projects, and through the focus on strategic ED	Moderate in relation to ED on an overall level, but weak in terms of more specific aims.
<i>Mutual engagement</i> : interactions, relationships of mutuality	Strong, and extended over one year	Strong but limited mainly to the five-day event
<i>Shared repertoire</i> : evolving language, routines, artifacts, tools, stories, etc	Strong, a lot of time spent on sharing tools, stories, etc. Through the continuous writing of the projects this repertoire was negotiated	Strong to moderate, a lot of time spent on sharing tools, stories from different perspectives, etc. However, no joint documentation was produced.
Cultivating a CoP		
<i>Events</i> - type of activity	Strong. Different types of activities: group discussions, retreat, informal dinner conversations, seminars, reading, writing, peer feedback, etc. Several events extended over time.	Strong/Moderate. Strong because the five-day event included intense informal dinner conversations, walks. Moderate in terms of only one event being organized.
- rhythm	Strong. Several activities over a one-year period, and visible activities even after that period (organized conferences, seminars, etc.).	Moderate/Weak. A good rhythm of activities in five intensive days. No activities on the group level afterwards.
<i>Leadership (internal)</i>	Strong. Course leaders acted as community coordinators. Leadership roles taken by several participants after the event.	Moderate. Community coordinators active initially, but withdrew over the days clearing the way for a dispersed leadership. Unclear leadership after the event.

<i>Connectivity</i> : enabling a rich fabric of interactions between people, through different media	Strong. Web-based and face-to-face interactions. Discussions based in projects or literature or ED-role. Many interactions continuing after the event.	Strong. Mainly f2f interactions. Discussions both in various small groups as well as the whole group. Many informal interactions. Some interactions after the event.
<i>Membership</i> : a critical mass but not overextended	Strong. 18-20 persons per cohort, sharing the same national context, but different institutional contexts. Fairly new EDs as well as experienced. Existing sub-group activities.	Strong. 15 persons, different national as well as institutional contexts. Mainly experienced EDs, and some deans. Existing sub-group activities.
<i>Learning projects</i> : a learning agenda that improves practice	Strong. Each participant had a project from their own context in tune with the focus on strategic ED.	Moderate. A joint issue to explore. Each participant contributed with a perspective or experiences from strategic ED.
<i>Artifacts</i> : documents, tools, websites, etc.	Strong. Project reports, various drafts, literature that was read and discussed, and a shared website. A published special issue in <i>HERD</i> . Proceedings from a follow-up conference.	Weak. Mainly notes from group discussions and individually written learning reflections. A few publications, however not coordinated, emanated from the process.
<i>Boundaries</i> : often fluid, unspoken	Strong. Boundaries between institutions and epistemologies were made visible and crossed, especially in the support-groups.	Moderate. Boundaries between countries, educational and institutional contexts as well as epistemologies were made visible.
<i>Identity</i> : impact on professional identity	Strong. Change in professional identity reported in terms of significant identity-building during and after the process.	Weak. No significant change in professional identity reported during or after the process.

1. <i>connectedness</i> : a lived experience of belonging	Strong. Belonging to EDs in Sweden. The group(s) built a strong sense of 'we' along the way, which has been significant over time.	Moderate. Belonging to EDs 'world-wide'. No visible sense of 'we' with reference to this particular group, after the event. Signs of connectedness to organizers or to single individuals in the group.
2. <i>expansiveness</i> : breadth and scope, multi-membership and cross boundaries	Strong. According to the participants the initiative contributed to the expansion of collective professional identity as EDs,	Moderate. The initiative offered insights and learning across boundaries mainly in relation to each individual, as expressed in follow-up evaluation.
3. <i>effectiveness</i> : enabling action and participation, socially empowering	Strong, through the work on personally identified learning projects, and the continuous negotiations and reifications about professional role within the group. Reported effects on identity as ED in other socio-cultural settings.	Weak. Participants in this initiative were more established in their own contexts than in this group. The group did not clearly define a joint learning trajectory, (see also rhythm, above). No reported effect on identity as ED in other socio-cultural settings.

Comparative analysis

In order to compare the two cases described above, they are displayed below in a matrix and put in relation to the strength of the respective key features of CoP as they were described above. The focus is on the event itself, its design and how it was realised.

Discussion

It might not seem fair to compare these two cases because of their somewhat different framings. Case 1 was a course to which participants applied and which had a number of events over an extended period of time, whereas case 2 was a think-tank to which people were invited, and which was limited to a five-day retreat. However, they are interesting to compare because they were both

CoPs but to different degrees, as become visible through the matrix above. Here we will focus on a few aspects that might explain these differences: namely *joint enterprise*, *artifacts*, *rhythm* and *identity*. The purpose is to highlight the differences and thereby to allow for a better understanding of CoP as a model for professional development. The passion for a *joint enterprise* of a CoP is as Wenger and colleagues define it, paramount. It drives a sense of belonging, and to the participation and growth of competence within a CoP. In both cases the members have a passion for educational development. However, the sense of connecting to a joint enterprise seems to have been stronger in case 1. We argue that this is related to aspects like artefacts, rhythm and identity. In case 1 *artefacts* were continuously produced during the production of written statements or engagement in discussions, both face-to-face and web-based. The results of these processes were put on display for the entire group, mainly as draft project report. Further, these drafts were continuously peer reviewed and critiqued. The resulting artefacts became tools for further negotiation and meaning-making within the group and the results of such negotiations were reified in the next draft. In case 2, no other artefacts were reified than the texts members produced before the event and the scattered themes displayed on the wall-paper. There was an idea of setting up a website for further discussions and for writings after the event, but these never materialized. In sum, the two cases differ widely in terms of tangible artefacts resulting from negotiations. This fact most likely had a considerable impact on the participants' experience of a joint enterprise.

Another difference relates to *rhythm*. The last part of the definition of a CoP includes "on an ongoing basis". In case 1 the set-up of the CoP was designed as a series of events, extended over one year. In other words, the combination of gatherings, engagement in meaning-making, and the production of artefacts to be negotiated at the next event, became very important. It comes down to the definition of "ongoing." If we look at only the five days of case 2 as the ongoing period it appears strong. But in comparison to case 1 it is still only five days.

The final aspect to consider is that of *identity*. In case 1, some

participants were new as EDs whereas others had a vast experience of educational development. However, during the process the members were supported and challenged to explore and shape their professional identities in relation, firstly, to a strongly experienced joint enterprise (see above) and secondly, to their individual institutional contexts and personal beliefs and perspectives. It is the strongly felt commitment to a joint enterprise and the intense negotiations of meaning in relation to it, that creates an impact on the professional identity. If such a process is strong enough it becomes visible in the evaluations a number of years after the event, as in case 1. Furthermore, if it is strong enough it can effect the identities also in other socio-cultural settings, something which is reported mainly by the participants in case 1. Case 2 did not clearly establish a strong joint enterprise; it did not include negotiation of meaning in relation to a number of collectively owned artefacts; and it lacked a rhythm stretching beyond the five days of the event. Consequently, even if the event obviously contributed largely to clarifying the participants' personal perspectives and networks worldwide, there was no observed or reported change in the participants' professional identity during or after the event.

Conclusion

In this paper we have examined two cases in which professional development were designed, using communities of practice as supportive framework. By comparing them in relation to some key features of CoP, we note that some aspects emerge as crucial, especially if the aim is to impact participants' sense of professional identity with a subsequent effect on how they advance their respective professional practices. First of all, an experience of a joint enterprise shared among the participants is important. Secondly, the character of events and their rhythm is important. A CoP might be formed quite easily, but to keep the community enterprise going and to develop it further takes a number of events, extended over time. If the event is short in time the impact on professional practices will be limited. Thirdly, quite evident from our analysis, is the importance of producing artefacts. These help members of the community to display their competence in ways that are negotiable over time and thereby scaffold the community members in their pursuit of a shared enterprise. And finally, the shaping of members' identities is crucial

if the CoP is to have an impact beyond its own borders. If this is the objective, it seems important to provide the opportunity for the emergence of new and expanded identities, both within and between communities.

Finally we want to underline that the processes described and discussed here are, by no means, always as quiet, comfortable, and supportive as they very well can be. On the contrary, negotiation of meaning in relation to a strongly experienced joint enterprise can also be intense, anxiety-provoking, and sometimes harmful. But these things are all in the nature of passion.

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The ESSAPP study: Enhancing Student Self-Assessment on Physiotherapy Placement

Conal McGinley and Iseult Wilson

Introduction

Reflective practice has been documented as a fundamental attribute for health care professionals (Eva and Regehr; 2005, Mann, Gordon et al. 2009; Ghaye and Lillyman, 2010) and is a key action research indicator (Marshall and Reason, 2007). It provides a means for practitioners to continuously develop and evolve their scope of practice in a way that meets current standards, evidence, and most importantly facilitates life-long learning (Jasper 2003; Eva and Regehr, 2005; Chartered Society of Physiotherapy (CSP), 2012).

Essential components of action research are theory and practice, together, grounded in everyday experiences and intimately interlinked (Reason and McKernan, 2006). Thus, this action research project included the participation of both students and their educators, a vital component of action research methodology, whereby the study was designed to determine the usefulness of students and their educators reflecting on the student's practice in a clinical setting with the ultimate aim of improving practice (McNiff and Whitehead, 2010).

Current Standards

The Quality Assurance Standards for physiotherapy services (CSP, 2012), encourages members of the CSP to continuously update and review their continuous professional development (CPD) file as part of their own learning and development. In fact, it is considered a professional and regulatory requirement. The Health and Care Professions Council (HCPC) standards of proficiency for physiotherapists (HCPC, 2012) also emphasise the importance of practitioners to regularly reflect and critically evaluate their actions. They recognise reflective practice as one option to satisfy some of the CPD requirements of the physiotherapist. The concept of critical evaluation includes the ability of practitioners to monitor their own practice, reviewing the effect and outcome of their actions, and modifying them accordingly to provide a better service to the service users. It also includes the ability to audit their practice if necessary

(HCPC, 2012).

Assessment in Higher Education

It is a widely held belief that assessment is what strongly drives student learning in higher education (Joughin, 2010; Kearney and Perkins 2011). The goals of higher education have evolved over recent decades and have progressed from an ability to store knowledge, to a more competency approach using independent thought in order to solve problems and making use of professional and social skills (Dochy, Segers et al., 1999). With regard to health professionals, the main goal of higher education has progressed to promoting reflective practitioners. Reflection is believed to enhance competence in higher education students (Mann, Gordon et al., 2009).

Current literature reasons that assessment must go further than simply calculating the reproduction of knowledge, such as in an exam (Yorke, 2003; Nicol and MacFarlane-Dick, 2006). Birenbaum and Dochy (1996) believe alternative assessment methods should be utilised to accurately evaluate new concepts and goals. Involving higher education students in the assessment process is widely debated in the literature, however it is now perceived as being valid, reliable, fair and contributes to a growth in competence (Dochy, Segers et al., 1999; Yorke, 2003).

If traditional forms of assessment are carried out (such as a written exam), without reform (such as principles around collaborative and reflective learning), students will be ill prepared when sent into a workforce (Kearney and Perkins, 2011). The authors believe that by ensuring that assessments are original and inspire skills such as critical thinking and independent learning, a student's potential for success in the future is greatly increased.

Self-Assessment

Falchikov and Boud (1989) produced the first high quality meta-analysis regarding student self-assessment in higher education. The paper reviewed 57 different studies of various levels of evidence, and examined the self-assessment of a range of graduate and undergraduate students of different disciplines.

All studies included an assessment from a member of staff with which to compare the student's self-assessment mark in the clinical setting. They found that the level of the course (introductory or advanced) and the area of study were important variables in achieving success, defined as the agreement between the student's marks and those of the teacher.

Eva and Regehr (2005) conducted a more recent highly evidenced literature review, examining the use of self-assessment of health professions in the clinical setting. This study found that while the literature identifies self-assessment to be an essential trait to independent learning, the quality of current evidence to actually support this view is poor. The authors portray strong views regarding the current evidence. They believe it takes a skilled practitioner to accurately self-reflect. This view is shared by several authors (Falchikov and Boud, 1989; Mann, Gordon et al., 2009), emphasising that self-assessment is a skill that can be developed over time.

In the high quality literature review by Kearney and Perkins (2011) a new model of assessment is suggested to improve certain academic qualities of students. One of the key premises of this new model is authenticity, i.e. it must have direct correlation or relevance to the students' world outside the classroom, thus encouraging sustainability. This concept of relevance is a fundamental principle of action research (Reason and McKernan, 2006). The same authors outline their model that includes the following stages: students and lecturers collectively develop the marking criteria, students learned how to mark against the set criteria, peers marked anonymous assignments, students then marked their own papers, the lecturer gave a mark, and finally, there was a de-briefing session (Kearney and Perkins, 2011). Some of the principles of this model have been included in this study and will be described in more detail below: the students had prior experience of the self-assessment tool and learned how to mark against the criteria, the students marked their performance against the set criteria, and this was compared with the educator's mark and subsequently followed by a de-briefing and discussion session.

The self-assessment tool: the SPR

The content of the Student Progress Report (SPR) was developed by a working group of clinical educators and academics over 10 years ago, and has been in use in the University of Ulster ever since. It is thus very well established within the physiotherapy programme and the strict marking guidelines (described below) are an attempt to reduce subjectivity and encourage transparency and objectivity. The content of the SPR maps directly to the relevant requirements of the HCPC and the professional body: the CSP. Regular training is provided for educators in order to standardise the use of the SPR, and all educators should have participated in training prior to supervising a student.

In the University of Ulster, physiotherapy students are assessed on placement by educators using the SPR that is a comprehensive document with 4 sub-sections: Professional Ability (4 items), Interpersonal Skills (4 items), Assessment (6 items) and Treatment (5 items) making 19 items referred to as learning outcomes. Each of these 19 learning outcomes has four component parts that must be achieved in order to gain competency for that learning outcome. A student can only achieve a mark of 5 or higher (max = 10) if all four components of the learning outcome have been demonstrated. For example, a student who has achieved only three of the four components by the end of the placement, can only be given a maximum mark of 4. Thus, the mark awarded for the learning outcome is based on (i) whether or not the student demonstrated an ability to carry out the skills required for that item, as well as, (ii) the level of support and guidance needed to achieve this (the more independent the student, the higher the mark), and (iii) how quickly the student achieved this (for example a student who demonstrates a skill right from the start of placement and throughout placement will get a higher mark (between 8 – 10) than a student who is finally able to demonstrate the skill at the end of the 6 weeks of placement who can expect a 5, 6 or 7). A calculation based on these 19 marks gives the total SPR mark for that student on that placement.

Prior to their first placement (end of year 1), all students are fully briefed regarding the content and marking guidelines for the SPR. All the students in this study were final year students on their fourth

placement, so they were all familiar with the content and marking guidelines of the SPR. During each of the five placements that make up the clinical element of the BSc Hons programme, feedback is given continuously to the student, however half-way through each placement, all students meet formally with their educator/s for a mid-way report, where the student's progress is discussed, and learning objectives and action points for the remainder of the placement are agreed. Both students and educators prepare for this formal mid-way report by reflecting on the student's performance and using tools such as a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) as aids. The SPR is often used as a reference point in order to guide the student, but is usually only formally completed by the educator at the end of placement. Prior to this study, only educators completed/marked the SPR.

For this study, both students and educators were asked to evaluate the student's performance at mid-way by each independently completing a SPR. The two SPRs were then compared at the mid-way report meeting. This is in keeping with action research principles of participants (both students and educators) understanding the consequences of their actions and also being more transparent by being able to articulate the reasoning behind their actions (Reason and McKernan, 2006).

Aims

The aim of this study is to determine the usefulness of completing a formal self-assessment tool (the SPR) in a group of final year undergraduate physiotherapy students in the clinical setting, and to compare the students' marks and perceptions of the self-assessment exercise, with those of their educators.

Methods

Study design

The four principles of action research as outlined by McNiff and Whitehead (2010) are: to improve learning, the nature and processes of improvement, who improves what, and the nature of education. In keeping with these, this study was designed to improve learning by using the tool of self-reflection, and by including

participation in this action research by both the student and his/her educator as they together discussed the SPR.

An information sheet (outlining the study methodology, its aims and rationale, and contact details for the researchers), was sent to all final year physiotherapy students and their educators prior to the study to give all potential respondents an opportunity to ask questions and clarify any queries. An on-line survey was administered at two time-points using SurveyMonkey™ software. The baseline survey was completed by both students and educators half-way through placement, just after the mid-way report, and the follow-up survey was completed by both groups three weeks later at the end of placement. Reminder emails were sent to each group before and after baseline and follow-up. The placement was a 6-week final year placement that took place between 5 Nov 2012 and 14 Dec 2012.

Survey design

There were two surveys developed, one for each group (student/educator) with some questions unique to each group, and others common to both groups (for comparison purposes). In the first section of the students' survey they were asked to complete a table and identify whether their mark was higher, the same, or lower than the educator's mark for each of the 19 learning outcomes. Section 1 of the educators' survey asked for information regarding the number of students they were supervising, and other administrative details. Section 2 in both surveys used a Likert scale (strongly agree/agree/neither agree nor disagree/disagree/strongly disagree) and respondents were asked to state their agreement with a number of statements. Most of these statements were included on both surveys, but there were a few statements unique to each group such as: and 'it (*the exercise*) helped me to better understand the role of the educator' in the student survey, and: 'it (*this exercise*) gave me confidence in my ability as an educator' in the educator survey.

The follow-up survey was considerably shorter and included the second section of the baseline survey (for comparison) and some questions regarding the placement experience between the mid-way report meeting and the end of placement.

There were opportunities in both surveys (at both timelines) to offer comments, ideas and suggestions and these qualitative data were considered as well.

Sample

All final year physiotherapy students ($n = 55$) and their respective educators were invited to participate. There were no exclusion criteria.

Ethical considerations

Advice was sought regarding the need for formal ethical approval, and as the study was considered as teaching development (not research), ethical approval was not deemed necessary. However, in keeping with best practice and the Data Protection Act (1999), all data were anonymised and only one person (IW) had access to the electronic data. Completion of the survey was considered as consent to participate.

Data Analysis

The data from each of the four surveys (student and educator at baseline and follow-up) were collated, inputted to 'IBM Statistical Package for Social Sciences' (SPSS 20) and anonymised by one researcher (IW). The data were cleaned and then analysed independently by the two researchers (CMcG, IW). Descriptive statistics were used in the preliminary analysis and for variables unique to each group and/or one time point. Difference in opinion between baseline (the mid-way report) and follow-up (at the end of placement) was tested by the paired-samples t-test, and the independent samples t-test was used to determine whether or not students' and educators' responses were statistically significantly different from each other. Statistical significance was set at a value of $p \leq 0.05$.

For inclusion in data analysis, 50% of either section 1 or section 2 had to be completed.

Results

Fifty students completed the survey at one or both time points (90.9%) and 39 educators. Some questions were not answered

by respondents, but in each case more than 50% of the survey was completed, so no surveys were excluded. For this reason, the findings are presented as valid percentages i.e. the percentage of those who answered the specific question.

'The exercise' refers to the student's self-evaluation of their progress to date by completing the SPR prior to the mid-way report.

The overall finding was that both students and educators found that the exercise was beneficial. The students agreed that they gained a better understanding of the assessment criteria (91.3%, n = 42) and what was required in order to develop their learning for the rest of placement (84.5%, n = 38). Some students (14.4%, n = 13) did not compare their self-assessed SPR with the SPR completed by the educator and the reasons given were that the educator had not completed their SPR (n = 8), that the educator did not wish to compare the two SPRs (n = 2), and lack of opportunity to compare the SPRs (n = 2). The positive finding is reflected by a student who wrote:

'the whole idea is good for students who are unsure of how they are getting on, e.g. if an educator gives very vague comment. So generally yes, it is good and should be continued (with a few small changes).'

Self-assessment compared to educator assessment

When students completed their own SPR, they were then asked to compare theirs with that completed by the educator and to identify whether each of their marks was higher, the same, or lower than the educator's.

The four figures below demonstrate the findings for each mark (one mark for each of the 19 learning outcomes) within each of the four sections of the SPR: Professional Ability (PA), Interpersonal Skills (IS), Assessment (Ax), and Treatment (Tr).

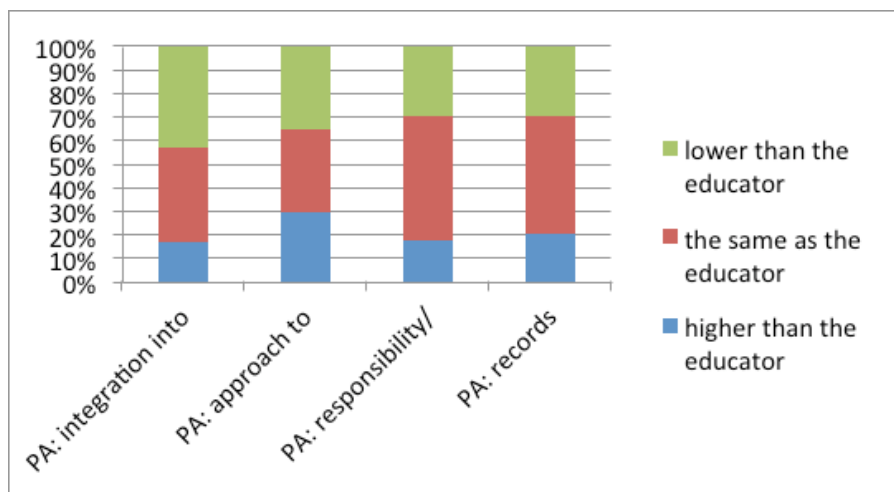


Figure 1(a) Professional Skills

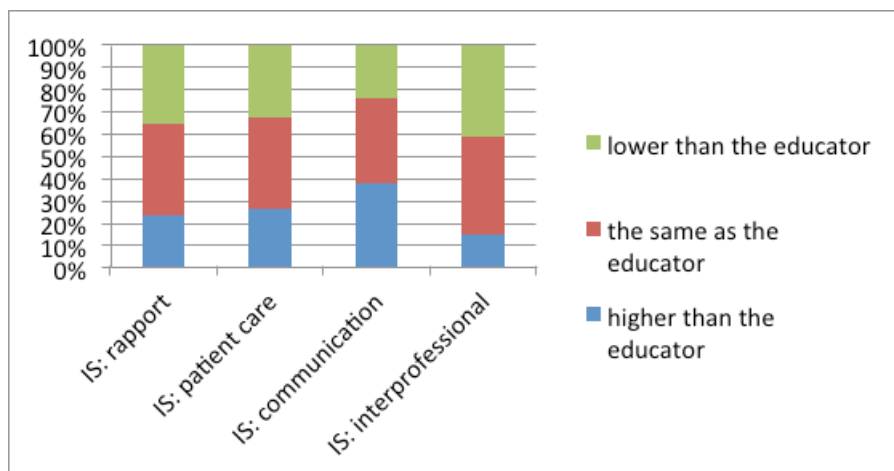


Figure 1(b) Interpersonal Skills

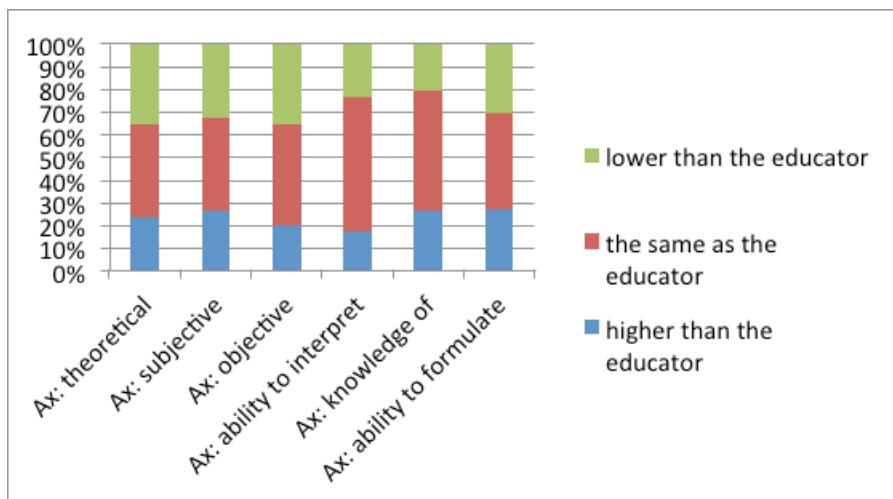


Figure 1(c) Assessment

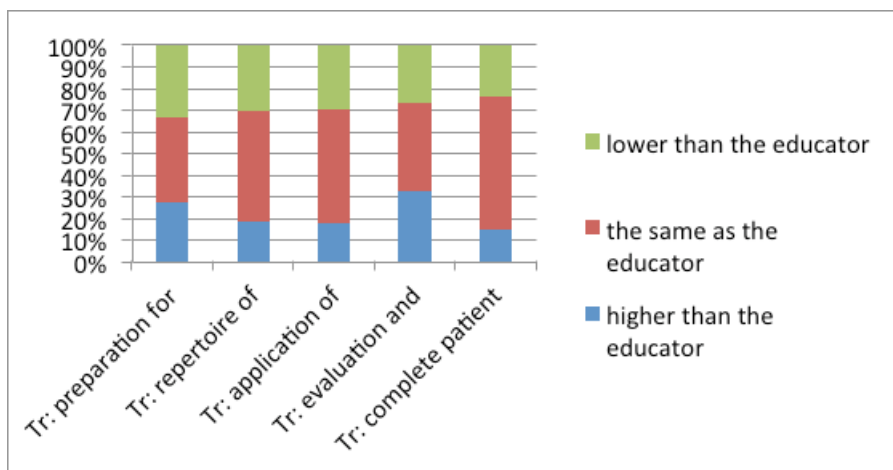


Figure 1(d) Treatment

The mean scores for all categories showed that the students mainly marked themselves the same or lower than their educators (student mark higher: 23%; the same: 46%; lower: 31%). When the student's self-assessed mark was compared with the mark the educator awarded, students were most likely to score themselves higher for communication (38.2%, figure 1b) and evaluation and modification of treatment (32.4%, figure 1d), and lower for Inter-professional collaboration (41.2%, figure 1b). One student commented about scoring oneself:

'I feel that this was a useful task to complete. However, I felt that I was underscoring myself as I didn't want to come across too confident with my marks, or feel embarrassed if I was completely out of line with my educator.'

There were no statistically significant differences between students and educators for the majority of the statements (see Table 1). Both students and educators agreed that the exercise clarified perceptions of ability, helped develop relevant action points, encouraged communication and discussion, should be encouraged for all students on all placements, and was a useful exercise. They also agreed that the exercise was not a waste of time and did not adversely affect communication after the mid-way report.

The differences between students and educators were consistent from baseline to follow-up for two statements. Whilst both groups agreed that students should complete the exercise on each placement, and that this exercise was useful, there was a difference in strength of opinion at both time points between the students and educators, with the educators more strongly convinced of the benefits than the students (every student should complete the exercise every time: baseline: $p = .020$; follow-up: $p = 0.19$; the exercise was useful: baseline: $p = .022$; follow-up: $p = .050$). This was supported by the educators disagreeing with the statement that the exercise was more important for weaker students (D/SD:

Table 1. Comparison of student and educator responses to statements at baseline and follow-up. This exercise (the completion of the SPR by the student prior to the mid-way report) ...

Statements included on both questionnaires (student and educator)	Student baseline				Student follow-up				Educator baseline				Educator follow-up				Ind't t-test	Paired samples t-test
	Valid %		(n)		Valid %		(n)		Valid %		(n)		Valid %		(n)			
	S/A/A'	NA/D	SD/D	SA/A	NA/D	SD/D	SA/A	NA/D	SD/D	SA/A	NA/D	SD/D	SA/A	NA/D	SD/D	SA/A		
...clarified where there were perceived differences	47.6 (10)	33.3 (7)	4.8 (1)	42.1 (16)	39.5 (15)	10.6 (4)	86.2 (25)	10.3 (3)	3.4 (1)	66.7 (18)	29.6 (8)	3.7 (1)			.896	.863		
															.019	.135		
...helped to develop relevant action points	68 (17)	24 (6)	8 (2)	83.8 (31)	8.1 (3)	2.7 (1)	85.7 (24)	14.3 (4)	0 (0)	74.1 (20)	18.5 (5)	7.4 (2)			.042	.236		
															.898	.381		
...encouraged two-way discussion between student and educator	80 (36)	11.1 (5)	8.9 (4)	54.1 (20)	29.7 (11)	16.2 (6)	85.7 (24)	10.7 (3)	3.6 (1)	66.7 (18)	29.6 (8)	3.7 (1)			.677	.002		
															.110	1.0		
...made communication more difficult after the mid-way report	2.2 (1)	20 (9)	77.8 (35)	2.9 (1)	17.1 (6)	80 (28)	6.9 (2)	17.2 (5)	75.9 (22)	0 (0)	18.5 (5)	81.5 (22)			.812	.325		
															.683	.090		
...was a waste of time	2.2 (1)	31.1 (13)	68.9 (31)	8.1 (3)	32.4 (12)	59.5 (22)	3.4 (1)	24.1 (7)	72.4 (21)	7.7 (2)	23.1 (6)	69.2 (18)			.435	.073		
															.302	1.0		
...should be encouraged for all PT students on all placements	48.9 (22)	24.2 (11)	26.6 (12)	54.1 (20)	18.9 (7)	27 (10)	72.4 (21)	27.6 (8)	0 (0)	74.1 (20)	18.5 (50)	7.4 (2)			.020	.786		
															.019	.430		
...was a useful exercise	71.1 (32)	15.6 (7)	13.3 (6)	64.9 (24)	21.6 (8)	13.5 (5)	77.8 (21)	6.7 (6)	0 (0)	73.1 (19)	26.9 (7)	0 (0)			.022	.263		
															.050	.188		

Ind't t-test = Independent t-test; $p < 0.05$ = statistically significant difference between students and educatorsPaired t-test; $p < 0.05$ = statistically significant difference from baseline to follow-up

1. SA/A = Strongly agree/agree; NA/D = Neither agree nor disagree; SD/D = Strongly disagree/disagree

baseline: 58.6%, $n = 17$; follow-up: 62.9%, $n = 17$), and there was no difference in the strength of feeling over time ($p = .790$).

There were two statements where the students and educators were statistically different from each other at one time point, but not the other, indicating a change in strength of opinion (see Table 1). One of the aims of this exercise (the completion of the SPR by the student prior to mid-way) was to see whether the student and educator had the same perceptions of the student's ability. At baseline, there was no difference ($p = .896$) with both parties agreeing that the exercise did clarify perceptions. This changed, however, at follow-up ($p = 0.019$) when a greater percentage of educators was more undecided and negative than the students. The other point that changed from baseline to follow-up related to the exercise facilitating the development of action points for the student. At baseline, the students were less convinced than the educators ($p = .042$), but by follow-up, there was no statistically significant difference ($p = .898$).

When changes in each group (student/educator) at the two time points were analysed using the paired samples t-test, there was only one difference between the time points, and this was regarding how the exercise encouraged two-way discussion between the student and the educator. The students agreed that the exercise did help two-way discussion at baseline and at follow-up, but the strength of their agreement dropped over time ($p = 0.002$). The exercise also helped them better understand the role of the educator (baseline: 57.8%, $n = 26$; follow-up: 58.3%, $n = 21$) with no difference in opinion between the two time points ($p = .245$).

The students found that completing the SPR was more difficult and time consuming than they had expected (Figure 2), but that the process made them more confident in their ability to assess themselves (baseline: SA/A: 44%, $n = 11$; NA/D: 16%, $n = 4$; D/SD: 32%, $n = 8$). However, the strength of agreement changed (follow-up: SA/A: 48.6%, $n = 18$; NA/D: 35.1%, $n = 13$; D/SD: 10.8%, $n = 4$) with more students being undecided at follow-up ($p = .061$).

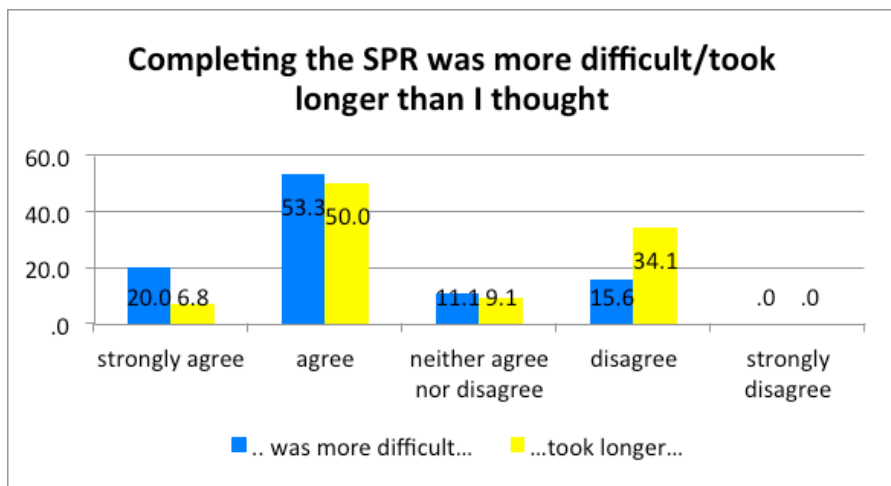


Figure 2. The process of completing the SPR

Likewise, the exercise also made the educators feel more confidence at both baseline (SA/A: 55.2%, $n = 16$; NA/D: 37.9% , $n = 11$; D/SD: 6.9% , $n = 2$) and follow-up, and there was no difference between the two time points ($p = .236$).

The findings can be summarised by this student's statement: 'I think it is a good idea to do this as it allows you to see what the educator expects of you from the rest of your placement and what areas you need to improve on.'

Discussion

The overall finding from this student self-assessment study was that both students and educators found it a useful and valuable part of placement.

The reflection that is necessary for self-assessment should be structured, and also involve an element of debriefing or face-to-face discussion (Jankowska, 2010; Marais and Perkins, 2012), and both these elements were included in the exercise. Self-assessment should occur on a routine basis in order that improvement is ongoing, and for best results, should be used in conjunction with other professional development activities and in conjunction with experts who can confirm, comment upon and feedback about the

self-assessment (Dornan, 2008; Trujillo, 2009). By incorporating the self-assessment into an already well-recognised structure (6-week placement with a formal mid-way report), this exercise, if practised on each of the students' five placements, should become a routine feature of placement, and may possibly be included as a CPD in their professional lives, a requirement for most (if not all) clinical professions such as physiotherapy and medicine (CSP, 2012; Musolino, 2006; Silver et al, 2008). There are many different methods that can be used, however we have interpreted self-assessment to be a form of self-evaluation where the clinician (in this case, the student) judges his or her expertise and compares it to performance measures (the SPR with the marking criteria that take account of the student's ability and need for guidance, as described above) as per Silver et al (2008).

Self-assessment plays a central role in making more informed decisions, identifying learning needs, developing learning and improving performance (Trujillo, 2009; Dornan, 2008; Parboosingh, 1998). This study found that completing the SPR brought clarification and focus to placement in terms of the student better understanding what was expected, the differences of opinion between themselves and their educator, and also helped in developing relevant learning objectives for the rest of placement. The students also found that completing the SPR was more difficult and took longer than they thought, and this was linked to the students' better understanding of the role of the educator.

Although both students and educators broadly agreed on the benefits of this exercise, there were some differences from baseline to follow-up, and between the two groups. This is likely to be because of the novice/expert relationship and the difference in clinical experience between the student and educator.

Students tended to give themselves similar or lower scores, and these findings are similar to those of the meta-analysis by Falchikov and Boud (1989) as the authors found that during self-assessment tasks, students tended to under-mark themselves with respect to their assessors. Several high quality reviews have documented that accurate self-assessment is a skill that is developed over time (Eva

and Regehr, 2005; Mann, Gordon et al. 2009), so it is important to start the process as early as possible, i.e. in the undergraduate programme. This study suggests that even if the marks of students and educators differ, students can still benefit from the experience.

Conclusion

Health professionals are expected to critically reflect on and evaluate their actions as a means to develop and evolve their practice and understand the consequences of the choices they made (Reason and McKernan, 2006, HCPC, 2007; McNiff and Whitehead, 2010; CSP, 2012). In higher education, the literature has widely documented the benefits of involving students in the assessment process (Dochy, Segers et al., 1999; Eva and Regehr, 2005; Kearney and Perkins, 2011). It is now seen to contribute to a growth in competence and encourages lifelong learning (Mann, Gordon et al., 2009). Involving students in self-assessment before the mid-way report provides students with a better understanding of the assessment criteria and how to develop their learning on clinical placement. It can be beneficial even if disagreement should occur between student and educator when comparisons of marks are considered. Mid-way self-assessment of students with the appropriate structures in place can help students and educators develop action points and encourage discussion.

Whilst self-assessment is good practice and a crucial skill (Musolino, 2006), learning should not pause or end after a self-assessment exercise, but should be further developed into an ongoing practice of continuous learning by addressing problems in practice as they arise, as well as reflecting on the event/s afterwards (Regehr and Mylopoulos, 2008). Our aim is that this skill of self-assessment will then develop and contribute to the greater goal of life-long learning which is the cornerstone of good clinical and professional practice (Regehr and Mylopoulos, 2008).

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Professionalising the Civil Service: The Masters in Public Administration

Colin Knox and Denis McMahon

Background

There have been debates about how to professionalise Civil Services since the inception and growth of the British Civil Service throughout the last three centuries, but the debate has been stronger in the period since World War II when it became clear that the Service needed to become more responsive to technological and social change (Hennessy, 1989). In many respects civil services today are more professionalised than at any time in their history, including accountants, economists, statisticians, engineers and a range of other professional groupings amongst their ranks. Despite this, arguably the core business of government, supporting Ministers in the exercise of power, is still seen by some as the domain of the 'gifted all-rounder' with a variety of views about whether such sensitive business requiring highly tuned personal skills can be systematised, professionalised and taught. The issue is particularly relevant in a world in which power is increasingly shared between governments and non-government actors (Bryson and Crosby, 1992) and in which governments – and therefore civil servants – are expected to be more politically aware and sensitive to the needs of people who live in a service-oriented consumerist society. The teaching of public administration therefore is central to the success of administrations and the societies that they serve.

The University of Ulster has been delivering a Masters in Public Administration (MPA) for over 15 years attracting in-service practitioners from a range of public sector and third sector organisations (civil service, non-department public bodies, local government, health trusts, agencies and voluntary/community organisations). There is a large, part-time postgraduate market for in-service professionals but numbers on the programme were declining. Currently 215,780 people work in public sector jobs in Northern Ireland, some 30.9% of total employment (Department of Employment and Learning, 2013); so why a declining market for postgraduate education? It is difficult to be definitive without specific

market research, but a number of factors are likely to have played a role. Clearly there was reduced interest in the MPA as it was delivered (possibly related to the content and format) which may not have been perceived as crucial to improving performance or enhancing public servants' career progression. However, it is necessary to examine the wider context of a tougher economic climate and the burden of fees shifting from public sector employing organisations to individual students. Employers also found it much more difficult to release staff for the standard afternoon and evening per week over a 3-year period to complete the masters programme. It also highlighted a reduced focus on external education within public sector bodies at a time when the public sector is in a state of flux with constant reforms such as the *Review of Public Administration* (Knox, 2012) and *Transforming your Care: A Review of Health and Social Care Northern Ireland* (2011) and when it is experiencing financial pressures. This was even more notable in terms of a decline in participants from the community and voluntary sector, for whom some of the above pressures will have been particularly acute.

In some cases employers have developed in-house options for training and development. Typical of one large employer in the public sector is the Northern Ireland Civil Service (NICS) which has 28,000 employees across 13 government departments and provided an in-house *Policy Skills and Development Programme* through its Centre for Applied Learning (CAL). In September 2012 the Policy Champions Network within the NICS agreed on a collaborative model between CAL and the University of Ulster to deliver, on a pilot basis, one module from the MPA programme of postgraduate education and training for experienced civil servants.

Purpose

The purpose of this paper is to explore the conception and implementation of a collaborative approach to public sector professional learning which seeks to explore some of the most sensitive and important relationships between power, politics and policy. Specifically the paper will consider 3 key issues. First, it will set out the pedagogic debate that exists within the discipline of public administration on links between theory and practice and how this translates into the content and delivery of an MPA programme.

Second, it will outline how, as a result of this pedagogic debate senior NICS civil servants became an integral part of the design and delivery team for the new Masters programme. Third, the paper will consider how the first cohort of students responded to this collaborative provision and the impact which it had on their professional working experiences. Taking these factors into account, the paper will consider the scope for using this model as a basis for a new level of professionalisation of the civil service around the core business of governments, the exercise of power.

The pedagogic polemic

Public administration scholars have grappled with pedagogy from many years. Essentially there are two schools of thought – those who hold the view that public administration should retain its academic credentials as a social science subject and teach programmes accordingly. The second view is that public administration has, by the nature of the subject, a vocational orientation and should therefore be taught with this in mind; in other words the purpose of public administration education is to ‘shine a light on the dark arts of government’.

One of the most respected scholars in the field, Richard Chapman, raised the problem of teaching public administration in a comparative study on the United Kingdom, USA, Canada and Ireland as far back as 1978. In each of these countries he found uncertainty and concern about the nature of the subject: ‘there is no agreement whether it should primarily be concerned with producing new academic theories or with solving the problems of the practical world’ (Chapman, 1978: 48). This debate continues today in the discipline. Barberis (2012: 89-90), for example, claims that ‘many who teach the subject have been unable, even if it were their wish, to resist the clamour to offer programmes of study that are vocationally relevant’. He argues that public administration should rekindle and nurture its traditional academic roots and ‘resist the allure of training or of any attempt to torture its syllabuses to the apparent needs of the workplace’. While he accepts that it can have a vocational dimension, this is not the strength of academia. Public administration training, he suggests, is ‘best left to those inured with the genius of the workplace’ and academics should resist ‘the temptation to have it serve purposes for which it is ill suited’.

This somewhat purist view of how public administration should be taught is at odds with guidance issued by the Joint University Council, Public Administration Committee (2010) on what an MPA should comprise by way of design and content. This includes the following:

- An MPA should contribute to the development of greater professionalism in public services leadership and management.
- It should include opportunities to explore key concepts across institutional boundaries within the public sector.
- Use student-centred teaching and learning activities.
- Explore the relationship between theory and practice and does this, where appropriate, through the use of action learning methods.
- Is designed and evaluated with the involvement of public services employers and which is supported in its delivery by employers through the provision of guest speakers, access to organisations for purposes of work-based learning, and visits to public services organisations. In some circumstances teaching and assessment on the course will be organised and provided by a team comprising university academics and public services practitioners.

There seems to be little room for equivocation here as to the vocational or applied dimension of teaching public administration.

At the root of this debate is, however, a belief that the academic and vocational dimensions of public administration are mutually exclusive. This split does not occur in other highly professionalised, knowledge-based occupations such as medicine or law. In those cases there is a close relationship between the history and philosophy of the discipline which encapsulate its values, the technical knowledge and expertise necessary to apply the discipline, and the practice and regulation of the discipline. If the professionalisation of public administration is to be taken seriously then it is necessary to ask why this same professional continuum does not seem to apply in the exercise of power and whether a more systematic and explicit approach could allow such an approach to be developed.

The wider literature

The wider literature offers useful theoretical context for this paper in two ways. First, it defines and unpacks the concept of professionalism and second, it locates the Ulster MPA case study in a debate on pedagogy within other European MPA programmes with a high reputation for their courses.

The term 'professionalisation' has been the subject of academic debate. Watkins (1999), for example, classified professions as a special group of occupations possessing unique attributes that distinguish them from other non-professional occupations. Characteristics seen as distinctive include: the possession of specialised skills; the necessity of intellectual and practical training; and, collective responsibility for maintaining the integrity of the profession. Professionalisation, he suggested, is therefore about the acquisition of these specialised skills.

Brandsen and Honingh (2013: 876) offer the most extensive research on professionalism as it applies to the public sector in which they observe 'an increasing fragmentation of sources of legitimacy, an accumulation of different professional requirements, and a growing difficulty in distinguishing professionals and non-professionals'. Professionalism, they argue, tends to incorporate the following core elements:

- A professional has specific knowledge and expertise, based on the application of systematic theoretical principles.
- The professional belongs to a closed community of people with similar knowledge and expertise. This community is characterized by shared norms and values, institutions for socialization, and regulation.
- The closed nature of the community is considered legitimate by the wider society within which it operates.
- Both at the individual level and at the level of their community, professionals are allowed a broad measure of discretionary autonomy to manage their own affairs.

Brandsen and Honingh conclude that the professional in the context

of public services can be regarded as distinct from professionals in other domains of society such as the business sector and 'it is essential that public management research takes the responsibility of developing its own, distinctive theoretical perspective on professionalism and how it relates to more general issues' (Brandsen and Honingh, 2013: 882).

On the whole process of 'professionalisation', Trede et al (2012: 365) conducted an extensive literature review on the increasing need for higher education institutions to produce graduates who 'display mastery of theoretical ideas, competence in applying theory in complex workplace settings, and professional dispositions that foster ethical and reflective professional practices'. They described this as an attempt to understand the teaching and learning of 'professional identity'. Their review of the literature revealed that the term 'professional' was used in a variety of ways to include professional development, professional socialisation, professional education, professional learning and professional identity. Professionalism or 'a sense of being a professional' needed to include not only technical and interpersonal skills but critical self evaluation and self-directed learning (Paterson et al. 2002, 7). Developing professional identity has key consequences for teaching and learning. It is important, Trede *et al* argue, that in-service practitioners use their authentic experiences as a means of reflection, with academics performing the role of facilitators and mentors. The interrelationship between students and their lecturers, the effective use of experiences that lead to heightened self-awareness and deeper understanding of practice, appear to be key concerns in professional identity development (Trede et al, 2012; Barnett, 2010).

Pedersen and Hartley (2008: 327) argue that the changing context within which public servants operate has significant implications for mid-career education. Three sets of dynamics are at play. First, the dynamics of self-creation means that authority is not solely formal but that self-constitution is necessary. Second, the dynamics of strategising means that managers cannot rely on a fixed legal or professional set of values but must be able to decode, challenge and develop varied sets of values and goals, working with varied rationales for action. Third, the dynamics of networking

and negotiation mean that management and leadership positions are partly created through negotiated relations in a network-like governance structure. These dynamics mean that teaching and learning have to address new challenges if programmes for public service leaders and managers are to be enabling.

One of the most instructive aspects of redesigning the Ulster MPA came from research which compared the pedagogical approaches in three prestigious European centres for public sector mid-career MPA programmes (Warwick University, Copenhagen Business School and Rotterdam University). In all three institutions, researchers depict their teaching approach as having a workshop or action-learning character which they describe as the 'co-creation of learning'. This involves 'taking seriously the participants' experiences and problems and bringing them into the classroom, where they are analysed, with the help of theories and concepts and also by drawing on the lived experience of the teachers/researchers and the other participants' (Benington et al, 2008: 392). These hugely successful MPA programmes acknowledge and utilise the considerable experience which senior practitioners bring to the classroom and use this to shape the learning, including the connections with their prior experiences (Nygaard and Bramming, 2008). This, the researchers argue, is not simply 'student centred learning' but academics play a key role in linking theory and practice and hence MPA education is based on a co-production model rather than a service delivery approach. They conclude:

The best teaching and learning often seems to happen when participants can challenge and debate theory and the teachers are interested in how experience can shape theory, and both groups together can frame new questions and new perspectives on old questions (Benington et al, 2008: 396).

The literature on professionalism and mid-career public sector education therefore offers a useful context for considering the Ulster MPA case study.

The changing role of the civil servant

Running alongside this debate on pedagogy is a significantly changing context for those who work in public administration where

governments across the world are struggling to deliver innovative solutions in the midst of changing societal expectations, rapid technological development, the increased dispersal and sharing of power across people and organisations, and mounting pressure on resources. In Northern Ireland, these international trends are exemplified and exacerbated. First, there is a devolved power sharing government in Northern Ireland which demands public officials with different competencies. Many civil servants lacked skills in policy formulation because of their reliance under Direct Rule on the 'read-across' of policies from Westminster. The changing needs of the Northern Ireland Civil Service under devolved government require officials adept at operating within a power-sharing environment, accountable to locally elected ministers, and able to serve political masters from across the breadth of the political spectrum whose ideologies are often quite different in matters of public policy. In short, the 'new' civil service needs to accommodate a shift from being an administrative system to one where the policy making arena is much more responsive to locally determined priorities. They need to be able to: offer policy options to politicians; to guide and support ministers towards primary and secondary legislation; and, to assist the Northern Ireland Executive to deliver their *Programme for Government* goals. This is a very different landscape to that which existed under Direct Rule from Westminster.

Aside from the wider political context, the day-to-day responsibilities of civil servants have changed. The job of the civil servant has become one of a network manager dependent on the resources of other actors over which he/she has limited authority. Civil servants now operate in a shared power structure and there is no single authority where strategic decisions can be unilaterally made (Bryson and Crosby, 1992). This one example provides the rationale for a different pedagogic approach to delivering the MPA programme which takes into account a new political context for participating officials. The new role ascribed to civil servants challenges conventional public administration approaches which strongly emphasises political decision making and goal setting as important factors. It therefore demands a different understanding of the role of the civil servant in modern public administration, one of network manager, in any education and training programmes

(Klijn, 2005). The debate within the Northern Ireland Civil Service reflects a wider discussion about civil services internationally. As one UK review noted, the Whitehall civil servant is expected to be 'a modern manager skilled at working in partnership, and in multi-agency teams, demonstrating stakeholder management skills and an understanding of complex adaptive systems, with frontline experience' (Coxhead *et al* 2010).

A new framework for learning

The two factors discussed above, an emphasis on vocational education and training and the changing role of the civil servant, prompted a rethink within Ulster's MPA. This coincided with some radical thinking as to the nature of training that took place within the Northern Ireland Civil Service. Much of the NICS education and training had shifted from external provision across a range of disparate providers (Universities, colleges of Further Education, professional bodies), where individual civil servants were left to do their own market research on courses offered, to internal training. One example is the *Policy Skills and Development Programme* delivered in 5 modules over 15 days through the Centre for Applied Learning and endorsed by the Institute of Leadership and Management. Whilst well received by programme participants, the Policy Skills and Development Programme was seen as an internal training programme which could benefit from theoretical perspectives, critical reflection and a pathway into a higher education qualification.

Discussions between academics delivering the pre-existing MPA programme and senior civil servants acknowledged the need for a new framework for learning and a different paradigm to understand and improve the work of public administration. Academics needed to maintain a foothold in the academic research and literature to conceptualise public administration through a theoretical lens; and, practitioners needed to engage in reflective practice which would enhance their day-to-day policy roles. Each needed to 'speak the language' of the other and, as a result, achieve mutual benefits in the form of civil servants who would act as reflective practitioners. The most obvious way to do this was to co-design a pilot module (entitled *Applied Government*) in which theory met

practice. Co-design and production seemed entirely appropriate as a concept which is drawn from the field of public administration where, according to McCulloch (2009: 171), ‘the student, lecturers and others who support the learning process are viewed as being engaged in a cooperative enterprise focused on the production, dissemination and application of knowledge, and on the development of learners’.

Two examples illustrate how in the design and delivery of the module academic theoreticians and practitioners ‘collided’ to offer a new framework for learning – first, in how policy making in the public sector is formulated, implemented and evaluated; and second, in how power is exercised in shaping public policy. The traditional approach to public policy making is seen as cyclical where the process begins with a clear rationale as to why a new policy should be introduced, objectives are set, the policy is implemented, monitored and evaluated into a review feedback loop - see figure 1 (Office of the First Minister and Deputy First Minister, 2003).

Figure 1: Traditional policy making cycle

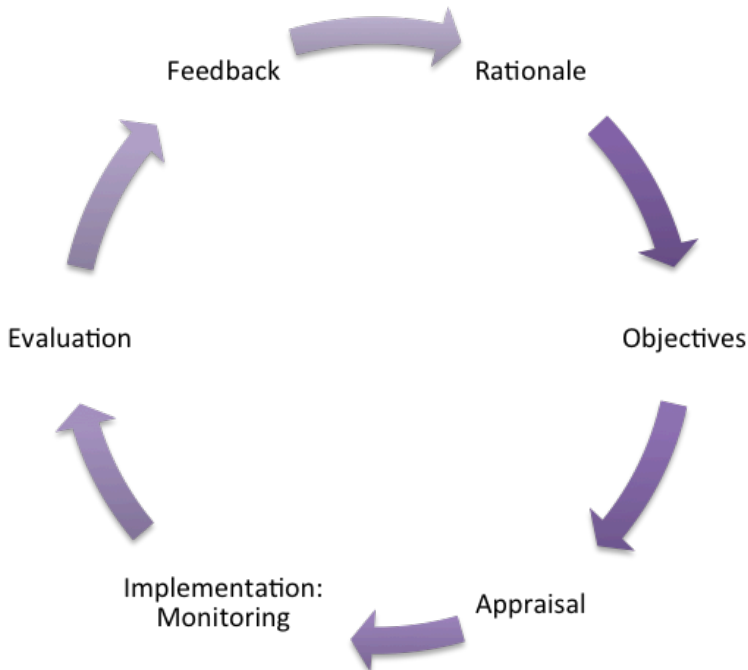
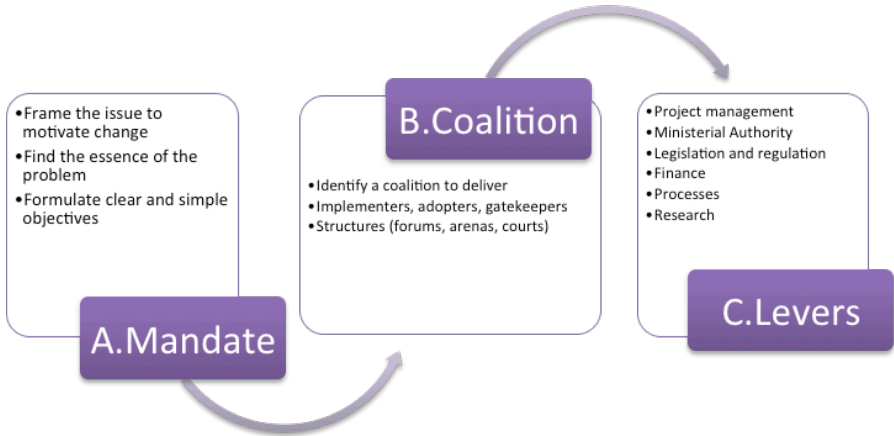


Figure 2: A new policy making paradigm – power, policy and politics



This whole approach has been criticised in practice for failing to recognise the realities on the ground. Senior civil servants in Northern Ireland therefore developed an alternative framework for learning (McMahon, 2013). No longer was policy making viewed as a static, sequential, cyclical process but rather a delivery-oriented approach to assist officials in meeting the needs of ministers in a devolved government setting. The new approach set out by civil servants was a three stage paradigm for delivery in government which reflected real world experiences as follows: securing a mandate for change; building a coalition to secure change; and pulling the levers of power depicted as a model entitled: *Power, Policy and Politics* (see figure 2).

The second example illustrates a very different conceptualisation of how academics and practitioners see the role of power and public policy. Typically, academic theories on power and public policy locate the debate within the Lukes' three dimensions of power (Lukes, 1986; 2005): (a) the community power debate which argues that power is concentrated in the hands of a small elite group that control policy processes; (b) important issues are kept off the political agenda by powerful interests who reinforce social attitudes and manipulate decision making procedures; and, (c) there are unequal power relationships despite the appearance of consensus

(Caaney, 2012).

By contrast, civil servants working in government operate in what they describe as a shared power world in which government exercises authority with a range of people and organisations. This requires a new way of looking at policy development and implementation where public policies are co-designed and co-produced with those people and organisations that deliver and use public services. The role of civil servants is to exercise a much more pluralist approach by reaching consensus between competing interests in support of the Minister.

These two examples typify the 'theory meets practice' challenge which informed and enriched a new framework for learning in the MPA programme.

Operationalising the new framework for learning: theory meets practice

The starting point for innovative and creative ways to operationalise the new learning approach described above was one pre-existing module on the MPA programme entitled *Applied Government*. Senior civil servants and academics worked together to restructure the module in a way which combined academic theory and practice. Practitioners at the highest level in the NICS (primarily Deputy Secretaries) participated in the module as guest speakers in delivering content which was now informed by the reformulated academic/practitioner model *Power, Policy and Politics*. The module ran during the academic year 2012/13 and the experience of participating students was captured. We discuss the methodology and findings of the pedagogy and practice in this new approach to delivering the MPA.

The methodology employed for the research in this paper was a case study inductive approach with the Ulster MPA as the exemplifying case under examination. A range of qualitative methods were employed. The authors acted as teachers on the programme and participant observers when not teaching. They sourced external speakers for the programme to match, as far as possible, their practical expertise with core curriculum content and they conducted

a focus group evaluation and self-complete questionnaires with students at the end of the module as a way revising both the core curriculum content and the teaching and learning approach involved. An important aspect of the methodology was to re-engage with the Northern Ireland Civil Service, through the Centre for Applied Learning, and seek their views on how a university based credit bearing course compared with in-house civil service training. The generalisability of case study research is often a criticism but exponents of this approach (Yin, 2012) argue that this is not its purpose but rather to provide an in-depth analysis of the selected case and to generate rather than test hypothesis. For example, can a more applied MPA which is co-designed and co-delivered with senior public officials lead to a more professionalised civil service?

Some 25 postgraduate students participated in the pilot module ranging across the public sector: civil servants, and employees from local government, the health service, non-departmental public bodies and the voluntary and community sector. Four thematic areas emerged from the evaluation of the module as follows:

- (a) **Content:** All students agreed (40%) or definitely agreed (60%) that the module was very useful for their work. The range of speakers offered students perspectives from other organisations or departments which they would not otherwise have been exposed to. This enhanced their understanding of the plethora of bodies which constitute the public sector. As one student noted: 'it was very useful to get inputs from, and insights into, the work of senior civil servants and interesting to work with a group from a wide variety of backgrounds'. Specifically, students made reference to the value of learning about techniques associated with successful policy making.
- (b) **External speakers:** The mix of academics and practitioners worked well. All students agreed (24%) or definitely agreed (76%) that staff delivering the module made the subject interesting. Some participants were surprised by the frankness and openness of senior civil servants and their willingness to posit controversial views in order to stimulate discussion. Typical of the comments were the following: 'I found the course extremely informative. The style and candid delivery

was excellent and helped to make theory 'real'. I found the techniques which were taught to be very useful. This module should be made available to the wider policy making community'. Involvement of senior civil servants also provided students with a full range of practical and topical examples to illustrate key points of learning.

- (c) **Intellectual stimulation:** one potential consequence of a composite academic and practitioner offering is that the former is 'dumbed down' in a bid to create a symbiotic relationship between theory and practice. All students agreed (32%) or definitely agreed (68%) that the module was intellectually stimulating but at the same time had a practical orientation. This balance is difficult to achieve and there is some learning for the module providers (discussed below). Typical of student reaction on this point was the comment 'real life cases studies and interaction with other students challenged my perspectives'.
- (d) **Overall quality of the module:** Students also offered constructive criticisms (below) but in the round were highly complimentary of the module. As one participant remarked 'the content, design and delivery would be difficult to improve. Having completed a first degree in Public Management some years ago, I found the module 'applied' and having more personal impact on me. Make all policy makers undertake the module!' All students were satisfied (24%) or very satisfied (76%) with the overall quality of the module.

There were also some important reflections and key learning points for those delivering the module. First, although speakers began with an entreaty for Chatham house rules to apply, they inevitably opened up as they 'warmed' to their topic. This was a direct result of the willingness of students to engage with them and the level of interest expressed in their work. Although senior officials are well used to giving presentations, these can often be fairly formal and necessarily constrained by the parameters of their jobs. It was visible to the outside observer that they felt liberated by an academic environment which encouraged interaction and removed the barriers of deference normally associated with their status within the public sector. Moreover, feedback from civil servants indicated that while understandably apprehensive to begin with, the overall experience

proved highly stimulating for them. Such has been the success that they have willingly volunteered their services again and other senior colleagues expressed an interest in becoming involved.

Second, more thought needs to be given to the overall coherence of a module which combines academic content and practitioner inputs. This is captured by comments from one student: 'I think the classes focused largely on practical matters and examples which were very useful. However given that the assignments focus much more on theory, at the moment the assessment feels dislocated from the class materials, interesting as they were'. External speakers, by dint of the time they can commit to their inputs, can fail to appreciate the wider conceptual framework of the module. The student experience can then become one of a revolving door of high quality, but nonetheless, disparate speakers who fully capture their attention but are then left wondering how it all connects to the module assessment.

Third, there is a danger that multiple inputs on a module squeezes out enough time for student interaction. Each visiting speaker provides a full account of his/her topic and collectively time for reflection and critique may be reduced because speakers come prepared to 'fill the allocated slot'. As one student noted: 'I would have liked the opportunity for more interaction with other course participants, to learn from the experience of others and discuss common issues. Perhaps this could be achieved by a workshop session. It should include an element of how you intend to implement learning back in your job'.

The shift from the pre-existing MPA provision to the new model is summarised in table 1.

Table 1: Professionalising the civil service

	Traditional MPA academic programme	Applied MPA programme
Characteristics	Educational course Theoretically informed	Education and training Vocational learning
Modules	Designed and delivered exclusively by academics	Co-designed and delivered – academics and senior practitioners
Examples of MPA content	Policy making cycle conceived as policy formulation, implementation and evaluation Theoretical conceptualisation: three dimensions of power	Messy shared power world Civil servant as network manager with no single authority where strategic decisions can be made unilaterally Model of working practice structured around concepts of Power, Policy and Politics
Critique	Lacks practical focus but locates participants' experience in wider theoretical context – allows time for reflection on working practice	Focus on problem solving in a shared power world Normative approach to the 'here and now'

Conclusions

Given the success of the pilot module the NICS has now supported 26 applicants from 13 government departments to attend the Postgraduate Certificate Programme in Public Administration in the School of Criminology, Politics and Social Policy (in the academic year 2013/14) The Postgraduate Certificate Programme comprises 4 modules (Public Administration and Governance; Strategic Leadership; Applied Government (above); and, Policy Analysis) and makes up the first stage of the Masters in Public Administration. This development has offered the opportunity for the NICS to influence the content and delivery of the Certificate Programme, although moving to a full co-design process must await the implementation and evaluation of their extended involvement in this programme.

An evaluation of the wider institutional change intended from an applied MPA programme (a more professional public civil service) demands further consideration. A simple before and after qualitative study which tracked the views of civil servants at the start and end of the programme, including the benefits to their job performance, could offer a limited analysis of impact. This approach could be supplemented by interviews with their reporting officers on how, if at all, their performance has improved. A matched design which compared the performance of civil servants (of similar grade, job experience and prior qualification) attending the programme with an equivalent cohort who had not, might offer a more robust evaluation rubric (quasi-experimental design). Given the absence of precise job performance measurements and the amorphous concept of 'professionalism', the approach to evaluation requires more detailed consideration.

Even in this short-term collaborative development between academia and practitioners, there are important reflections on the process.

- Committed individuals in both organisations are critical to the collaboration. Although there may be institutional buy-in, it is the efforts of key staff which makes the idea of collaboration move from concept to implementation.
- There must be a robust underpinning theoretical rationale and frame of reference within which the design of the module/ programme takes place. The introduction of the *Power, Policy and Politics* rubric provided an essential intellectual pathway in rethinking the relevance of what was currently on offer in the MPA programme. A theoretical underpinning also creates a milieu for research informed teaching.
- Since the programme delivered is not a bespoke provision for the NICS, cognisance needs to be given to the wider student body in a way which can enrich what is on offer through a breadth of participation.
- High quality external speakers provide an academic programme with much 'real world' credibility and hence enhance its marketing potential. Yet their inputs need to be managed in a way which provides a coherent student experience and

demonstrates a natural link between theory and practice that become an important mechanism for facilitated learning sessions.

While external speakers offered a bridge between theory and practice, the success of the new approach involved at least two main elements: (a) creating a teaching and learning environment in the classroom where students experience trust amongst their peers which allows them to share working examples of both success and failures; and (b) the use of a wide range of participative learning methods including: case studies, group/project work, student presentations, inputs from senior practitioners, formal lectures, seminars and critiquing research articles of the teachers and wider academic community.

More generally, given the policy community that is Northern Ireland, this type of collaborative arrangement provides academics who are researching in the field of public administration and policy direct access to senior officials, in either a different context or as a new contact. Given the new research emphasis on 'impact', collaboration around teaching can open up avenues that would not otherwise exist. Academics and practitioners then become accessible to each other. It also helps break down stereotypes of the other: academics are cloistered in ivory towers; and officials lack an awareness and appreciation of research. This should provide the basis for a new form of professionalisation within the civil service in the modern, shared power world.

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Developing Digital Literacies

Catherine Hack

Introduction

The potential of Web 2.0 services such as wikis, blogs, social networks, social bookmarking, podcasting and immersive worlds to facilitate collaborative and constructive learning has been demonstrated by several authors (Li *et al*, 2011, Stylianou *et al*, 2008 and Klamma *et al*, 2007). However Tambouris *et al* (2012) recognised that the use of Web 2.0 based tools does not, of itself, promote collaborative knowledge production but requires that the teacher uses these tools to empower students to take control of their own learning. Furthermore, having the ability to use a particular tool, does not necessarily imply that it will be used effectively to enhance learning or teaching. The characterisation of technology use through a 'practice perspective' by Dohn (2009) highlights the need for educationalists to consider how the technology is actually being used, by both the teacher and the student. The Digital Natives/Digital Immigrants paradigm (Prensky, 2001) which differentiated people into those who were comfortable in the digital environment and those who were either more sceptical or less confident about the use of technology, was uncritically accepted for almost a decade. However, as the technology has evolved, even those 'natives' who were educated in the Web 1.0 era became immigrants in the changing social network landscape. The impact of technological advances in conjunction with basic flaws in the original arguments, led White and Le Cornu (2011) to offer another paradigm in which they propose that the use of technology could be described more effectively in terms of tools and place; whereby identifying how and why you use a particular resource provides a more informative understanding of learning styles. Similarly, Leu *et al* (2004) concentrated on the skills or 'literacies' that are required to effectively use these tools and the tasks that can be accomplished using them:

"The new literacies of the Internet and other ICTs include the skills, strategies, and dispositions necessary to successfully use and adapt to the rapidly changing information and communication technologies

and contexts that continuously emerge in our world and influence all areas of our personal and professional lives. These new literacies allow us to use the Internet and other ICTs to identify important questions, locate information, critically evaluate the usefulness of that information, synthesize information to answer those questions, and then communicate the answers to others.” (p1572).

A survey to identify the barriers to the use of Web 2.0 technology at the University of Ulster (Hack *et al*, 2013) received almost 180 (24%) responses from academic staff across all faculties. Over 90% of respondents used the VLE to deliver information to students, but the numbers using more interactive forums were much lower: discussion boards (39%), wikis (12%) or blogs (10%); approximately one third of respondents indicated that they had no intention of using any Web 2.0 services. The main barriers to the adoption of new technologies identified by the study included lack of time / heavy workload and the lack of IT skills or support, with staff expressing concern about investing time in a technology that may rapidly become obsolete. Furthermore several respondents were nervous about introducing new technology with which they were not entirely familiar. Other concerns reflect issues with security, online safety, cyber bullying and uncertainties over the boundaries between social and professional networks. Similar issues and levels of engagement were reported in a previous study of staff delivering health care education in higher education institutions (Ward *et al*, 2009).

In recognition of some of these challenges and to promote digital capability, JISC funded a Developing Digital Literacies (DLL) project (JISC, 2013) to develop publicly available resources including: self-assessment tools, conceptual frameworks, tools for exploring staff and student engagement with technology and curriculum development. These resources are available for reuse and repurposing by staff and students across the FE/HE sector. This paper describes how a number of these resources have been used to develop digital literacies either through extra-curricular activities (Edge Activity) or embedding the literacies within taught modules, whilst many of the activities are being encapsulated within an Open Educational Resource (OER). Funding was received from the HEA to deliver an interactive workshop which provided delegates with

the opportunity to examine and discuss the use of these resources within their subject discipline to promote digital literacies. The workshop report is available online (Hack 2014), and includes links to presentations and the resources used in workshop activities. Delegate feedback indicated positive engagement with the publicly available resources and it is hoped that this paper will encourage readers to consider how the tools and approaches can be effectively deployed within their own discipline.

Embedding Digital Literacy within the Curriculum

One approach to ensuring that students achieve the digital competencies required for employability is to embed them in modules. The following sections describe activities that have been included at induction and within a module on Professional Practice in a postgraduate taught programme.

The Visitors and Residents Model

In 2001, Prensky categorised users of technology as either 'Digital Natives', i.e. those that were brought up using technology or 'Digital Immigrants'; i.e. a generation that was more sceptical about the benefits of technology and/or less confident in its use. This dichotomy rapidly gained acceptance in education circles and was cited by many for over a decade. However it led teachers to make two assumptions when considering the introduction of technology into education. Firstly it encouraged educators to expect that their students of the 'native' generation were 'highly adept with technology', and secondly it made them feel that they would always be 'one-step-behind' their native students (Bennet *et al*, 2008). This led to teachers not teaching students about using the technology, and/or not engaging with technology as they felt at a disadvantage. In 2011 White and Le Cornu offered another typology, in which the engagement with technology was described in terms of tools or as places. Instead of categorising users in terms of age, they developed the 'Visitors and Residents' (V&R) paradigm which provides a framework for considering how digital resources are used both socially and in education and/or professional life (White and Le Cornu, 2011).

They described someone as a 'Resident' if they live a percentage

of their life online. The web supports the projection of their identity and facilitates relationships. These are people who have an online persona which they regularly maintain. This persona is primarily observed in social networking sites but it is also likely to be in evidence in blogs or comments, or via image sharing services etc.

The 'Visitor' is an individual who uses the web as a tool in an organised manner whenever the need arises. They may book a holiday or research a specific subject. They may choose to use a voice chat tool if they have friends or family abroad. Often the 'Visitor' puts aside a specific time to go online rather than sitting down at a screen to maintain their presence at any point during the day. They always have an appropriate and focused need to use the web but don't 'reside' there.
(adapted from White, 2008)

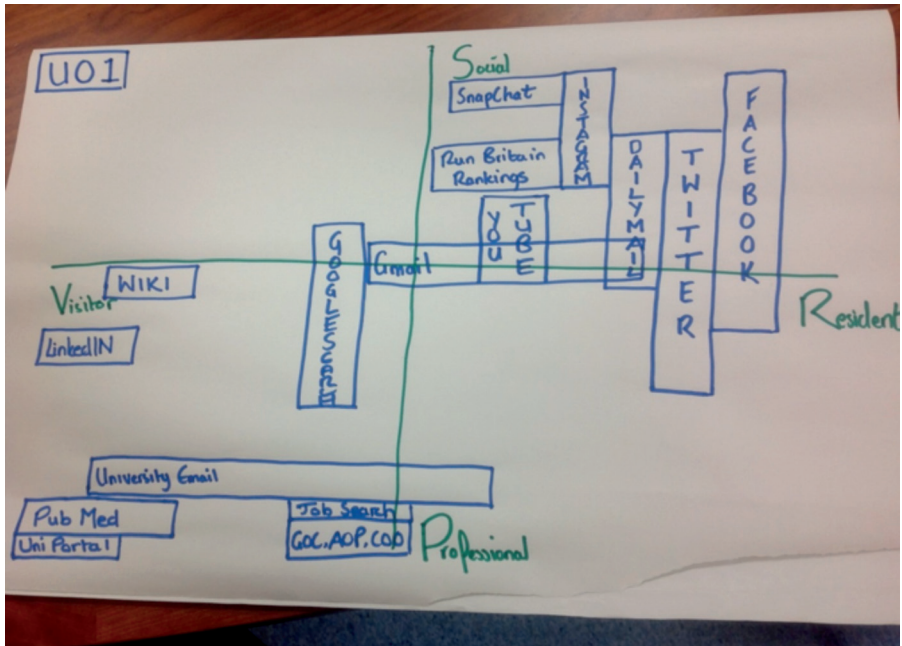
The V&R mapping process prompts students (and staff) to examine all of the digital resources they use and reflect on how they use them. In the Faculty of Life and Health Sciences, we make extensive use of the Blackboard Learn VLE with both our on-campus and distance learning students; however the traditional VLE has its limitations, in particular it is very compartmentalised, in that it is somewhere students 'go' to study. V&R mapping workshops were run with two cohorts of postgraduate students to get a deeper understanding of whether students like this separation of education and social activities or whether they would prefer a seamless connection between all their digital activities.

Method

The V&R mapping activity was carried out with two cohorts of approximately eight students. studying full-time on a one year taught Masters programme. Initially the exercise was carried out as an extra-curricular activity with a cohort who had completed two semesters of their course. Following positive feedback, it was used as an induction exercise with the second cohort. After an introduction to the V&R paradigm, which included a demonstration of the thinking behind building a map, students worked individually to identify and examine all of the digital resources they used, both socially and in their learning. Each of these tools was then plotted on

a two-dimensional grid, which has a visitor-resident continuum along the x-axis and a social-professional continuum along the y-axis (Figure 1). These maps were then refined through sharing and discussion in small groups, and then fed-back to the whole group, prompting a wider discussion on the use of technology and digital profiles.

Figure 1: A Visitor and Residents map



Results

Figure 1 shows a typical map produced by an on-campus postgraduate student. Some of the main outcomes from the discussion were:

- VLE: Students only used the discussion board or other chat tools when they were prescribed for assessed activities.
- The majority of both cohorts had Linked-In accounts, but in general these were not used or up to date.
- Neither cohort used Twitter for their studies, two students from cohort 2 used Twitter socially

- The majority of both cohorts had Facebook accounts which they used extensively in a social context
- Some students had set up their own Facebook groups within study groups to share ideas/ resources / information with peers. These groups were initiated by the students with no involvement of academic staff.
- Most students recognised that they were distracted by social media whilst they were carrying out study activities online
- Most students felt that they did not make the best use of technology in either learning or promoting their professional identity.

There were no significant differences between the technologies or tools used by the two cohorts or how they used them. The students from the cohort reaching the end of their programme, were more concerned about their (lack of) professional identity within social networks. When the activity was used at induction there was a different dynamic in the early interactions as would be expected. However, the V&R model was an effective mechanism to engage with a new cohort, encouraging discussion on how and why particular tools and technologies are used, and prompting reflection on digital profiles and the steps that could be taken to promote a more positive digital identity. This provided a useful platform on which to develop the digital literacies skills which were embedded in one of the taught modules on the programme.

Self-Evaluation Activity

Students were asked to complete the online quiz “What type of digital learner am I?” (Cascade Project, 2012) prior to attending their first class. The quiz comprises of about 40 questions which asks students about their use of technology which they rate as either ‘Not true of me’, ‘Somewhat true of me’ or ‘Very true of me’. Figure 2 (a) provides an illustrative example of the types of question in the quiz.

Figure 2 (a) Illustrative examples of questions within the quiz.

I expect my degree to equip me with up-to-date skills for the digital economy
☒ Not true of me ☐ Somewhat or sometimes true of me ☐ Definitely true of me

I have made a point of developing ICT skills during my studies – it might make the difference at a job interview
☒ Not true of me ☐ Somewhat or sometimes true of me ☐ Definitely true of me

I use LinkedIn or similar professional network
☒ Not true of me ☐ Somewhat or sometimes true of me ☐ Definitely true of me

Wherever I choose to study, I have access to the files and notes I need
☒ Not true of me ☐ Somewhat or sometimes true of me ☐ Definitely true of me

On completing the quiz students are provided with an individual rating and descriptor for each of 6 categories: Media Mogul, Global Citizen, Information Junkie, Life Planner, Career Builder, Digital Enthusiast, and Digital Sceptic.

Figure 2 (b) demonstrates a digital learner profile, identifying areas of digital scholarship where they have already demonstrated their competence, and areas which they could explore further to become more effective learners or improve their employability. Importantly the feedback provides concrete tips for improving particular areas of digital scholarship. A typical example is provided in Figure 2 (c) which shows the feedback for “Life Planner” and “Career Builder”.

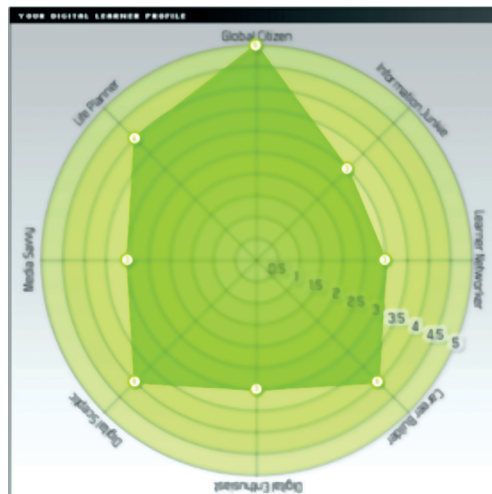


Figure 2(b) Digital Learner Profile

Qualities towards the outer edges of the circle indicate areas of digital scholarship in which the user is proficient; whilst those that are positioned towards the centre of the circle are areas that could be explored in more depth.

Figure 2 (c): Examples of the individual feedback provided under the categories ‘Life Planner’ and ‘Career Builder’

Life Planner Your Score = 4

You could be making better use of digital devices and services to plan your time. Learn to manage distraction, and make sure you can access the files and software you need for study – anytime, anywhere.

Ways for you to develop your digital planning skills

- develop a system for backing up and accessing your files, whether this is in the cloud or on a hard drive or data stick
- consider using a digital task manager – app or online
- synchronise your personal and academic calendars – it doesn't matter whether this is on your university desktop, your mobile phone, or a paper diary
- work out what places and times of day you study best and ensure you have access to the files and services you need
- set aside time to check email and update social networks and stick to it
- think about how you can use your digital devices to make better use of travel time.

Career Builder Your Score = 4

You are not sure how digital skills will be of value in the career path you have chosen, and perhaps you are planning on a career that will not require a high level of ICT proficiency.

Ways for you to develop your digital employability

- be aware that most graduate jobs require ICT proficiency and that this is seen as a key 'value added' graduate attribute by most employers
- even if your talents are not in the digital domain, develop an online CV or profile that describes them clearly
- find and follow the blogs/twitter accounts of five people who are doing jobs that you would like
- ask a tutor or postgraduate student how technologies you use on course will help you in the world of work
- ask a friend to help you 'audit' your online identity and think about how you will add to the positive views that are visible online e.g. doing voluntary work, celebrating achievements.

Feedback from students indicated that they found the tool provided an accurate evaluation of their skills and the advice in the feedback helpful. The students were asked to use the results of the quiz to inform the development of a reflective diary, and to use it to identify the areas where they could improve their learning or employability

and the steps they intended to take.

Developing a Search Strategy

To encourage students to think about the development of an effective search strategy within Google, and the critical analysis of the results, they were asked to design a search strategy to answer the question, “is there a reliable genetic test for predicting the development of type 2 diabetes?” The effect of adding search operators or using the advanced search options in Google, on the results was evaluated. They were also provided with a set of search results which would be produced from an unstructured search, and asked to evaluate them in terms of how well they answered the question and how reliable they considered them (Figure 3).

Figure 3: Analysis of results from an unstructured search. Students are asked to rank the resources in terms of how well they answered the question (specificity of search) and how reliable they considered the source

Page Title	Information about source:		Rank	
	Author / Company / Organisation/		(1-5)	
Does the source answer your question?	Is the source credible?	Is the source reliable	Does it answer your question	
Genetic testing for type 2 diabetes	American Diabetes Association	5	3	
Genetic testing for type 2 diabetes	23andme.com	3	2	
Is genetic testing useful to predict type 2 diabetes?	Best Pract Res Clin Endocrinol Metab. 2012 Apr;26 (2):189-201	5	5	
Predictive genetic testing for type 2 diabetes	British Medical Journal BMJ 2006; 333	5	3	
	How current is the information?			

This activity revealed that students only had a rudimentary knowledge of how to develop an effective search strategy, that they did not know how to use search operators, and rarely looked beyond the first page of results. However they were competent at identifying which resources could be trusted and could readily evaluate how well the resource answered their question.

Developing a Digital Identity for Employability

Initially students perform the 'Google Me' activity, in which they submit their names into a search engine, and evaluate the results according to the following questions:

- o Is there evidence of antisocial behaviour?
- o Is there evidence of unprofessional behaviour?
- o Is there evidence of engagement with subject area?

The students are then supported in the development of a professional digital identity. Activities included the development of profiles on professional sites such as Linked In and Research Gate, and engagement with resources for sharing information including blogs, wikis, micro-blogs, slide-share etc.

Edge Activity

The provision of digital competencies through formal learning opportunities requires curriculum development; an alternative approach is to develop extra-curricular activities allowing students to identify and develop those literacies that are important to their own personal development. The Ulster EDGE (Engagement Development Graduate Employability) Award was designed to enhance the employability of Ulster graduates by providing official recognition and evidence of activities outside of their programme of study (The Edge Award, 2012). To achieve the award students have to complete four activities, which should include both subject specific and generic activities. A generic (i.e. category 4) activity was developed and offered to all Ulster students via the Edge Award website (The Edge Award, 2013), whilst presentations explaining the digital literacy activity were delivered at induction to students from Nursing and Healthcare Science. The aim of the activity was to support students in evaluating their own digital literacies and reflect on their digital identity. Following a critical review of their own personal digital competence using the Cascade quiz described in the previous section, students were supported in developing the digital literacies that were important to their personal and professional development. The assessment process is managed through a secure portfolio area within Blackboard Learn. The final assessment is designed to be flexible, allowing students to

include content which has been produced in response to their own learning needs identified through reflection of the output of the initial evaluation activities. Typical content of the final submission could include:

- A blog recording and reflecting on the development of their digital literacy and/or some other aspect of their studies,
- The use of online tools to evaluate digital literacies and reflection on any attributes, practices or skills that raise concern,
- The development of an effective search strategy and a critical analysis of the results,
- An evaluation of their own digital identity and its impact on their reputation
- An evaluation of the digital identity of a professional from their discipline area

Whilst the activity was open to all first and second year students, only students who had received the presentation at induction have enrolled. Nine students from nursing, biomedical science, and healthcare science have enrolled on the activity and are currently involved in self-evaluation and reflection activities.

Developing an Open Education Resource to develop Digital Literacy Skills for Employability in the Life and Health Sciences

Open Educational Resources (OERs) are freely available digital materials that can be used, re-used and repurposed for teaching and learning. They can be embedded into modules or used as extra-curricular activities. Funding was received from the Higher Education Academy to work with students to develop an Open Educational Resource (OER) that supports the development of digital literacies. The OER is being developed to support students in the exploration of career options and opportunities for Life and Health Science graduates. Life and Health Science graduates have a wide range of career options available to them which can be broadly categorised into careers that directly use the skills and knowledge developed in the degree (laboratory or hospital based careers), options that use science knowledge but require further professional development (e.g. teaching, scientific journalism, regulatory affairs) and options that use the transferrable skills developed through their degree programme and apply them to a

different sector (e.g. finance, sales, marketing, IT etc.). The OER provides information on key skills required for employment in various sectors, and prompts students to recognise and evidence their existing attributes and identify areas for development. Furthermore it equips them to articulate their experiences and skills to employers. Embedded in these activities is the use of digital literacies including: information gathering, evaluation and sharing, critical analysis of online information, reflection, planning and self-presentation, promoting awareness of 'digital identity' and the production of podcasts and videos. Whilst the OER is designed to meet the needs of students from the Faculty of Life and Health Sciences, it is designed for repurposing to meet the needs of undergraduate and postgraduate students from across the University. The OER is part of a wider HEA project to develop digital literacies across the disciplines, and other institutions are running similar projects to develop OER's to develop digital literacies in Psychology, Modern Languages, History, the Arts and Teacher Training, as well as a project on employability for life science students and the development of digital resources for Biomedical Science research projects. Project progress and access to each of these OER's is available via the HEA website (HEA, 2013).

Conclusions

The importance of digital literacy for employability is confirmed by a recent JISC report which predicted that 90% of new jobs will require "excellent digital literacy skills" (JISC, 2013). For Ulster to meet the aims of the Learning and Teaching Strategy, in particular to "enhance Ulster's role as a sector leader for student employability", it is critical that staff are aware of the skills and competencies required in their disciplines. This requires that staff evaluate their own digital competences and take advantage of the available opportunities to develop their own skills in this area. Students should be provided with opportunities to develop and evidence these competencies, whether through their degree programme or extra-curricular activities such as the Edge Award or using Open Educational Resources. Resources from both JISC and the HEA can provide colleagues with support in developing their curriculum, whilst the reuse or repurposing of OER's can provide a time-efficient solution to delivering digital literacy skills. It is hoped that this paper

will encourage colleagues from across the University to explore how these resources can support their practice.

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Student engagement, absenteeism and first year performance: An empirical investigation

**J. Peter Green, Gregory McGrath, Michael Pogue,
Abigail Wilson**

INTRODUCTION

This study investigates further the impact of absenteeism upon the performance of first year students in semester 1. Green et al (2010) highlight the significant negative impact of absenteeism upon student performance, employing data from one cohort of students on two degree programmes at the University of Ulster. The results support the emphasis placed upon first year attendance monitoring, in the context of student retention and progression. However the Green et al (2010) study did not consider the concept of student engagement as discussed in the comprehensive literature review of Trowler (2010).

Trowler (2010) notes that Fredericks, Blumenfeld and Paris (2004) (albeit within the context of school education) recognise that attendance is a physical manifestation of “behavioural engagement” but that there are two further dimensions of engagement namely emotional engagement, referring to a student’s interest, enjoyment and sense of belonging, and cognitive engagement characterised by students’ investing in their learning and relishing the challenge of studying their chosen degree. Trowler (2010) suggests that individual students may conceivably exhibit differing levels of engagement with regard to each dimension. For example even if a student is not attending class there may still be emotional or cognitive engagement in their studies. It can also be argued that both emotional and cognitive engagement will be manifested in high levels of attendance when attendance is a requirement of the learning environment. However attendance in itself does not necessarily measure emotional and cognitive engagement when attendance is monitored and results in the scrutiny of student behaviour, regardless if such scrutiny is intended to provide support to those who are not attending for any number of reasons. In other words students who are not emotionally or cognitively engaged may still attend in order to avoid the consequences of attendance

monitoring. Specifically students within the Ulster Business School are requested to meet with senior staff members to discuss their poor attendance and actual student class attendance may relate to this scrutiny rather than emotional or cognitive engagement. All of this must be placed within the context of the University of Ulster's revised Learning and Teaching Strategy (2013) which places an emphasis upon how students' learn. 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.

The emphasis on improved student retention and progression in Northern Ireland is reinforced by the Department for Employment and Learning (2012) who expect that retention rates will improve year on year. The work of Tinto (1987) and, more recently, Forbes (2008), and Shrestha et al (2009, page 84) suggests that "....a new retention model which emphasises the importance of peer interaction to aid retention, through both academic acculturation and social adjustment" is required. It may well be argued that in the first year, first semester students' attendance is fundamentally important in achieving this, rather than attendance being a measure of any form of engagement.

This study provides additional evidence on the link between student engagement absenteeism and student performance in the early stage of undergraduate degree study, employing both a larger data set, and a different methodological approach than Green et al (2010). In addition, the study considers the impact of other factors such as pre-university study of the primary degree specialisation upon absenteeism as well as on first year, first semester performance.

DATA DESCRIPTION & STATISTICAL ANALYSIS

The data employed was collected for all first year, first semester modules on full-time undergraduate degrees in both Business Studies and Accounting for the academic years 2008/2009 to 2010/2011 at the University of Ulster., i.e. three cohorts on both programmes of study. During this period of time no change in the University of Ulster's attendance monitoring requirement was

made and this increase in the number of cohorts investigated increases the data set for analysis from that of Green et al (2010), which was based upon a single cohort, 2008/2009. Data from two degree programmes which have different content, a different entry requirement, and different forms of assessment is employed to initially explore whether this has any bearing upon the relationship between absenteeism and performance.

Attendance data for lectures was collected using the electronic Turning Point system and manually recorded for seminars. Table 1 profiles the entrants to both programmes using data centrally recorded by the Ulster Business School and that obtained from a student questionnaire (with regard to pre-university education)

Tariff Points

	Business Studies	Accounting
Asking Points	260	340
Mean	286	331
Median	280	320
Mode	260	320
Standard Deviation	47	48
First Quartile	260	300
Third Quartile	320	360
Number of students entering on the basis of tariff points	405	202
Number of students with alternative entry criteria	39	30
Number of students with Double Awards	79	12

	Business Studies	Accounting
1. Grammar	18.70%	34.50%
2. Secondary	18.90%	18.50%
3. Further Education College	4.10%	3.40%
4. Unidentified	58.30%	43.50%

Analysis of pre-university education

General

	Business Studies	Accounting
Maturity		
≥ 21 years	2.30%	6.10%
Gender		
Male	48.90%	51.10%
Female	51.10%	48.90%
Pre-University study of subject area		
	83.10%	22.60%
Total number of students	444	232

Table 1: Student profile on degree entry

Table 1 reveals that entrants to the Accounting degree have higher general academic ability as measured by tariff points. Furthermore, a higher number of Business Studies students entered with “double awards” which are essentially vocational A-levels, which have been accredited in 10 disciplines. The typical structure consists of 12 units (six AS plus six A2 units), four of which are externally assessed and the remainder internally assessed. As such the nature of pre-university education for these students is somewhat different from those entering with traditional A-Level qualifications, and this may impact upon how such students actually learn. Vocational A-levels tend not to be offered at grammar schools and table 1 indicates that a higher proportion of Accounting degree students are from grammar schools. A very small proportion of students were mature (equal to or over the age of 21). This is possibly due to the existence of part-time degree programmes for both courses of study..

Gender balances are broadly comparable but initial statistical analysis using a standard t-test on the mean indicates that female students have statistically significant higher entry tariff points ($t = 3.319$, prob. = 0.001). With regard to grammar and secondary school students, no statistically significant difference in tariff points on entry exists ($t = 1.405$, prob. = 0.161). It should be noted that this data is extracted from a self-reported questionnaire of students many of whom did not complete the question with regard to pre-university education and this reduces the robustness of any conclusions which can be drawn from the data.

Further information regarding individual student characteristics is derived from questionnaires completed when students met with their academic studies advisers between weeks 2 and 4 of the first semester. In particular details concerning part-time employment commitments, and hours of personal study are summarised in Table

	Business Studies	Accounting
Overall Weekly Statistics		
1. Not working part-time	20%	18%
2. Up to 4 hours	1%	3%
3. 4 to 8 hours	9%	25%
4. 9 to 12 hours	21%	33%
5. 13 to 18 hours	30%	18%
6. More than 18 hours	18%	3%

Number of respondents for Business Studies was 160.

Number of respondents for Accounting was 126.

How many hours a week do you spend on your studies, apart from time in class?

	Business Studies	Accounting
Class Contact Time	9 Hours	12 Hours
1. 12 hours or less	65%	45%
2. 12 to 16 hours	29%	31%
3. 16 to 20 hours	4%	14%
4. More than 20 hours	1%	10%

Number of respondents for Business Studies was 153.

Number of respondents for Accounting was 96.

Table 2: Analysis of Part-time Working Patterns

Table 2 reveals that approximately 48% of Business Studies students and 21% of Accounting students were working in excess of 12 hours a week, whilst 34% (Business Studies) and 55% (Accounting) were devoting equivalent time to independent study. Although on an aggregate level the results indicate that Accounting students study more (in terms of self-reported devotion to study),

only a small minority approach the stipulated expectation of a 40 hour study week recommended by the University. The measure of absenteeism utilised is the percentage of all scheduled classes (lectures and seminars) not attended during the first semester and is summarised in Table 3.

Absenteeism	Business Studies	Accounting
Mean	21.50%	25.77%
Median	20.18%	23.00%
Mode	20.18%	17.00%
Standard Deviation	13.07%	15.72%
First Quartile	11.93%	14.77%
Third Quartile	26.92%	36.81%
Number of students	435	228

Average first semester performance

	Business Studies	Accounting
Mean	58.96%	67.08%
Median	61.00%	72.31%
Mode	59.33%	76.00%
Standard Deviation	12.18%	16.09%
First Quartile	53.67%	63.57%
Third Quartile	67.33%	78.33%
Number of students	411	216

Table 3: Analysis of absenteeism and average first semester performance

Table 3 provides clear evidence of high levels of absenteeism on both degree programmes. Table 3 also provides an analysis of the average first year, first semester performance on both degree programmes and it is clear that Accounting students who from table 1 do have higher average entry tariff points, perform better than Business Studies students. From a simple descriptive statistical analysis it could be concluded that students with higher entry academic ability as measured by tariff points perform better. However this conclusion does not consider the impact of

absenteeism on student performance. Further it does not consider whether higher absenteeism is related to tariff points on entry in the context of attendance monitoring, which may encourage attendance but not necessarily emotional and cognitive engagement.

In order to initially investigate this question a correlation analysis is performed between first semester performance and tariff points on entry, first semester performance and absenteeism, and tariff points on entry and absenteeism. Both parametric and non-parametric measures of association are estimated. The analysis is performed separately for both the Business Studies degree and the Accounting degree.

Between average first semester performance and total tariff points on entry

	Business Studies	Accounting
Pearson correlation coefficient	0.29 (0.00)*	0.15 (0.04)**
Kendall's tau_b correlation coefficient	0.24 (0.00)*	0.13 (0.01)**
Spearman's rho correlation coefficient	0.34 (0.00)*	0.19 (0.01)**
Number of observations	374	190

Between average first semester performance and absenteeism

	Business Studies	Accounting
Pearson correlation coefficient	-0.60 (0.00)*	-0.64 (0.00)*
Kendall's tau_b correlation coefficient	-0.41 (0.00)*	-0.44 (0.00)*
Spearman's rho correlation coefficient	-0.56 (0.00)*	-0.60 (0.00)*
Number of observations	411	216

Between absenteeism and total tariff points on entry

	Business Studies	Accounting
Pearson correlation coefficient	-0.17 (0.00)*	-.21 (0.00)*
Kendall's tau_b correlation coefficient	-0.15 (0.00)*	-0.18 (0.00)*
Spearman's rho correlation coefficient	-0.20 (0.00)*	-0.26 (0.00)*
Number of observations	396	201

Figures in brackets represent two-tailed significance levels.

* Significant at the 1% level.

** Significant at the 5% level

Table 4: Correlation coefficients:

Table 4 reveals, for both Business Studies and Accounting students, a statistically significant positive correlation between the average mark achieved in the first semester and total tariff points on entry and a statistically significant negative correlation between average performance and absenteeism. In other words, students with higher general academic ability, as measured by total tariff points on entry, perform better in the first semester, but higher absenteeism is associated with lower performance. Further, table 4 suggests that there is a statistically significant negative relationship between tariff points on entry and absenteeism, i.e. those students who have higher tariff points on entry have a lower level of absenteeism. This result is observed for both programmes of study and is consistent with Halpern's (2007, page 335) assertion that although attendance is positively associated with student performance ".....students who attend are already predisposed to academic achievement". This does not necessarily mean that such students are emotionally and cognitively engaged, if attendance is being closely monitored.

The Ulster Business School implements a robust procedure with regard to poor attending students. Initially students are classified as

having poor attendance in week 5, if they have missed more than 25% of classes up to week 4. Such students are invited to attend a meeting in week 5 with the Head of Department and the Course Director. Any student failing to attend this meeting is then invited to attend a meeting with the Dean of the Faculty, the Head of Department and the Course Director. This process is repeated in week 9 with regard to attendance monitoring between weeks 5 and 8. Such meetings are aimed at identifying the reasons for poor attendance with a view to providing support and encouragement to students rather than as part of any disciplinary process. However, such scrutiny may encourage attendance but not necessarily emotional and cognitive engagement.

To further investigate the impact of non-attendance, a dummy variable is created which takes the value 1 if a student has been invited to attend an attendance meeting and 0 otherwise. Both parametric and non-parametric tests are employed to investigate whether there was a significant difference in first semester performance for poorly attending (PA) students. The results are reported in table 5.

BUSINESS STUDIES

	Poor Attendance (PA)	N	Mean	Std. Deviation	Std. Error Mean
Average module mark	0	297	62.08	9.32	0.54
	1	114	50.76	14.68	1.38

t-test on equality of means

7.66⁺
(0.00)*

Mann-Whitney Z

-7.57
(0.00)*

ACCOUNTING

	Poor Attendance (PA)	N	Mean	Std. Deviation	Std. Error Mean
Average module mark	0	147	72.31	10.87	0.90
	1	69	55.75	19.40	2.34

t-test on equality of means

$$6.62^+ \\ (0.00)^*$$

Mann-Whitney Z

-6.60
(0.00)*

Figures in brackets represent two-tailed significance levels.

⁺Levene's test on the equality of variance indicates that the variance of the two groups is not equal, therefore t-tests on the equality of the means for the two groups is based upon non-equality of variance.

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

Table 5: Mean difference in average first semester performance between students called for an attendance interview and those not (Poor attendance 1, and others 0)

Table 5 reveals that the average first semester mark for students called for poor attendance is significantly lower with the difference being approximately 11% for Business Studies students and 16% for Accounting students.

The evidence provided so far supports the negative impact of absenteeism on student performance in the first semester of study. This may only reflect one dimension of engagement, i.e. behavioural, but as noted above emotional and cognitive engagement in study may exist for some students who are not attending classes, or for students how are attending there may still be no “real” engagement in their studies if attendance is being subject to scrutiny and attendance is a student strategy to avoid scrutiny. It is difficult to investigate this issue in that a surrogate

must be employed for emotional and cognitive engagement as such dimensions of engagement cannot be directly measured. In this study one possible surrogate is investigated, namely the pre-university study of the discipline (A-level, HND etc). The entry requirements for both degree programmes do not require relevant pre-university study. Hence, it may be argued that pre-university study of degree relevant subject matter may reflect engagement and interest in the subject specialisation given that this was not necessary to achieve entry to the actual degree selected. For the purpose of brevity and given that none of the results above indicate that there is a difference in the impact of absenteeism upon student performance on both degrees, i.e. there is a statistically significant negative impact upon student performance on both programmes of study, the following analysis aggregates the data obtained for both degree programmes. (Full individual degree results are available from the authors on request).

Table 6 provides the results from an analysis of the “pre-university study” proposed dimension of student engagement.

COMBINED

	Relevant pre-university study (PS)	N	Mean	Std. Deviation	Std. Error Mean
Average module mark	0	235	64.79	15.43	1.01
	1	383	59.82	13.09	0.67

t-test on equality of means 4.28*
(0.00)*

Mann-Whitney Z -6.01
(0.00)*

Figures in brackets represent two-tailed significance levels.

+ Levene's test on the equality of variance indicates that the variance of the two groups is equal, therefore t-tests on the equality of the means for the two groups is based upon the equality of variance.

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

Table 6: Mean difference in average first semester performance between students with relevant pre-university study. (Those with relevant entry qualifications 1, others 0)

The results indicate that the study of relevant pre-university subjects does have a statistically significant impact upon first semester performance, but the impact is negative, i.e. students who have studied business studies or accounting prior to degree entry perform less well on average to those who have not. Clearly the relationship between student performance, absenteeism and engagement is complex and that simple statistical analysis is not sufficient alone to draw any firm conclusions.

In order to investigate this further, the following models are estimated for the combined sample of Business Studies and Accounting students using OLS regression:

$$Y = \lambda_0 + \lambda_1 X + \psi \quad (1)$$

$$Y = \rho_0 + \rho_1 X + \rho_2 \mathbf{ABS} + \Phi \quad (2)$$

$$Y = \alpha_0 + \alpha_1 X + \alpha_2 \mathbf{ABS} + \alpha_3 \mathbf{PS} + \alpha_4 \mathbf{DA} + \mu \quad (3)$$

Where,

Y is the average first semester mark achieved, λ_0 , ρ_0 and α_0 are constant terms introduced as a rather *ad hoc* way of capturing the impact of omitted variables, **X** is the total tariff points on entry to the degree, **ABS** is the percentage absent from lectures and seminars, **PS** is a dummy variable taking the value of 1 if the there is relevant subjects studied by a student immediately prior to university entry and zero otherwise, **DA** is a dummy variable taking the value of 1 if a student entered with a double award and zero otherwise and ψ , Φ and μ are stochastic error terms.

This model facilitates consideration of how these factors combined influence student performance. The *a priori* expectations are that

the estimated coefficient on the tariff point variable will be positive whilst the coefficient on absenteeism variable will be negative confirming the negative impact of non-attendance upon student performance. The pre-university study variable in the context of the previous analysis should be negative. The double award variable is included as Green et al (2010) found this to be significant in predicting student failure, and it would be expected that the relationship with average first semester year 1 performance will be negative. The results are reported in table 7.

$$Y = \lambda_0 + \lambda_1 X + \psi \quad (1)$$

λ_0	λ_1	R_A^2
35.84	0.09	0.11
(0.00)*	(0.00)*	

$$Y = \rho_0 + \rho_1 X + \rho_2 ABS + \Phi \quad (2)$$

ρ_0	ρ_1	ρ_2	R_A^2
51.50	0.07	-0.50	0.33
(0.00)*	(0.00)*	(0.00)*	

$$Y = \alpha_0 + \alpha_1 X + \alpha_2 ABS + \alpha_3 PS + \alpha_4 DA + \mu \quad (3)$$

α_0	α_1	α_2	α_3	α_4	R_A^2
58.13	0.06	-0.52	-4.10	-4.43	0.37
(0.00)*	(0.00)*	(0.000)*	(0.00)*	(0.00)*	

Number of observations is 563.

Figures in brackets represent two-tailed significance levels.

* Significant at the 1% level.

R_A^2 is the adjusted R- square.

Table 7: Ordinary Least Squares estimation of models

Table 7 confirms that tariff points and absenteeism are statistically significant in explaining first semester performance and that the signs of the estimated coefficients are in accordance with *a priori* expectations. Furthermore, the increase in the explanatory power

from the inclusion of absenteeism as an independent variable is dramatic, from 11% to 33% (adjusted R-square in models 1 and 2), reflecting the strong negative impact of non-attendance on student performance. Similarly, the pre-university study of relevant subjects and the study of double award entry qualifications are negative and statistically significant. (Note estimation of these models for each programme of study provides qualitatively similar results. Full individual degree results are available from the authors on request). The latter finding requires further consideration. The Advanced General Certificate of Education (double award) is largely assessed internally. From the results reported these differences from the more traditional A-level entry may present an additional challenge to student learning for those students entering University via this route, which should be formally recognised and addressed in the early stages of tertiary level education. Similarly, the pre-university study of business studies and accounting would appear to have a negative impact upon student performance. From experience the authors would conjecture that such students disengage on the premise that **“we have done this before!”** A final question remains given the latter assertion. Does the pre-university study of degree relevant subject matter impact upon attendance? In other words, if students perceive that they have studied the subject matter before do they fail to attend classes as they perceive there is no value-added by attending? Table 8 compares the average attendance between those students who studied business studies or accounting prior to degree entry.

COMBINED

	Relevant pre-university study (PS)	N	Mean	Std. Deviation	Std. Error Mean
Average					
Absenteeism (ABS)	0	238	23.69	15.72	1.02
	1	393	22.17	12.53	0.63
t-test on equality of means				-1.26*	(0.21)
Mann-Whitney Z				-0.25	(0.80)

Figures in brackets represent two-tailed significance levels.

⁺ ⁺ Levene's test on the equality of variance indicates that the variance of the two groups is not equal, therefore t-tests on the equality of the means for the two groups is based upon non-equality of variance.

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

Table 8: Mean difference in average first semester absenteeism between students with relevant pre-university study. (Those with relevant entry qualifications 1, others 0)

Table 8 reveals that there is no statistically significant difference in the average absenteeism for students who have or have not degree relevant pre-university qualifications. There is no evidence to support the assertion that students fail to attend because they perceive they have studied at least some of the subject matter before university entry. If students do disengage if they have studied some degree subject matter before degree entry, this is not manifested in higher absenteeism. Whilst higher academic ability on entry (tariff points) is negatively associated with lower absenteeism, higher attendance may derive from a combination of attendance being used to monitor student behaviour and student engagement.

CONCLUSIONS AND IMPLICATIONS FOR HIGHER EDUCATION INSTITUTIONS AND EDUCATIONALISTS

From the results reported in this study absenteeism has an important and significant negative impact upon student performance in the first year of university study. Whilst monitoring student attendance may not directly encourage student engagement it does enable the early identification of students who may be at risk of failing to progress in their university studies. It is beyond the scope of this study to consider what form of intervention should take place for non-attending students and this is an important area for future research.

The results also indicate the negative impact of both pre-university study of double awards and discipline relevant qualifications. This

identifies specific groups of students who require additional learning support in the early stage of university study and raises the question as to whether such students should be “streamed” with regard to this.

Clearly the current study is not without its limitations and offers scope for further investigation. In particular the data is gathered from two degree programmes in business related subjects, the incidence and monitoring of attendance may differ across other disciplines. Furthermore the composition of assessment (coursework and/ or examination) could influence the strength of the relationship between attendance and performance. Finally it may be of interest to track the poor attending students through subsequent years to investigate firstly, whether the attendance patterns established in first year persist, and secondly if non-attendance consistently remains a significant variable for predicting performance.

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Pair programming for improved student performance and confidence in formal assessment

Ian McChesney

Introduction

The challenges of learning and teaching in introductory programming are widely recognized within the computer science education community. Learning to program presents difficulties to students because of the abstractions required and the inherent problem solving necessary for all but the most trivial of programming problems (Vickers, 2009). A further source of difficulty is the notational and syntactic peculiarities of the domain (Robins *et al.*, 2003). Learning to program is an incremental and highly integrated endeavour, with each topic in an introductory programming module building upon its predecessors, resulting in students easily falling behind if they have not sufficiently grasped previous concepts. This in turn can lead to diminishing motivation and lack of confidence in completing programming tasks (Kinnunen and Simon, 2012; Scott and Ghinea, 2013). For many students on computing courses, programming is a topic they will typically not have encountered in their previous studies. The drop-out rate in computing programmes is a well-documented feature within the UK, Ireland and beyond (Bennedsen and Caspersen, 2007; McGettrick *et al.*, 2005).

Within the computer science education community there is therefore a substantial body of work related to the teaching of programming, with many initiatives and practices evaluated and adopted to address the issues above. In the computing programme described in this paper, and related programmes within the institution, such initiatives have informed the steps taken over a number of years to address such problems. These have ranged from small-group laboratory work, an emphasis on practice-based assessment, gamification (Charles *et al.*, 2011), and the introduction of micro-worlds (Leeman and Glass, 2007).

This paper describes the learning and teaching approach taken in a year 1 programming module of an undergraduate computing programme. The module in its current form has been delivered for

three years, and has incorporated a range of techniques to enhance student learning and performance. One of these is the use of pair programming for some of the practical and assignment work. Initially pair programming was used informally on the module but during 2012/13 a more formal and controlled approach was taken, with the aim of more carefully evaluating the impact of pair programming as introduced in this module – in particular, does it lead to improved student performance and confidence in formal assessment, and how can it be refined to maximize this desired outcome? Adopting an action research approach to the use and evaluation of pair programming in the module, the aim is to assess and revise its implementation over a number of cycles of module delivery. This paper presents the initial findings in this regard.

Section 2 presents a brief review of relevant literature, focusing on pair programming both in industry and computer science education. In Section 3, the approach to the study is described. Results are presented in section 4, focusing on the data collected and its analysis. In Section 5, these results are briefly discussed. The concluding section summarizes progress to date and indicates wider considerations.

Literature Review

Computer programming is traditionally regarded as an individual activity, even when undertaken in the context of software teams. Pair programming is a working practice in software engineering whereby two programmers cooperate in the design, development and testing of a program. The programmers are typically co-present, use a single keyboard and workstation, and follow an agreed protocol for coordination (Beck and Andres, 2004; Wray 2010). Pair programming is typically practiced as part of the wider software engineering approach of agile development (Shore and Warden, 2004; Cockburn, 2007.) with claimed benefits such as shared code ownership, egoless programming, increased programmer productivity and improved software quality (Bipp *et al.*, 2008).

There are established practices for pair programming in industry. For example, there is the notion of shared ownership. The intent is that it is 'one mind' constructing the solution to a problem. Programmers

are equal partners, with no apportioning of blame for defects, but instead having shared responsibility. Pair programming is practiced in front of a screen, at someone's desk, with one keyboard, so the pair programming protocol introduces the notion of role switching. Different metaphors are used for this, for example, driver/navigator, controller/observer, or even Holmes/Watson, with each partner taking a role in turns. While one person has "control" of the keyboard, recording the design and solution ideas in the program development environment, the other is continuously reviewing the work and thinking ahead; as such the aim is to have concurrent processes of action and reflection.

The principles of pair programming have been used in a range of computer science education settings, with the primary focus being on improved student performance and also improved confidence in completing programming tasks. Recent systematic literature reviews of pair programming in computer science education reveal a consensus that it can improve student understanding, can lead to enhanced confidence in programming, and improved performance in assessment. (Hanks *et al.*, 2011; Salleh *et al.*, 2011). There is evidence that the benefits are most significant in relation to a student's practical work in programming rather than in relation to final exam performance. Previous work also suggests that pair programming is especially helpful for weaker students (Braught *et al.*, 2008) and that through pair programming such students can master skills which help them in independent work (McDowell *et al.*, 2006). However, it is not always the case that pair programming has led to performance improvement (for example, Somervell, 2006), and in some cases the overall improvement is modest (Salleh *et al.*, 2011).

There are many practical considerations in setting up pair programming tasks in an educational context, and the recent systematic literature reviews have highlighted a number of factors, the impact of which is still unclear; for example, the mix of skill level in the pair, personality traits, prior technical confidence and self-esteem, the impact of gender in pairing, and existing student learning styles.

As well as its pedagogic benefits, there are professional reasons

for introducing students to pair programming. As mentioned above, it is a commonly cited technique in agile methods of software development as practiced in industry. Agile methods tend to place a strong emphasis on the creativity and problem solving capability of the software engineer, with pair programming supporting this approach (Beck and Andres, 2004). Pair programming also provides an opportunity for students to work together, addressing the requirement for team working and collaboration skills in their learning and assessment.

Approach

In this paper we describe the operation of pair programming in an introductory, undergraduate year 1 programming module, referred to here as Windows Programming 1 (WP1). In the context of on-going improvement in module delivery, Action Research provides a framework within which to consider the introduction and evaluation of pair programming over a number of cycles (Ben-Ari *et al.*, 2004).

The proposal for the work described here was submitted to the Faculty of Computing and Engineering Ethics Filter Committee and approved for progression. No personal data are being gathered from the students and they are not participating in any activities apart from assessment as part of the normal operation of the module.

The research questions of particular interest in this paper is are:

RQ1: Does pair programming improve student performance in programming practical tasks in module WP1?

and

RQ2: Does pair programming lead to increased student confidence in undertaking programming practical tasks in WP1?

While specific to one module, it is anticipated that general observations can be made which are relevant to other introductory programming modules.

WP1 module description

WP1 seeks to introduce students to the foundational concepts of windows-based, event-driven programming, while seeking to develop student problem solving skills as an integral part of software development.

The module is taught and assessed over two 12-week semesters. It is assessed through continuous assessment, mainly through practical programming tasks, with two substantive assessments in semester 1, and two in semester 2, in addition to weekly knowledge and understanding tests.

The assessment breakdown is as shown in Figure 1. Assessments 1, 2 and 3 (a1, a2 and a3) are laboratory-based practical assessments of two hours duration each. In semester 1 week 5, students undertake individually their first formal practical assessment. In semester 1 week 11 they complete part of their laboratory-based assessment in pairs and part individually. In semester 2 week 5, they do another laboratory-based assignment which is part individual and part pairs, and then a final summative individual practical assessment a4 (outside of laboratory). Laboratory-based assessment typically consists of writing two program in two hours, with both programs equally weighted and of similar difficulty. As such the paired assessment contributes 17.5% of the overall module mark.

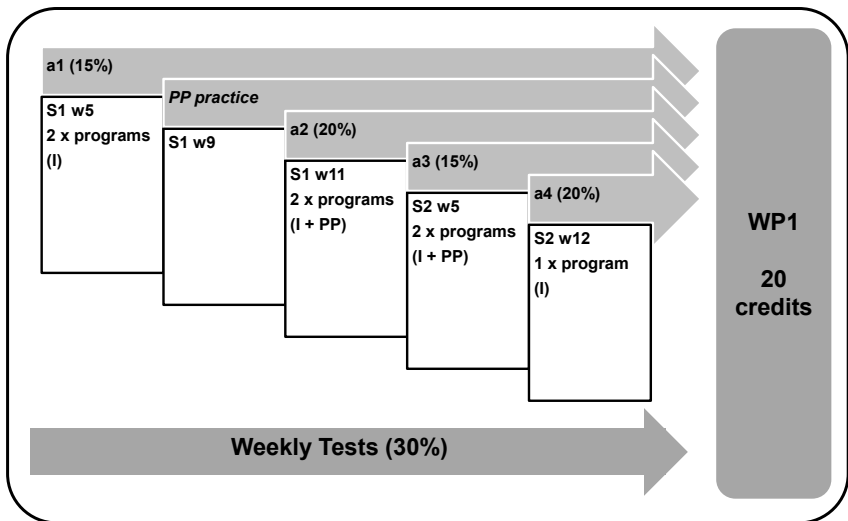


Figure 1: WP1 Assessment Breakdown

(a1 = Assessment 1; S1 w5 = Semester 1 Week 5; I = individual; PP = Pair Programming)

In advance of their first pair programming assessment, students are given an introduction to the principles of pair programming plus the opportunity to practice the completion of laboratory exercises in pairs (DeClue, 2003).

Cohort Profile

The cohort described here consisted of year 1 students on a single honours computing programme. The average achieved tariff of students joining the module was 341 UCAS tariff points (AAB GCE A-level equivalent). No assumptions were made about students having any previous programming experience. 65 students were enrolled on the module. For practical work in laboratories, they were allocated alphabetically by surname to two groups A and B. 53 students completed all of the practical assessments over the year and they are the subset comprising the data in this paper, with Group A having 19 students and Group B 34 students. (Actual group sizes were larger but some data could not be used due to, for example, student illness or absence during the two assessment points). In both groups, pairs were allocated randomly and where possible the same pairings were retained from assessment 2 to assessment 3.

Study Design – Assessment 2 and Assessment 3

Pair programming was used in assessments 2 and 3. These assessments each involve writing two programs and have been designed to allow for individual work and pair work. At each assessment, the programs to be completed are of similar complexity. Using the above group allocations, the program combinations used were as shown in Table 1 to reduce the possibility of performance difference arising from the intrinsic nature of the problems set. In each assessment, individual programming was completed first, followed by the pair programming task.

Assessment 2		Assessment 3	
Group A	Group B	Group A	Group B
a2-P1 (I)	a2-P1 (PP)	a3-P1 (I)	a3-P1 (PP)
a2-P2 (PP)	a2-P2 (I)	a3-P2 (PP)	a3-P2 (I)

Table 1: Individual and pair programming in Assessments 2 and 3

(a2 = Assessment 2; a3 = Assessment 3; P1 = Program 1; P2 = Program 2;

I = individual; PP = pair programming)

To address the research questions above, we can formulate the following hypothesis:

For RQ1: On a within-subject analysis, there is no difference between the score for individual programming compared with pair programming, i.e.

H_0 : Individual mark – pair programming mark = 0

H_1 : Individual mark – pair programming mark < 0

For RQ2: Considering changes in attitude to programming from a2 to a3.

H_0 : from a2 to a3, there is no difference in student attitude to programming

H_1 : from a2 to a3, there is a significant difference in attitude (i.e. attitude with respect to issues such as pair programming difficulty and productivity – see below).

4. Results

Effect of pair programming on student performance

Tables 2 and 3 show the student scores (%) for a2 and a3 respectively:

a2	Group A (n=19)	Group B (n=32)	Overall (n=51)
(I)	P1 (I)	P2 (I)	(I)
	= 51.05	= 49.13	= 49.84
	s.d. = 18.05	s.d. = 19.26	s.d. = 18.66
(PP)	P2 (PP)	P1 (PP)	(PP)
	= 60.32	= 54.25	= 56.51
	s.d. = 28.51	s.d. = 31.05	s.d. = 29.99
a2 tot	= 55.68	= 51.69	= 53.18
	s.d. = 19.89	s.d. = 21.04	s.d. = 20.51

Table 2: Assessment 2 student scores

a3	Group A (n=18)	Group B (n=34)	Overall (n=52)
(I)	P1 (I)	P2 (I)	(I)
	= 48.11	= 42.24	= 44.27
	s.d. = 28.17	s.d. = 21.48	s.d. = 23.9
(PP)	P2 (PP)	P1 (PP)	(PP)
	= 51.33	= 62.35	= 58.54
	s.d. = 27.16	s.d. = 20.16	s.d. = 23.17
a3 tot	= 49.72	= 52.29	= 51.4
	s.d. = 22.36	s.d. = 18.37	s.d. = 19.66

Table 3: Assessment 3 student scores

A within-subject analysis was used to test the hypothesis that students performed better when pair programming compared with individual programming. Two tests were conducted, a one tail, two sample paired t-test and a one tail, Wilcoxon signed ranks test. A

significance level of 0.05 was used for analysis.

For a2, the result is shown in Table 4

a2	Group A	Group B	Overall
(I)	P1 (I)	P2 (I)	(I)
	= 51.05	= 49.13	= 49.84
(PP)	P2 (PP)	P1 (PP)	(PP)
	= 60.32	= 54.25	= 56.51
t-test			
P(T<=t) one-tail	0.072	0.171	0.051
Wilcoxon			
P(T<=t) one-tail	0.122	0.127	0.050

Table 4: Assessment 2 within-subject analysis of student score comparing individual and pair programming performance.

When considering the cases within their groups, no significant difference is apparent ($P > 0.05$). When considering the class scores overall, the data would suggest there is an improvement arising from pair programming.

For a3, the result is shown in Table 5.

a3	Group A	Group B	Overall
(I)	P1 (I) = 48.11	P2 (I) =42.24	(I) =44.27
(PP)	P2 (PP) = 51.33	P1 (PP) =62.35	(PP) = 58.54
t-test			
P(T<=t) one-tail	0.340	0.000	0.000
Wilcoxon			
P(T<=t) one-tail	0.395	0.000	0.000

Table 5: Assessment 3 within-subject analysis of student score comparing individual and pair programming performance.

For Group A there is no significant difference ($P > 0.05$). For Group B pair programming scores are significantly better ($P < 0.05$). For the overall class this is also the case ($P < 0.05$).

If we consider within-subject performance from a2 to a3, data show that on average individual performance declined whereas pair performance was roughly the same. To see if there is significance in this data we have:

$$H_0: a2-I \text{ mark} - a3-I \text{ mark} = 0$$

$$H_1: a2-I \text{ mark} - a3-I \text{ mark} > 0$$

and

$$H_0: a2-PP \text{ mark} - a3-PP \text{ mark} = 0$$

$$H_1: a2-PP \text{ mark} - a3-PP \text{ mark} > 0$$

When we look at the data we have the following (Table 6).

average scores (n=50)	(I)	(PP)
a2	50.04	57.16
a3	44.28	57.36
t-test		
P(T<=t) one tail	0.014	0.482
Wilcoxon		
P(T<=t) one tail	0.012	0.256

Table 6: Analysis of within-subject performance at Assessment 2 and Assessment 3

This suggests that individual performance at a3 is significantly lower than at a2. A possible explanation is that the students found a3 to be more difficult, but completing the assignment in pairs ameliorated this difficulty.

Considering the relative performance improvement for weaker students compared with stronger students, for analysis purposes students within a pair were classified as 'high' or 'low' performers depending on their performance in the individual program element of the assessment. Within-subject analysis was repeated for these two groups. For both a2 and a3, results show a significant improvement in the scores for students in the low category when programming in pairs but no significant change for the high category.

Student confidence - attitudes and perceptions in pair programming

At the end of each of a2 and a3, students were asked to reflect on their experience of pair programming compared with individual programming. The aim was to assess whether they felt more confident when programming in pairs rather than individually. This was explored through seven aspects of the process as outlined below.

Relative to individual programming, students were asked to rate pair programming on difficulty (DIFF), enjoyability (ENJY), stressfulness (STRS) and productivity (PROD). (For example, “Compared to individual programming, do you consider pair programming to be less difficult, more difficult, or the same?”)

Regarding the artefact produced when pair programming compared with individually, they were asked to reflect on the program correctness (CRCT), design (DSGN), and overall compliance with the requirements specification (REQS). (For example, “Compared to individual programming, is the program delivered via pair programming of poorer quality design, better quality design, or the same?”)

To facilitate descriptive analysis, responses were scored -1, 0 and 1 for less, same, and more respectively. Hence an average of 0 would indicate that, overall, there was no change in how individual and pair programming was experienced. Tables 7 and 8 show the results for assessments 2 and 3 respectively.

	DIFF	ENJY	STRS	PROD	CRCT	DSGN	REQS
n	35	33	32	34	35	34	34
mode	0	1	-1	1	1	1	1
avg	-0.34	0.55	-0.22	0.12	0.86	0.5	0.5
%less	43	6	50	35	0	6	6
%same	49	33	22	18	14	38	38
%more	9	61	28	47	86	56	56

Table 7: Assessment 2, student rating of experience with pair programming compared to individual programming (-1 = less, 0 = same, 1 = more).

For a2, the class felt that compared to individual programming, PP was less difficult, more enjoyable, less stressful and a more productive approach. They felt that it produced programs which were more correct, better designed and overall more compliant with the assignment specification. Though not presented here, Chi Square analysis has shown that there were no significant differences in attitudes between groups A and B.

	DIFF	ENJY	STRS	PROD	CRCT	DSGN	REQS
n	53	53	51	52	53	53	53
mode	-1	1	-1	1	1	1	0
avg	-0.47	0.57	-0.37	0.37	0.72	0.7	0.3
%less	57	8	51	13	2	2	9
%same	34	28	35	37	25	26	51
%more	9	64	14	50	74	72	40

Table 8: Assessment 3, student rating of experience with pair programming compared to individual programming
 (-1 = less, 0 = same, 1 = more).

For a3 we have similar observations. Again, there were no significant differences between the groups in terms of their attitudes.

At the cohort level, an analysis of how attitudes changed from a2 to a3 suggest there were no significant changes except for (i) perceived difficulty, with pair programming considered less difficult than individual programming at a3 (-0.47) compared with a2 (-0.34), and (ii) productivity with pair programming was considered to be faster (more productive) compared with individual programming at a3 (0.37) compared with a2 (0.12). When comparing differences in group attitudes between assessment points, the only significant change was that Group B considered pair programming to be more productive at a3 compared with a2.

Student comments

As well as rating their experience of pair programming, students were asked to state, in their view, the best aspect and the worst aspect of pair programming. A qualitative content analysis using descriptive coding (Miles *et al.*, 2013)) was used to extract key themes from the responses. Regarding the most positive aspect of pair programming, the dominant theme (49% of comments) was that it enabled a better understanding of the problem (“two minds are better than one”). Other comments highlighted the benefits of discussion within the pair (17%) and the fact that partners could often complement each other’s strengths and weaknesses (14%). Other comments were on the themes of it being less stressful than individual programming, that it helped to develop useful soft skills such as communication and teamworking, and that it led to less errors in the final program.

Regarding the worst aspect of pair programming, differences of opinion or arguments accounted for 35% of comments, with some students (4% of comments) referring to a personality clash. It was also reported by some that pair programming takes longer due to the time required to discuss and explain issues to each other (20%). Approximately 19% of comments concerned the uneven sharing of workload within the pair. Other themes to emerge concerned difficulties in communicating technical concepts within the pair, and difficulties in the physical sharing of the screen and keyboard.

5. Discussion

Research Questions

For Research Question 1, the data presented support the hypothesis (albeit weakly) that pair programming leads to improved student performance. Within a2, there was no significant improvement, whereas there was improvement within a3. The analysis of performance overtime time from a2 to a3 supports this, suggesting that, when programming in pairs, some of the challenges in the more advanced a3 assessment were ameliorated. We might conclude from this that there are benefits in repeated pair programming opportunities within a module.

For Research Question 2, the overall trend was towards a more positive experience with pair programming. However, in terms of overall attitudes, the only areas to see significant improvement relate to less difficulty and greater productivity.

Insights from qualitative data

It is no surprise that many students reported an improved understanding of the problem as a result of working in pairs. However, there were useful insights from looking at comments in detail. For example, one student referred to being encouraged to try an aspect of programming they would not have thought useful in the given context – “[the other student] encouraged me to try code that I previously would have thought is wrong.” There was also some insight into how the paired-process actually worked – “there are two people able to try and find notes to help”; “You have additional help and have a different way of thinking. More ideas and conclusions occur”. Even some negative comments showed a beneficial

outcome to the process, for example, “The pressure on getting it right. Having shared marks/grade”; “Pressure to do well for both of you”; “Two people having a different understanding of what needs to be done. Time then has to be spent explaining and sorting out the issue”.

Some of the negative comments made relate to an observation which had not been anticipated, that some students found it difficult to explain technical issues or concepts to their partner, sometimes inhibiting their ability to solve a problem. As a student spends more time actually studying programming, their technical vocabulary improves and this might be one reason for repeated pair programming activities being more productive.

The dynamics of pair programming interactions are subtle and are the subject of ongoing work elsewhere to determine, for example, the effect of personality traits on pair programming, student satisfaction and confidence levels when learning to program (Salleh *et al.*, 2014).

6. Conclusion

Action research outcomes

Pair programming will be retained as part of the assessment in future delivery of the module. The above analysis suggests the following improvements should be made:

- provide clear guidance on the pair programming protocol, in particular how to handle disagreements.
- the importance of establishing a clear vocabulary for students to communicate ideas efficiently between each other when working in pairs – as this can be a limiting factor in effectiveness.
- the random allocation of pairs does not appear to be an issue in terms of student perceptions of the process.
- repeated opportunities for pair programming are helpful in ameliorating the relative increase in problem complexity from assessment point 2 to assessment point 3.

Furthermore, on completion of the pair programming assessments, the generic feedback given to students could include a review of the

pair programming skills acquired, as revealed through the student comments, which are transferable to other learning contexts and to the work place, focusing on communication skills, shared responsibility and time management.

Further considerations

Two wider observations are offered based on this work. First, beyond the particular operation of the WP1 module, further work within the institution could establish if the benefits and lessons reported here could extend to other disciplines. Group work is widely recognized as a key component of undergraduate curricula, but does carry some disadvantages regarding team overhead, team coordination, and the carrying of “free-riders” within the group. Structured pair activity can help reduce some of these disadvantages yet give students the benefit of collaborative work. Through the reframing of pair programming as any structured pair activity, it could facilitate skill development in areas such as negotiation, peer learning, teamwork, and taking responsibility for quality of work.

Second, the assessment structure outlined above (Table 1) can provide a framework for evaluating an assessment innovation without significant perturbation of existing, individual arrangements, and in a way which allows for the collection and analysis of data for evaluating the benefits or otherwise of the innovation.

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Comparative analysis of online methods on Blackboard Learn for student feedback in small and large group teaching

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Introduction

It is important that students receive adequate quantity, quality and speed of feedback to encourage engagement in learning, and thus overall success in higher education (Burke, 1998; Race, 1999; Quality Assurance Agency, 2005; 2006; Hounsell et al. 2008). Numerous studies reported that students desire to receive feedback on the progress of their studies (Poulos and Mahony, 2008; Lipnevich and Smith, 2009; Sadler, 2010; Jonsson, 2013; Evans, 2013). According to Black and Wiliam (1998), the two main functions of feedback are *directive* and *facilitative*. Directive feedback informs the student what needs to be revised, and tends to be more specific compared to facilitative feedback, which provides comments and suggestions to help guide students in their own revision and conceptualization. A review article considered students' use of feedback in higher education (Jonsson, 2013), and identified five challenges, which were: feedback needs to be useful; students prefer specific, detailed, and individualized feedback; authoritative feedback is not productive; and students may lack of strategies for productive use of feedback; and students may lack an understanding of academic terminology or jargon. A more recent review reported on the thematic analysis of the research evidence on assessment feedback in higher education from 2000 to 2012 and found that assessment feedback can enhance performance, but not in every context and not for all students (Evans, 2013). A fundamental requirement of higher education is to facilitate high-quality feedback exchanges to enhance understanding of how individuals process information within the complex networks of learning communities. This review highlights the multiplicity of students' and lecturers' responses to the assessment feedback process.

Different methods and strategies for student feedback need to be considered to enhance learning. The Higher Education Academy (HEA) has identified the potential of technology to support student learning by developing the Enhancement of Learning through

Technology (ELT) programme (Higher Education Academy, 2011a).

In general, it has been reported that online tools have the potential to be used for feedback among both undergraduate and postgraduate students (Turney et al. 2009; Dysthe et al. 2011). A range of e-tools have been used for student feedback including eMed Teamwork, electronic file exchange, Blackboard, eportfolio, Criterion, online feedback system, audience response systems, audacity recording software, SKYPE, Google Talk, PDF annotations, Jing, Camtasia, Zostero, YouTube, Web 2.0 e-portfolio, and Clickers (Higher Education Academy, 2011b). There were several reported strengths and limitations of these e-tools for both students and staff (**Table 1**). Some of the strengths for students were related to enhancing engagement, motivation and accessibility, and online feedback was reported to be constructive, greater opportunities for feed forward, detailed, clearer and easier to read. The limitations were found to be technical issues, mainly connectivity issues or preferred written feedback. For staff, the strengths were mainly organisational benefits such as the ability to batch download assignments, better organisation of student submission, and embedded audio feedback without having to upload audio files. Another reported strength was speed of access, as when online feedback is set-up, marking may be quicker. However, some staff consider online feedback compared to paper-based feedback to be time consuming, requires specialised IT skills and individual preference to paper-based feedback (Higher Education Academy, 2013; Ryan & Tilbury, 2013; Powell & Varga-Atkins, 2013).

Strengths	Limitations
<p>Students:</p> <ul style="list-style-type: none"> ▪ Support tool for students ▪ Accepted by students ▪ Evidence for formative assignment ▪ Improve student engagement ▪ Constructive feedback ▪ Greater opportunities for feed forward ▪ Increase student motivation ▪ Detailed and clearer feedback (audio) ▪ Increase reception of feedback ▪ Improve accessibility ▪ Online feedback easier to read ▪ Increase engagement 	<p>Students:</p> <ul style="list-style-type: none"> ▪ Individual preference to paper-based and face-to-face ▪ Some students not acting on feedback ▪ Technical issues – connectivity
<p>Staff:</p> <ul style="list-style-type: none"> ▪ Ability to batch download assignments ▪ Better organisation of student submission ▪ Embedded audio feedback without having to upload audio files ▪ When set-up, marking may be quicker 	<p>Staff:</p> <ul style="list-style-type: none"> ▪ Individual preference to paper-based ▪ Academic integrity ▪ Require IT skills ▪ Can be time consuming initially

Table 1. Reported strengths and limitations of e-tools for feedback from the literature

Although there is a range of e-tools and applications available, it is not known which tools on Blackboard Learn are the most valued by students, most accessible by staff, and the most effective for learning within small and large group teaching among students. However, further investigation is needed to determine how the tools on Blackboard Learn can deliver benefits for both tutors and students, in order to enhance the students' learning experience and benefit from assessment and feedback. The aim of this study was to conduct a comparative analysis of methods on Blackboard Learn for student feedback in small and large group teaching from both the staff and student perspectives.

This study was underpinned by Ulster's seven Principles of Assessment and Feedback (University of Ulster, 2011). These include 1. *Clarify good performance*, e.g. marking criteria clearly stated in module handbooks and performance indicators were provided; 2. *Encourage time and effort on task*, e.g. tutor to check for understanding and track progress of students highlighting areas/ individuals for concern; 3. *Deliver timely high quality feedback*, e.g. general areas of strength and areas for improvement are communicated at an early stage in assessment to students; 4. *Provide opportunities to act on feedback*, e.g. students can use the feedback from the first assignment to enhance the next one (feed-forward); 5. *Encourage positive motivational beliefs*, e.g. tutor providing supportive feedback which highlights areas of good practice, as well as constructively indicating where improvements can be made; 6. *Develop self-assessment and reflection*, e.g. the assessment tasks require students to directly reflect on their learning by evaluating performance, such as online quizzes were used in a number of instances to encourage students to test themselves and reflect on their learning; 7. *Encourage interaction and dialogue*, e.g. a key feature of seminars is that there are opportunities for feedback that allows for idea generation and also encourages students to challenge not only others' ideas but also to challenge their own. These principles were used to evaluate the impact or relative benefits mapped to the assessment and feedback within this study.

METHODOLOGY

This was a comparative study design to determine the most effective

feedback methods for students both in small and large group teaching, using both quantitative, i.e. survey and qualitative i.e. focus group methodologies. Ethical approval was obtained from the School of Communication Filter Committee, University of Ulster.

Sample & Recruitment

The study participants were recruited from the students in the four identified modules, representing a diverse range and needs. All students within the modules were informed of the study, provided with information sheets at the beginning of the Semester (week 1), received the feedback (intervention), and invited to complete the baseline and evaluation questionnaires. Within the four modules, 314 students participated in the study and were invited to complete the surveys, consisting of 233 (74%) females and 81 (26%) males with mean age of 21.4 years (SD 3.5), range 18-51 years. From these modules, eight students participated in the focus group, which were five (62%) females and three (38%) males with mean age of 20.3 years (SD 2.1), and range 18-26 years. All participating students who completed the questionnaires provided written informed consent.

Stages of the Study

1. **Design & Development:** Based on the existing research literature on the strengths and limitations of feedback e-tools (Table 1 and literature in the introduction section above) was used to design and develop the assessment feedback that were implemented within this study, and also the development of the baseline and evaluation questionnaires.

3. **Implement:** The feedback methods for summative feedback were incorporated into four modules. Although these four modules are taught by the same tutor (AM, lead author), they were in two different Faculties (i.e. Faculty of Social Sciences, and the Faculty of Life and Health Sciences). The modules differed by size of student group and the method of delivery of feedback, with traditional hand written hard copy feedback and online feedback using methods available on the online platform, Blackboard Learn, within both small and large student groups, as outlined in **Table 2**.

Module	Activity	Size (number of students)	Year Group
Module 1	large group with online feedback using e-tools on Blackboard Learn*	121	2 nd year undergraduate
Module 2	Large group with hard copy hand written feedback**	135	1 st year undergraduate
Module 3	small group with online feedback using e-tools on Blackboard Learn*	38	2 nd year undergraduate
Module 4	Small group with hard copy written feedback**	20	Postgraduate

*Blackboard Learn tools/applications - tests (weekly MCQs, class test), wikis, discussion boards (tutor & peers), typed comments on assignments online, Turnitin, podcasts (audio & video), Rubrics, Wimba Voice tool. Throughout the modules, all of these tools were employed, with the weekly MCQs, wikis, discussion boards and podcasts (audio & video) for summative feedback, while online class test and feedback comments, typed comments on assignments online, Turnitin, Rubrics, Wimba Voice tool for formative feedback on essays and reports.

** Students accessed Blackboard Learn for the modules but didn't receive feedback using Blackboard Learn.

Table 2. Test modules/feedback Intervention

2. **Evaluation:** Feedback was evaluated within each of the four modules. The measurement tools were: i. questionnaires with students – baseline (Week 1) and evaluation (Week 12); ii. focus

group with students (n=8 students); iii. focus group with staff (n=8 staff).

Questionnaires with students

Students in the four modules were asked to complete two online questionnaires, a baseline questionnaire at the start of the semester, and the evaluation questionnaire at the end of the Semester. The first questionnaire was to determine students' expectations and needs for feedback within the module, example questions include: What is a reasonable time for feedback?, ranking question on preferred method of feedback, and statements on feedback using an agreement scale. The final evaluation questionnaire was to evaluate the quantity, quality and speed of feedback within the module including evaluation of feedback methods on Blackboard Learn. Example questions include different sets of statements on feedback within the module and methods of feedback using agreement scales.

Focus groups

Two focus groups were conducted, one with staff (n=8, at least one staff from each Faculty) within the University and another with students (n=8, same students who received either the online or hard copy feedback, 2 students from each module). The purposes of these focus groups were to discuss findings from the comparative analysis and to obtain their opinions and attitudes to feedback using tools on Blackboard Learn based on their experiences and also the potential use of these tools.

Data analysis

All quantitative data were analysed using SPSS Version 21 (SPSS Inc. Chicago, Illinois, U.S.A.). Frequencies and descriptive statistics were conducted for each variable in the questionnaires, as appropriate. Paired t-tests were conducted to determine if there were any significant differences ($P < 0.05$) between the variables in baseline and evaluation questionnaires, and for large and small group teaching. Data from the open-ended questions were summarised and grouped for themes using thematic analysis (Bryman, 2012). The focus groups were recorded and transcribed, and then the data was analysed using thematic analysis via NVivo (Bryman, 2012).

Results

Survey

Baseline Questionnaire – Students' expectations of feedback

In total, 314 students (100% of the students in the four modules) completed the baseline questionnaire. Students reported the needs for feedback, which were, that it should be provided throughout the module (93%), is more important when involves assessment (92%), linked to learning outcomes (96%) and next assignment (95%), and tailored to students' needs (91%; **Table 3**). At baseline before the feedback were delivered, students (51%) reported that the reasonable time for feedback after submitting work is two weeks. The reported preferred mode of feedback was reported to be online such as on Blackboard Learn (36%), hand written (32%), and verbally (face-to-face) (32%).

Statement	Strongly disagree (%)	Slightly disagree (%)	Slightly Agree (%)	Strongly agree (%)
Feedback should be linked to learning outcomes	2	2	37	59
Opportunity should be provided for feedback to be addressed in the assignment	2	3	37	58
Feedback was tailored for each student	3	6	19	72
Feedback should be received on time as promised	2	5	7	86
Feedback should be provided throughout the module	3	4	48	45
Where an assessment counts towards overall module mark, feedback is more important	4	4	24	68

Table 3. Baseline - Needs for Feedback (n=314)

Students' evaluation survey

From the 314 students who initially completed the baseline questionnaire, 302 (96% of students) completed the evaluation questionnaire. Overall module feedback is presented in **Table 4**. There were no significant differences between small and large student groups. Feedback was reported to be significantly more useful when provided throughout the module via online compared to hard copies ($P=0.001$). Feedback was significantly exceeded expectations via online compared to hard copies ($P=0.023$). The preferred mode of feedback for students within the four groups were as follows: large student online feedback group was online using Blackboard Learn tools (67%); the small group online feedback was online using Blackboard Learn tools (50%); the large group with hard copy written feedback was hard copy written feedback (50%) and online using Blackboard Learn tools (37%); and the small group with hard copy written feedback was hard copy written feedback (50%) and face-to-face (26%). In this study, students reported that they preferred the feedback that they received either online or written hard copy.

Statement	Large group online feedback (n=117; %)	Small group online feedback (n=36; %)	Large group with hard copy written feedback (n=131; %)	Small group with hard copy written feedback (n=18; %)
Feedback was linked to learning outcomes	100	100	85	100
Opportunity was provided for feedback to be addressed in future assignments	90	84	79	100
Feedback was tailored for each student	94	90	84	92
Feedback was provided as promised	100	100	98	100
Quick turnaround time	96	95	80	95
Feedback was detailed (detailed comments)	96	98	86	98
Feedback was provided throughout the module*	100	100	76	80
Accessibility of feedback	98	97	80	86
Feedback exceeded expectations**	93	90	78	80

* Significant difference between online feedback and hard copy written feedback ($P=0.001$)

** Significant difference between online feedback and hard copy written feedback ($P=0.023$)

Table 4. Evaluation - overall module feedback

Comparison of tools on Blackboard Learn

Students ($n=110$) who received online feedback were asked to compare the Blackboard Learn tools for accessibility, easy to use, effectiveness and first preference (**Table 5**). Students reported that the online methods used on Blackboard (100%) were accessible for receiving feedback. All methods were reported to easy to use with the easiest to use were typed comments on assignments online (88%), Rubrics (87%) and Turnitin (84%). The most effective tools were detailed typed comments on assignments online (98%), Wimba Voice tool (96%) and MCQs (93%). Students reported that their first preference for Blackboard tools for feedback were typed comments on assignments online (24%), MCQs (24%) and Wimba Voice tool (22%). There were no significant differences found for accessibility, easy to use, effectiveness and preference among the Blackboard Learn tools.

Blackboard Tool	Factors			
	Accessibility (%)	Easy to use (%)	Effectiveness (%)	First Preference (%)
Typed comments on assignment online	100	88	98	24
Wimba Voice tool (individual feedback)	100	82	96	22
MCQs	100	80	93	24
Discussion board – peers	100	82	87	0
Discussion board – tutor	100	82	85	1
Rubrics	100	87	82	9
Podcasts – audio (class)	100	78	80	1
Podcasts – video (class)	100	72	80	1
Wikis	100	82	78	3
Turnitin	100	84	76	12
Online class test range of questions)	100	76	76	

**Table 5. Comparison of tools on Blackboard Learn for student feedback (n=110)
Focus group – students (n=8)**

From the focus group with eight students, the four key identified themes were “online feedback has benefits over traditional hard copy feedback”, “limitations of online feedback”, “most and least useful Blackboard Learn tools for feedback”, and “most useful Blackboard Learn tool for peer feedback”. There was a general consensus that the benefits of online feedback using Blackboard Learn outweighs those compared to traditional written hard copy feedback as online feedback is more accessible and provides the ability to re-view feedback. Comments from the focus group support this including *“Feedback on Blackboard is accessible as I can view it on multiple occasions on different mobile devices”*, and *“When (Lecturer’s name) marks the assignment, the mark and feedback comes through my e-mails on my phone.”* The students’ issues with online feedback focused on technical issues such as connectivity and their limited IT skills. The findings from the survey

were reinforced in the focus group. The most useful Blackboard Learn tools were reported as MCQs as they are useful for revision and instance feedback, and Wimba voice tool which clarifies and provides detailed explanations and also written comments on assignment online as it is easy to access and detailed feedback. The least useful tool for feedback was reported as general podcasts for the class as they are not tailored for individual students. The most useful tools for peer feedback are Wikis and Discussion boards as they are easy to use, accessible, and encourage collaboration and communication.

Focus group – Staff (n=8)

From the focus group with eight staff, five key themes were identified, these were “students do not know what feedback is”, limited use of Blackboard Learn tools for feedback”, “potential of Blackboard Learn tools to provide feedback”, “Frequently used and useful Blackboard Learn tools for Feedback”, and “innovative feedback on Blackboard Learn ”. There was a general consensus that students do not know what is feedback, they receive it but don’t realise that it is feedback. It was reported by staff that although students would like more feedback some of them don’t act on it to improve subsequent assessment module’s learning outcomes and assessments. There was a general consensus that feedback needs to be aligned to the module’s learning outcomes and appropriate for that particular cohort of students. Timing of returning feedback to students depends on the number of students in the module (more students the longer time required), this point was raised as a very important issue as it is more difficult to give quick feedback to students in a module with large numbers than one with small class sizes. Although staff acknowledged the potential of Blackboard Learn for online feedback, this is an underused resource. The reasons for limited Blackboard Learn use were reported as limited time and technical expertise. Staff acknowledged that Blackboard has potential to improve feedback. Staff stated that tools on Blackboard provide an *“Excellent range of resources and sources of feedback, which will suit different learning style,”* and also *“Encouraging continual learning and formative assessment.”* It was acknowledged that feedback methods vary among staff who have their own preferences. Staff reported that staff within their faculties

would use discussion boards on Blackboard for formative feedback and there was a consensus the most frequent and preferred tool on Blackboard for summative feedback are MCQs. It was reported that a number of staff within the University are using innovative online feedback such as e-portfolios and interactive videos.

Discussion

This comparative study of online methods on Blackboard Learn for student feedback in small and large group teaching found that these were accessible, easy to use and effective for providing feedback, and both students and staff preferred MCQs. There were no significant differences between small and large student groups, indicating that online feedback methods on Blackboard Learn are as effective for both large and small students groups.

This study has highlighted that by using online methods on Blackboard Learn for feedback, can contribute to achieving the Ulster's seven Principles of Assessment and Feedback (University of Ulster, 2011). Online feedback methods can *clarify good performance* as marking criteria is easily accessible for the students. Online methods such as MCQs can assist the tutor to check for understanding and track progress of students highlighting areas/ individuals for concern in order to *encourage time and effort on tasks*. The students who received the online feedback reported that they received feedback quickly thus supporting the *delivery of timely high quality feedback*. When feedback is received quickly, this *provides opportunities to act on feedback*. Students reported more feedback is provided online including examples of best practices, which can *encourage positive motivational beliefs*. The assessment tasks require students to directly reflect on their learning by evaluating performance; such as online quizzes to encourage students to test themselves and reflect on their learning (*develop self-assessment and reflection*). Online methods such as discussion boards and Wikis provide opportunities to *encourage interaction and dialogue* between the students and their peers and with the tutor.

It was clear from this study that feedback methods are determined by the personal preferences of both the staff and students, which are based on their experiences. This study has shown that students

prefer online feedback and thus presents staff with a challenge to use a wider range of feedback methods including online tools. The feedback methods on Blackboard Learn were reported by the students and staff to be useful and effective. However, staff could utilise the potential of these tools more for feedback. Although all the tools were reported to be effective for feedback, the students reported the most effective and preferred Blackboard tools for feedback are detailed typed comments on assignments online, Wimba Voice tool and MCQs, while staff reported MCQs. This study has found that both staff and students prefer MCQs for feedback as they are easy to use and provide instance feedback. Students can revisit the MCQs on multiple occasions and are useful for revision tool or as a formative assessment, while staff can reuse and update the MCQs on multiples occasions.

It was interesting that students reported that they would like more feedback but staff reported that students do not know what is feedback, they receive it but don't realise that it is feedback. This highlights that when feedback is provided, it is important for staff to emphasise that it is feedback. The use of Blackboard Learn can contribute to making students more aware of feedback by providing more opportunities.

The findings from this study support previous research that students prefer personalised feedback (Jonsson, 2013). Online methods can contribute in providing personalised feedback, such as the Wimba Voice tool offers the opportunity for tutors to audio record individual feedback for a student and this feedback can be delivered to the individual student on their mobile device.

The learning impact of online feedback is that staff can incorporate and contribute to the Ulster's Feedback and Assessment principles, thus providing high quality timely constructive feedback. Students can easily access personalised feedback quickly and use it to inform further assessments. This study used advances in technology to improve the quality and quantity of feedback for students, and the feedback methods are more innovative than traditional methods. Thus promoting and fostering creativity and innovation in curriculum design and delivery (Ryan & Tilbury, 2013; Powell & Varga-Atkins,

2013). Further advances in technology such as social media has been used to provide student feedback but requires further research to determine its' effectiveness (Carroll et al. 2011). This study identified e-learning tools such as MCQs could potentially improve the quantity, quality and speed of feedback to encourage engagement in the modules, which is one of the aims of the Quality Assurance Agency (2005) and The Higher Education Academy (Higher Education Academy, 2011b).

Based on this study, the recommendations on student feedback to staff were compiled. Recommendations on student feedback to staff are:

1. Explore Blackboard Learn for providing feedback to students
2. Explore the use of MCQs and Wimba Voice tool on Blackboard Learn
3. Receive training on using tools on Blackboard either using videos on Blackboard and speaking to staff who use Blackboard for feedback.

Conclusion

This study has shown that Blackboard Learn is useful and effective for providing feedback to students, and that they prefer online feedback. The feedback method on Blackboard Learn that both staff and students prefer is MCQs. The need for the greater use of online feedback for students, presents staff with a challenge to use a wider range of feedback methods including online tools. However, with a greater use of e-feedback using online methods, further training of these methods is required both for staff and students.

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Enhancing occupational therapy student learning through problem based learning workshops

Jackie Casey and Iseult Wilson

Introduction/ Background

The cycle of re-validation required by all university programmes ensures that curriculum is relevant and topical, and that learning opportunities are of a particular quality and standard. For the occupational therapy programmes, this process ensures that graduates achieve an honours degree of good standing, and essentially that they are 'fit for purpose' and 'fit for practice' (COT, 2009). As part of the 2011 revalidation of the BSc Hons Occupational Therapy programme the course team agreed to adopt a 'lifespan' approach across the curriculum. To facilitate this new approach the module on occupational therapy for children entitled, 'Occupational Performance: The Early Years' was now delivered during semester one of the first year of the programme. This would now be the first module that the new students would encounter where they would learn about the practice and process of Occupational Therapy (OT) as well as focusing on the impact of disability on the participation and development of our clients – in this case children and young people.

Now the challenge that lay ahead was how to make this aspect of the curriculum accessible to student occupational therapists and develop their skills in problem-solving client needs. This was of particular concern to the first author as module coordinator, as the majority of these students did not yet realise what exactly is occupational therapy; nor would the majority appreciate how disabilities, whether congenital, acquired, social, or environmental impact upon a person's performance of their activities of daily living. It was felt that the usual approach to teaching this complex subject area to first year students, would not be the most effective as they would have a very low baseline to work from, with limited prior knowledge of OT or disability. After reviewing the teaching and learning literature in both OT and higher education, problem-based learning (PBL) methodology seemed to be the most appropriate for overcoming these challenges.

What is Problem-Based Learning?

PBL is an educational approach, which is centred on student learning through the use of a problem scenario. The students develop their problem-solving, critical thinking, and self-directed learning skills as they work through the problem scenario in small supported groups (Beaumont, 2012; Dissanayaka et al., 2012; Hack et al., 2012; Murphy et al., 2011; Barrett 2005; Tremblay 2001). This 'problem scenario' is a carefully designed problem which resembles a real life situation, encouraging the student learners to question, and to actively engage in the process of problem solving and clinical reasoning (Whitcombe, 2013; Barrett, 2005).

PBL has been used in the training of other healthcare professionals since the 1960's (Tremblay et al., 2001) in an attempt to bridge the gap between what students were learning within their university programmes and what was actually observed and practiced when out in the clinical practice setting (Davys & Pope, 2006). Subsequently several occupational therapy and physiotherapy programmes throughout the United Kingdom adopted a PBL curriculum, identifying the benefits of doing so for staff and students. The adoption of PBL (and its hybrid forms) complements the philosophy of these professions by developing practitioners who are reflective, life-long learners and critical thinkers (COT, 2009; Tremblay et al., 2001; Hammel et al., 1998).

Our Implementation of PBL in the module

We adopted a PBL hybrid approach so that the first year OT students would understand the clinical processes involved in effective information gathering, understand the child and their particular circumstances in the case study, and then through collaborative decision making understand the appropriate application and use of this information. Essentially we wanted the students to experientially understand what we refer to as the OT Process and the practice of OT. The OT Process has several steps to it:

- (1) Narrative gathering of information on the client (child),
their strengths and needs, their family composition and support;
developmental expectations, roles and responsibilities.
- (2) Understanding the condition or disability
- (3) Assessment & hypotheses generation

- (4) Problem identification in collaboration with the child and family
- (5) Treatment planning & implementation
- (6) Review/ evaluation
- (7) Discharge planning

In week one the students organised themselves into smaller groups of approximately 5-6, and selected a child case study which would become their group's particular 'problem scenario'. Students then attended weekly problem-based learning workshops (PBLWs) engaging with their 'child', and thereby stimulating their development of new knowledge and problem-solving skills from an OT perspective for their child. Each week the staff, through the PBLW, supported the students to work cooperatively in their small groups (Beaumont et al., 2012), and take increasing responsibility for their own learning (Savin-Baden & Wilkie, 2004) as they progressed through each stage of the OT Process for their child case study. Through developing an understanding of the OT Process, the students then acquired transferable skills such that they will be able to follow this same process with any client they would subsequently encounter in clinical practice.

Our hybrid PBL approach used some practical skills classes and interactive lectures to complement the PBLWs. These guided the students to very specific areas of occupational therapy practice and child development and enhanced their learning in the PBLWs (Kwan, 2000). Additionally a handbook was made available during the workshops to stimulate discussion and direct students to further reading, websites, video clips and treatment materials (Wood, 2003).

Reflection & Evaluation

The module team were keen to determine if these hybrid PBLWs were effective in fostering critical thinkers who understood the OT Process. So we decided to use a qualitative interpretative phenomenological approach, with focus groups and semi-structured interviews to gather the data on the students' experiences and perspectives of PBLWs. Coming from a clinical research background Good Clinical Practice Guidelines and the University's code of practice on research integrity (University of Ulster, 2013) were followed. To reduce bias or coerce participation, students were not approached until the module was completed and students

had received their assessment feedback. Students were selected using their student ID numbers placed in numerical order and each allocated a further number starting from one through to the end. Then students were randomly selected and sent an email invitation to participate. They were asked to respond by a certain date if they wished to attend. Implied consent was assumed by their return email and attendance.

Interviews and focus groups were completed, and facilitated by a physiotherapy lecturer (IW) who does not teach these students, so as to encourage open and honest sharing of their experience of this teaching and learning style. A total of seven year one students participated. This sample size was deemed satisfactory as it was felt that saturation was reached with no new ideas arising from further discussion with the students (Strauss and Corbin 1998). Indeed Creswell (1998) and Morse (1994) have both suggested that a good study may have as few as 5 or 6 participants. The questions were the same for all regardless of whether it was a focus group or a semi-structured interview. The questions explored: student expectations of the teaching style; what they felt about the PBLWs; whether they resulted in learning; had they been taught this way before; how this method compared to their experience of other teaching methods; how prepared they felt in terms of being able to meet, assess and treat a new client.

Findings – Student Perspective

Framework for the OT Process

All of the students were extremely positive about their learning experience within the PBLWs of this module and identified how confident they felt in applying the OT Process to their own child case study. Some students expressed some anxiety regarding whether they would feel as comfortable if they were allocated child case studies presenting with unfamiliar conditions. Despite this apprehension on the transferability of their skills, they did think they would at least know how to start the process.

None of the students expected that their time at the university would involve anything other than lectures, whereby they “would have to sit and listen” [student 3]. They were surprised that they would have any practical classes, or interaction within the lectures,

or workshops, but saw this as a positive experience. They felt that this mix of teaching methodology allowed them to engage more, appealing to their different learning styles. They all were very affirmative about the PBLWs and their child case studies. One student stated how “the workshops gave you a framework of what you needed to look for and a basis of what you are supposed to do” [student 6]. Another reported that she “loved the case study workshops and the whole experience of ‘being the OT’ and really getting into the nitty gritty for her child” [student 2].

One student shared how he benefited from being a part of a small group in the PBLWs whereby he would “not have talked to others normally, but working in the small groups and having a focus to talk about helped build [my] confidence. “I felt that we all shared and were able to contribute” [student 4]. So like his peers he felt safe, and supported to think about the problem scenario, and to explore the interventions they might undertake with such a child. Another felt that the PBLWs were interactive, and encouraged them to “bounce ideas” and that you “were not alone” in deciding what to do for your case study. The students valued this aspect of collaborative decision making, and “if somebody was drifting off in the wrong direction you could sort of bring them back so it was positive” [student 2]. Further, having access to the tutor to check in with to be sure that they were not going off on a complete tangent was reassuring for them. Even though they felt the tutor “wasn’t giving you the information, but she was just telling you what you needed to focus on and work from there, and that gives you a basis with to work from, and not so much panicking” [student 3]. The students found the tutors “accessible and supportive without spoon-feeding you [the student] the answers” [student 4].

By being part of a group, rather than “sit and read on your own and have your own ideas the workshops opened up your thinking and you saw and heard different approaches and ways of looking at your child” [student 5]. This illustrates the value that this student got in sharing and collaborating with their peers, and how they were able to constructively develop their ideas together. Another student claimed that by discussing “you had to explain sometimes where you were coming from” [student 6] to each other. This further highlights that

this student was acquiring clinical reasoning skills, and having to critically think and justify their choice of intervention.

The PBLWs helped the students to start to gain a fuller understanding of the OT process, and particularly what occupational therapy practice would entail with children. Indeed one student remarked how she “realised what you did know already.... and the workshops gave you the opportunity to experience what you might do” with the children [student 5]. Another commented that these “helped me consider why I would use different assessments and interventions for some children...” and how the “...workshops helped her realise that she was learning new skills” [student 4].

Real Life Situation

The students identified with the realism of the problem scenarios in the PBLWs. One student reported that by being a part of the PBLWs this “gave you a different insight into people’s lives and how they are affected by their conditions and how you can help...” [student 7]. Whilst one claimed these PBLWs were “good because it’s like a real life situation” [student 4]; another reported how “my case study came to life and you understood what it would be like for the child and their family” [student 6]; and another said that you “get very attached to the child case study” [student 3]. Consequently these students were identifying with the family-centred approach we adopt within children’s occupational therapy practice.

Findings – Staff Perspective

Two academic staff (JC & LMK) delivered this module, along with technical support. The technical staff made the rooms and additional learning/ treatment resources available for each workshop, as well as outside of class when students undertook self/group-directed study on their child case study.

The design of the problem scenarios was deemed as being very important to the success of this delivery style, and so once created they were checked with full time practising clinicians for their validity as being possible ‘real’ client scenarios. As staff, we felt the PBLWs worked as the module coordinator was an experienced children’s clinician and so could draw upon her clinical practice of working directly with such clients and families when guiding the students

through the OT Process. Equally this created a sense of confidence in allowing students to follow different pathways in coming up with their creative solutions. This mirrored practice nicely, as each child and family situation has its own set of dynamics, often resulting in very different strategies being adopted to meet prioritised child and family need. Hence realising the importance of child-centred and family-centred practice.

Equally the academic staff had to learn to 'let go' and allow the students to explore various pathways, not always the expected pathway, in coming to their solution on how best to work with this child case study. This allowed for the opportunity to explore and discuss the clinical reasoning behind choices and to sometimes direct students to further information they had not been aware of. Further, staff had to adopt a less directive role, and not 'spoon-feed' the students, but rather lead them to where they could themselves find answers. Thereby moving from teacher, or "sage on the stage", to facilitator role (Barrett, 2005).

Discussion

We found this a really rich way of working with the students, guiding them through each phase of the OT process. In particular it was rewarding to watch the students develop their knowledge and understanding, and grow in confidence in themselves as they explored the OT process with their child case study. It was especially satisfying to see how 'attached' many of them had become to their child case study. This illustrated how much they had engaged, as well as the compassion we hope they will have towards future clients.

By using the problem scenarios that represent real-life situations, Davys and Pope (2006) and Whitcombe (2013) suggest that this helps students to develop their clinical reasoning skills and interpersonal skills subsequently improving clinical practice. Our experience was that the problem scenarios felt real to the students, and did motivate and challenge them to seek out new information to problem solve for their child case study. This reflects one of the premises of PBL methodology in which the problem must "smell real, ...be interesting and challenging" (Barrett, 2005, p.56), be presented to them at the start of their learning, and before they are

exposed to other module content (McKillop et al., 2012) and thereby stimulate inquiry, further learning and critical thinking for the student (Dissanayaka et al., 2012).

As the weeks progressed and the students gave presentations to their peers it became obvious that they had not only used the information that was available to them through the lectures and class resources, but similarly to the nursing students in Murphy et al., (2011) study, they had independently attained relevant new information. Further they had worked collaboratively and taken responsibility for their own learning and development (Hack et al., 2012; Savin-Baden & Wilkie, 2004).

In line with Reeves et al. (2004) we found in the discussions and the portfolio assessment how the use of PBLWs facilitated students in developing early clinical reasoning skills. They demonstrated what they believed to be the needs of their child case study and were able to explain this as they “reasoned through the problem” (Barrett, 2005, p.60). They became enthusiastic in searching new information to problem solve and sharing with the rest of their peers and tutors what they had found.

Conclusions

PBLWs proved an effective means to introduce first year students to both the OT process and how children’s participation and development may be affected by disabilities. We will continue to use this hybrid PBL methodology, supplementing the PBLWs by interactive lectures and practical classes. As academics we will continue to evolve our own skills in the role of PBL ‘facilitator’ in supporting students in ‘learning to learn’ (Barrett, 2005) and developing their own critical thinking skills. It is hoped to expand this method of teaching to other clinical modules within the degree programme.

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APPENDIX 1

FOCUS GROUP PROBE QUESTIONS

- Ice-breaker (TBC)
- Before you started this module, what were your expectations of the teaching style that would be used?
Prompts:
 - Compare secondary education (A-level, Leaving Cert, Tech etc.) to OPEY
 - Compare OPEY with other modules of a more traditional nature, such as anatomy
- This module, OPEY, used workshops to facilitate learning. What are your comments about this teaching style?
Prompts:
 - Positives and negatives about the style
 - Challenges
 - What about the end result of 'learning' something: Does this way help? Is there a better way?
 - Does this way suit everyone?
- Now that you have completed OPEY, how prepared do you feel in terms of being able to meet, assess and treat a new client?
Prompts:
 - Knowing what to do (either a 'to-do' list be memory, or really knowing **how** to do what they are meant to do)
 - What would help you to feel more prepared to manage a new client? Within the module, and outside of the module

OPEY = Occupational Performance: The Early Years – this is the children's module title.

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MOOCs and pedagogy: the challenges and benefits of student centric MOOCs in Higher Education

Eleanor Dewar, Ocelet Educational Research

Introduction

Massive Open Online Courses (MOOCs) have been front page news for many years now, since their origins among the Open Educational Resources movement [1]. When the MOOC phenomenon started in 2008 with the CKK08 (Connectivism and Connected Knowledge) MOOC, a key aim was to test new learning theories. This MOOC and those that immediately followed were based heavily in the theories of SCL. However this trend for a student centric model changed following the highly successful Stanford MOOCs, including “Introduction to Artificial Intelligence”[2]. These MOOCs were more teacher-centric in nature, and following their success came the development of the major MOOC platforms (edX, Coursera, Udacity...). MOOCs hosted on these sites predominately use teacher centric learning methods. Due to the exposure and prominence of these MOOCs, it is the teacher centred learning paradigm that is often connected with this educative tool. This raises questions as to the reason for this pedagogical shift. What are the learning theories attached to student centric MOOCs, and to what degree does this form of pedagogy challenge and benefit those developing, running and taking MOOCs?

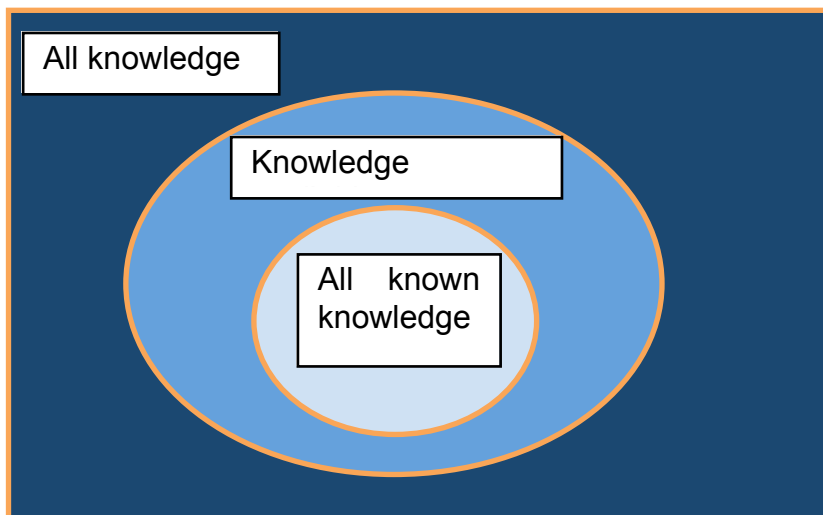
A brief introduction to student centred pedagogy

The first step is to review some of the learning theories applicable to SCL MOOCs. Whilst there are many theories of SCL and many models that may be applied to the classroom (such as Problem Based Learning, Inquiry Based learning...), two theories of student centred learning will be briefly reviewed. These theories are social cultural theory and connectivism. The first can certainly trace its roots back a hundred years[3], the second has predominantly been developed this side of the new millennium (for an example of early writing on connectivism see – Siemens [4]).

Social cultural theory was developed primarily by Vygotsky [5] in the early part of the 1900s, focusing on the need for social interaction to

promote learning. Two main aspects of this theory are the Zone of Proximal Development (ZPD) and scaffolding. The first of these, the ZPD, shows how a learner develops understanding. In figure 1 there are two circles in a square, the centre circle represents everything a student knows, the outer circle everything they have the capacity to know. The square the circles sit in is all knowledge in the world, when information is learned it becomes absorbed into the inner circle and thus the outer circle grows into the square [6]

Figure 1: Zone of Proximal Development



In order for the student to access the knowledge in the outer circle they must be guided using their pre-existing knowledge; this is known as scaffolding. Scaffolding is supported learning, in which the teacher guides the student to the correct answers rather than directly telling them. Hannafin et al. [7] state that there are four components to scaffolding:

- Conceptualisation - The scaffolding supports the choice of information that is being considered.
- Metacognitive - The scaffolding supports the management of the learning process.
- Procedural - The scaffolding indicates the appropriate use of tools.

- Strategic support - The appropriate method with which to address the task is suggested through scaffolding.

Scaffolding supports the learner to make their own choices, but allows a guide to reduce the risk of learning incorrect information or methodology. Social cultural theory also allows for peer-to-peer scaffolding, wherein students support each other. An example of this was Borthick et al.[8], which showed evidence that accountants with little to no knowledge of a computer-based information system developed the skills, ability and knowledge required faster through peer-to-peer scaffolding. Social cultural theory promotes the need for interactivity and socialisation within the learning process to support knowledge acquisition.

One issue that arises with the aforementioned theory is that it was developed many years before the advent of the Internet, raising a question as to the possible effect that being online has on the learning process. A theory that could possibly supply an answer to this question is connectivism, developed by George Siemens [4], citing the following key areas as critical for learning [1]:

Learning may be found in non-human appliances.

- The process of connection between specialised nodes or information sources is defined as learning.
- The potential to acquire more knowledge is more important than currently known information.
- All connectivist activities have the intent to find accurate up-to-date knowledge.
- To facilitate further learning, connections and networks must be maintained and cared for.
- Knowledge and the ability to learn require a diversity of opinions.
- A key skill in learning is the ability to make connections between concepts, ideas, and fields of knowledge.
- The ability to make decisions is a key part of the learning process; that which was applicable today may not in time remain applicable due to changes in the information and knowledge.”

As can be seen, connectivism focuses strongly on the social aspect

of learning. de Waard et al.[9] describe the learning process as set out by connectivism. The student (or as it is describe in de Waard et al. – node) is a singular point, which through social interactions connects to other nodes, forming a network that is unique to them. This network is their web of knowledge dissemination and acquisition. The second critical aspect of connectivism states “The process of connection between specialised nodes or information sources is defined as learning” as such not only does the network contain nodes, it also contains information sources (such as blogs, videos, articles...). Connectivism moves away from the need for a teacher/guide to support learners, and suggest a many-to-many learning approach rather than a one-to-many [10].

Whilst connectivism does have unique aspects, there is some criticism that it merely applies pre-existing pedagogies (including social cultural theory) to technology assisted learning [1]. Both social cultural theory and connectivism embrace the need for peer-to-peer learning; whether it is described as scaffolding or networking, there is a visible similarity. However it is possible to argue that connectivism (due to the advancements in communications technology on which it is built) has a far wider scope than the Vygotskian theory. Perhaps the greatest issue faced by connectivism, in response to the questions of its status as an independent theory, is its lack of research [11]. In order to fully address the similarities more research into connectivism is required.

Student Centred Learning and the MOOC

Having reviewed some of the base factors of SCL theory, the next step is to apply these theories to the MOOC. It must be remembered that the original MOOC, CCK08, was a connectivist MOOC [12]. It is from this original MOOC that the term cMOOC originates. These MOOCs follow the principles of connectivism, however a number of them (including CCK08) where developed to discuss and develop the learning theory. cMOOCs embrace the principles of connectivism, using technology to enhance the learning experience. They may have a key website but often this is only the start of the course material[13]. With the principles of learning networks, diversity of opinion and the desire for up to date information, the connectivist MOOC actively encourages collaboration and the use of social media (de Waard et al. 2011). Within the PLENK MOOC

students used a wide array of social media to enhance their learning [14]. In doing so participants formed meaningful networks of learners, developed a body of content that contained a diversity of opinion and due to the continued creation and adaptation of content developed up to date information. As such connectivism and the MOOC, or at least the cMOOC, are for the most part connected.

This is not to say, however, that connectivism has a monopoly on MOOCs from a SCL perspective. There are a number of places where social cultural theory is applicable to MOOCs, one such area being acknowledging the learner's ZPD. If the MOOC is to follow a scaffolding approach to learning, then each step must expand the learners' knowledge into the outer ring of their ZPD. As such a potential structure for a social cultural theory based MOOC, could consist of short lectures to introduce the topic followed by a number of collaborative assignments supported and guided by course TAs. This gives structure to the MOOC but allows students to guide themselves through their own learning.

MOOCs were originally designed to use SCL methods, in particular connectivism, and these methods can still be applied to the online environment of the MOOC. Social cultural theory can be applied to promote knowledge acquisition expanding learners' knowledge stage by stage in accordance with their ZPDs, whilst connectivism embraces how this information is acquired and the impact of the technological aspects connected to MOOCs.

Challenges facing the SCL MOOC

Whilst there is a connection between SCL methodology and MOOCs, this is not without faults. When developing a MOOC, both those teaching and those learning are affected by the pedagogy applied. As such a number of challenges are faced when developing, teaching and learning through a SCL-focused MOOC.

The first of these challenges is the reaction to the shift in paradigms from teacher centric to student centric, which affects both the teachers and the students. Norvig [2] during a TED lecture suggest that within a MOOC the traditional "sage on a stage" teacher cannot exist. This transition can be a difficult process for lecturers, with one lecturer from the CCK08 MOOC saying "Learner control is not

without frustration for the instructor. I recall feeling a bit frustrated that the concept of connectivism that I was trying to communicate... was not resonating with participants.”[12]. However this position of reduced power does not reduce the workload. Jesse Stommel and Sean Michael Morris ran an SCL meta-MOOC entitled MOOCMOOC; whilst there was little if any traditional teaching involved in this course there was a large collaborative element. Tutors reviewed much of the content produced by the MOOCMOOC participants and as such despite the lack of traditional teaching models, Stommel and Morris had a workload of 150 hour each to produce and run the seven day long MOOC [15]. The challenges facing SCL MOOC teachers focus on the shifting role of the teacher and the high workload that developing courses with high content production can incur.

Teachers are however only half of the teaching and learning process; students are also challenged by SCL MOOCs. A number of papers have been written about CCK08, including Mackness et al.[12] , which outlines four key areas of difficulty for students within a MOOC: autonomy, diversity, openness, and connectedness and interactivity. By its connectivist nature CCK08 placed the learner in a position of autonomy that, it could be argued, has even less guidance than previous forms of SCL. However, another study of CCK08 found that out of the 90 survey respondents 51 dropped out of the fora, citing their uncontrolled, unregulated nature and the behaviour of those involved[16]. The autonomy can be a liberating learning experience, even more so than that of a social cultural theory model; however the challenge for those overseeing the MOOC is the need to plan for the inappropriate behaviours that may arise whilst maintaining the sense of total autonomy. Students of CCK08 embraced the freedoms it gave, but were discouraged from interacting with the course due to negative experiences with other learners[12].

Whilst there are challenges in the way in which teachers teach and students study, there is also a challenge in what they learn. This is particularly apparent in the connectivist MOOCs, where although there may be a focal course website, this is not of necessity the host of all information connected to the course[14].Weller[17] talks about the changing nature of knowledge; traditionally university

have been stores of knowledge and have been able to charge, sometimes, large amounts of money for the privilege of accessing this knowledge.

However this has changed somewhat with the widespread uptake of the Internet, content is no longer solid and unchangeable but fluid and malleable[18]. This raises challenges for both teachers and learners; the principles of connectivism state “that which was applicable today may not in time remain applicable due to changes in the information and knowledge.” Whilst this may lead to innovative thinking it calls into question the validity of that which is being learned. Hand in hand with this is the risk that content created by the participants will not contain accurate information, be it conventional wisdom or innovative thought. This shifting content and risk of inaccuracies are a challenge for the developers and the learners of the cMOOC. However this is less of a challenge for those following the principles of social cultural theory, in that there is a guide monitoring the learning and content that is being undertaken by the student.

The final challenge to be discussed is assessment and accreditation. A number of issues, including problems with authenticity[19] and weighting[20], impede potential accreditation of MOOCs. Within the framework of social cultural theory and connectivism there are additional issues. For social cultural theory the issue arises in the methodology of testing; if it is to be posited that students perform best working collaboratively then there is a potential to argue that they should not be tested individually. On the other hand this could lead to difficulties in testing as a group, running the risk of freeloading students who may not have learned the content gaining the same mark as a student who did the majority of the work. The issues with accreditation are greater for connectivism. As has been noted there is a huge amount of user generated content connected to a cMOOC. Overlooking the accuracy issues with user generated material, another concern is how to assess the learners' acquired knowledge. If media generated around the course is to be marked, the question is which types – blogs, forum posts, facebook discussions – and by what marking criteria.

Benefits of a SCL MOOC

While there are many challenges with setting up a MOOC with a SCL pedagogy there are also many benefits, some of which are discussed below.

The potential benefits for teachers in a social cultural theory MOOC could mirror those which occur in an offline SCL classroom. One challenge for teachers in a SCL MOOC is the transition to facilitator rather than teacher, however from looking at the transition in an offline classroom this relinquishing of control may be less imposing than originally perceived. Webb [21] suggests that placing students into groups does not necessarily lead to group discussions, and it is the role of the teacher to promote discussions and debate, control interpersonal issues that may arise and assist in the students' analysis of information and ideas discussed in the group. This role of group leader is well received by students; one study identified that students found their teacher becoming more important as a guide to support them through the vast amounts of information that was readily available [22]. Teachers in an SCL MOOC do not have to fulfil the role of knowledge delivery system but must take an active role in supporting and developing students' learning processes and learning experience.

For the student there are a number of benefits to partaking in an SCL MOOC. Levy [23] discusses his experiences as a participant in the PLENK2010 MOOC and draws on its collaborative nature, stating that if he had a question it was quickly answered on the fora. This collaborative nature is also cited as a benefit by participants in Mackness et al. [12], finding that even small networks (four to ten people) and one off connections were considered beneficial. As such the ability to work together, however brief that collaboration may be, is a key benefit for students undertaking SCL MOOCs and one that should be promoted by those developing and running the courses. However there is more than just collaboration that makes a SCL MOOC beneficial for students. The autonomy, whilst sometimes problematic, is an important part of the MOOC and a key benefit for students granting the ability to learn when, where and how they like [24].

The final benefit discussed here is that of dropout rates. It is duly noted that both SCL and teacher-centric MOOCs suffer from high levels of attrition [25]; however this is not always the end of the learning process for the student of the SCL MOOC. Rodriguez suggests that within MOOCs up to 50% of dropouts continue to follow the MOOC as lurkers. Whilst they do not partake in learning activities or examined aspect of the course they do continue to learn.

Levy [23] raises the point of learning without assessment, suggesting that the participants of the PLENK2010 course learned without the incentive of accreditation. The SCL MOOC is learning for learning's sake. This said whilst this may be a benefit in getting students to enjoy learning and learn for its own merit, there is still, currently, the need for assessed learning to achieve a qualification. Dewar et al.[15] suggest a possible solution to this is for MOOCs to be used as learning tools to support the learning required to undertake external exams. This would allow students the freedom to learn but also grant them the desired qualification at the end of the course.

Discussion

There are many challenges of running an SCL MOOC, both social cultural theory and connectivism have issues with the shifting of pedagogies. However connectivism has added difficulty in the autonomy given to the students, wherein teachers find it difficult to sit back and let their students learn, and students find it difficult to develop their learning unaided. In addition to this issues are raised as to content and accreditation.

On the other hand, students and teachers can benefit from a more collaborative environment. Whilst autonomy may have challenging aspects, it is embraced by learners, giving them a sense of independence. Furthermore learners begin to learn and enjoy learning in its own right rather than having to learn to achieve a qualification.

These challenges and benefits must be taken into account when an organisation is considering undertaking an SCL MOOC. Firstly the pedagogy which the MOOC will take must be decided upon. Social

cultural theory allows for more guidance and support, but limits some of the autonomy given to the students, and is without specific reference to the online aspect of learning. By contrast connectivism allows for greater exploration of content and producing learning networks, however this theory has issues of validity and by its very nature is unstructured and in many ways anarchical.

A potential way for organisations to overcome some of the challenges, particularly those arising from unguided learning, is to have a number of teaching assistants (be they paid or volunteers). This would firstly relieve the lecturer of some of the burden of running the course. Secondly these TAs could monitor the forums, stepping in when there are issues of behaviour and to support learners who may be feeling lost in the autonomy of it all. Another way TAs could help is through assessing user generated content. During the PLENK2010 MOOC there was a daily newsletter called 'The Daily', which contained information on the best social media content pertinent to the course, Students found this beneficial and subscriptions to The Daily went up even as active participant numbers went down [25]. As such by employing a small number of TAs to support learners, without removing their autonomy, many of the challenges of the SCL MOOC can be overcome.

Conclusion

There are challenges with using an SCL pedagogy for a MOOC, however there are also benefits. Whether the model is social cultural or connectivist students gain more autonomy and develop their own learning styles through learning networks and peer-to-peer scaffolding. Students of these MOOCs are no longer passive learners but creators of content. The SCL MOOC moves beyond just filling the empty minds of students with information, it demands of them collaboration and creation. That is perhaps the biggest challenge and the biggest benefit of the SCL MOOC, allowing students to govern their own learning, creating learners who actually enjoy their learning experience.

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