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Disciplines, Pedagogies and Cultures for SoTL

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Foreword

The themes of the 2010 London SoTL Conference addressed issues that were at the core of the SoTL community's reflections on its purpose and progress. The issues they raised have gradually emerged as problematic, and therefore worthy of debate and enquiry, in recent years across the sector. Expanding the notion of SoTL beyond the confines of the classroom and across the boundaries of the discipline has brought to the fore the following questions:

- Are SoTL methodologies theoretically informed and how?
- Is theory a meaningful area of concern for SoTL?
- Is disciplinarity a stumbling block for SoTL?
- What are the challenges of interdisciplinarity for SoTL?
- Can SoTL travel beyond English-speaking countries and how?
- Does SoTL effectively inform new pedagogies and how?
- Do HE institutions value SoTL and how?
- Do 'quality conceptions' of SoTL and the concern for 'scientific' rigour and measurability restrict the SoTL span?
- Is SoTL an effective instrument to improve student learning?
- Do SoTL activities develop critical learning in faculty and students?
- What are the most appropriate pedagogies for criticality?
- What are the characteristics of a SoTL culture?
- How do departmental and institutional cultures impact on SoTL?
- What are the main benefits for students of SoTL approaches to practice?
- What is the impact of macro-policies (e.g. Bologna, Accreditation in the USA)?

These questions informed the debates at the London SoTL 8th International Conference, under three different strands – disciplines, pedagogies, and cultures.

The **discipline** strand considered the complex relationship between the discipline, which is the traditional structural unit for universities, and SoTL which has tended to work across or beyond disciplinary units. The debate and reflections around this theme bore on issues of interdisciplinarity, collaborations beyond the discipline, genericism, and disciplinary methodologies in SoTL.

Examining and developing **pedagogies** is of course at the heart of the SoTL enterprise. Focusing on pedagogies and the curriculum has re-ignited an interest in the relation between the 'how' and the 'why' of teaching. In the course of our debates, questions were raised about the purpose of a university education, and the kind of attributes one might seek to develop in the next generation of graduates. Alongside those interrogations were questions related to how to develop, deliver, and evaluate the pedagogies used by scholars of teaching and learning, and how to assess what works and why.

SoTL debates over the past few years, especially (but not only) at London SoTL, have emphasised the impact of **cultures** on teaching and learning. Specific cultural impacts have included institutional and departmental cultures, national HE initiatives including the development of quality cultures in HE, and the internationalisation and globalisation of HE. In this strand, papers addressed these issues with specific reference to the impact on SoTL.

The London SoTL 2010 included three international panels addressing the main themes of the conference. The first panel's presentation was entitled *Cultural Capital and Possible Selves: Implications for SOTL*. On this panel, Sue Clegg from Leeds Metropolitan University (UK) and Ross Peterson-Veatch from Goshen College (US) challenged London SoTL into

thinking of – and capitalizing on – the resources students bring to their education and the 'possible selves' they envisage in relation to their futures.

While much policy thinking emphasizes individual social mobility and pedagogies which support the creation of the employable flexible individual, Sue and Ross suggested that in practice how students imagine themselves and their futures is more complex. Their central argument – illustrated through Ross's work with Hispanic students at Goshen- was that for SoTL to support the shift from 'teaching' to 'learning', we need to go beyond focusing on methods, and we must begin researching questions that have to do with the curriculum and are based on approaches that use the assets students bring with them.

Panel Two focused on Pedagogies and included Anthony A. Ciccone from the University of Wisconsin-Milwaukee (US), Brian Coppola from the University of Michigan (US) and Ryan Wain, Vice President and Member of the Executive of the UK National Union of Students. This panel's presentation was entitled *Forever Engaging: The Spirit and Letter in Promoting Student Engagement*. The presenters reflected critically on student engagement and suggested that focusing on pedagogies tends to 'leave the student and the teacher out of the equation'. They argued for putting the student in a place of responsibility. Brian and Tony examined engagement with reference to their own disciplines of Chemistry and English Literature. Ryan's address argued strongly for student representation, and for promoting the value of higher education to empower students from any background, class, or socio-economic milieu.

The third panel focused on the discipline dimension in SoTL and was titled *Disciplines' Troubled Liaisons: Exploring the Relation between SoTL and the Disciplines*. It was led by Mary Huber of the Carnegie Foundation for the Advancement of Teaching (US), Jan Parker from the Open University (UK) and Torgny Roxå from Lund University (Sweden). This panel focused on the historically troubled relationship between generic faculty development and the disciplines. Until quite recently, many faculty development approaches presumed to bring order to what they perceived as pedagogically naïve or resistant disciplines, while many disciplines kept their distance from what they saw as irrelevant or wrong-headed approaches to faculty development. However, with the growth of a practitioner-based scholarship of teaching and learning, the lines between educational development and the disciplines have become blurred.

On this panel, Torgny focused on faculty's resistance to SoTL, and questioned whether 'the Commons' were really common good. He advocated that the community needed to position itself towards those that do not get involved in SoTL, so that the Commons are effective and sustainable. The thrust of Jan's argument was that although disciplines may be troublesome to SoTL, there is a need to engage with them, so that new knowledge is generated about the discipline. Mary asked whether SoTL was becoming 'genericized' and argued that SoTL needed to be attentive to the changes coming from the disciplines. She suggested that it needed to take on the challenge of engaging disciplines, and to walk the tight path between 'rigor' and 'reach'. Both Mary's and Jan's full papers are reproduced in these Proceedings.

We were fortunate to also have the contribution of Stephen Rowland from University College London as a *rapporteur*. His summary at the end of the two day conference generated a number of questions on the SoTL movement - its purpose; the methodologies used by its practitioners to scrutinize and advance their practices; and the complex and multifarious nature of its identity as an interdisciplinary group.

This final edition of the London SoTL Proceedings gives a flavour of the intense and exciting debates that took place in the late spring of 2010 in London. Centred around the three

conference themes, they examine SoTL with criticality and together give a sense of the directions it might take in the future. The papers gathered in this fifth volume focus on SoTL in the classroom and on the broader implications for higher education and practitioners within it. They suggest that SoTL practices make a rich contribution to the student experience, to advancing practices in the field of higher education, and to providing a forum to reflect critically on the academy's engagement in teaching and learning in higher education.

As the conference series comes to an end, it is timely to think about what attracted delegates to these gatherings in London. The conference was a dynamic forum, connected with the realities of practicing in higher education in the twenty-first century. In addition to examining scholarship 'in the classroom', it explored issues that have an impact on how and why one might do SoTL - policy trends, funding issues, technological developments, professional issues. Over the years, in addition to Carnegie Scholars and National Teaching Fellows, London SoLT welcomed panel leaders from the Carnegie Academy for the Scholarship of Teaching and Learning, the American Association for Higher Education, the Learning and Teaching Support Network, the UK Higher Education Funding Council, the Higher Education Academy, the Association Internationale de Pédagogie Universitaire, and the UK National Union of Students.

London SoTL was a small conference which attracted high quality contributions from SoTL scholars across the world – many returning to London on a regular basis. Having started in 2001 under the impetus of Vaneeta D'Andrea and David Gosling as a bi-national forum for UK National Teaching Fellows and US Carnegie Scholars, it quickly became a truly international venue, attracting scholars from many different nations. It was a great place to get to know international colleagues in SoTL, and this was particularly important in the first years when there were only few venues worldwide for SoTL. By 2004, London SoTL had become an established meeting place for scholars of teaching and learning the world over. Thanks to the dedication, talent, and skills of Francois Smit, the London SoTL conference organizer for many years, delegates enjoyed their time at the conference and the opportunities Francois provided for exploring the exciting places London can offer to its visitors.

Over the years, the delegates' own sense of where SoTL could be taken and their generous contribution to a critical debate over its purpose, ways and means made this a very special venue.

Enjoy reading this 5th Volume of the London SoTL International Conference!

Joëlle Fanghanel, on behalf of the Editorial Board

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Enhancing teaching and learning with technology through collaborative research with students

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Introduction

The use of technology in universities has developed rapidly over recent years, and it seems learners now have high expectations of technological provision in higher education institutions as well as using it in their social and leisure activities (Sharpe et al, 2009). Moreover, it has been suggested that young people are now 'digital natives', immersed in technology throughout their lives and familiar with technology to such an extent that educational methods need to change to keep pace with changes in student learning preferences, skills and interests (Prensky, 2001). For example, courses are beginning to experiment with the use of emerging technologies such as *Second Life*, or *Facebook* as learning tools, responding to the increasing use of these technologies in young people's social lives. Whilst the notion of students as 'digital natives' is now being subject to more critical discussion and review (see Bennett, Maton and Kervin, 2008), there remains relatively limited literature on how learners view, experience and engage with technologies in their learning (Sharpe *et al.*, 2005), or indeed how learners themselves would like technology to be used to their benefit (Sharpe *et al.*, 2009). This is surprising, given that there is increasing awareness that technological developments should enhance the student learning experience and compliment traditional teaching methodologies (McGugan and Peacock, 2005).

This paper outlines the process and findings of a collaborative pedagogic research project undertaken at Northumbria University which explored Sport Sciences students' familiarity and use of technologies in learning. A key aim of the project was to be able to develop potential enhancements to teaching and learning within the Sport Sciences curriculum, based on knowledge derived from this research and based on student input. In particular, the project aimed to involve students in development of the study, notably in assisting with design of data collection tools, participant recruitment and dissemination of findings.

The full aims of the project were to:

1. Use research into student use of new and emerging technologies to inform curricular and teaching innovations
2. Enable staff to engage with contemporary developments in the use of technology in student learning to enhance their practice
3. Engage students in pedagogic research to analyse the current and future potential of technology to enhance learning within the curriculum

These aims were consistent with Trigwell and Shale's (2004) argument that a good notion of the scholarship of teaching should not only make clear how learning has been made

possible, but should also 'serve to enhance' (p.524). Trigwell and Shale (2004) also place deliberate collaboration and meaning-making with students at the centre of their model of the scholarship of teaching. Communication and collaboration with students as partners, rather than objects of learning enables us to capture student experiences of teacher intentions, and has considerable potential to develop awareness, enhance student learning and gain critical insights that can be applied to educational practice (Allin, 2010; Brew, 2003; Trigwell and Shale, 2004).

Methodology

The approach taken in this project was that of 'pedagogical action research' (Norton, 2009, p.50). That is, we felt this was a piece of systematic research, undertaken by practitioners, with the aim of improving learning and engaging with the pedagogic literature on learning. The research followed a characteristic action-research cycle: beginning with a current problem, in this case the question within Sport Sciences of how best to engage and develop students through use of technology. The process included inviting discussion through focus groups; planning and conducting a survey informed by input from these groups; and modifying practice based on these findings. Reflection occurred throughout the process, both individually and within meetings, and it is anticipated further reflection and action cycles will follow.

The project arose initially through collaboration between a member of staff working in the Department of Sport Sciences at Northumbria University, and a colleague who worked in the central Learning and Teaching Academy at Northumbria. However, we also aimed for collaboration with students in the design, data collection and interpretation phases of the work. Our inclusion of students as researchers was based on our constructivist philosophy, emphasising our belief that learning occurs through interactions with others (see Palincsar, 1998). It was also important that the ideas for enhancements were derived from a shared understanding rather than the thoughts of lecturers alone – that is, we, as staff, were also learning (see Boyer, 1990, cited in Brew, 2003). At the same time, we felt that engaging students in pedagogic research was an important part of engaging them in a scholarly 'community of practice'; exposing them to pedagogic research and developing their research and critical inquiry skills (Brew, 2003).

Fielding (2001) identifies four levels of potential student involvement or collaboration in research or inquiry: (1) students as a data source; (2) students as active responders; (3) students as co-researchers; and 4) students as researchers. Fielding (2001) recognises that different models and levels of engagement by students and teachers are appropriate at different times and contexts, but suggests it is the level of 'student as researchers' that should be strived for, and which reflects transformatory assumptions and values about education and learning. Although Fielding's (2001) work related to schools and pupils, this model can be applied effectively to staff and students within higher education institutions.

In the initial phase of the project, students were involved mainly as a data source. Interviews were undertaken between October and December 2008 with 11 undergraduate students across levels 4, 5, and 6 (years 1, 2, and 3) and a focus group was conducted with 10 postgraduate students (level 7). Individual or paired interviews, rather than focus groups, were used with undergraduates due to problems in synchronising their availability with their

timetables. In these interviews, students were provided with a list of technologies and asked to discuss both their knowledge of the technology and how, if at all, they used it. They were asked to identify which technologies with which they were most or least familiar. Students were also asked what they thought were 'emerging technologies', what they saw as the purpose of technology and what they expected of universities in relation to the use of technology in learning. Students were then invited to a subsequent interview to explore themes emerging from initial data analysis and to gain student input into ideas for potential curricular enhancements. Following the advice of Sharpe *et al.* (2005), students were asked about how they used particular technologies in their own life and subsequently how they might relate these to their learning, rather than being asked about tutor-provided technologies.

Student suggestions for enhancements, and their responses to the different uses of technology were used as the basis for a wider staff and student survey. Here, students who had participated in the interviews or focus group became more 'active responders' as they were asked for comments informing development of a wider student survey. This survey included asking students to 'rank' the student-identified enhancements on a scale of 1 (most value to learning) to 9 (least value in learning). Three students commented on the draft survey, and questions were subsequently changed to reduce confusion and to clarify particular questions.

Interviewees were then e-mailed to ask if they would be interested in being involved in the data collection phase and two final-year students came forward. These students appeared to become more 'co-researchers' than active responders; they went into seminars, explaining to other students their involvement in the project and its aims, and invited participation from other students in the survey. In total, 344 student questionnaires were completed; 323 from level 4 and 5, and 21 from level 6. Postgraduate students did not complete the survey as the entire cohort had taken part in the focus group.

The two student 'co-researchers' who helped with data collection were also invited to comment on the findings and final write up of the project, and one helped with the dissemination of the project by presenting alongside staff at a cross-university dissemination event and at the 2010 London SoTL conference. The authors feel they did not fully achieve the expected level of student involvement as researchers, however, and ultimately the process remained largely tutor-led. This has become the focus of a further reflective paper exploring SoTL and the notion of 'collaboration' between staff and students in higher education based research and development activity.

The interview and focus groups were transcribed *verbatim* and collated together. The transcripts were then examined through a process based on the principles of content analysis (Bryman, 2004), whereby phrases, sentences or paragraphs relating to the aims of the research were extracted, coded and grouped together into key themes. Examples of such themes were 'student expectations of technology in higher education', and 'the importance of technology 'on the go'. Emerging themes relating to student use or issues with technologies were also identified.

The student survey data was entered into SPSS version 16 for statistical analysis. Frequencies of responses in each rating category for enhancements were collated and converted to percentages and to identify the 'top three' enhancements from students and staff. Associations between a range of demographic variables and survey data were also explored using *chi* square so that minimal assumptions were being made from the data analysis, with probability set at $p<0.05$. The size of the level 6 student sample meant that statistical analysis of any associations using the *chi* square test were invalid.

Student use of technology in their learning
It was clear from the findings that students now expect universities to provide them with information and communication 'on the go'; laptops, wi-fi and access to information through the virtual learning environment platform (VLE) were seen as essential aspects of university life. The VLE is widely used for gathering evidence and preparation of university work, with the university library resource NORA and search engines such as Google Scholar also viewed as key evidence gathering resources.

E-mail was also central to student communication and tutor support. Students view this as a direct way of contacting fellow students, and gaining information, advice and responses to questions from staff. Students identified the potential value of discussion boards in collaborative student learning, but also had issues with its use. One aspect to emerge from the discussion was the importance to student engagement of their knowing when information had been updated. Students were more likely to access some of the VLE's features, for example, if they knew that when they did so, there was new information for them. Such a feature was not available on the current version of the VLE at the time. Student comments suggested that success with discussion boards may be enhanced through integration and use throughout the curriculum from level 4, encouraging use by peers and with greater direction and facilitation by staff. It was also important for students to see the relevance of these technologies to their studies.

However, the research also showed the sport students were not as technologically literate as might be thought. Familiarity and use of emerging technologies remained confined to a minority of students. As such, the debate surrounding whether or not current students are really 'digital natives' continues. The research revealed similar findings to the JISC (2009) inquiry and Sharpe et al. (2009) review of various projects. A number of key technologies such as E-mail, Facebook and YouTube were in common use by almost all (over 90%) of sport students (and indeed, the majority of staff). At the same time, several students indicated in the interviews that they felt social networking sites should remain for social purposes, and that they 'had enough distractions already' without using these for academic purposes. This issue of the divide between social and academic lives is something that needs to be further explored in relation to the use of such sites for learning.

The study found Second Life, Delicious and Twitter were rarely used by students, but there was some evidence of increasing familiarity with a wider range of technologies, with level 4 students using podcasts and Twitter significantly more than level 5 students. This may be due to increasing promotion of these technologies through the internet, and increased use of podcasting in the media (for example on news or other radio and television programmes).

Lack of engagement

The main reasons identified from the student survey for non-engagement with aspects of the VLE or technologies were primarily associated with lack of perceived need or relevance; lack of awareness of the existence of particular technologies; and lack of knowledge/understanding in relation to how to use the technologies. Students also identified lack of use by peers (students and staff) and lack of direction from staff as factors influencing their non-engagement with aspects of the VLE. Students identified both lack of use and/or good facilitation by staff for the limited use of discussion boards, plus a concern of 'looking stupid' through the type of posts published for peer scrutiny and comment:

> Discussion boards aren't used particularly often in my course….when they are I don't really engage with them because they tend to not be very useful in the way they are run. It just tends to be a lot of people asking the same questions, there is not much interaction on there, so I don't engage with them' (Level 6 student).

> [...] the whole not wanting to look stupid in front of your peers prevents you from using it I suppose' (Level 5 student).

Additional reasons relating to non-engagement were a lack of interest in or desire to use the technologies, the view that they already had other means to do what they wanted, and lack of access (for example, no access to an iPhone or to the internet in their student accommodation).

Suggested enhancements

Student comments in interviews pointed to a number of potential enhancements to the curriculum, notably the use of podcasts (e.g. audio files of lectures), interactive whiteboards, integration of discussion boards, group *Facebook* discussions, video-conferencing, and a Frequently Asked Questions (FAQ) section on modules. From the wider survey results, Sport Sciences students' 'top three' suggested enhancements are tabled below (see figure 1):

Suggested Enhancement	Percent of student responses in the 'top three' rating
Introduction of a Frequently Asked Questions board for specific modules	51.5%
Integrating and developing use of discussion boards in all modules	48.1%
Development of a Facebook-type community	46.6%
Develop use of interactive whiteboards in lectures	41.6%
Allow electronic assignment submission	38.2%

in specific modules	
Introduce use of podcasts/video lectures for specific modules/levels	34.9%
Develop use of video-conferencing	22.2%
Introducing Blogs or Wikis in specific modules	11.5%

Figure 1. Student-identified 'top three' enhancements

Initial curriculum developments

From these findings, use of FAQ sections on module sites, development of discussion boards, and development of a Facebook type community were identified as potential areas to work on, with use of podcasts a further development to explore. The authors felt incorporation of FAQs was a fairly easy and 'quick' enhancement to begin to develop, especially as students could see how participation in the study had made an impact. This involved further collaboration between the Learning and Teaching Academy and academic staff and resulted in a 'new look' FAQ document for a placement module; providing instant access to responses in relation to gaining placements and the placement process. Further uses of FAQs are anticipated for Sport Sciences dissertation modules and students' views on this will be sought.   One member of the research team, who had previously been unsuccessful with discussion boards, reflected on some of the comments made in order to redesign use of the discussion board feature within the VLE.

In particular, this involved trying to develop a more interactive style; providing tasks, asking questions and inviting peer to peer discussions as well as tutor-peer responses on a regular basis. In order to do this, literature on effective use of discussion boards was consulted, noting participants in on-line learning need to be supported in structured and developmental way if discussion boards are to be to be successful. As Salmon (2007) highlights, it is important to facilitate student understanding of why they are learning in that way, as well as how to engage. From having 'zero' engagement in a discussion board, this increased to 13 participants in an on-line discussion task – slow progress, but progress nevertheless! The study findings were also presented to a Sport Sciences staff curriculum discussion, so issues, concerns and potential enhancements identified by students could be shared, discussed and implemented across the programme. A further pilot enhancement was the introduction of a *Facebook* page for a final-year module. Initial feedback is that students are engaging with the page, but in a similar fashion to the way they engaged with discussion boards: hence further exploration of the use and facilitation of *Facebook* as a potential collaborative tool for learning is needed.

These initial enhancements are only the first step in the action-research cycle exploring student use of technology in learning. What has been particularly valuable has been engaging students in research into e-learning. For the students there were the benefits of both gaining and contributing to an enhanced understanding of the potential uses of new technologies as learning tools. They also acquired a deeper awareness of research

practices, as shown in feedback from the two students who were perhaps most involved in the project.

> I found taking part in the study interesting as I am interested within [sic] e-learning and new technologies. The focus group was good as it allowed the time for certain technologies that I hadn't heard of before to be explained to me, this helped when completing the survey at a later date. I also thought that the survey was very easy to fill in and was presented well. It was interesting to be involved in the research starting from the focus group and then seeing the survey that was produced using information from them. I found gaining student involvement fine as it took place in lectures meaning it is easier to improve engagement with the research' (level 6 student).

> Personally I found it interesting. I didn't realise how vast the differing databases there were, it challenged my own thinking and current learning. I feel that whilst there are lots of opportunities there is little information given to students, the focus group (there was only me in one session!) I attended allowed me to express ideas and thoughts of current and future learning tools' (Level 6 student).

As Brew (2003) in her re-conceptualisation of the relationship between teaching and research argues, student and teacher activities should not be viewed as separate. Rather, engaging students in pedagogic research with staff can enable them to become critical and creative thinkers and members of an academic 'community of practice' (Lave and Wenger, 1991), with both staff and students learning together through research and scholarship. This can, potentially, break down the lecturer/student divide and transform the nature of higher education (Brew, 2003; Bruffee, 1993).

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Enhancing SoTL through classroom research: the case of chemistry and geology courses at the University of Aveiro

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Introduction

In an age of 'supercomplexity' (Barnett, 2000), it is crucial to develop new forms of learning that facilitate students to live and be successful in a convoluted, fragile, unsure and unknowable world. Therefore it is also essential to conceive and implement innovative teaching strategies that encourage university students to develop as deep and lifelong learners, which makes teaching particularly demanding. In the last decades, the scholarship of teaching and learning (SoTL) emerged as a fundamental concept to the development of good teaching practices in Higher Education and, consequently, to the enhancement of the quality of student learning. Bearing in mind that SoTL comprehends a process as well as an outcome, research on teaching and learning should be viewed as one imperative aspect of SoTL.

This paper endorses in the idea that the scholarship of teaching and learning can be a bridge between teaching and research. Furthermore, we concur with Kreber (2001) when contending that one of the best methods to develop SoTL is the design and implementation of action research projects involving both academics and educational researchers. Ideally, this kind of project has the potential to enhance both the teaching and SoTL.

The main aim of this paper is to present and describe an action research project being developed at the University of Aveiro, in Portugal. This project aspires to establish connections between scholarly teaching and scholarship and, consequently, to establish a link between teaching and research.

In the next sections we will present a brief literature review on how to enhance SoTL and on the distinction between scholarly teaching and SoTL. Later, the action research project aiming at developing SoTL is described. In the end, final comments are presented.

How to enhance the scholarship of teaching and learning?

Prosser (2008) states that the main point of engaging in the scholarship of teaching and learning in higher education is to work towards improving students' learning, through the enhancement of scholars' pedagogical content knowledge. The enhancement of pedagogical content knowledge can come up from the reflection on, codification of and practice of teaching (Kreber and Cranton, 1997); faculty evaluation and development (Paulsen, 1999); the content and pedagogical training of graduate students as new faculty (Boyer, 1990); and through the development of research on teaching and learning, including both traditional research and contextual classroom research:

We need to systematically reflect upon evidence of our own students' learning within our own classes and disciplines. We need to draw upon the generic research, but carefully situate that within our disciplines. We then need to monitor the success or otherwise of our efforts to improve our students' learning, and then communicate the outcomes of those efforts to our colleagues. The scholarship of teaching and learning from this perspective is not research in the traditional sense. It is a practically oriented activity, conducted collegially, and increasingly being conducted alongside traditional research within the disciplines (Prosser, 2008).

To be scholarly teachers, academics need to use the same kind of thought processes in their teaching that they apply to their research (Elton, 1992).

Paulsen (2001) mentions that conducting classroom research is the best way to integrate content and pedagogical knowledge to create pedagogical content knowledge. Furthermore, the same author underlines that 'the conduct of research on learning and teaching is a substantial component and distinguishing feature of the scholarship of teaching' (2001, p. 26). Kreber (2001) also emphasises the significance of classroom research as a way to engage in SoTL. But this author refers specifically to the introduction of collaborative action research programs in which teachers and faculty developers explore teaching and learning in specific disciplines. Zuber-Skerrit (1992) emphasises that at an initial stage, faculty members may beneficiate from the assistance of an educational researcher, who is familiar with appropriate educational literature and research methods, to get the action research project on learning in the discipline in progress.

Schön (1995) also emphasises that the new categories of scholarly must take the form of action research: 'If teaching is to be seen as a form of scholarship, then the practice of teaching must be seen as giving rise to new knowledge' (p. 31). According to Gray (2004, p. 373), action research symbolizes much of what modern research is about 'analysing the world but also trying to change it'. It is equally concerned with changing individuals, in the one hand and, on the other, change 'the culture of the groups, institutions and societies to which they belong' (Kemmis and McTaggart, 1992, p. 16). Somekh also emphasizes this characteristic, saying that action research is 'designed to bridge the gap between research and practice' (1995, p. 340).

Scholarly teaching and scholarship of teaching
Even if frequently the concepts of scholarly teaching and scholarship of teaching are used in a random way, these two expressions do not have exactly the same meaning. Actually, the scholarship of teaching comprises two different, but closely connected activities, *scholarly teaching* and a resulting *scholarship,* which are different in both their purposes and results (Albergaria Almeida, 2010). According to Richlin (2001), the intent of scholarly teaching is to improve the teaching activity and, ultimately, enhance the quality of learning. On the other hand, the final result of SoTL is the production of new knowledge about teaching and learning in higher education, as shown in Figure 1.

Scholarly teaching comprises the identification of a problem or a situation that can be improved and a consequent intervention in order to enhance the problem recognised. This process must go along with the conduction of systematic direct or indirect observation. The data collected must then be analysed and made available to peers. Paulsen (2001, p. 2) states that 'observing students in the act of learning, reflecting, and discussing observations

and data with teaching colleagues, and reading the literature on what is already known about learning is one way teachers can implement the scholarship of teaching'.
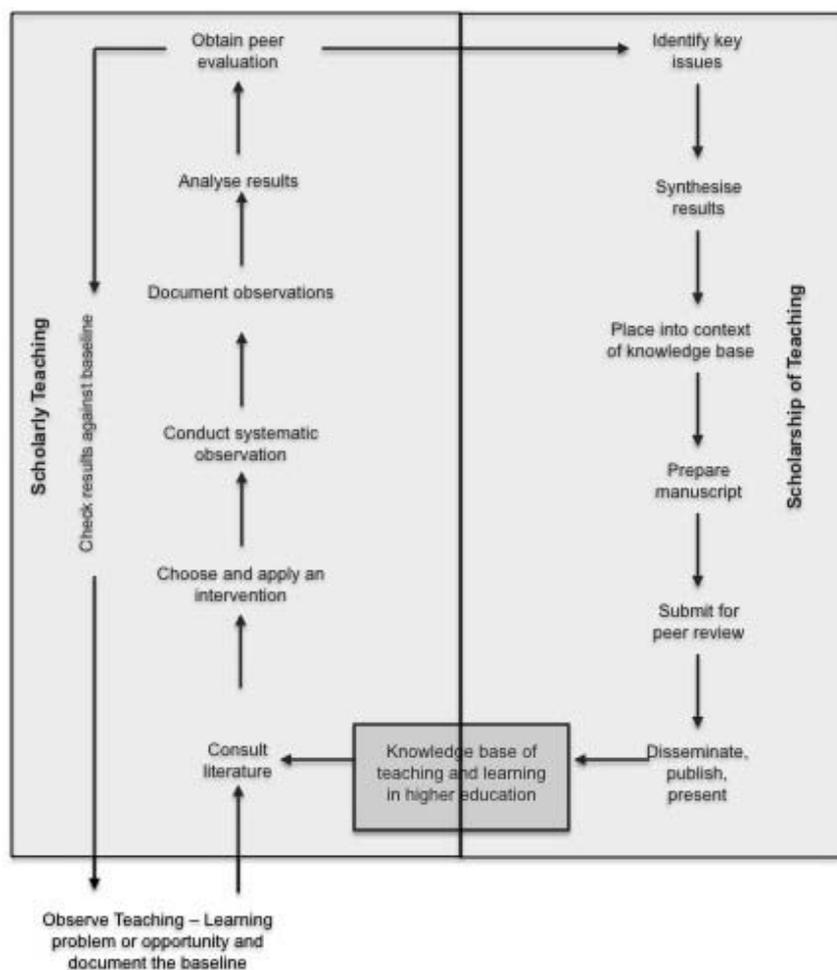
Figure 1. The cycle of scholarly teaching and the scholarship of teaching (adapted from Richlin, 2001)

After completing this process the teachers can decide if they want to move on to the path of the scholarship of teaching, turning their classroom findings into scholarship. Creating new knowledge to share with the scientific community is the ultimate step of the scholarship of teaching.

Action research projects about student questioning

Having in mind the ways to enhance SoTL as well as the relationship between scholarly teaching and SoTL, an action research project is being implemented in chemistry and geology courses, at the University of Aveiro, in Portugal - the 'Ask me a question' project.. This project aims to enhance the scholarship of teaching and learning through:

-   the design and implementation of teaching, learning and assessment strategies to foster students' higher level questions (scholarly teaching);

- the peer scrutiny and the dissemination of the results obtained in this research project (scholarship of teaching and learning).

In the next sections we will describe the several phases of this research project, summarised in Figure 2.
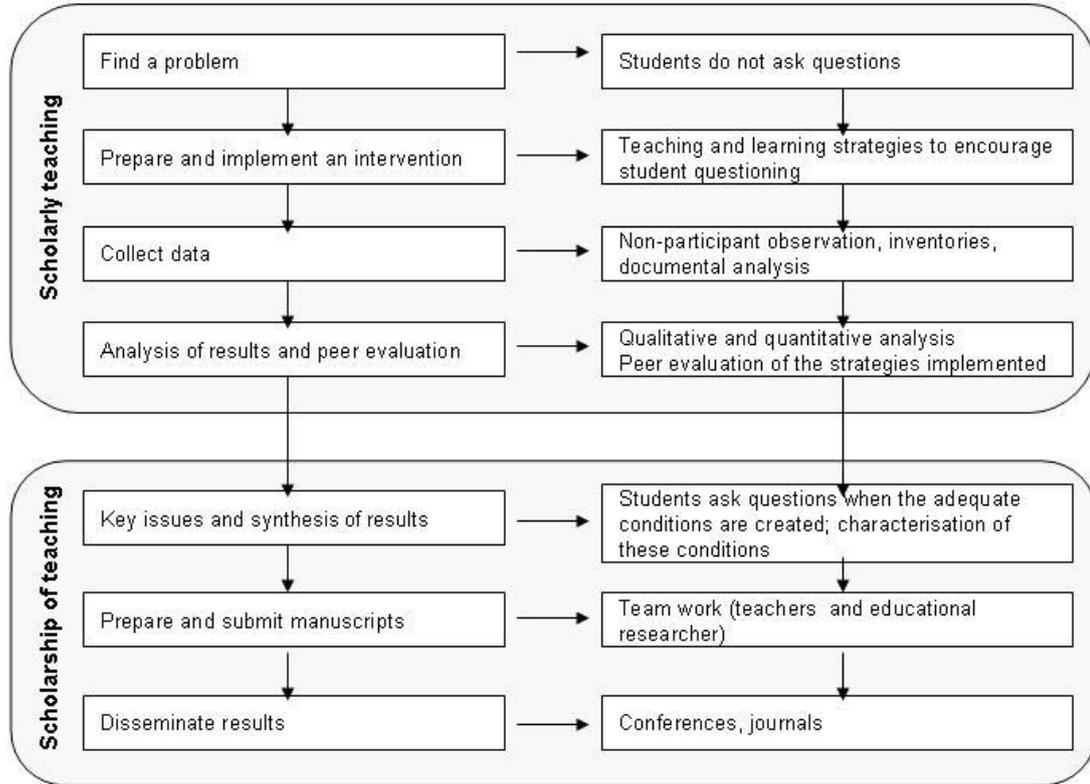
Figure 2. The several phases of the 'Ask me a question' project.

Step 1 – Finding a problem

In spite of the educational significance of student questioning, it is well known that students ask a small number of questions (Dillon, 1988). Actually, only a small number of students instinctively raise high level questions (White and Gunstone, 1992).

Why foster students' questions?

Asking questions is a key element in the learning process (Chin and Osborne, 2008). Questioning helps students orientate their learning as they try to combine their former knowledge and novel information in their effort to make sense of new concepts (Chin and Brown, 2000). Students' questions perform a significant role in learning and motivation (Chin, Brown, and Bruce, 2002), and can be extraordinarily enlightening about the quality of students' thought and understanding (Watts, Gould, and Alsop, 1997). Moreover, student questioning can also direct teachers in their work. Some researchers have explored the potential for using students' questions to influence the curriculum (Almeida, Pedrosa de Jesus, and Watts, 2008; Pedrosa de Jesus, Teixeira-Dias, and Watts, 2003).

Step 2 – Prepare and implement an intervention

How to foster students' questions?

Students' questions typically are a consequence from inconsistency or a gap in the students' knowledge or an aspiration to expand their knowledge. Students' questions may be prompted by unfamiliar words or discrepancies between their previous knowledge and the new information, which then provoke '*cognitive disequilibrium*' (Graesser and Olde, 2003, p. 525):

> Questions are asked when individuals are confronted with obstacles to goals, anomalous events, contradictions, discrepancies, salient contrasts, obvious gaps in knowledge, expectation violations, and decisions that require discrimination among equally attractive alternatives. Graesser and Olde (2003, p. 525).

Actually, the cognitive disequilibrium is the first component of a model for generating questions developed by Graesser and McMahen (1993) and later refined by van der Meij (1994).The combination of these two model proposals comprises three very interactive phases: anomaly detection, perplexity or cognitive disequilibrium as referred earlier, question articulation and social editing, and answer.

The anomaly-detection process identifies obstacles, anomalies, knowledge gaps and uncertainties. The student may or may not be successful in recognising a knowledge deficit. Detection of cognitive conflict can be, but does not need to be, sudden. It can take place over an extended period of time as variations between expectations and counter evidence accumulate. As referred by Miyake and Norman (1979), it can take a large amount of knowledge to know what one does not know. Van der Meij (1998) identified two kinds of stimulus to trigger perplexity: internal or external. Internal stimulus can be just simple thoughts about a subject. The student can reflect about a topic or can establish a relationship between topics and find incongruence or contradiction. Cognitive disequilibrium can also be fostered through external stimulus such as texts, images or the questions raised by the teacher. Both the text and teacher's questions can arouse cognitive disequilibrium by referring to unexpected, dissonant or contradictory facts.

After identifying a problem, students must be able to articulate and express it in a *question format*. Both the articulation and the expression of the question can be difficult processes; but if the articulation can be, in some cases, almost simultaneous to the cognitive disequilibrium, the expression of the question is usually a more complex process. Van der Meij (1998) underlines the difference between finding a problem and formulating or expressing that problem, emphasising the complexity of verbal coding. Graesser and McMahen (1993) also highlight that students with lower verbal skills can have trouble translating the problem found into words. This is a phase that can take a long time. This will depend to some extent upon the complexity of the issues and the felt need to formulate a fully developed question, or not.

After going beyond the expression barrier, students must overcome another obstacle – the social-editing of the question. This process involves assessment of the costs and benefits of asking a question in a particular social situation. A potential question is not asked when the costs are too high or the benefits minimal (Graesser and McMahen, 1993; van der Meij, 1994). The context within which questions are asked can prove an obstacle and so slow down the process. Each of these three components represents a potential barrier to asking a question

Van der Meij (1998) also considers another phase in the questioning process, even if it only happens after posing a question – the answer. Finding an answer to a question can involve a more internal process or can occur through the consultation of external sources, personal and/or non-personal.

Each one of the previous phases of development of a question can be the source of obstacles to questioning. Some students do not have facility in detecting the perplexity or cognitive disequilibrium; others do not find it easy to transform the perplexity into a question. Finding the right words to express the perplexity can also be a barrier, as well as orally express the question in the learning environment.

However, there is also strong evidence that if the adequate conditions are created (appropriate conditions conductive to the generation and expression of students' questions) then students are willing to ask meaningful questions (Almeida, Pedrosa de Jesus, and Watts, 2008). According to Watts and colleagues (1997), learners will ask questions were they have high levels of self-confidence and self-esteem within the learning context, and where their questions are seen to be valued. Watts and Pedrosa de Jesus (2007, p. 113) underline that 'asking even poorly formed and tentative questions can indicate an active, interrogative attitude that not only seeks appropriate information and opinion, but also allows some determination of the worth of what is read and heard'.

Teaching, learning and assessment strategies to promote students' questions

Bearing this in mind, several teaching, learning and assessment strategies were designed and implemented in order to encourage students' questions. Some of these were:

(1) small pauses during lectures to encourage students' oral questions. In the middle of the lesson, the teacher stopped lecturing for two or three minutes, and invited the students to think about or to discuss the class topics with their colleagues. At the end of the break, students had the opportunity to raise oral questions. If the students felt more comfortable, they could write their questions instead, and the teacher would answer orally at the beginning of the next lesson. Some instances of students' questions asked after the pauses are:

Could you explain better what is anthropomorphism?

Are all dry cell batteries not rechargeable?

(2) teacher's written questions during lectures to facilitate the organisation of teaching and learning and to serve as a role model to students. For instance, throughout the 'Water and aqueous solutions' topic, the teacher presented seventeen written questions. These had diverse degrees of difficulty and served different functions. Some instances of the written questions drawn from our project are:

How can you describe the polarity of a water molecule?

Why are there substances that are gaseous, others are liquids and others are solids?

In the absence of gravity, why are water drops exactly spherical?

(3) 'Questions and answers in chemistry' online forum to encourage and facilitate students' questioning. Students could use this tool to ask written questions related to the topics taught during lectures and/or practical laboratory sessions. Questions related to everyday phenomena with a chemical background were also welcome. The teacher

answered all questions within two days, also on the online forum. All questions and answers are online available to all chemistry students.

(4) 'Problem-based cases' online forum to encourage students to ask questions and suggest possible explanations for the phenomena proposed by the teacher. This kind of activity also aimed to enhance the discussion between students. All the problem-based cases proposed to students were based on real life situations with a social, ecological or technological impact on society. Students were invited to analyse these situations through the eyes of a scientifically informed citizen.

(5) Chemistry mini-projects where the students are given the opportunity to creatively develop a small group project on a chemistry topic.

(6) Written questions during geology classes where the students are encouraged to write their questions in the course of lectures and practical sessions. Even if students feel confident and comfortable about asking oral questions, they are stimulated also to ask written questions, since, as observed by Almeida, Pedrosa de Jesus, and Watts (2008), this kind of question usually requires more reflection and, therefore, produces higher-level questions.

(7) Geology field trip where the students are given the opportunity to find answers in the field to questions they have raised previously. These questions derive from the analysis of maps and photos of the areas that they may visit in the field trip. The places visited in the field trip are determined by the questions raised by each student.

(8) Questions and answers in Geology online forum where the students should post their questions before the field trip. Likewise, after the trip, the students should publish the responses to their questions on the online platform. The questions and answers of each student are visible to the whole class.

Step 3 – Collecting data

The educational researcher was present in all chemistry and geology classes. Data was collected through several means, namely through non-participant observation of classes (observation grids for every class were completed and all the classes were audio-recorded), through interviewing selected students, through the administration of inventories, for instance, the Portuguese version of the Learning Style Inventory (Goulão, 2001; Kolb, 1999) and the Portuguese version of the ASSIST (Tait, Entwistle, and McCune, 1998; Valadas, Gonçalves, and Faísca, 2009), and through the analysis of documents produced by the students, such as laboratory books, reports, assessments and posters resulting from the mini-projects.

Step 4 – Analyse results and peer evaluation

The data collected were then quantitatively and qualitatively analysed in order to investigate if the teaching, learning and assessment strategies conceived and implemented encouraged students' higher-level questioning and, consequently, induced deep learning approaches. The strategies implemented, as well as the results obtained were discussed with peers that did not belong to the research team.

Step 5 – Key issues and synthesis of results

The main results of this study show that students can ask questions if the appropriate conditions are created. These conditions include both contextual and cognitive dimensions. By cognitive conditions we refer to the stimulus needed to provoke cognitive disequilibrium (for instance, the problem-based cases proposed on the online forums or the themes of the mini research projects). It is also clear that students react differently to dissimilar learning strategies, due to the diversity of their learning styles. Thus, it is crucial to implement diversified strategies in order to provide students with a range of opportunities to find cognitive perplexity.

The contextual conditions comprise the kind of learning environment that enables students to express their questions, on an oral or written format. This implies an environment where (i) the students feel secure; (ii) they feel their questions are genuinely appreciated by both the teacher and their peers, and (iii) these questions truly contribute to the development of the class.

Step 6 – Preparation and submission of manuscripts and dissemination of results

After the design and implementation of the intervention (teaching and learning strategies to foster students' questions), and after the analysis and synthesis of the results, several papers were prepared (this is just an example of one of them) by both the teachers and the educational researcher. Disseminating the results through publication in academic journals or presentation of communications in conferences is the final step of the cycle of scholarly teaching and the scholarship of teaching, as described by Richlin (2001).

The first cycle of this research project was implemented during the academic year 2009/2010, and the second cycle of intervention is starting to be implemented in the 1st semester of the academic year 2010/2011. After the analysis of the results, the strategies were refined and are now being implemented with a new group of students.

Final comments

We can draw two levels of conclusions from this study. Firstly, it is clear that it was not possible to develop the project in the way that was described in this paper if there was not collaboration between the science teachers and the educational researcher. The science teachers possess the scientific knowledge and the teaching experience. Moreover, all the strategies, even if conceived by both the teachers and the researcher, were always implemented by the science teachers in their own classes and with their own students. On the other hand, the educational researcher has the knowledge about the educational theory and about research methodologies that allowed the design of the research project, the collection and analysis of data, and the posterior publication of these results and the dissemination of this experience conducted at the University of Aveiro, in Portugal. So, we agree with Zuber-Skerrit (1992) when proposing the creation of research teams including both faculty members and educational researchers. Furthermore, we believe that the research work implemented and developed by these teams can be enriched if the teachers involved possess diverse backgrounds (for instance, chemistry and geology).

The second level of conclusions is directly related to the question-based learning environment created. If the teachers are aware of the importance of students' questions and have support to design and implement strategies to foster student questioning, the learners will ask questions. Student questioning is not innate, is not about intuition, but rather about practice and development of a higher level skill.

The action research project presented here aimed at encouraging students' questions through the engagement of science university teachers' in a process of development of their teaching – scholarly teaching – that, ultimately, led to the enhancement of the scholarship of teaching and learning.

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Enhancing the scholarship of teaching, learning and supervision through undergraduate research projects

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Introduction

Since the signature of the Bologna Declaration in 1999, certain issues are acquiring a greater relevance in Higher Education (HE) settings in Europe: in the academy, we may witness the increasing number of discussions and dissemination of 'cases of good practice' on HE teaching, learning, assessment and research. In the European HE agenda the need to enhancing the quality of students' learning experience has gathered momentum. Attention is being paid too to the teachers' performance inside and outside the classrooms (Sursock and Smidt, 2010). Consequently, the authors consider relevant to focus on the importance of developing undergraduate research initiatives as a way of enhancing the quality of teaching, supervision, learning and research experiences, both from students and teachers/supervisors' perspectives.

Firstly, it is essential to clarify the nature of this undergraduate experience, since there are many forms of engaging students in research activities (Lopatto, 2009). We may synthesise four main characteristics of the undergraduate research experiences at the Portuguese context: (i) this initiative was created by the Ministry of Science, Technology and HE which allocated part of a budget for undergraduate research scholarships; (ii) research units and associated laboratories from all scientific domains may propose research projects; (iii) students may apply for a project, but only a few will be selected, since there are limited number of participants; and (iv) the engagement of students in research activities occur outside the classroom. Moreover, these students have the support of a supervisor, who already holds a doctorate, and who usually is a teacher at a regular curricular unit of a 1st cycle course. This is essential to be highlighted, since the teachers/supervisors who participate in this study bring that dual perspective to this research. Therefore, an interconnection between two contexts will be established: (i) the teaching and learning process inside the classroom, and (ii) the teaching, supervision and learning process in these research projects (outside the classroom). Consequently, a dialogic relationship will be considered when reflecting about the enhancement of the scholarship of teaching, learning and supervision.

This national programme launched by the Portuguese government in 2008 was mainly created to achieve higher levels of qualification within the 1st cycle of Bologna, by exposing students to research environments. This initiative is assumed to have a great relevance since it may enhance students' generic competences and skills, particularly which may be of a great utility not only to their academic studies but also to their future professional life. In addition to the clear advantages of this experience for students, the present study will demonstrate the benefits that teachers/supervisors (according to the contexts in which they are integrated in) may have by engaging in this initiative. Also, it must be stressed that,

although we are aware of the existence of other research initiatives within some curricular units and research units, these are isolated activities that are not described nor properly identified at the national HE context.

Taking into account those preliminary considerations and background, this paper starts by approaching the well-known and recognised benefits of engaging undergraduate students in research experiences. Thereafter, it will briefly present the Portuguese initiative and the methodological approach followed in this study. Then, an exploration and interpretation of data collected through interviews will be presented: both students and supervisors' perspectives will be discussed. We have the main objectives of: (i) analysing the benefits of the engagement of HE teachers (also supervisors) in the undergraduate supervision process, and (ii) evaluating the advantages of undergraduates' involvement in research activities on the development of academic and personal competences and skills. The final remarks will be focused on the main perspectives explored in this paper, as well as the promotion of the scholarship of teaching, learning and supervision through undergraduate research projects.

Undergraduate research initiatives: Potentialities for students' development

> Learning is essential for human growth. Research is *the* fundamental human learning activity, involving enquiry, problem solving, diversity, flexibility and decision-making. It encourages and enables the development of creative thinking, problem-solving strategies and abilities which in turn help others to approach everyday life as well as professional, political, local, national and international questions and issues. (Wisker, 2005, p.5)

This quotation clearly emphasises the importance that research activities may have, at any level and from several perspectives. For many academics, national and institutional policy makers what distinguishes – or should distinguish – HE is the interconnection between the teaching and the research roles of the University, and (undergraduate) students reaching new understandings of the complexities of knowledge through their learning in a research environment.

However, the international research evidence suggests that the interconnection between teaching and discipline-based research is not readily revealed in practice and most significantly in the (undergraduate) student experience of the curriculum (Jenkins, 2004; Brew, 2006). A range of studies have shown that for many students their experience is of being excluded from research (Brew, 2006). Nevertheless, discussions may enlighten possible approaches which, when put into practice, can extend undergraduate research activities to the greatest number of students, so that all may benefit from its positive impact.

Recent research and evaluation studies have shed light on the benefits to students, faculty, or institutions of these undergraduate research opportunities (Lopatto, 2007; Russel et al., 2007; Seymour et al., 2004). Several studies also report effects of these experiences on retention, persistence, and promotion of science career pathways not only for regular students, but also for underrepresented groups (Nagda et al., 1998). Additionally, it is encouraging to find strong convergence as to the types of gains reported by these studies (Brown and McCarteny, 1998; Hunter et al., 2007; Lopatto, 2009).

Setting the scene: the BII Portuguese initiative

As we have already mentioned, the Portuguese Government, along with the Foundation for Science and Technology (FCT), decided to create undergraduate research grants (the BII) in 2008. The Portuguese financing agency clearly referred in their regulations (FCT, 2008) the importance of engaging students of the 1st cycle of Bologna as soon as possible in research activities. It was recognised to be an important strategy to develop and enhance generic high level competences, required by the labour market, and essential for the students' holistic development.

Within this national programme, all research units and associated laboratories (RU/AL), both from public and private HE institutions, and all scientific domains, can propose research grants. All undergraduate students can apply for a one year grant in any institution, even though it is necessary for them to present a 'good academic performance' that is usually measured by the grades and ECTS they have at the time of the application process. However, no more details were defined in what concerns the selection procedures that each RU/AL needs to follow to select the students.

Students will be supported by a qualified research supervisor and by the end of the grant, the undergraduate needs to write a report to be presented and discussed in a public session organised by the foster institution. By the end of the one-year involvement on a specific research activity, students' work can be converted in ECTS: a Diploma Supplement or equivalence in a specific curricular unit of the course.

At the University of Aveiro

Even though this is a recent initiative, it had a very positive response by the RU/AL of all scientific domains at the University of Aveiro: several grants were opened and the majority were taken by undergraduate students. However, it must be stressed that there is a gap between the number of grants opened and the number of contracts made, particularly in what concerns the first year of this initiative (figure 1). We consider that in 2008 (and even in 2009) there was a lack of strategic and good advertisement of these grants as well as the overall application process. Additionally, perhaps many students were not well informed about the objectives of the national programme and the purposes of the research projects in particular.

The following figures (1 and 2) draw a generic idea about the way this national initiative was received by (i) this University in general, (ii) each scientific domain in particular, and (iii) the number of students who were mobilised and effectively answered to this opportunity.
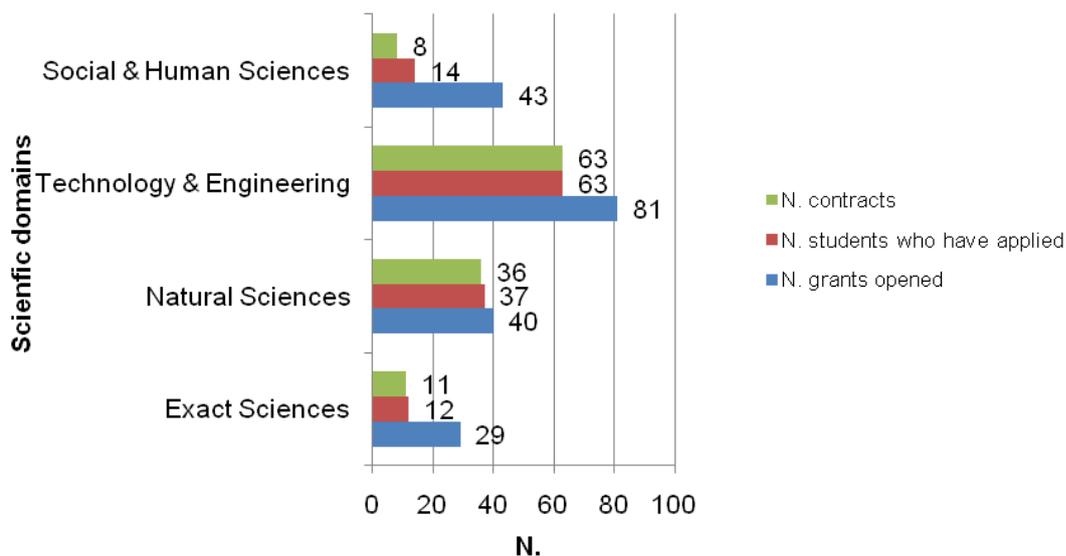
Figure 1: The undergraduate research initiative at the UA in numbers - 2008
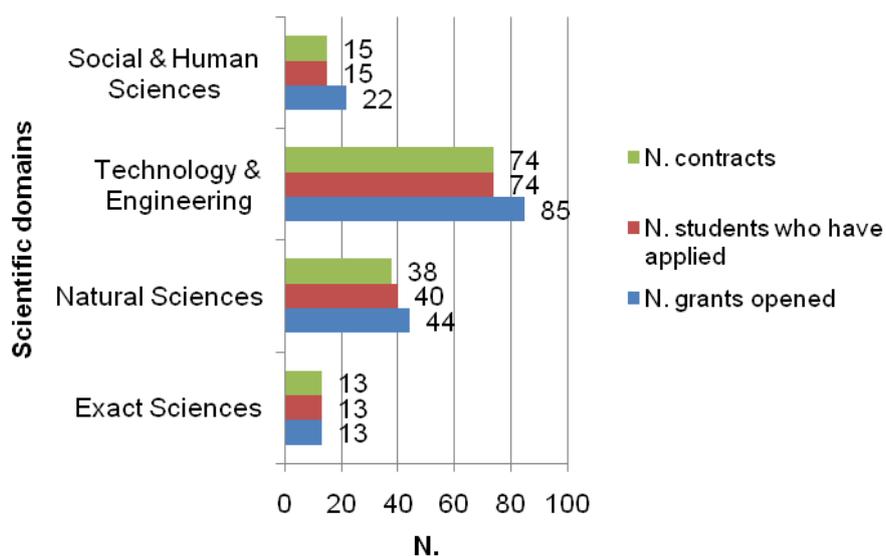
Figure 2: The undergraduate research initiative at the UA in numbers - 2009

Those numbers give a sense of the success this initiative is having, since (i) it was accepted by senior researchers who proposed projects directed to undergraduate students, and (ii) it was well received by the students, who showed interest in participating in this experience. Up to this moment, we have acknowledged, within some scientific domains at the UA, the existence of informal teaching and learning strategies run by individual teachers by trying to establish the link between teaching and research. In this case, the classroom activities stimulate students to engage in research activities, but in a small scale, particularly through project-based learning (Huet et al., 2008). Thus, we also consider that its success and impact (at a short-, mid- and long-term) must be identified and evaluated considering different levels and perspectives, so it can be more explored, stimulated and enhanced.

The research project at the Department of Education

Since this is a recent national strategy in Portugal, it is crucial to develop a monitoring and evaluation process to understand how undergraduate students are being integrated in research activities outside the classroom, and how that experience may enhance students' learning experience as well as teachers/supervisors' experience. This evaluation study is even more important for several reasons: (i) the need of a more focused, broadened and engaged debate about the high level competences that undergraduate students must develop and some suitable research-based strategies that may enhance them; (ii) the importance of developing studies and debates regarding this initiative (since day 1); and (iii) the great necessity of understanding and improving the whole process, particularly by contacting with the supervisor and the undergraduate student.

Observing the lack of research and discussions about this issue in Portuguese HE settings, this evaluation study was designed and is being carried out by researchers of the Laboratory for the Evaluation of Educational Quality in Higher Education, an organic research laboratory of the Research Centre of Didactics and Technology in Teacher Training of the Department of Education at the UA.

Design of this study

The research method is a case study with a descriptive and exploratory perspective (Yin, 1994). In this paper we will answer the following research questions:

- What are the advantages for teachers/supervisors to be engaged in undergraduate supervision process?
- What is the impact for students' academic and personal development?

To address these questions, the research participants are all 2008 undergraduate students (n=5) and their supervisors (n=4) of the Research Centre for Didactics and Technology in Teacher Education (specific area: Education). Tables 1 and 2 briefly characterise the participants.

Student	Gender	Age (in the beginning of the grant – 2008)	Course
St1	Male	21	
St2	Female	20	2nd year of Basic
St3	Female	19	Education at the
St4	Female	19	UA
St5	Female	30	

Table 1: Students' demographic and academic characteristics

Supervisor	Gender	Professional category
S1	Male	Senior lecturer

S2	Female	Full Professor (with the support of a doctoral student)
S3	Female	Post-doctoral Researcher
S4	Female	Researcher

Table 2: Supervisors' demographic and professional characteristics

We will focus on the data collected through the interviews with the aim of understanding (i) the benefits of HE teachers' engagement in the undergraduate supervision process (those teachers are the undergraduate research supervisors), and (ii) the advantages of undergraduates' involvement in research activities. To have a richer perspective and to 'triangulate ideas' (Lopatto, 2009, p.30), we will put side to side both students and supervisors' voices, since the interviews were designed to take account of the same dimensions.

A CAQDAS (Computer Aided Qualitative Date Analysis Software – NVivo 7) was used to support the content analysis and to organise data, promoting better organisation and systematisation, search of patterns and data relationships across categories (Richards, 2002; Johnston, 2006).

The benefits of HE teachers/supervisors' engagement in the undergraduate supervision process
When approaching this issue, all supervisors from 2008 had the opportunity to engage in a process of self-reflection regarding the undergraduate supervision process, namely: the differences and challenges they recognised when compared with postgraduate supervision, which they were more used to do, and the potential benefits this experience had in their own learning as HE teachers and supervisors. Simultaneously, when approaching students about this subject, it was also very interesting to observe their meta-reflection and inquiry concerning the role that teachers/supervisors already had and ought to develop to always achieve a higher quality in the entire process.

Focusing on supervisors' perspectives, it was interesting to observe that they demonstrated different levels of engagement in the process of self-reflection. This influenced their views about the benefits this experience might have in their own process of growing as HE teachers and supervisors. Although this was a small number of interviewees, we may observe that S2 showed a perspective that was different from the other three supervisors.

Supervisor 2 indicated that the competences that are stimulated in different settings and contexts are always used in others, particularly when talking about pedagogical and supervision competences. Nevertheless, she did not go any further in the reflection about the benefits of engaging in this activity.

On the contrary, supervisors 1, 3 and 4 considered that this experience allowed a self-reflection about:

(i) Their own competences: the competences they possessed as teachers and supervisors, and others that needed to be developed and actualised in practice,

since this was a different initiative which required from them different attitudes and skills;

(ii) The competences they needed to stimulate, so these students could benefit from this experience, as well as the research environment they needed to create to engage and put students in contact with;

(iii) The objectives and what was expected with this initiative. It is essential to realise that 2008 was the first year of this programme and that nor FCT nor HE institutions had defined any guidelines or regulations to be followed;

(iv) The profile that an undergraduate student needed to show at the beginning (even though it was essential to have good grades to be selected) and at the end of the grant, as well as what was expected from them along this undergraduate research journey.

These four aspects emerged from their discourses. The interviews shed light on both individual perspectives and sensibilities, as well as shared aspects and concerns.

Supervisor 1 pointed out that this experience was very useful to reflect on the best ways to 'develop real research contexts', exposing undergraduate students to enriching experiences, so s/he could develop a set of research and generic competences and skills, which would be important not only in a short term (academic purposes) but also in a mid- and long term (professional purposes). Therefore, this supervisor considered it was essential to understand (i) the profile and competences that are required to a 1st cycle student enrolled in a certain course, and (ii) the competences and skills his student already possessed, and those she had the potential to develop within this programme.

The same perspective was shared by supervisors 3 and 4. Particularly, supervisor 3 considered extremely important 'to create contexts that stimulate students' learning' and 'to develop research and inquiry perspective' regarding certain issues. Thus, when engaging in this 'student-centred initiative', a supervisor (who may be simultaneously a teacher) ought to develop an interconnection between (i) the generic objectives of this national programme, (ii) the course objectives, competences and learning outcomes, and (iii) the project objectives, tasks and learning outcomes, so that a student could really benefit from this activity. This supervisor highlighted:

> (…) the definition of competences and thereafter the definition of tasks/activities must be articulated with those competences and learning outcomes that undergraduates have to demonstrate by the end of the course of the 1st cycle of Bologna. The initiative is not an isolated activity. (S3)

Supervisors' assumption of the relevance of those previous aspects led them to think more holistically about possible strategies to improve the undergraduate research experience not only outside but also inside the classroom. This fact stimulated these three supervisors to:

(i) Understand the generic profile of undergraduate students in general, and those enrolled in specific courses (in this case to train future teachers of Basic Education):

> To better know the difficulties and potentialities of undergraduates (S4)

(ii) Design 'new' teaching and learning experiences that take into consideration students' needs and learning styles:

(...) Teachers-supervisors may become more aware of teaching and learning strategies more suitable to a 'public' with specific characteristics (S5)

(iii) Promote more research-based activities inside the classroom, since these supervisors saw its impact (although in an individual basis) and experienced its feasibility:

This experience led me to reflect on the development of research activities in regular curricular units (S1)

(iv) Think about this national programme as a possible way to promote a more personal and individualistic contact with the student, almost impossible in a large class:

The personal contact with these students allows me to understand and somehow evaluate the competences and skills that they possess (S1)

(v) Assume the supervision process as a under- and postgraduate pedagogical practice, that required individual approach and suitable measures:

This experience enhances critical self-reflection regarding supervision styles and strategies of research supervision (S5)

(vi) Reflect on the close link of teaching and research, and also the relationship of teaching, learning, research and innovation that has to be enhanced in activities inside and outside the classroom:

It creates an opportunity to develop teaching and learning/ innovation/ research: a three-dimensionality that will benefit not only HE teachers but also undergraduates' development (S1).

Finally, it was supervisor 5 who stressed the importance this experience might have in a deeper self-analysis and reflection about the supervision practice at different levels. According to her, this initiative was a very positive experience for senior and younger researchers to think about strategies (i) to enhance the quality of research supervision, and (ii) to develop and/or strengthen research networks/communities.

Although those aspects are not new, supervisors became more aware of their importance. In this case, it was their involvement in this national programme (an innovative strategy in Portugal) that had created a possibility for them to personally reflect on these issues.

Finally, a connection can be established between undergraduates' perspectives with some aspects stressed by their supervisors. In their individual interviews, students considered that teachers-supervisors became more aware of undergraduates' individual and global characteristics:

> The proximity and individual relationship may allow supervisors (simultaneously teachers) to better know their students (even though they are a minority) and some of their characteristics, difficulties and potentialities. (St5)

Moreover, this initiative was considered by the students as an opportunity for the teachers-supervisors to engage in a deeper reflection about different and innovative teaching and learning strategies more suited to them. Particularly, there was a more self-reflective student who mentioned the link between teaching, learning and research:

> This initiative complements the work developed at regular curricular units: it is an experience that can optimise research, teaching and learning process. (St4)

In this case, we may conclude that she had a positive experience and had engaged in some fruitful discussions about this issue with her supervisor.

The benefits of undergraduates' involvement in research activities
Concerning this subject, when going through a retrospective analysis, both students and supervisors assumed the high relevance of this initiative. This data is focused on a self-reflection and evaluation from students, and simultaneously it is established a parallel with the evaluation made by the supervisors. Aiming to better systematise the results, we will gather the information in tables 3, 4 and 5. Before moving towards the analysis, it is important to underline the following aspects:

(i)   We categorised the competences students and supervisors highlighted in their discourses, according to the Tuning terminology: interpersonal, instrumental and systemic competences (Tuning, 2002);
(ii) To simultaneously analyse students and supervisors perspectives, we organised the information according to each dyadic pair involved in the undergraduate supervision process. This organisation allows a better exploration concerning the proximities (or not) of both perspectives.
(iii) Two symbols were used: the pencil (✐) refers the potentiality of this initiative, and the smile (☺) represents the evaluation made by each supervisor and student about the competences that were developed.

It was emphasised by all participants that this initiative was extremely important for students to be in contact with 'research cultures' (S2 and S5) and environments which were quite different from the teaching and learning strategies that were run inside the classroom. Therefore, this was considered an opportunity to develop generic competences required by academic and also professional settings. Also, it was unquestionable the enhancement of (inter and intra) personal competences, essential for students' development.

The following tables (3, 4 and 5) systematise the content analysis and, as previously mentioned, highlight students and supervisors' perspectives regarding this initiative potentiality and the evaluation they made considering the competences that students developed.

INTERPERSONAL COMPETENCES	S1	St2	S2	St1	St5	S3	St3	S4	St4

Individual abilities									
Ability of being receptive/ open to new experiences/ contexts	✎ ☺		✎		✎	✎ ☺	✎	✎ ☺	✎ ☺
Critical and self-critical/ self-analysis abilities	✎ ☺			✎	✎	✎		✎ ☺	
Curiosity		✎					✎	✎ ☺	
Responsibility and self-discipline	✎ ☺	✎	✎		✎	✎ ☺		✎ ☺	✎
Social skills									
Team work	✎ ☺	✎ ☺		✎	✎				
Ability to work in an interdisciplinary team	✎ ☺			✎					

Table 3: Interpersonal competences – initiative potentiality and evaluation

INSTRUMENTAL COMPETENCES	S1	St2	S2	St1	St5	S3	St3	S4	St4
Cognitive abilities									
Ability of being involved in theoretical reflection/ discussions	✎ ☺	✎	✎	✎		✎	✎	✎	
Capacity for synthesis	✎ ☺	✎ ☺	✎		✎	✎ ☺	✎ ☺	✎ ☺	✎ ☺
Capacity for critical analysis and reflection	✎ ☺	✎	✎	✎	✎	✎	✎	✎	✎
Capacity for organisation and planning	✎ ☺	✎	✎	✎ ☺	✎	✎	✎	✎ ☺	✎ ☺
Basic generic but also subject-area related knowledge	✎ ☺		✎	✎ ☺	✎				
Ability of questioning	✎ ☺						✎	✎ ☺	
Ability of gathering and analysing data		✎ ☺	✎ ☺	✎ ☺	✎ ☺	✎ ☺	✎ ☺	✎ ☺	
Methodological capacities									

	1	2	3	4	5	6	7	8	9
Ability of making decisions and justifying options/perspectives	✎ ☺		✎	✎		✎	✎	✎ ☺	✎ ☺
Technological skills									
Ability of using computer to search for bibliographic resources	✎ ☺	✎ ☺	✎	✎	✎	✎	✎	✎ ☺	✎ ☺
Information management skills	✎ ☺	✎ ☺		✎ ☺	✎				
Ability of using specific software to analyse data			✎ ☺	✎ ☺	✎ ☺			✎ ☺	✎ ☺
Linguistic skills									
Ability of oral communicating skills: discussing with others	✎ ☺			✎	✎			✎ ☺	✎ ☺
Ability of orally communicating to an academic audience								✎ ☺	✎ ☺
Ability of writing different types of texts, in accordance with the context and dissemination purposes	✎ ☺	✎	✎	✎	✎			✎ ☺	✎ ☺
(more specifically) Ability of writing academic texts	✎ ☺	✎ ☺	✎	✎	✎			✎ ☺	✎ ☺
Ability of reading different types of texts			✎	✎	✎	✎	✎	✎ ☺	✎ ☺

Table 4: Instrumental competences – initiative potentiality and evaluation

SYSTEMIC COMPETENCES	S1	St2	S2	St1	St5	S3	St3	S4	St4
Interested and self-motivated	✎ ☺	✎ ☺	✎	✎	✎	✎ ☺	✎	✎ ☺	✎ ☺
Capacity for applying knowledge in practice	✎ ☺	✎ ☺			✎				
Capacity and willing to learn	✎ ☺	✎	✎	✎	✎	✎ ☺		✎ ☺	✎ ☺
Capacity to adapt to new situations and be flexible	✎ ☺	✎	✎		✎	✎		✎ ☺	✎ ☺
Capacity for generating new ideas (pedagogical resources)	✎ ☺	✎		✎				✎	
(more specifically) Creativity and innovation				✎				✎	✎
Ability to work autonomously	✎ ☺	✎	✎	✎	✎	✎	✎	✎ ☺	✎ ☺
Ability of dealing with unpredictability and changes	✎ ☺	✎			✎			✎	✎
Hardworking		✎ ☺							✎
Versatility									✎

Table 5: Systemic competences – initiative potentiality and evaluation

As it can be observed, there are some competences which are considered to be more important than others. Nevertheless, when analysing the overall dimensions, we may notice the generic profile that an individual recently graduated must demonstrate to be prepared to work and/or to engage in further studies (at postgraduate level). We may assume that more responsibilities and holistic preparation to face these growing demands are even more required to deal with unpredictability and increasing changes.

Additionally, considering the supervision pair and establishing a parallel between their perspectives gathered through individual interviews, we can highlight the following great messages. From the first pair, it is essential to stress the intellectual humility that the undergraduate had demonstrated. Being perfectionist and humble, this student consciously assumed that she had many things to learn to become a 'real researcher'. That experience was only the beginning, but a first step towards a 'bigger horizon':

> The initiative is worth by itself: it opens horizons and creates the opportunity to be in contact with a real research environment that, otherwise, I wouldn't be in contact with. (St2)

From the second pair, it is essential to underline the senior researcher's perspective: she had not the sufficient time to devote to the undergraduate supervision and research process. This supervisor clearly assumed that this supervision process was more demanding and

difficult, since these students had different expectations, motivations, preparation and the overall objective of this initiative was quite different from the postgraduate one. This is a very important factor to take into account so the process can be enhanced and realistically understood, contextualised and harnessed. Also, from both students' perspectives, it must be emphasised that they, as young researchers, needed to share responsibilities and to openly talk with the supervisor about any problems in the supervision and research process.

Regarding the third pair, it must be learnt that the lack of guidelines about the overall intentions of this undergraduate programme may be a problem, particularly when a young supervisor does not have any experience in the supervision process. Simultaneously, it is crucial to know students' priorities when selecting them to be part of this initiative. This undergraduate clearly assumed that the research activity was not her priority and, even though she understood its importance, she did not believe that it would have any kind of impact at a short-, mid- or long-term.

Finally, the last pair demonstrated a great engagement and interconnection: these are essential 'ingredients' for a successful experience where both are involved in a learning process. In this student words:

> We are lifelong learners and, consequently, we have to be open to new experiences and to develop and renew all sorts of competences. (St4)

To conclude, we believe these reflections should be considered when improving the following editions. Additionally, all interviews underlined the relevance of discussing this issue, so engagement strategies can be designed, institutional regulations and/or guidelines can be established, and a monitoring and evaluation process can be extended to the entire institution.

Final considerations

Considering the above analysis and discussion, there are some main aspects that may be reinforced:

- Undergraduate research projects are extremely relevant, since they have an enormous impact on students' holistic growth and on their path towards the development of a 'scientific mindset' (Pearson et al., 2009).
- Even though we have focused our attention on the benefits that undergraduate students and teachers/supervisors may have by involving themselves in undergraduate research activities, it is a fact that the advantages go beyond singular perspectives. The benefits can be extended to the faculty members, the HE institution (trying to achieve what the Boyer Commission calls 'symbiotic relationship' [1998, p.7]), and also the country at a medium or longer term.
- It is essential that the number of grants per scientific domain may increase, particularly in the case of Humanities and Social Sciences where most students do not follow a scientific path. However, the importance of research must be discussed and opened to the students: 'the basic idea of learning as inquiry is the same as the idea of research' (The Boyer Commission, 1998, p.17).

- The perspective mentioned by the interviewed teachers/supervisors about the link between teaching and research must be broadened, disseminated and discussed, so other faculty members can also take part in these reflections and experiences. As Lopatto (2009) emphasises, research and teaching are 'two forms of creative work' and particularly 'undergraduate research mentoring may be viewed as the 'the purest form of teaching' with benefits to the mentor as a researcher and as developing teacher.' (p.12).

This experience has significant benefits: both students and teachers/supervisors are learners (although at different levels and points of view), and both are dialectically engaged in the process of teaching, learning and supervision. This is an interconnected process which must be permanently enriched and explored so the scholarship can be enhanced.

More particularly, the Boyer's notion (1990), that emphasises the perspective of academics as learners, is clearly visible in those teachers/supervisors' interviews. Almost all of them demonstrated a high level of engagement in becoming better teachers and supervisors, by (i) involving themselves in critical reflection about their own practices, (ii) designing suitable strategies to improve the quality of teaching, learning, research and supervision, (iii) reflecting about the success of those strategies, and (iv) involving themselves in discussions with colleagues (Kreber and Cranton, 2000; Trigwell et al., 2000; Trigwell and Shale, 2004; Prosser, 2008; Albergaria Almeida, 2010). Although they may not go systematically through all those steps, the teachers/supervisors' overall discourse highlights those concerns, particularly when there is an evidence of a high level of commitment and engagement in reflecting and inquiring their practices. Above all, the enhancement of the scholarship of teaching, learning and supervision is clearly visible in the teachers/supervisors' continuous construction of knowledge through a self-reflective process, and the improving of students' learning experiences.

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Breaking the mould: An academic for all seasons

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Introduction

Traditional views of the academic role in higher education are shifting as a result of changing priorities and the increasing emphasis being placed on teaching and learning and the student experience. Taking as its background the experiences of the University of Ulster, this paper will consider the changing role or the academic and how this may be supported through academic development initiatives to foster an institutional and cultural change. It will examine how the University of Ulster restructured its processes to support new and experienced academics from initial professional development to continued professional development. The restructuring has, in turn, changed the ways in which the programme team operates and how this is influencing wider SoTL initiatives throughout the institution.

Background

Much research (Biggs, 1999; DfES; 2003; Department for Business Innovation and Skills (BIS), 2009; Kreber; 2010a) has focussed on the changing nature of higher education, but it is clear that we are now entering a new era of change, one which embraces widening participation (variously known also as universal access, broader access or mass education), but which also demands that we take even greater account of 'providing opportunities for different types of people to study in a wider range of ways than in the past' (BIS, 2009, p.9). This 2009 report also argues that with the introduction of variable fees - as recommended in the independent Browne Report on Higher Education (2010) and subsequently introduced by institutions in the UK - students' expectations of Higher Education (HE) have changed and that these expectations from our most important clients should inform and enhance the service that universities provide.

The Further Education (FE) sector in the UK which offers post-compulsory continuing education from basic training to foundation degree level, as distinct from university degree programmes, has, according to Jones (2008), expanded its numbers with a minimum degree of effort. By contrast, widening participation for HE is concerned with increased participation through reaching out to lower socio-economic groups, and the UK Minister of State for Universities and Science recently issued guidance to the Office for Fair Access outlining significantly increased expectations for HE institutions regarding widening participation (BIS, 2011). Within the Northern Ireland context, these expectations are mirrored by the recent Davies Review (2010) and the Republic of Ireland's National Strategy for Higher Education to 2030 (2011).

Hockings *et al.* (2007) concluded from their research as part of a two-year funded project entitled 'Learning and Teaching for Social Diversity and difference' that 'University Lecturers today cope with more students, different students, as well as different courses with different purposes'. They go on to say that lecturers need to take a student-centred approach to

teaching, curriculum design and assessment otherwise the learning environment will be ineffective or inappropriate, and this shift will doubtless have ramifications for perceptions of the scholarship of teaching and learning (SoTL). Kreber (2007) succinctly outlines the impact of these changes as:

> The change from elite to mass higher education (to universal access) in many countries has direct implications for SoTL. Widening participation agendas, though welcomed by many, bring with it multiple challenges with regards to pedagogy. Higher education 'for all' involves changing traditional approaches to teaching and assessment practices so that not only 'all' get admitted into our programs but 'all' also have a fair chance to succeed (Kreber, 2007, p.1).

What then does this mean for the role of the academic and the perceptions that he or she may have of their sense of professional self? Furthermore, what does this mean for academic developers charged with supporting academics in such a changing climate?

The University of Ulster context

The University of Ulster, located at four campuses across Northern Ireland, is the largest university of the island of Ireland, having approximately 22,000 students and 3,500 staff of whom 1,300 are academics. The University has had in place a post-graduate Certificate in Higher Education Practice (PgCHEP) for over 20 years, and participation has been mandatory for new members of staff since 2004.

University programmes in the UK are regularly reviewed internally in order to re-affirm the appropriateness of their standards and currency, a process known as *revalidation* at the University of Ulster. The PgCHEP was scheduled for revalidation in November 2009, which presented an opportunity to rethink the curriculum design and delivery and to place the PgCHEP within a wider structured process aimed at enhancing teaching and learning, and fostering a culture of engagement with scholarship. Whilst the internal revalidation processes provided the timescale for re-evaluation of the then programme, a number of drivers also served as an impetus for change. A key internal driver was the implementation of the university's Teaching and Learning Strategy 2008/09 – 2012/13 (University of Ulster, 2008a), the strategic aims of which are:

1. to enhance the quality of the student learning experience;
2. to target, recruit, support and retain a diverse range of students;
3. to promote and foster creativity in curriculum design and delivery;
4. to promote learning, professionalism and employability through the integration of academic theory and relevant professional and vocational practice.

Furthermore, in 2008, the University established a Centre for Higher Education Practice, designed to be the 'facilitating and enabling arm' (University of Ulster, 2008b) of the aforementioned strategy. Situated alongside the Staff Development Unit, the Centre aims to promote scholarship of teaching and learning by providing opportunities for engagement at a practitioner level, bringing together academics across the disciplines to engage in discussion and conversation about scholarship.

The Centre organises a monthly programme of open seminars and discussion *fora* on all four campuses, led by internal practitioners and/or external experts which seek to engage staff in different aspects of SoTL, the focus of which may be influenced not only by institutional priorities but by internal and external initiatives. The Centre also encompasses a number of sub-committees charged with promoting specific initiatives, such as creativity in the curriculum, pedagogic research, and peer-learning for students. Bursaries are also available to support teaching and learning projects, and dissemination of internal research and practice is encouraged through annual showcase events and through publication in its journal, *Perspectives on Pedagogy in Practice*. It can clearly be seen therefore that the university has a strong focus on teaching and learning, and seeks to encourage participation and engagement with SoTL through a number of institutional initiatives. Nevertheless, whilst laudable, a concentration on purely centrally instigated initiatives may engender a number of inherent dangers.

Where academic development is seen as being driven as a top-down management policy, there is a danger that compliance may stifle creativity and the wider engagement with scholarship may stagnate under the need for performance accountability, in other words 'teaching becomes commodified' (Harvey and Knight, 1996, p.163-164). In order for engagement with scholarship of teaching and learning to flourish, a culture of social exchange is needed (Light and Cox, 2001; Roxå *et al*, 2008; Mårtensson and Roxå, 2009; Roxå and Mårtensson, 2009; Roxå *et al.*, 2010). Research indicates, however, that for such 'significant conversations' (Roxå and Mårtensson, 2009) to occur in a meaningful way, the network of trusted interlocutors is very small and such conversations tend to take place away from an open arena. If this is true for academics who are already experienced, then this is even more the case for new academics struggling to come to terms with the understanding of scholarship and its articulation in the 'new language' they are required to speak (MacKenzie *et al,* 2010). In addition, the notion of critical reflection may be alien to some and particularly challenging to those unaccustomed to examining their own practice in the light of a wider body of teaching and learning scholarship (Brew, 2006, p.111). Centrally created initiatives therefore, whilst valuable in themselves, may sometimes inhibit the very dialogue and engagement they seek to nurture, particularly for the inexperienced. Indeed, the notion of 'academic tribes and territories' (Becher, 1989) may be further reinforced by such central initiatives, creating an inner, elite, circle within the territory of academic scholarship. In apparent contrast to this perspective, the approach taken by various PgCHEP Course Teams at Ulster over the years has always been centrally driven: the challenge therefore was to harness the opportunities offered by a multi-disciplinary audience so as to create new communities which transcend the perceived boundaries imposed by discipline-focused silos.

It would seem therefore that a postgraduate certificate for new academics would serve to introduce the language and practice of scholarship of teaching and learning, and thereby provide access to wider experience both within and beyond the institution: a mechanism for widening the sphere of dialogue and encouraging the social activity engendered by scholarly practice. As previously mentioned, the University of Ulster has over 20 years experience of delivering such a programme to its newly-appointed academic staff, but it is fair to say that in many cases the qualification was simply a view to an end, and once successfully completed there was no expectation that continued engagement would ensue. Of course, this is not universally the case, but anecdotal evidence would indicate that the qualification was viewed

by many as a necessary evil, a mechanistic exercise which, once completed, was rarely revisited.

Types of initial teacher development

It is apposite at this juncture therefore to consider the nature of postgraduate courses in order to understand why they were considered, in the main, as a fixed term intervention. As observed by Gibbs and Coffey (2004, p.88) 'Initial training of university teachers is now established in every university in the UK', having moved from small scale *ad hoc* development to more cohesive programmes of longer duration. However it is interesting to note that in their 2004 study, it is the impact of *training* on university teacher behaviour and student learning which is evaluated, and concentrates on three distinct goals: 'the improvement of teachers' skills', 'the development of teachers' conceptions of teaching and learning' and ' consequent changes in students' learning' (Gibbs and Coffey, 2004, p.88). The study is impressive in the range of its data and reinforces the role of the training programme as an 'alternative culture' (Gibbs and Coffey 2004, p.98) offering a safe environment for dialogue about teaching. It is interesting to note, however, that initial teacher development is referred to throughout as 'training', a term which implies a passive, finite experience by participants. Such a mechanistic training approach, reinforced by the acquisition of practical skills (Brown and Atkins, 1978; Race, 2001; Brown and Race 2004; Brown *et al,* 2004; Race and Pickford ,2007) serves to underline initial teacher development at the transmissive, teacher-focused end of Trigwell and Prosser's scale (2004, p.413), which, although resulting in an improvement in student learning, does not yet embrace a student-focused approach which takes 'teaching away from a direct focus on what happens in the classroom' to one which seeks to 'actively engage students in the learning process' (Brew, 2006, p.99). The movement towards a student-centred focus implies a stepping back from instrumental, formulaic classroom strategies and takes concrete steps towards a more facilitative approach where the curriculum aims to transform and reshape students' conceptions (Harvey and Knight, 1996; Elton, 2000; Light and Cox, 2001; Trigwell and Prosser, 2004; Brew, 2006). To this end reflective practitioners need to engage with SoTL since it is this wider understanding of, and discourse around pedagogic practice which prompts them 'to re-evaluate the discipline of education in order to value it' (Brew 2006, p.105-106).

Over the years the University of Ulster's postgraduate certificate programme can clearly be seen to have mirrored this early insistence on the classroom management aspects of teaching and learning in higher education, where modules sought to provide participants with practical 'tips and tricks' on a variety of teaching scenarios. Indeed the changes to the title of the programme is testament to this underlying ethos: over the years the programme has been called variously the postgraduate certificate in Teaching in Higher Education, University Teaching, Higher Education Teaching, before encompassing a more inclusive practice in 2005. This emphasis on the more strategic elements of HE teaching practice can be seen to align to 'technical' knowledge (Habermas, 1971) or 'instrumental learning' (Mezirow, 1990), whereby actions and learning are base on empirical data which can be proven to be correct or incorrect. Kreber (2010b, p12) describes this within the SoTL context as a desire '…to know 'what works' or how *effective* the teaching approaches are…in particular situations'. Mezirow (1990) contends that for transformative learning to occur, knowledge constructs must move beyond the 'instrumental' to 'communicative' and

'emancipatory' levels. The first shift, to 'communicative' learning which actively shares knowledge and understanding with others as part of a community, implies an improved comprehension of ' 'what is right' or how meaningful and desirable our strategies and goals are' (Kreber, 2010b, p12). Moving beyond this to a critically reflective or 'emancipatory' stance involves the questioning of values accepted as the norm within that community, with a view to exploring alternatives in an 'appraisive rather than prescriptive or designative' manner (Mezirow, 1991, p87). Whilst wider reading on other aspects of pedagogy was encouraged within previous iterations of this post-graduate certificate, this initial engagement with the scholarship was limited, thus reinforcing the finite nature of the programme. The 'instrumental' levels of reflection designed to manage improved practice, did not foster the 'communicative' and 'emancipatory' approaches which foster deeper engagement with SoTL (Kreber and Cranton, 2000).

The academic sense of self

The role of the academic traditionally implies that of a discipline expert, having the dual emphasis of teaching and research albeit skewed towards the latter, operating within an autonomous institution, and whose immediate context of operation is the departmental and/or discipline community (Becher and Trowler, 2001). Given the hitherto imbalance in the teaching-research nexus, the former was considered to be (and in some cases remains so) 'a function performed by experts in their fields of research who seemed *de facto* qualified to pass on their knowledge to future generations' (Fanghanel, 2007, p.4), without the benefit of any professional development and engagement in the theory or practicalities of pedagogic practice. However, given the changing face of the HE environment, it is clear that the current role of an academic 'is characterised by increasingly complex relationships between teaching, research and administration' (Kreber, 2010a, p.173), and that the traditional sense of self needs to be re-evaluated. Indeed, from a teaching perspective, academics are now faced with an increasing emphasis on the 'student experience' and the quality of teaching, a diverse student background, increased accountability to external stakeholders and the mastery of new teaching modes and technologies.

For many academics the new order, and the implicit requirement to engage with SoTL will therefore require a re-evaluation of their role and practice (Brew, 2006), and for many this 'opens up new ways of thinking...which can challenge some peoples' notions of a verifiable, correspondence view of truth.' (Brew, 2006, p.114). In addition, Brew suggests that these new ways of thinking, to encompass engagement with SoTL, require the academic to move from a practical consideration of their practice, which focuses on classroom technique, to a more considered and reflective mode in which teaching and learning is transformed. This concept may often be difficult to grasp and even more difficult to articulate (MacKenzie *et al,* 2010), and then needs to encompass a sense of self or identity that is unique and yet 'linked, and committed, to *something significant* that lies beyond *my self*.' (Kreber, 2010a, p.172). Engagement within a collective context thus allows individuals to be able to develop an identity as part of a shared set of values, but more critical reflection on their own evolving practice also implies that academics need to be able to own their individual interpretation of SoTL. The 'community of practice' (Lave and Wenger 1991) which encourages shared, collective practice and learning, gives rise to a dual, yet related, identity of self and community member.

This shift towards self-reflection and identification of an emerging sense of self has obvious implications for the ways in which academics shape their own role and practice, but equally for the ways in which academic developers conceptualise programmes aimed at professional pedagogic development. The social and occupational contexts in which academics operate (Becher and Trowler, 2001) may well be restricted to their discipline arena. In order for a communicative and emancipatory perspective on SoTL to be fostered, these potential boundaries need to be opened up beyond the discipline and tempered within a process of wider social and community learning (Lave and Wenger, 1991; Wenger *et al,* 2002). Engagement with SoTL under the aegis of academic development implies, therefore, the creation of a new community of learning, which goes beyond discipline boundaries and which fosters new conversations, new dynamics and a sense of empowerment (MacKenzie *et al,* 2010). At the University of Ulster we used the 'multi-dimensional model of scholarship of teaching' (Trigwell *et al,* 2000, p163) which offers a helpful framework on which engagement with SoTL may be aligned.

The model outlines the shift from a teacher-focused to a student-focused approach characterised by different levels of engagement with and activities within the scholarship of teaching and learning. At an initial phase, the teacher-focused approach uses pedagogic theory in an informal and generic manner with little meaningful reflection or dissemination of practice. As individuals develop their engagement with the SoTL at discipline level and within their own practice, reflection on their own practice becomes more critically aware and dissemination moves from the localised environment to the wider national and international community.

The dimensions posited served not only as a useful benchmark for the development of the new postgraduate certificate in Higher Education Practice (PgCHEP), but also a tool whereby the programme team could situate their own practice in terms of academic development.

Application of the model

Using this multi-dimensional model we can map how the modules of the PgCHEP support and inculcate practitioners who are likely to be teacher-focused to develop into practitioners who are student-focused. The PgCHEP comprises three modules; *Student-centred Learning, Supporting Research Practice* and *Enhancing Learning*. There is an alternative module to supporting research practice which is *Enhancing Professional Practice;* this is available for staff who do not have research as part of their contract.

Dimensions			
Informed	**Reflection**	**Communication**	**Conception**
Uses informal theories of teaching	Effectively none or Un-focused reflection	None	Sees teaching in a teacher-focused way

and learning			
Engages with the literature of teaching and learning generally		Communicates with departmental/faculty peers (tea room conversations, department seminars)	
Engages with the literature, particularly the discipline literature	Reflection-in-action.	Reports work at local and national conferences	
Conducts action research, has synoptic capacity, and pedagogic content knowledge	Reflection focused on asking what do I need to know about X here, and how will I find out about it?	Publishes in international scholarly journals	Sees teaching in a student-focused way

Table 1. Multi-dimensional model of scholarship of teaching (Trigwell *et al* 2000, p.163)

The Programme Specification for the PgCHEP (University of Ulster, 2009) describes the modules thus:

Student-centred learning

The module provides an opportunity for staff who facilitate learning in the University to develop their understanding of, and practice in, effective learning, teaching, and assessment and/or feedback, through building up an in-depth knowledge of the needs of the cohorts of students they will encounter within the University. The module provides a conceptual underpinning for individuals whose duties and responsibilities involve supporting and guiding the development and/ or delivery of learning opportunities for an increasingly diverse body of learners. It enables participants to enhance, apply and evaluate appropriate skills in the context of Higher Education. It provides opportunities for participants to reflect critically on their own experience, both as a learner and practitioner, and to identify aspects of their own practice that could be developed and/or improved.

Supporting Research Practice

This module has been designed to support participants' understanding and development of research practices necessary to engage fully with their research remit in a Higher Education context. It recognises that academics are both teachers and researchers. The latter role involves developing original knowledge and disseminating it to a range of audiences including fellow academics, the general public, policy makers, and industry. The aim of this module is to provide professional training in acquiring research funding as, in general, this crucial skill is not developed through postgraduate research, and academics are facing increased pressure to write successful proposals.

Enhancing Professional Practice

Building on Student-centred Learning, this module has been developed to provide an opportunity for participants to explore and critique the established and evolving scholarly and professional evidence base in Higher Education practice relevant to their area of work, and use this to inform and shape their evolving practice.

Enhancing Learning

The final module builds on ideas and approaches developed in preceding modules, taking a synoptic approach to exploring how the various strands of participants' professional practice can coalesce to enhance the student experience. It recognises that the role of those involved in teaching and learning support has changed, and continues to evolve in response to institutional and/or external drivers, including emerging technologies, student profiles, and the need for a more creative outlook within a discipline-specific and cross-disciplinary context. It also provides participants with the opportunity to further engage with internal and external communities of practice to broaden their sphere of SoTL and hence inform leadership initiatives and the decision-making process.

The programme team in designing the curriculum thus, wanted to enable new academics to make a seamless move from fulfilling their Initial Professional Development (IPD) obligations to Continued Professional Development (CPD) to avoid the programme being seen as a means to an end. The modules developed are intended to facilitate engagement in multiple cross-disciplinary communities of practice which extend beyond the PgCHEP and actively promote engagement with the Centre for Higher Education Practice.

Year 1 in post: Undertake Academic Induction Sessions		
Year 2 in post: Register on PGCHEP by July		
Attend Programme Induction (September)		
Semester 1	**Module 1 (Sem 1)** Student-centred Learning (15 credits)	
Semester 2		
Module 2(a) (Sem 2) Supporting Research Practice (15 credits)	**OR** (depending on research remit)	**Module 2(b) (Sem 2)** Enhancing Professional Practice (15 credits)
Year 3 in post:	**Module 3 (Sem 1&2)** Enhancing Learning (30 credits)	

Table 2 PgCHEP progression

Modules encourage participants to consider their practice from the students' perspective and to reflect on what this means for their future practice. Evidence of this can be seen in how the assessment for modules is structured. For example, in Student-centred Learning, participants are asked to write a report entitled 'My students'. This requires them to find out about the type of students they have on their programme, their pre-entry experiences and

other factors that might impact on their learning. They also have to seek answers to questions such as, 'what do I have to change or enhance about my teaching' as a result. Later in this module participants are asked to redesign the assessment of a particular module based on their growing awareness of the current literature on assessment, their knowledge of their students and their engagement with communities of practice. In 'Enhancing Learning' which runs over one academic year, participants are asked to attend a Centre for Higher Education lunchtime seminar and reflect on this in relation to their own practice hence encouraging engagement with new communities of practice. Participants are also encouraged at this stage to engage with the literature from their own discipline area. They also have the opportunity to engage in a cross disciplinary group to explore funding opportunities for a teaching and learning initiative and individually to carry out and reflect on an enhancement activity with their students. All of the modules require the participants to reflect on their evolving practice in relation to SoTL and to determine their own CPD in relation to how they might position themselves differently within the framework (see table 1).

Implications for the programme team

The aim of the new PgCHEP to embody a sense of community and initial and ongoing engagement with SoTL on behalf of the prospective participants in turn meant that the programme team had to embrace new ways of working in order to mirror the aspirations of the programme itself. Taking again as a point of reference the model provided by Trigwell *et al* (2000), individual engagement with SoTL could be situated at various points on the scale outlined in table 1 at the outset of programme planning, and the level and scope of engagement was largely dependent on the pedagogic focus of the module for which each team member was responsible. In the planning process of previous incarnations of the programme, individual module coordinators were largely autonomous in the scoping and development of their own modules. This, coupled with a residual focus on the instrumental nature of teaching practice, meant that the scholarly conversations within the programme team as a discrete community or network had hitherto taken place in only a fragmentary way with limited wider impact. The desire to embed the new programme within the wider context of CPD, meant that the programme team had to adopt a more joined-up approach to programme design, in order to ensure that all elements were integrated within *and* across the programme and sought to position the PgCHEP, although finite in duration, as an initial stepping stone for engagement with SoTL beyond the programme itself.

The student-centred focus of the newly created modules with their emphasis on informed scholarly practice and a holistic approach encouraged the programme team to reflect not only on personal and individual practice but also on that of the team as a whole. A series of planning meetings, conducted off campus in a spirit of honesty and collegiality, gave rise to candid dialogue about the programme, and allowed for the expression of 'common concerns' within a 'community' which in turn enabled 'empowerment' both of the individual and the team (MacKenzie *et al,* 2010). In addition, an online survey of current and recent course participants was carried out: their responses highlighted the value placed on opportunities to discuss their teaching and learning with both course peers (79% agreement) and colleagues in their disciplines (72% agreement).

The move from the pursuit of an individual goal (module) to that of a common objective (programme) allowed the programme team to scrutinise the content and aims of each module with a degree of impartiality, and facilitated the decision-making process on a stop, start, continue (elements to be discontinued, initiated or maintained) basis. The safe environment recommended for such community dialogue (Roxå and Mårtensson, 2009; MacKenzie *et al*, 2010) fostered a sense of community self which was then able to devise an 'intertwined' programme where clear linkage between and across module element could be seen, and where programme delivery could also occur as a community effort through team teaching and co-facilitation. The new programme having been launched only recently, it is too early to gauge the nascent sense of community experienced by the participants, but it is clear that the programme team are operating within very different parameters than was previously the case. An additional sense of self has also been engendered through this development process: by being able to position the individual sense of self within a small community setting, this latter has been able to acquire a collective identity within the wider operational context of the institution and its other SoTL initiatives. The programme team is, as a result, better able to engage with and promote the furtherance of SoTL as part of the wider CPD agenda – academic development as an agent of change.

Conclusion

Although prompted by institutional procedures the re-evaluation of the PgCHEP has allowed the programme team to consider the nature and role of SoTL within the university at a variety of levels. On the one hand it has made explicit the institutional initiatives and drivers surrounding teaching and learning, on the other it has encouraged consideration of the nature of academic identity in today's higher education context. The experience of the programme team in this instance has provided evidence of how academic development programmes, informed by SoTL, can serve as a vehicle to promote and embed SoTL throughout an institution. In addition the adoption of a SoTL stance to the process of programme development has had a profound effect on the sense of collective identity for the programme team, and has reawakened their enthusiasm and capacity to act in ways commensurate with a scholarly and community of practice outlook.

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Opportunities and challenges of embedding generic pedagogic learning into local disciplinary contexts

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Introduction

HE institutions have become accountable in terms of efficiency and economy in addition to teaching and research excellence. This translates into changed requirements and expectations regarding the skills set of a modern academic. Boyer (1990) describes four scholarships: discovery, integration, application, teaching. Historically, discovery was prioritised at universities, teaching was provided as a matter of course. Budget constraints made integration and application more necessary. Large class teaching emerged. As teaching and research inform one another, academics should contribute to, and be qualified for both (doctorate and teaching degree; Brabazon, 2009). Skills for non-scholarship roles and outreach activities also need to be developed.

One might argue teaching training is unnecessary, because knowledge and skills come with experience. Such essentially trial-and-error approach takes much time and fails, if conditions are changing too quickly for sufficient trial. There is little room for error in a culture of accountability. Experience required for good teaching can be kick-started by training and evidence-based reflection (Kruse, 2009). Consequently, there has been a professionalisation of university teaching (Eraut, 1994). The majority of probationary university teachers have to participate in centrally provided formal training. Such training creates a basis for SoTL, constitutes SoTL, is naturally a part of CPD and informs CPD.

Background

One could easily assume the prerequisites for high-quality teaching have been implemented by making pedagogic learning compulsory. However, engagement with the training (i.e. deep learning) cannot be expected or taken for granted. Academics are used to the concept of CPD. Although crucial to maintaining fitness for purpose, it is largely self-directed within the context of academic freedom. Pedagogic learning is not typically undertaken as CPD. A variety of factors limit engagement. Linking training with successful completion of probation, causes anxieties in staff and the perception, that institutional accountability is being delegated (Fahnert, 2009). How the value of pedagogic learning and SoTL is perceived, and how it is ranked within the priorities of local academic culture, depends on the relationship of disciplinarity and the generic aspect of SoTL. Academics with little prior exposure to qualitative methodology are reluctant to accept findings of SoTL, or disregard them as being based on anecdotal evidence due to the absence of large datasets. Hence, fostering engagement with pedagogic learning and embedding it in the professional identity of academics is a challenge. Individual CPD is supported by the community of good reflective practice, which itself depends and relies on individuals closing the circle by contributing to the advancement of knowledge and distributing gained teaching expertise, just as they would in the context of subject research.

As HE is continuously changing, academics are best supported by being trained to learn how to teach and not how to teach their subject (Armstrong, 2005). This rational argument should appeal to the logical mind. Does this in practice equate to optimal acceptance and uptake of generic compulsory university teacher training? The training often consists of elements of a Postgraduate Certificate course in pedagogic subjects provided by a central unit. Starting as a minority, a growing number of staff participates, and local and wider communities are established. Courses also evolve and undergo review. While some research into the training effect on participants has been published (e.g. Rust, 2000; Gibbs and Coffey, 2004), there has been little analysis of the issues associated with outsourcing the training. Fahnert *et al.* (2007) researched how a centralised course meets the needs of participants and their home departments. Stakeholders (with corresponding discourses) were identified: Course Management (professionalisation of teaching), Departments (accreditation of teaching quality), Participants (teaching skills). A fourth stakeholder is Under-/Postgraduates (certified employability) (Fahnert 2009), and there are further less directly connected stakeholders such as employers, funding providers (e.g. parents, grant bodies, government) and, ultimately, society. The long-term benefit of compulsory university teacher training is a common strategic interest of all stakeholders given their considerable investments (e.g. time, money, support structure).

These and other findings were consistent with literature. Prosser *et al.* (2006) emphasised the complexities of providing training that meets stakeholder needs, and that communication and support mechanisms between them is essential for long-term benefit. Centrally-trained participants can act as catalysts, if they find the course content relevant and have opportunities to practise in their department whilst being supported by peers (Steinert *et al.*, 2006). Commitment to development as part of academic culture (Kahn *et al.*, 2006) and the supportive environment (Prebble *et al.*, 2004) are more crucial than actual training programme aspects. Fahnert *et al.* (2007) made recommendations to all stakeholders, accordingly, to ensure that (ex)participants' input into the department, CPD and pedagogic research are acknowledged and encouraged. However, the post-training experience of participants, and the perceptions of training courses, seem to be very varied (Fahnert *et al.*, 2007; Prebble *et al.*, 2004; Gibbs and Coffey, 2004).

There is no 'one-size-fits-all' approach to embedding generic pedagogic learning in departmental culture due to varied challenges and opportunities. A qualitative research project was conducted, analysing the realities in context of a large biosciences (hard-applied subject, quantitative methodology) department, to identify cultural core issues, and to then aid and manage change in a customised manner. Data were collected in interviews with (ex)participants of 10 training cohorts, mentors, non-participant peers and teaching-support staff. Identified core issues are accessibility of pedagogic scholarship and ideas, openness to being trained by non-disciplinary peers, and willingness to learn new methodology. These should be considered when designing staff development programmes. To support provision of training, tools were created for surveying experiences related to university teacher training courses, and for surveying the existence of systems to connect their stakeholders.

Methodology

A thematic analysis of transcripts of semi-structured interviews formed the basis for qualitative research. Interviewees were recruited from a large bioscience department providing a sufficient sample size. When the project commenced, compulsory centralised university teacher training (here: Module 1 of a Postgraduate Certificate in University Teaching and Learning [PCUTL] course) had been provided for 3 years. Ten cohorts of participants had enrolled (see Figure 1). The experience changes as participants progress with the training. The course is continuously revised and the cultural context of the home department changes. Interviewees represent all cohorts and experiential stages.
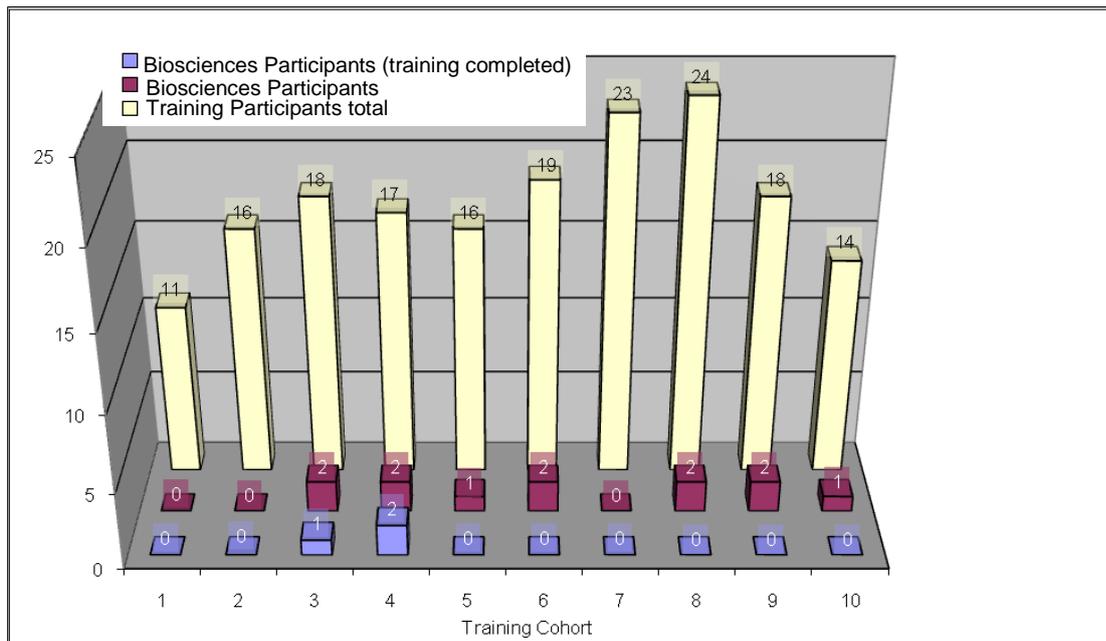
Figure 1. Participants in compulsory centralised university teacher training

Ten cohorts had been enrolled on PCUTL Module 1 when the study was conducted.

Total numbers (beige column, y-Axis) of participants per cohorts 1 to 10 (x-Axis) are shown as well as biosciences participants (purple column) and whether they had completed the training (blue column).

Ethical clearance was obtained. Data protection guidelines were followed. An open invitation was emailed to all staff to attract volunteers from the following sample groups:

- Mentors
- Senior staff (non-mentors)
- Teaching-support staff
- Peers without compulsory training

- Participants who had not completed Module 1
  (They would have experienced the training only partially, and in different versions. When training commenced a community of [ex]participants had started to form in the home department.)

- Participants who had completed Module 1
  (They experienced the entire training, and without a community of participants in the home department.)

The email invited participation in an interview (30-60 min) about teaching and teacher training. Records were anonymised. Volunteers were interviewed on a 'first come first served basis' until a sufficient and feasible sample size had been achieved for the purpose of the study (see Figure 2).
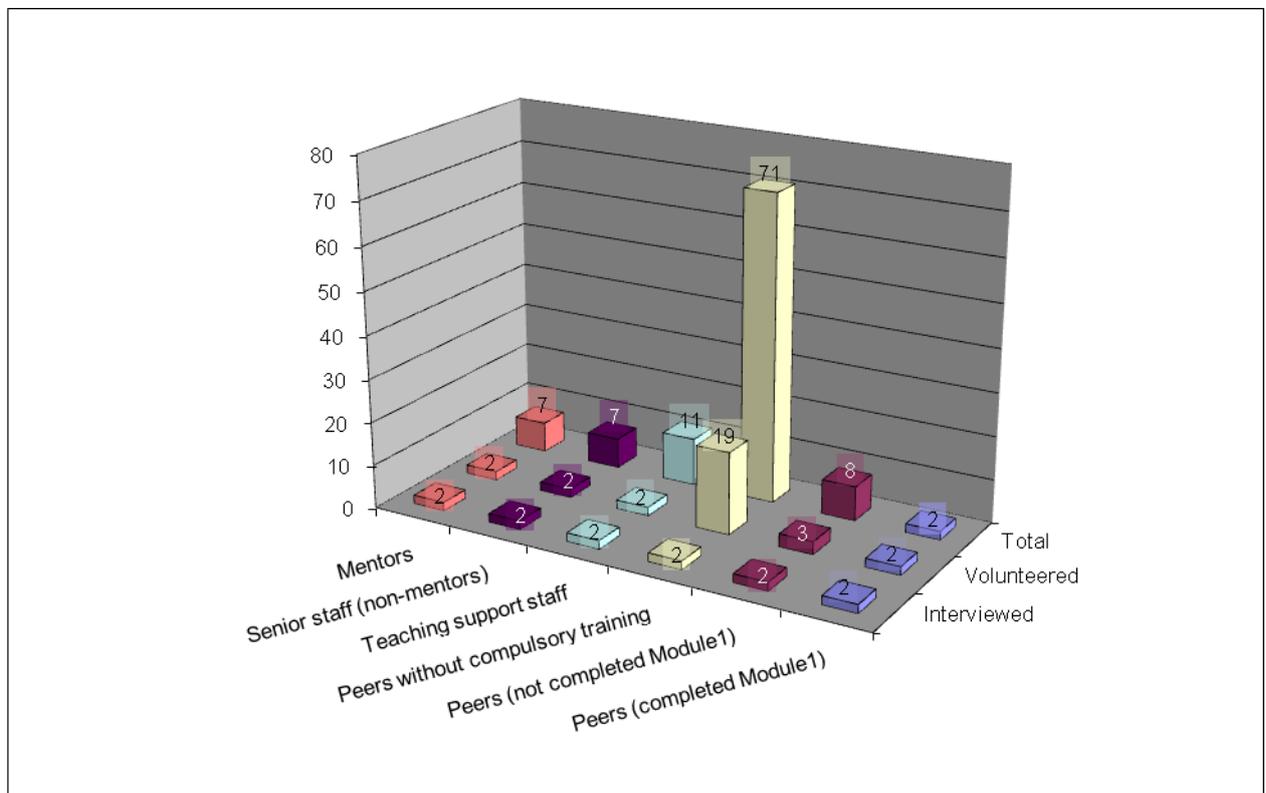

Figure 2. Interviewees' relation with the training

Sample group (colour coded, x-Axis) total numbers (last row, z-Axis) are shown as well as how many volunteered (mid row, z-Axis), and were interviewed (front row, z-Axis) from those groups. All volunteers except in the 'Peers without compulsory training' group were interviewed.

The interview had four parts (see Survey Tool A): introduction, interviewee context, course context, closing. Questions were carefully phrased not to prejudice any answers. The extent and course of the conversation allowed the interviewees to substantiate, develop and explain their answers.

Interview transcripts were analysed using an accepted approach (Coffey and Atkinson, 1996) of describing and classifying qualitative data to subsequently identify meaning. Further qualitative data analysis (understanding, explaining and connecting what had been identified) to identify emerging patterns and key themes, was carried out in a critical realist perspective. In a critical realist view entities are accepted to exist in the real world (including the natural and social world) independently of our observing, knowing and constructing them (Fleetwood, 2005). There are three domains to everything: the actual domain (events, processes) is affected by the real domain (structures and social agents with their causal powers) based on complex interactions and networked 'social practices'; what is experienced of these domains, constitutes the empirical domain. When analysing experiences (empirical domain) and processes (actual domain) it is necessary to consider the concurring effects of structures and social agents (real domain) to comprehend the realities (Fairclough, 2005).

Findings and discussion

Analysing how centralised university teacher training is experienced, and how the course is perceived in the cultural context of a bioscience department, was intended to support the long-term benefit (i.e. embedding generic pedagogic learning initiated by the course in the home department's context) of the training in all stakeholders' interest. Fostering and managing this change process was to be aided by directly addressing (making use of identified opportunities, overcoming identified challenges) core issues. Moreover, the outcomes were intended to be instrumental for design/revision of training programmes.

Thus reliable and meaningful data were needed, reflecting the change of beliefs within the training, as well as different levels of involvement with, exposure to, or being affected by it. Interviewees were recruited accordingly. The selection might be biased towards volunteers, who were motivated to take part and/or respond to emails quickly. Participants, who had not completed training yet, were slightly overrepresented. Non-participant teaching peers were slightly underrepresented given the larger proportion of this group among staff. All volunteers of other sample groups were interviewed. To generally minimise any representativeness bias, all staff were invited to anonymously volunteer their experiences in writing. This opportunity was taken by one participant (training not completed). Interviewees were not to state any *ex-officio* opinion. When analysing the data, it was taken into consideration, that personal opinion is automatically and at least partially informed by institutional practice. Upon analysis, key themes emerged around academic culture, communication, workload and recognition.

General Settings

Interviewees generally agreed that university teacher training is beneficial as individual learning and for the department. The beneficial effects were expected to spread *naturally* within the institution: one expects generic pedagogic learning to automatically embed into local disciplinary contexts. Actually, supporting such change in beliefs, needs to be

addressed in terms of organisational theory and management of change, which became apparent in the major findings of this research, too. The change process needs time (can be reduced) and opportunity (can be created), and has to overcome resistance (can be aided). Whether the training needed to be compulsory and/or centralised was another matter. Interviewed participants valued the centralised formal training as an opportunity for structured exposure to pedagogy, and to get to know peers and practices from other departments. Thus, centralised training provides a platform to establish a community of practice across an institution. It became clear, that university teachers are self-critical, reflective and adapt within their beliefs (rooted in disciplinary culture and professional identity). They want to learn, but, in the spirit of academic freedom, they want to decide what, how and when. This willingness can be exploited (within the limits of disciplinary context and understanding of academic roles) to foster engagement with generic pedagogic learning, CPD, collaboration and socialisation to create a solid foundation for a community of practice and scholarship.

Cultural Divides

Education is a humanities/social science discipline, but many participants are natural science scholars (here: biosciences). Interviewed participants experienced a culture shock and struggled accessing the new discipline, its vocabulary and unfamiliar metaphors (also described by Kandlbinder and Peseta, 2009; Wareing, 2009). Acknowledging disciplinary diversity of participants in centralised training courses is crucial for engagement. Additionally, most interviewees found it difficult to see how the generic training course was relevant to their teaching. Not only are scientists sceptical (by trait, socialisation) of generic advice, they give most credibility to peers (also described by Trowler, 2009). Hence, it is clearly not enough to accommodate disciplinary diversity of participants to foster engagement, but contextual learning should actually be made use of. All is made more difficult by the notion held by all interviewees other than later-stage participants, that humanities scholars cannot teach scientists how to teach science teaching skills. Misconception of the aims and objectives of the training causes this objection. In line with educational theory (Armstrong, 2005) course participants are actually expected to learn to teach (not how to teach their subject). Merely knowing what to teach and how to, does not equip a modern academic sufficiently for the dynamic HE environment.

Subject expertise, albeit a main indicator of teaching success, informs teaching only at a basic level, and needs to be complemented with extensive educational practice and evidence-based reflection (Kruse, 2009). Consequently, one objective of centralised compulsory training is imparting this concept and relevant skills. Wareing (2009) notes that teaching should be student-focussed, and not focus on content/subject transfer. Principles of curriculum design, assessment, and how students learn are transferable. Discipline-related aspects (e.g. certain teaching methods, practices of interaction) can be readily accessed through self-directed social learning in discipline-peer groups among training participants. Furthermore, outsourcing training allows addressing theories generally underpinning learning and teaching, creating a community of practice, and challenging traditional disciplinary attitudes. Hence, the disciplinary background of the trainers is irrelevant, which needs to be communicated.

Being trained also requires accepting pedagogic research findings, and engaging with the (often qualitative) research methodology. The interviews showed, that lack of exposure to qualitative research, resulted in non-humanities scholars rejecting its findings. The majority doubted the credibility of humanities concepts/theory, and therefore of the training. Quantitative science scholars are used to concepts of experimental planning, sample sizes and statistical significance. Qualitative data are seen as anecdotal in comparison. Later-stage participants learnt to accept such findings, but are hesitant to conduct qualitative research for reasons of non-participant peer pressure, doubting their abilities in using such recently acquired skills, and concerns they might be rejected by traditional humanities scholars.

Expectations and Reality

As discussed, everyone agreed training is beneficial, but ideally they would like to decide whether to participate at all and when. It was implied such choice would support engagement by maintaining autonomy, control, and ownership. Yet, can such choice be given? A very well informed decision, and thus very good understanding of all aspects of the training course, would be required. This study showed this is not realistic. Stakeholders other than course management had limited knowledge of the course. Stakeholders had limited knowledge of each other's discourses and circumstances. Stakeholders other than course management expect the course to be a 'What to do/what not to do in teaching'-toolkit course, whilst participants are actually expected to change their beliefs and behaviour. The toolkit expectation is not met, which causes frustration in early-stage participants (consistent with literature: Mbali, 2006; Kandlbinder and Peseta, 2009), and leads to the perception, that, on top of being presented with questionable facts by non-scientists, one does not learn anything useful or relevant. The interviews also showed such an unreflected image of generic training can lead to 'infectious disengagement' and large-scale devaluation of the course, training and its benefits. Fortunately, the opinion of participants changes over time and with insight. Yet, damage to the training (course) reputation is done unless expectations are managed. This would also foster engagement with the training directly from the beginning, and solicit support in the home department.

Institutional learning (i.e. long-term training benefit) relies on deep individual learning (i.e. aspiration of a change in belief). As participants' frustration shows, such change comes with psychological pain (Jensen, 2005). Change takes time. Its phases cannot be bypassed. Individuals assess whether the new situation is a threat or benefit to their personal well-being, test ideas, explore behaviour, and need room for mistakes (Devos *et al.*, 2002).

Interviewees agreed that a non-judgemental environment for exploration and piloting of ideas is lacking for various reasons. Teaching performance is measured routinely within departmental QA/QE settings. The training is part of probation and seen as a consequence of accountability. Following a polarisation of teaching and research (especially in hard-applied sciences departments) staff with a predominantly teaching role are regarded 'lower class academics' and do not want to be seen to make mistakes. Again consistent with literature (Postareff *et al.*, 2007 and 2008), further frustration is caused by experiencing one's limitations especially at the start of the training, by the considerable time it takes for beliefs to change, and by varied progress of individual learning.

Provision of time for learning and reward for achievements in order to aid change, involves appropriate resource allocation (Hatch, 1997). As funds decrease and workload and pressures on staff increase (Phillips, 2005), the change expected of the individual learner is largely unsupported and depends on individual commitment and sacrifices, which jeopardises the long-term benefit. Fanghanel and Trowler (2007) highlighted that innovative work is undervalued and academic labour is trivialised. The resulting sense of disempowerment limits commitment to change as seen here.

The present study showed gradually improving engagement with generic pedagogic learning due to a growing number of change agents (i.e. community of participants/practitioners), improved communication of expectations, rationales, political support, and some introduction of rewards.

Recommendations, evaluation and implications

General recommendations for successfully embedding generic pedagogic learning into local disciplinary contexts (i.e. allowing long-term benefit of compulsory centralised university teacher training courses) involve:

- increasing training transparency

- communicating training relevance

- emphasising the developmental character

- communicating requirements and expectations of culture change

- allowing time and professional recognition

- contextualising.

Engagement

Appropriate engagement (e.g. participating in communication and/or training) with generic pedagogic learning is crucial, but depends on individual and institutional priorities (e.g. workload allocation) and the concept of academic freedom. We cannot expect or assume engagement. Should/can we therefore police it?

A credit-based CPD system could incentivise engagement in context of all professional demands. This could be a temporary measure to drive change until clan control (see Hatch, 1997) takes over. Alternatively, it might become a general concept (as with 'registered' practitioners).

Staff would be required to gain CPD credits over time. For an acceptable and fair system, the nature of training (e.g. compulsory centralised teacher training, staff development, peer review, conference attendance) would be based on individual training needs, identified using an auditing tool considering all skills related to a certain job description (supported by Kahn *et al.*, 2006). Such skills could be general (e.g. time management, IT), job specific (e.g. leadership, grant applications) or teaching-related (e.g. emerging technology). Achievements need to be equally recognised/rewarded irrespective of individual career paths.

Being monitored, however, can lead to strategic or surface learning due to anxiety and pressure, and does not guarantee deep individual and organisational learning. To avoid the system being seen as a red tape/tick-box exercise, it needs to be part of properly managed cultural/institutional change.

Contextualisation

Implementing compulsory training courses was seen as a solution, but it provided new challenges with contextualisation being a core issue (identified here and consistent with literature: Fanghanel and Trowler, 2007).

Contextualising generic learning makes it more relevant to participants (individual learner) and thus to home departments (organisational learner) as prerequisite for embedding it in disciplinary contexts and professional identity; for connecting stakeholders, and for engagement altogether.

Interviewees other than later-stage participants suggested splitting the training into a generic compulsory part and optional discipline specific parts. However, this was seen only in terms of the compulsory part being the expected toolkit course. The envisaged options would not entail further context-relevant content to choose from, but opting for the actual non-toolkit training (i.e. learning how to teach/change in belief). This would demote the training aim to being the optional part, and would lead to even less engagement with the majority of participants postponing it for good.

Moreover, this structure actually reflects the course that was the subject of this study. The generic core part is a series of workshops. Subject pedagogy is addressed via choosing a pedagogic research group project, and by being mentored by an experienced departmental colleague. The fact that interviewees were largely unaware of this structure, shows again the necessity for increased transparency.

Transparency can be increased by customised induction (management of expectations, contextualisation), which will also make the unfamiliar subject and methodology more accessible and relevant. Home departments need to know realities and consequences of the centralised course within their context, and need to foster participants' development and input (participants to proactively volunteer it).

Ideally, mentors are past participants to link course with department and *vice versa*. Establishing a teaching expertise (gained based on the training) network (e.g. directory, staff development workshops, peer review of learning and teaching) would be another linking element. Departments could use the projects within the training to have pedagogic research conducted into areas of local interest. Home departments, as a training stakeholder, will benefit long-term by these means, which altogether will help to engage non-participants with the course, thus equating to embedding generic learning in local disciplinary contexts and to drive change. In that respect, based on the methodology and findings used in this study, tools were developed, that could be used to inform running centralised training courses, and to tailor communication.

Surveying stakeholder experiences related to teacher training courses

Results of interviews/questionnaires can inform a customised induction and communication across disciplines/cultures.

1. Introduction

2. Background of the interviewee

- current role

- career/motivation

- involvement in   ▪ teaching

                                 ▪ teaching management

                                 ▪ committees

- recognition of teaching (general, institutional, departmental)

- approach to reviewing teaching

3. Centralised teacher training courses

- awareness/knowledge of   ▪ purpose

                                 ▪ content

                                 ▪ participation

                                 ▪ impact

- impact of   ▪ course's existence

                                 ▪ being involved

- involvement in course structure, content, delivery

- details of non-centralised teacher training

4. Closing

- understanding of teacher training needs

- known training needs

- familiarity with teaching technology

- CPD

Surveying the existence of a system connecting the stakeholders

Outcomes of recording the following details (structures, procedures) can inform establishing a new system/optimising the existing system.

How are: - participants connected within the training course framework?

- stakeholder expectations managed?

- course issues communicated?

How is: - training acknowledged?

- training contextualised?

- the training course reviewed?

Does: - a community of good practice exist?

- training involve formative aspects?

Greater opportunities and challenges

In order to embed generic pedagogic learning and SoTL in disciplinary contexts and professional identity of academics, self-improving systems need to be in place, addressing factors crucial for change based on the context of organisations (Dick and Dalmau, 2000; Guzman and Wilson 2005).

The initially discussed increased accountability for teaching quality provides an opportunity to drive change, since changing disciplinary cultures is essential for high quality teaching. Thus every policy, structure or procedure under revision or being introduced, should reflect the need for SoTL. General credit-based CPD approaches might be emerging soon in addition to compulsory university teacher training. Quality demands on teaching will further increase, given that students have an interest in receiving value for money.

There is a natural generation change taking place in academia. Professionals accustomed to being expected to have a varied skills set reflective of contemporary HE, are replacing academics with traditional research skills focus. Therefore, professional identity is already changing and we observe how the academic community reconstructs beliefs, (disciplinary) culture and institutions in reflection of the change of the HE landscape.

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The scholarship of cockfighting

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Introduction

Why do teachers need a scholarly literature in teaching and learning? In the first part of this paper, we look at the SoTL scholarly forms, arguing that they emerge from a rhetoric of SoTL that is more focused on legitimisation than improvement. In the second part, we argue that teaching is different and that different representational forms are required. We discuss the distinctly *non*-scholarly representation of teaching practice, the course portfolio, and the novel way in which we have used it as a means for practitioners teaching the same disciplinary subject to make their work visible to one another.

Questioning a scholarship of practice

Ever since Clifford Geertz (1973) first published Deep Play: *Notes on the Balinese Cockfight,* the paper has been one of the canons of anthropological literature. In it he describes the highly situated and specific practices of cockfighting: the care of the birds, the (semi-illicit) preparations for a fight, the elaborate ringside betting rituals. But he goes beyond the merely descriptive, providing an interpretive frame of this cultural practice in its context, whereby cockfighting symbolises Balinese constructions of maleness and cultural loyalties. The audience for this work is Geertz' anthropological colleagues and, ultimately, a wider readership from the western world. Against this background, it strikes us as absurd that cockfighters themselves might hungrily read Geertz to gain competitive advantage over their rivals.

This absurdity is not confined to cockfighting. It is equally hard to imagine this sort of literature being appropriate in other areas of practical activity, hard to imagine that the practice-based communities of photocopier repairmen, taxi drivers or handymen would consider the 'scholarship of X' helpful with regard to the practice of X. Rather, photocopier repairmen construct detailed diagnostic narratives that provide 'a coherent account of the problematic state of the machine'(Orr, 1996), taxi drivers develop skill in recognizing 'reliable signs of trust- or distrust-warranting properties' (Gambetta and Hamill, 2005) for screening customers, and handymen develop encyclopaedic knowledge of materials and their properties through 'bricolage' with materials to hand (Harper, 1987). It is noteworthy that none of these communities has a scholarly journal associated with the practice.

Why, then, do teachers need a scholarly literature in teaching and learning? A literature that they not only might read, but one to which they might contribute? In posing these questions, we do not wish to claim that practitioners (whether mechanics, cooks or teachers) do not want to improve their practice, nor that they don't make aspects of their practice public and

shared within their communities (Bobrow and Whalen, 2002). For example, cockfighters share ways of tying spurs to their birds, special details of diet, and regimes of ceremonial preparation for fighting; photocopier repairmen regale one another with war stories about difficult machine problems that they have encountered in the past (Orr, 1996). What we do want to claim, is that the Scholarship of Teaching and Learning (SoTL) forms of choice—the journal paper, the conference presentation, the monograph—are inappropriate ways to represent and share qualities of teaching practice for practitioners. We instead need new ways to represent teaching practice to make it available to others.

The balance of this paper reflects the two parts of this thesis. In the first part, we look at the SoTL scholarly forms, arguing that they emerge from a rhetoric of SoTL that scientises teaching. By appropriating research forms that have been successful in the research enterprise, the intent appears to be to similarly legitimize the teaching enterprise in higher education. The syllogism seems to run:

> Teaching is undervalued.
> Research is a valuable activity.
> Treating teaching as if it were research will give it value.

For SoTL proponents, it is therefore an uncontested good that teaching is considered to be the same as research.

In the second part of this paper, we argue that the practice of teaching is different and that different representational forms are required. We then present a representation of teaching with which we are familiar, and the context in which we have used it for teacher improvement: course portfolios. Though non-scholarly, this representation serves both as a means for self-reflection as well as for mediating interaction between teaching practitioners.

The rhetoric of SoTL

The use of scholarly representations of teaching does not simply spring *ex nihilo* from those practitioners interested in 'going public' with their practice. It emerges from an international discourse about what defines and constitutes SoTL (e.g. Boyer, 1990; Huber and Hutchings, 2005; Kreber, 2002; Richlan, 2001; Shulman, 1993). We will not survey this literature here, recognising both the quantity and diversity of viewpoints. We will instead make explicit a chain of reasoning that is threaded through some of the key writings on SoTL, following the outlines of the history of this discussion, and quoting from some of the often-cited authors. We call this 'the rhetoric of SoTL' to draw attention to the importance of the linguistic and argumentative work required to establish SoTL as a 'movement'.

The argument begins with a stretching of the 'traditional' definition of scholarship so as to compass more than good-old-fashioned-research:

> We believe the time has come to move beyond the tired old 'teaching versus research' debate and give the familiar and honourable term 'scholarship' a broader, more capacious meaning' (Boyer, 1990).

It comprises 'a big tent […] under which a wide range of work can thrive' (Huber and Hutchings, 2005). What now fits under this tent is what Boyer (1990) termed 'the scholarship

of teaching' and what has come to be known as the Scholarship of Teaching and Learning. We treat these terms synonymously.

The question that now arises (and historically *did* arise soon after Boyer's initial coining of this term) is whether scholarship inheres in teaching, or is it something that only some teaching achieves. If the latter, is 'scholarly teaching' the same as 'good teaching' or is it something distinct? There was a twofold resolution to this definitional challenge. First, a consensus emerged that not all teaching is the scholarship of teaching, since this would render the new term meaningless. Second, teaching could be arranged in a quality gradient, with what we call 'just plain teaching' at the bottom, *good* teaching—characterised by satisfying certain criteria—somewhere in the middle, and the scholarship of teaching—characterised by adding additional criteria to good teaching—at the top. There are two subtleties to mention. First, a diversity of terms and criteria were coined to represent 'good teaching', e.g. *scholarly* teaching (Richlan, 2001) and *excellent teaching* (Kreber, 2002), and second, some consider that good teaching is itself subdivided along the quality gradient, e.g. 'just plain teaching' exists on a plane below '*excellent* teaching' below '*expert* teaching' below the 'scholarship of teaching' (Kreber, 2002).

A strategic rhetorical move that occurred at this point was to reduce the problem of defining criteria for the scholarship of teaching to the problem of defining criteria for *all* scholarships (of which the scholarship of teaching is one among several). 'Could we sharpen that definition [of scholarship]? Yes, serious intellectual work in discovery, integration, application, or teaching is marked by clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique (including peer review)' (Huber, 2002 summarizing Glassick et al, 1997). Alternatively:

> For an activity to be designated as scholarship, it should manifest at least three key characteristics: It should be *public*, susceptible to *critical review and evaluation*, and accessible for *exchange and use* by other members of one's scholarly community' (Shulman, 1998) [emphasis in original].

Effectively this meant that the definition of scholarship was stretched (to include teaching done a certain way), but not to the breaking point, since the scholarship of teaching could now be seen as something familiar, since it '… represents little more than a refinement of a process every teacher goes through as he tries to improve' (Corey, 1953).

The argument continues by elaborating the importance of the 'making public' criteria of scholarship:

> If there is any reality about scholarship, it is that it is a communal act. … The test of scholarship is whether someone else can make sense of what you are doing' (Boyer, 1996).

> We don't judge each other's research on the basis of casual conversations in the hall; we say to our colleagues, 'That's a lovely idea! You really must write it up.' It may, in fact, take two years to write it up. But we accept this because it's clear that scholarship entails an artefact, a product, some form of community property that can be shared, discussed, critiqued, exchanged, built upon (Shulman, 1993).

At this point, there is a subtle shift in the argument from 'making public' to 'publication'. This shift trades on the multiple meanings of the word 'publication' based on its etymological roots (OED, 2010). One meaning of 'publication' is the 'action of making something publicly known', which stems from Anglo-Norman and Middle French of the 1200s. An additional sense of the word developed after the invention of movable type, and is one often implied by SoTL writers: publishing in a persistent medium, such as in print or electronically. Thus 'making scholarship public' requires not only sharing it with an appropriate audience, but publishing it, 'writing it up,' reifying it in a non-ephemeral form. There is a further etymological sense of 'publication' that is often implied by 'making public', and that is the act of making an object *res publica*, i.e. public property (Rose, 2003):

> And if we wish to see greater recognition and reward attached to teaching, we must change the status of teaching from private to community property (Shulman, 1993).

For some commentators, however, publication in SoTL takes particular forms. Given the claimed equivalence of the scholarship of teaching to other scholarships—the scholarship of discovery (traditional research), the scholarship of integration (cross-disciplinary work), the scholarship of application (work with clients, often in the local community)—then the form of publication must necessarily be the same:

> Tenure isn't awarded for research alone, but for research *and publication*' [emphasis in original] (Boyer, 1996).

> Intellectual work in teaching is scholarship if it is shared with peers in journals, in formal presentations at professional meetings, or in comparable peer evaluated forms' (Oregon State University, 2000, reported in Huber 2002).

> So, if pedagogy is to become an important part of scholarship, we have to provide it with *this same kind of documentation*' [emphasis added] (Shulman, 1993).

> The scholarship of teaching results in a formal, peer-reviewed communication in the appropriate media or venue' (Richlan, 2001).

We should pause a moment to reiterate that the discourse on the definition of SoTL is multi-voiced, and controversial. Not everyone who believes in (or practices) SoTL would go along with each step in this argument, and many would stop before they reached our endpoint.

What we do wish to say is that there are influential speakers contributing to this discourse that follow many if not all of the argument steps we outline:

> That the definition of scholarship needs to be expanded to include the activity of teaching,
> That all scholarships share the same characteristics when viewed at the right level of abstraction
> That a key shared characteristic is that scholarship is made public and that making public means not only making publicly known, but publishing in a persistent form, and that this form be journals and conference papers.

We call this rhetorical argument the 'scholarisation' of teaching. It rests on a foundation of treating teaching of a certain sort (the scholarship of teaching) to be the same thing as research. We believe that this rhetoric has come about for two purposes. The first is the belief that teaching (and by definition learning) will improve as a result. There is 'just plain' teaching; then 'scholarly' (or 'evidence-based' or 'research-informed') teaching, that is, teaching informed by others' scholarship; then there is SoTL, that is writing up your own work and presenting it to others: good-better-best.

The second purpose is the added recognition, the legitimisation that will accrue to teaching through its scholarisation:

> Scholarship is a prestigious concept after all, and universities are known to recognize scholarship' (Kreber, 2002).

> We believe the time has come to [...] give the familiar and honourable term 'scholarship' a broader, more capacious meaning, *one that brings legitimacy to the full scope of academic work*' [emphasis added] (Boyer, 1990).

> Members of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) […] examine teaching and learning issues in their fields in order […] to […] bring to teaching the recognition afforded to other forms of scholarly work' (Hutchings and Shulman, 1999).

> And if we wish to see *greater recognition and reward* attached to teaching, we must change the status of teaching from private to community property' [emphasis added] (Shulman, 1993).

Note in these last three quotes, the burnish that comes to SoTL from its scholarisation will spread to *all* of teaching, including the just plain and good varieties: the rising tide of scholarisation will float all teaching boats.

Thus the improvement hierarchy has been overlaid with a legitimating argument. This discourse conflates the (desirable) characteristics of making teaching practice public and visible to others with the forms of abstracted, research-focussed exchange (presentations and publications). As a recent report in the *Times Higher Education* newspaper says:

> Based on her research, Annette Cashmore is developing a set of criteria for the evaluation of learning and teaching to form a national framework (Attwood, 2010).

The proposed criteria for each category are:

Lecturer/equivalent

- Input to delivering or leading teaching
- Organisation of courses/modules
- Student feedback
- Peer observation
- Peer feedback/review
- Evidence of evaluation of teaching approaches

Senior lecturer/equivalent

- Evidence of scholarship of teaching and learning, such as awareness of relevant literature, teaching informed by research (own and others'), and writing and contributions to textbooks
- Institutional awards
- Own research in teaching and learning
- Input into institutional policies

Chair

- Presentations and publications
- National awards
- Evidence of national/international impact
- Input into national/international policy and strategy

What it is clear from this framework is that the more research-like an activity is, the higher weighting it has: good-better-best.

Treating teaching as teaching

Our main critique here is that if the goal is to improve teaching then treating teaching as research by scholarising may be the long way round. We question whether teaching will in fact be legitimised when only a small proportion of it is scholarised. We question as well the use of research forms for disseminating teaching knowledge, since this assumes that changes to practice will occur simply by increasing the common stock of scholarship. A century of educational research in K-12 education (in the UK) suggests that the gap from scholarship to practice is much larger than this assumption presupposes. And our own empirical research suggests that this is not how changes to practice occur in teaching in higher education (Fincher et al., 2001; Fincher and Tenenberg, 2007). As Tikunoff and Mergendoller observe:

> The implicit assumption is that if educators are exposed to carefully presented and understandable research findings, they will recognize the wisdom of the results and immediately employ them in their daily practice. We disagree (1983).

We disagree too. In treating teaching as teaching, we view teaching as a practice, 'embodied, materially mediated arrays of human activity centrally organized around shared practical understanding' (Schatzki, 2001). Or, as Packer succinctly states:

> Each of us is thrown into a world that predates our existence, that offers certain ways to be, and that is inherently social. Our primary way of understanding both ourselves and the entities we deal with is a hands-on grasp of their possibilities in practical activity' (Packer, 2010).

In order for practical understanding to be shared among teachers, there must be places and forms for this sharing to occur. In this regard, we agree with the SoTL writers cited above, about the importance of making teaching public. But 'making public' must be appropriate to

the activity. The danger of the rhetoric of legitimisation is in mistaking the form for the reality. In a related domain Richard Feynman has called this *Cargo Cult Science*:

> In the Solomon Islands, as many people know, the natives didn't understand the airplanes which came down during the war and brought all kinds of goodies for the soldiers. So now they have airplane cults. They make artificial landing strips and they make fires along the landing strips to imitate the lights and this poor native sits in a wooden box he's built with wooden earphones with bamboo sticks turning up to represent the antenna and turning his head back and forth, and they have radar domes make out of wood and all kinds of things hoping to lure the airplanes to give goods to them. They're imitating the action.
>
> It's a lot of work. It takes a lot of work to carve those things out, those wooden airplanes. But it doesn't mean they are actually finding out something (Feynman and Robbins, 1999).

The notion that one can only become a good teacher by scholarising—scientising—the practice of teaching is to similarly misapprehend the nature of teaching and the nature of research, and to confuse the source of their power.

Our belief in the importance of public visibility is influenced by the work of researchers looking at the ways in which cognition is distributed among people who are engaged in joint activity (Chaiklin and Lave, 1993; Salomon, 1993). Learning how to be competent in new practices is often not a matter of book study, but of gaining experience in dynamic interaction with the people, tools, and materials in particular settings. In a detailed study about how quartermasters learn how to navigate large ocean-going ships, Hutchins (1996) observed that learning is both social, and representationally mediated. It is social in three ways. First, novice quartermasters engage in what Rogoff (Rogoff, 2003) calls 'intent participation', involving 'keen observation, initiative, and responsive assistance'. Second, they perform their actions under the watchful eyes of those with more experience. And third, their activity is structured in a human and material setting in which the novice can both contribute to the ongoing pattern of activity as well as observe the activities of those with more experience. Thus, they learn from their 'horizon of observation' - 'the outer boundary of the portion of the task that can be seen or heard' (Hutchins, 1996).

The other thing that Hutchins emphasises is how shared representations of the task (for him, the main one being the nautical chart) mediate the completion of the task. This use of shared representations is characteristic of a number of settings, and has been written about extensively by cultural and developmental psychologists in extending the work of Vygotsky (Cole, 1996; Rogoff, 2003; Vygotsky and Cole; 1978, Wertsch, 1991). These representations are important for three main reasons. First, they establish common ground among participants carrying out (or discussing) joint tasks. They also serve as externalisations of thought for individuals, which are then re-perceived, reflectively critiqued, changed and refined. And finally, the specific forms of representation preserve knowledge for cross-generational transmission.

It is for all of these reasons that we consider representations of teaching practice to be important, and at the same time, that the scholarised representations chosen historically by the SoTL community to be inappropriate to the task. In the balance of this paper, we

examine a representation of practice that we have used to facilitate individual and social reflection on teaching.

Disciplinary Commons Course Portfolios

To harness the power of situation, to let teachers exchange information in meaningful ways, unmediated by the conceptualisations and abstractions associated with research, was one our goals in designing the *Disciplinary Commons*. The work of a *Commons*, is not to replace the practice of teaching. Nor is it to make it something else - it doesn't require the acquisition or application of new ways of working (scholarly or scholarising). The practice within a *Commons* is the act of professionalism described by Schön's models of reflective practice and reflective practitioners (Schön, 1983).

A *Disciplinary Commons* is constituted from 10-20 practitioners sharing the same disciplinary background, teaching the same subject—sometimes the same module—but in different institutions. They come together for monthly meetings over the course of an academic year. During these meetings, aspects of teaching practice are shared, peer-reviewed and ultimately documented in course portfolios. This is not a total description of what a *Disciplinary Commons* is, or what it can achieve - a topic more completely treated in Tenenberg and Fincher (2007). To date, we have led (or are currently leading) seven *Disciplinary Commons*.

We deliberately chose course portfolios as the representation that *Commons* participants use for making their teaching public. A course portfolio is a set of documents that 'focuses on the unfolding of a single course, from conception to results' (Hutchings, 1998) and is an established method for advancing teaching practice and improving student learning. The purpose of the course portfolio 'is in revealing how teaching practice and student performance are connected with each other'. Portfolios (especially of the *benchmark* variety (Bernstein et al., 2006)) typically include a course's learning objectives, its contents and structure, a rationale for how this course design meets its objectives, and the course's role in a larger degree program. Importantly, course portfolios also include evaluations of student work throughout the term, indicating the extent to which students are meeting course objectives and the type and quantity of feedback they are receiving.

There are several collections of course portfolios (Peer Review of Teaching Project, University of Indiana) but they share limitations. The first is that they are scattered across disciplines, so that even if there are ideas in a mathematics portfolio from a prestigious university that would benefit my teaching, I am unlikely to access it if I teach drawing in a college of further education: there is little to match my subject or situation. The second limitation is that they are, in general, created by individuals for individual purposes ('benchmarking' a module or for promotion, or personal development) so they are individualistic in form, and rarely reference a wider context.

Course portfolio documentation within the *Disciplinary Commons* overcomes these limitations by being produced within a disciplinary context (not only all Computer Science, but all introductory programming, for example) and by sharing a common form. The form was devised so that each portfolio should contain six sections: Context, Content, Instructional Design, Delivery, Assessment and Evaluation and that each of those sections should contain an artefact from the course being taught and an accompanying commentary.

The common form of *Commons* course portfolios allows comparability of practice across instances, allows for different sorts of practice (with different emphases) to be documented in the same form, and is produced within a community that provides a wider context than any individual view. During the course of a *Commons* each portfolio is reviewed three times by different members of the *Commons* community. Thus, by sharing common disciplinary knowledge, working together over common material using a common form, participants create portfolios that are enhanced by being part of the larger archive.

Finding appropriate documentation for situated practices may be important not only to represent teaching appropriately, but also for the transfer of teaching ideas. If practitioners make choices about what to adopt and adapt based on 'what I know will work' then providing a comprehensive representation of the originating context of those ideas may provide a rich source of clues and hooks to bridge between someone else's practice and my own. The thicker the description, the more detailed the commentary, the better. The value of documenting teaching practice lies in its detail:

> In a society that attaches particular value to 'abstract knowledge,' the details of practice have come to be seen as nonessential, unimportant, and easily developed once the relevant abstractions have been grasped (Brown and Duguid, 1991).

Closing

We have examined the rhetorical moves by which SoTL has become a legitimising activity for teachers rather than an improvement process for teaching, where the form of the knowledge produced is seemingly more important than the subject and purpose of the work. Research forms reflect appropriate practices for growing the body of knowledge associated with a field of research. But we contend these same forms are inappropriate for teachers interested in improving their practice. Our response has been to construct a community of teachers, bound by disciplinary identity and knowledge, who work to make their teaching visible and intelligible to one another. The representation of knowledge produced is intimately related to the subject and purpose of the work, showing the work of teachers *as teachers.* Using course portfolios with a common form allows individuals teaching the same subject to set their work in a collegial context without losing the richness of situation.

To return to our original analogy of situated practice, cockfighters want to raise the best birds they can, and to win consistently; they want to read material about what they do in their daily work, about the detail and minutiae of rearing fighting birds; they want other cockfighters to know that they're good; they need no further legitimacy. They do not need a "scholarship of cockfighting". Is teaching so very different?

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One student cohort, two teaching teams: Analysis of a unique teaching environment

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Introduction

This paper focuses on the unique situation arising in the Department of Pharmacy at Kingston University within the four year Master of Pharmacy degree programme (MPharm). In those modules dealing with the physiological and pharmacological 'science' content of the curriculum, students in each year of the course are exposed to teaching from two very different higher education institutions (HEIs). One of the institutions, St George's, University of London (SGUL), is a pre-1992, research-intensive university; the other, Kingston University (KU), is a post-1992 teaching-orientated institution. This situation is unique in the higher education (HE) sector in the UK and merits investigation as a method of preparing pharmacy students for their professional roles, being different from provision at other UK Schools of Pharmacy (see Wilson *et al*, 2006). Case study methodology was used to investigate this educational provision and data was obtained via questionnaires and semi-structured interviews of both staff and students. Analysis of the data revealed that a majority of the students responded positively to the mixed learning provision. Especially in the final year of the degree programme students believed they were being suitably prepared for their clinical practice and that teaching of the scientific elements of their programme in a clinical setting reinforced this perception. Issues that could potentially improve the student experience were also highlighted and largely these revolved around improving communication between the two teaching teams. It was concluded that this distinctive learning environment was a suitable preparation for the future professional practice roles of this student group. Independent confirmation of this assertion could come from an assessment of how students graduating from this programme fare in the national pre-registration exam compared to students graduating from other MPharm programmes. All pharmacy students have to sit this exam to become accredited as practising pharmacists.

Background

Kingston University (KU) has recently expanded its provision, in the Faculty of Science, by developing a four year undergraduate degree programme called the Master of Pharmacy degree (MPharm). The MPharm is a vocational degree validated by the Royal Pharmaceutical Society of Great Britain (RPSGB) which entitles the holder, after an additional clinical pre-registration year, to become a registered pharmacist able to dispense and prescribe medicines in the UK. In developing this degree Kingston University (KU) entered into collaboration with St George's University of London (SGUL), a long-established medical school (founded in 1834), and became the first School of Pharmacy to enter into such a collaborative partnership for the teaching of Pharmacy students. The learning environment for the Kingston Pharmacy students is likely then to be a uniquely multi-faceted place involving teaching from two different teaching teams in two different institutional cultures. As there is little information available in the literature as to how this specific structure will impact upon student learning it may be desirable to investigate this unique educational setting to evaluate its effect on the student experience.

There is some evidence from the literature that lends support for the contention that the student learning experience varies depending upon the particular institution students are in. For example, Porter (2006) found that different institutional structures affected student engagement in the US HE sector. Umbach and Wawrzynski (2005) showed that different teaching styles have a major impact on student engagement and learning. Also in a US context, Toutkoushian and Smart (2001) found that different institutional cultures contributed differently to gains in student learning. Similar results concerning the impact of different teaching styles and institutional practices have also been found in the UK (Gibbs and Coffey, 2004; Gibbs and Simpson, 2003; Thomas, 2002).

Context

This project specifically sought to investigate the learning environment of MPharm students registered at KU who undertake modules in Physiology and Pharmacology in two very different academic settings. Additionally, the ability of this mixed teaching environment to prepare the students for their future professional roles was also evaluated (Freestone *et al*, 2010). The modules under investigation account for around a quarter of the course and involve two modules out of the total of eight modules per year. Typically, one of these modules is taught at KU and the other at SGUL. This means that these students will experience conceptually similar teaching but from two very different teaching teams, one from a pre-1992 institution and one from a post-1992 institution. Pertinently for this project Gibbs and Simpson (2003) and Gibbs and Dunbar-Goddet (2008) have found that institutions contributed more to the variance in student response on an Assessment Experience Questionnaire than did the course*s* on which they were studying and that this probably reflected the influence of different institutional cultures.

What does 'conceptually similar' teaching mean?

Physiology (and Pharmacology) is invariably taught with a systems approach, ie. cardiovascular system, central nervous system, digestive system etc. studied in discrete units. KU Pharmacy students may then receive teaching in one system e.g. the cardiovascular system at SGUL with one teaching team and another system e.g. the immune system at KU with another teaching team. In fact, whilst at KU a module might typically be taught by two or three members of academic staff, at SGUL students can be taught by up to fourteen members of staff, of whom over half may be at professorial level.

Thus the students under consideration here are unique in having teaching on the same cognate area from a pre-1992 research-orientated institution and a post-1992 teaching-orientated institution. It is this uniqueness that provides the rationale for this study. Staff teaching Physiology and Pharmacology at SGUL are mainly internationally respected research–active staff leading teams of PhD students and post-doctoral workers in dedicated research laboratories on very specific research objectives. On the other hand, KU staff are more heavily involved in teaching, administration and course development. The different tasks performed on a day–to-day basis by the two teaching teams are likely to be reflected in the way they deliver course material to Pharmacy undergraduates.

Cultural Differences

Such institutional differences may impact on staff's perception of their role and student learning due to the organizational structures and values espoused by the institutions. In particular, Shattock (2003) has found that medical schools within a university have a significant degree of autonomy. Further cultural differences that might exist between a post-1992 university and a medical school have been signposted by Dopson and McNay (1996) in their delineation of four organizational cultures in universities. These were suggested to be, collegial, bureaucratic, entrepreneurial and corporate in nature. Post-1992 universities, having experienced central control when they were polytechnics are more used to centrally derived quality assurance processes (Lomas, 2006). Thus, whilst the adoption of quality assurance procedures by academic staff in much of their practice has been evident across the UK HE sector, shifting the balance of organizational power to the centre, (Kogan and Hanney, 2000) post-1992 universities may be better placed to adapt to the changing requirements of the academic role.

Such cultural differences evidenced in the literature, especially relating to professional autonomy, may be evident to the KU Pharmacy students. As one of the institutions involved in this study resides in a medical school and the other is a former polytechnic it is likely that the day to day experiences of the teaching staff are very different as a result of the discussions above. In particular, the heavier teaching load and quality assurance processes experienced by KU staff may make the administration of their modules quite unlike those modules administered by SGUL staff.

Therefore, the MPharm students may be learning 'differently' in the different academic environments they are exposed to. The basis of the different learning and teaching experiences of both staff and students in this context is likely to occur due to the different ethos prevailing in the two different institutions. This study will then seek to evaluate the student experience of these environmental and cultural differences in the two teaching settings.

Methodology

Evaluation of the student learning experience should be part of the professional practice of academic staff (Moore, 2008). Additionally, the Mission Statement of the Higher Education Academy states:

> The Academy's mission is to help institutions, discipline groups and all staff to provide the best possible learning experience for their students (HEA web-site, 2008).

Therefore, much effort has been focussed upon strategies to improve the student experience and evaluation of the utility of these strategies. The purpose of evaluating the student experience should be to enable improvements in course design and subsequent student learning and this was certainly the objective of this study. In order to do this a mixed methods case study approach was used incorporating qualitative data from interviews and triangulating this with qualitative and quantitative data from questionnaires.

Student Experience Questionnaires

One of the best known attempts to assess the student experience was the Course Experience Questionnaire devised by Ramsden (1991). The aim of this questionnaire was

to 'discriminate intelligibly between different courses' in Australia. Many other researchers have adapted this questionnaire or developed their own tools for assessing the student experience. An adapted version of this tool was used to identify whether the learning experience of the KU students is different between the two different institutions.

Final year students (over a 3 year period) received a non-coercive request to participate in the research by completing a questionnaire relating to various aspects of their experience at KU and SGUL. Supplementary questions were added to the Course Experience Questionnaire to investigate the development of the student's professional identity (Taylor and Harding, 2007). Examples of some of these additional questions include, 'The contrast of lecturers teaching the physiology and pharmacology modules makes pharmacy at Kingston so distinct' and 'Joint teaching by St Georges and Kingston has helped immensely in my preparation for becoming a pharmacist'. Brookes (2003) has described how the Course Experience Questionnaire can be used to determine the style of a tailored questionnaire in much the same manner as described here.

Semi-structured Interviews

Following on from the questionnaire a smaller sub-set of students (12 students in total over the three year period) selected to be as representative as possible of the individual cohorts, was asked for an interview. The interview was semi-structured in format in that themes identified by the questionnaire were discussed but student responses were not curtailed and were allowed to be as free-flowing and wide-ranging as practically possible.

Semi-structured interviews were also carried out with members of academic staff from both KU and SGUL (seven lecturer interviews conducted). Whilst these staff were necessarily largely those involved in the teaching of the physiology and pharmacology modules in the two teaching teams it also included pharmacy qualified staff to provide an insight into how well the academic programme formulated by KU prepares the students for their future professional roles. The part that the different institutional cultures plays in the academics' perception of the efficacy of the distinctive teaching and learning environment as well as their own teaching practice was intended to be drawn out from staff interviews. This data source may help us elucidate how individual lecturers conceptualise and approach teaching and learning, their 'pedagogical constructs' (Fanghanel, 2007), and how this relates to the student experience.

Analytical Approach

All interviews were digitally recorded, transcribed and subsequently analysed for common themes and issues along with the associated field notes. Data was analysed by reading and re-reading transcripts in order to be familiar with the content. Codes were assigned to the data to identify emerging themes and generating results based on these themes. This form of analysis has been used by other researchers. For example, Lomas (2006) has used the Constant Comparative Method (Strauss and Corbin, 1998) to analyse qualitative interview data. This involved ascribing meanings to notes taken at interview and then comparing these notes from other interviews so that groups of notes with similar meanings can be drawn up and coded. A similar systematic coding system has been also used by Murray (2002) with emerging themes being coded by independent researchers to obtain a measure of inter-observer reliability.

Data analysed through such iterative cycles of data reduction and conclusion drawing enables 'the researcher [to] impose meaning on the data in an open-minded and tentative way' (Miles and Huberman, 1994). To reduce potential basis, a check on this process was also undertaken independently. The use of such an external audit has been recommended and proposed by Miles and Huberman (1994). Furthermore, all findings were made available to participants of this study to close the feedback loop (Watson, 2003).

Themes arising from questionnaires

171 students across the three years of the study were given the questionnaire and 132 students handed back the completed questionnaire, giving an average response rate of 77.2%. Responses of note to some of the individual questions are delineated below.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly Disagree	Definitely disagree
Overall Responses (%)	21.4	42.9	25.0	7.1	0

Table 1: The standard of assessed work expected from students was clear in both settings

Assessment has been shown to have a large impact on how students learn (Black and Wiliam, 1998; Elton and Laurillard, 1979). Given the previous discussions about different institutional cultures it may be expected that assessment practices between the two different institutions would be variable. However, most students thought that the standard of work expected at both of the institutions was clearly set out.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	3.6	17.9	17.9	28.6	32.1

Table 2: The workload at both universities is the same

However, over 60 % of the students who responded thought that the workload at each institution was different. This data largely related to students believing that the workload at SGUL was greater than that at KU although this was not true for the responses of all students across all modules being investigated here. This result will have a major impact on the satisfaction students will express about their course as equity in workload is often expressed by students to be an important feature of their university experience (Lizzio et al, 2002).

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	7.1	14.3	28.6	32.1	17.9

Table 3: Academic mixtures like this put too much pressure on students

A minority of students (~ 20 %) thought that the mix of teaching at KU and SGUL put too much pressure on them. Most students however, did not think there was too much pressure exerted on them by this teaching strategy.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	10.7	39.3	25.0	25.0	0

Table 4: The academic expectations of me on this course were higher in one setting than the other

Of particular concern were the responses to this question as exactly 50 % of the students thought that there were different expectations for the required level of their work between the two institutions.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	28.6	46.4	21.4	3.6	0

Table 5: Overall, the teaching I have experienced in this part of the course has been of good quality

Notwithstanding the very different profile of the two teaching teams involved in the delivery of the MPharm a large majority of the students (~ 75 %) thought that the teaching throughout the Physiology/Pharmacology portion of the degree was of good quality.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	28.6	35.6	28.6	3.6	.6

Table 6: *I have had an enjoyable experience at both universities*

A majority of students (~ 64 %) found the learning experience enjoyable at both institutions and would recommend (~ 67 %) that other MPharm courses have the same mix of provision as the KU programme involving academic staff from a variety of different backgrounds (see below).

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	21.4	46.4	14.3	3.6	14.3

Table 7: I would recommend other universities to undertake the same setup as Kingston and have a multi-professional teaching team

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	7.1	7.1	14.3	28.6	42.9

Table 8: Having to go to two different universities is very confusing

A small number of students (~ 14 %) expressed the belief that distribution of teaching across two different educational settings was confusing. Further work will be needed to target such students for additional support.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	57.1	14.3	17.9	7.1	3.6

Table 9: This mix of learning is very beneficial as you get to experience learning in different environments by a number of different lecturers

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	17.9	14.2	32.1	17.9	17.9

Table 10: The course is well organised and runs smoothly

Despite the fact that a majority of students thought that the mixed teaching provision was good for their learning (Table 9) more than a third reported that they thought that the course was not well organised (Table 10).

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	32.1	46.4	3.6	17.9	0

Table 11: The standard of work expected from both universities is very different

Matching up with responses from Table 2 a large majority of students thought that different standards were expected in the two different institutions.

	Definitely agree	Mostly agree	Neither agree or disagree	Mostly disagree	Definitely disagree
Overall Responses (%)	46.4	14.3	32.1	3.6	3.6

Table 12: I feel I benefit from being in contact with lecturers who come from different academic backgrounds

Responses here matched up very well with those elicited for Table 9. Over 60 % of the students thought that having lecturers with different backgrounds was beneficial to their learning.

Themes arising from student interviews

Overall, as exemplified by the questionnaire results above, most students responded favourably to their novel learning environment. They gave sophisticated responses when interviewed concerning the contributions the two teaching teams made to their development as pharmacy practitioners. Both the clinical environment at SGUL and the academic environment at KU were held to provide useful learning experiences. For example:

At St George's the lectures are very in depth, covering a lot of material and because they're given by doctors they're more clinically based, so it's better.

I like the fact that you are actually introduced to many different lecturers which means that you get different teaching methods.

On the other hand:

Kingston has fewer lecturers per module and this is better because we can build a relationship with them easier.

Kingston has more pharmacy trained staff and they have a different teaching style...they know what we need to know.

Whilst the majority of the comments were positive some negative comments were also elicited. For instance, whilst some students thought a volume heavy module was beneficial to their learning others did not:

Just too much to learn...the work load is terrible, an odd 30 to 40 lectures plus tutorials and workshops.....it's manic.

Furthermore, students also identified deficiencies in their provision which could be easily addressed by the teaching teams:

Content was a bit repetitive from last year's physiology module

As well as being aware of the changing nature of HE and the different philosophies employed by academic staff to prepare their learners for the future:

They're trying to make us more independent because it's obvious that we haven't been taught some of the material we should have...and we have to teach ourselves.

Students responses in the questionnaire seemed to indicate some dissatisfaction (~35%) with the organisation of modules. On further interrogation of this point at interview students reported that the course was:

Very disorganised. Changes are made in the schedule last minute without any notice for students.

Whilst again providing a simple remedy to this perceived deficiency which could easily be employed by academic staff:

We just need someone to inform us what's going on really, even an email.

Despite the differences in academic cultures and day-to-day working practices of the two teaching teams, common themes were highlighted at interview by the academic respondents:

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Students benefit from a range of teaching from clinical specialists, so there is a range of doctors who come in and do one lecture on their speciality. I know though that students initially don't see this as useful (KU Lecturer).

Students are taught by a number of staff who are orientated to clinical use of medicines as well as the scientific theory of medicines, so they get both perspectives (SGUL Lecturer).

Some differences were also highlighted between the teaching philosophies of the two teams:

Most of my time is spent teaching. At the moment more importance is on teaching, I don't mind that (KU Lecturer).

When it comes to the later stages (of the degree) you need to know exactly what is expected from you as a pharmacist and this should be taught by pharmacists' (KU Lecturer).

On the other hand:

I try a lot of the time to get them into research and all that. I am fundamentally a researcher. I like you know, just getting students together in meetings to present their data (SGUL Lecturer).

However, all lecturer respondents appeared to reflect on their teaching and how this impacted on student learning:

Knowing your audience....... You've got to engage with the students in front of you (SGUL Lecturer).

I try not to just regurgitate textbook info to students but to give it my own 'spin' (KU Lecturer).

The learning environment(s)
This paper seeks to evaluate a unique learning situation for the education of pharmacy students at two very different academic institutions. This collaboration was entered into as:

it would be of considerable value in having a medical school involved in the teaching of pharmacy students' (KU Lecturer).

Both in questionnaire responses and when interviewed, a large proportion of the students who took part in this study expressed positive views towards the joint teaching venture, believing that attending two different HEI's created distinctiveness in their academic experience. Furthermore, most students reported that academic staff were enthusiastic about their teaching and this resulted in an enjoyable learning experience.

Students were aware of the differing nature of the education provided by the two institutions and the data collected here reflected this. Students largely valued these differences in their provision although a smaller number of respondents thought that the mixture of teaching teams put too much pressure on them as learners. Of more concern was the finding that exactly half of the respondents thought that there were different academic expectations of them in the two teaching settings. Developing the programme so that it retains its unique beneficial features whilst addressing the concerns of those students who do not react so positively to this mixed provision is a major future challenge for the teaching teams.

However gathering data from students about their learning milieu should helps us understand their teaching, learning and assessment experiences better and may give us insights into ways we can improve the MPharm programme (as suggested by Jesson *et al*, 2006). This was the intention of the research conducted here and possible suggestions for the improvement of this programme will be discussed later in response to the data obtained from the student body. Such an approach has also been undertaken by Trotter and Roberts (2006) who used case study methodology at a UK university to 'explore developments to inform practice which will enhance....student experience and improve.....achievement'

Preparation for future practice
Previously pharmacy students have questioned the relevance of the scientific elements of their programme to their clinical practice as pharmacists because of a lack of balance and contextualisation between these two elements of their learning (Jesson *et al*, 2006). Additionally, conventional opportunities for professional identity development (acculturation) may also have been reduced recently because:

There are now more students in more schools of pharmacy which means that there are less pharmacy academics to go round (Taylor *et al*, 2004).
b. 'Ordinary' university lecturers are not thought of as suitable role models (Nathan, 2006).

Despite these observations, students overall expressed no preference for one setting over another in helping them develop into professional practitioners. This suggests that students believe that their socialisation into the culture of pharmacy practice can be achieved by a combination of both settings working together. However, in terms of responses to individual questionnaire entries rather mixed messages were received. For instance, for some questions students thought that pharmacy-specific academic staff at KU prepared the students better for their future role as pharmacists, whilst responses to another question seemed to indicate that clinically-qualified staff at KU may impart more relevant practice-related knowledge. For example, one student said:

> Having lectures from lots of clinicians who deal with patients with different
> diseases on a daily basis must be good for us mustn't it?

Whilst this may appear a rather contradictory set of findings it was nevertheless clear that most of the final year students responded positively to the contention that the fourth year explicitly prepared them for their practice roles.

When academic staff from both institutions were asked their opinions on the nature of the provision they were almost unanimous in their praise of the multi-disciplinary teaching approach. One said:

> To have NHS clinicians teaching students is amazing.

Whilst another said:

> Learning in a hospital setting must be beneficial to the students as they will end up working in that environment.

However, at a more specific modular level some concerns were evinced by some of the respondents:

> We don't know what the students are learning at KU.

> There are obvious gaps in student knowledge and this must mean they aren't being taught all the relevant stuff.

Furthermore, individual lecturers weren't sure of the place of their teaching within the overall programme:

> I'm not sure if my lecture material overlaps or complements what is being done elsewhere.

Suggestions for improvement

Most of the responses from both staff and students at interview suggested that to improve the overall coherence of the programme one person needed to be identified as a link between the two institutions to provide a first port of call should any logistical problems arise in the teaching provision. This is recommendation that will be acted on by the teaching team in the future.

Ascertaining student views on their educational experience has shown that a more coherent programme needs to be constructed with clearer lines of communication both between academics and students and between the two different teaching teams. In more general terms exploring the experiences and opinions of students on their educational experience of the MPharm degree may give us insights into ways of improving delivery of the programme (Wilson *et al*, 2006). Whilst any findings will hopefully illuminate and inform practice to the benefit of the learners in the particular KU setting it is possible that tentative suggestions for improved practice elsewhere may flow from this study.

Conclusion

It was found that students in general are quite happy with having the benefit of studying in two totally different institutions. Students felt that having contact with academics from different backgrounds was a good thing that aids their learning and they appreciated what they perceived to be good teaching and help they got from lecturers in both settings. However, they are unsatisfied with some aspects of this programme such as varying

academic expectations and workloads and poor communication between the teaching teams. This data will be used to inform future practice as suggested by Foreman-Peck and Winch (2010) who state that:

> Using research findings to reflect one's own practice may afford a richer understanding of the complexities of a situation, through a more precise conceptualisation and a better informed grasp of how one might go about one's own practice.

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Rigor and reach in the Scholarship of Teaching and Learning

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This essay revisits the methodological trading zone that is emerging among scholars of teaching and learning, and looks at what it means for the role of the disciplines in this work. Disciplinary connections have been critical to conceptualizations of the enterprise from the beginning (Shulman, 1993; Huber, 1999, 2002; Healey, 2002). In part, this has had to do with the work's focus on questions about teaching and learning in particular courses and fields—and in part with the effort, as Lee Shulman put it, to make teaching 'community property,' available for critique and review by disciplinary peers (1993, see also Shulman, 1987). Indeed, as Sue Clegg reminded us in her keynote to the International Society for the Scholarship of Teaching and Learning in Edmonton, 'The way SoTL has approached making connections between scholarship and practice has been through the glue of disciplinarity. I think this is the most distinctive aspect of SoTL which distinguishes it from the action research and teacher research traditions' (2008, p.3).

Yet it has also been clear from the beginning that for this kind of work the disciplines were not always comfortable homes. Certainly this has been true in the realm of 'methods,' where scholars of teaching and learning have come quickly to the realization that disciplinary business as usual is not going to get them where they need to go, and looked eagerly for tools for inquiry, observation, and analysis that they could adapt (or repurpose) from their own field as well as those that could be borrowed from colleagues from disciplines other than their own. Sherry Linkon has described the dilemma as it emerged in her own work:

> These new kinds of questions [about students' perspectives and experiences as learners in literary studies] would require not just new ways of thinking but also different research methods. I couldn't comfortably answer these questions just by describing what I had tried to do and what I thought had happened. What I really wanted now was a way to read my students' minds, to find out what they were thinking as they wrote their papers and how they understood the critical approaches that I thought I was teaching so well (n.d., p.137).

Like others who get intrigued by these questions, Linkon turned to the literature and to colleagues for inspiration that (in her case) led back to her students' work with a new sense of how to select the right examples for the questions she wanted to answer, led her to interview students and colleagues, and to design her own version of the think-aloud. And, indeed, as more and more work has been made public, more support has become available, and more face to face forums for discussing work in progress have formed, methodological models and ideas for how to go about classroom-based inquiry have become increasingly popular items of trade. Just as 'ethnography' has spread well beyond anthropology in the realm of discovery research, and become domesticated in a variety of disciplinary, interdisciplinary, and professional fields, so too 'think alouds' have spread beyond their

home in cognitive psychology to become the common property of scholars of teaching and learning. And that's only one example. Many other methods, from focus groups, to pre-and post-tests, to the whole array of classroom assessment techniques have travelled widely in recent years (see Huber, 2009).

Most of us, I think, would agree that it is good to enrich our toolkits this way, without overmuch worry about the purity or provenance of what we use to get a purchase on the problem to hand. After all, the scholarship of teaching and learning is a pragmatic enterprise, more at home in the swampy lowlands where Donald Schon (1983) locates the reflective practitioner than in the hard high ground of pure science, where many of us hang out when we're looking into the more common subject matter of our disciplinary research. Indeed, when the scholarship of teaching and learning is harnessed to the larger educational agendas of departments and institutions, as increasingly it seems to be, it looks less like familiar 'discipline-based knowledge production' and more like a 'problem-focused, interdisciplinary endeavor involving collaboration across fields' (Institutional Culture Group, 2009, p. 10) - in other words, it fits well into the new mode of knowledge production identified by Gibbons et al (1994).

But what does the growing trade in methods mean for the work's rigor, on the one hand, and the work's reach, on the other? Does the increased observational and analytical power afforded our growing repertoire of methods enhance or limit the audiences and influence of our work?

This is an old and vexing question. As Sherry Morreale and I pointed out in the introduction to our 2002 edited collection of essays, *Disciplinary Styles in the Scholarship of Teaching and Learning*:

> The applicability of one's discipline to problems of teaching and learning can be an effective argument for the rightness and importance of this work. On the other hand, the resistance of these problems to the discipline's familiar modes of inquiry, conceptualization, and research procedures can limit interest in the scholarship of teaching and learning and even undermine its legitimacy' (2002, p.16).

When problems invite a wider range of methods than one's discipline affords, what happens? Is the scholarship of teaching and learning becoming 'genericized' (is that even a word?) Will it be able to keep its seat at the disciplinary table - be recognized and rewarded, contribute to pedagogical thought and practice, encourage new colleagues to give it a try? As I will show, this very quandary has stimulated some creative and critical rethinking about the possibilities - not only for the domestication of borrowed techniques but also for 'stretching' more familiar disciplinary methods. Let's start by looking at a couple of cases that highlight the trade in borrowed methods, one from afar and one from nearby, and conclude with a case of 'repurposing' methods that are indigenous to the field.

Some of the best descriptions of this trade's earlier days come from *Opening Lines*, Pat Hutchings's collection of essays by participants in the first two cohorts of the national fellowship program of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL), written while their work was still in progress. In particular, let us consider Dennis Jacobs' observations on what he had to beg, borrow, and steal to do his evaluation of an experimental section of Chemistry 101 for at-risk students at the University of Notre Dame in

the late 1990s. He begins with a challenge that classroom research poses to familiar methodological ideals:

> My natural inclination as a scientist was to undertake this work with a control group design. However, that would have required two comparable sections, and the courses were intended to serve two different populations (2000, p.44).

Jacobs found an imaginative way around this—not quite what he wanted, but one that enabled him to compare the performance of at-risk students on common test items from the traditional lecture section and the experimental section of the class, and to follow their retention and performance in later science classes.

But then Jacobs takes steps further afield. He thanks colleagues in his multi-disciplinary cohort of the CASTL fellowship program for encouraging him to think beyond the control group model, to reframe his questions, and to think bigger about the work's audience. Focus groups helped him analyse the dynamics of the different elements in the two courses, pre-post surveys enabled him to amplify these findings by looking at changes in students' attitudes over the semester and connect them with test scores; videotaping small groups working on problems were making it possible to see 'which kinds of problems lead to rich discussion and which to a more perfunctory division of labor' (2000, p.48).

Yet none of this was easy. Jacobs' description of what it was like to leave his comfort zone is measured, but one can read between the lines. For example, he did some reading in advance about focus group:

> [...] and what I read made me pretty apprehensive. Much of the literature is full of cautions about what not to do, and I was nervous that I was going to blow it, that some how I was going to bias the group in the way I phrased my questions or by my body language (Jacobs 2000, p.46).

But his problems weren't just in mastering new (to him) qualitative methods; he had problems in the quantitative area as well. While he felt more at home here, the challenge was that he had little expertise in statistics, and had 'to figure out how to make myself proficient (2000, p.49). The good news is that the focus group experience turned out to be 'a very natural conversation' (p.46) and while he wished he had been able to collaborate with someone who would have helped with the statistics, he was looking forward to gaining new colleagues whose methodological imagination and expertise he could tap, as his university was creating a formal structure for faculty who wished to work on the scholarship of teaching and learning and learn from each other.

While Jacobs went pretty far afield to explore his teaching problem and the questions it raised, another, more recent case, highlights borrowing (or inventing) nearer to home, i.e. using or developing techniques not commonly used in the home discipline, but that are nonetheless compatible with its usual disciplinary styles. In the explicitly collaborative 'History Learning Project' at Indiana University, Bloomington, David Pace, Leah Shopkow and colleagues in history, collaborating with Joan Middendorf, an education researcher from Indiana's Teaching and Learning Center, decided 'to focus in depth on the implicit requirements for success in a single field' (Pace 2009, p.101).   Using Pace and Middendorf's 'decoding the disciplines' approach (2004), the team did lengthy interviews with

colleagues about bottlenecks that students experienced in learning history, and analyzed the transcripts and videotapes of these conversations to create a 'chart of basic operations required in history courses' (Pace 2009, p.101). They then developed, implemented, and used a variety of techniques to assess 'a series of lessons designed to model a few of these operations in history classes' (p.101; see also Diaz, Middendorf, Pace, and Shopkow, 2008). And finally, they administered 'pre- and post- tests…to large numbers of students in the department's courses to see the extent to which faculty perceptions correspond to student difficulties' (Pace 2009, p. 101).

Now these cases from the University of Notre Dame and Indiana University, Bloomington are unusual in regard to their scope, methodological ambition, and level of time and effort required. For many faculty, however, both current scholars of teaching and learning and potential ones - that level of 'rigor' is a lot to ask, and certainly sets limits to its 'reach,' in the sense of an invitation to engage in the work. In fact, many respondents to Carnegie's 2009 survey of participants in CASTL's Institutional Leadership Program (2006-2009) commented on these complexities (Ciccone, Huber, Hutchings, and Cambridge 2009). 'We understand the importance of maintaining rigor in SoTL endeavors,' one colleague wrote, 'but can there be some altering of perception whereby all faculty can perceive SoTL as approachable and accessible.' The complaint here is not only about the work's scale and scope, however. It is also a function of the work's perceived distance from one's disciplinary inclinations and expertise. Indeed, as David Mills and I have pointed out (2005), this can be a special problem in humanities-oriented disciplines, where the epistemological stance (and not just the methods) of educational inquiry can seem particularly off-putting and strange.

In an important article in *Arts and Humanities in Higher Education*, Sherry Linkon and Randy Bass have taken up this concern on the part of their fellow literary scholars and, in essence, turned it into a challenge to their discipline itself:

> For many literary scholars, staking a claim for a disciplinary practice of SoTL has been difficult [...] because the standard approaches used in SoTL borrowed from the social sciences and educational research, seem foreign to literary scholars (2008, p.246).

Indeed, many of their colleagues don't see their *own* field's research culture as particularly SoTL- friendly either. According to Linkon and Bass (2008): 'Literary research tends to be fluid, complex, and open-ended.' The field 'values ambiguity and is generally sceptical of claims to objective truth.' Many of these scholars:

> [...] balk at the very idea that research can (or should) yield clear answers to well-defined questions, or that valid answers must be developed through controlled studies and systematic analytical methods, which often seem unnecessarily formal, time-consuming, and confusing. Even those methods designed for analyzing qualitative data bear little resemblance to the field's usual interpretive practices (Linkon and Bass, 2008, p.248).

And on it goes. Those who have read *How Professors Think*, Michele Lamont's study of peer review panels for competitive grants in the humanities and social sciences, will recognize how well Linkon and Bass' description fits her characterization of the evaluative culture of English Literature and the problems it might raise for buying into the empirical

expectations of much social science research. Including, of course, the kinds of classroom inquiry common to the scholarship of teaching and learning.

Naturally, Linkon and Bass know of, and have themselves contributed to, excellent work in the scholarship of teaching and learning by literary scholars. Their concern, however, is with the appeal of this work within their field. They look closely, then, at what they call their field's mainstream pedagogical publication - *Pedagogy* - to see what they can see about how these colleagues are approaching teaching and learning issues. Their conclusion is quite surprising. While literary scholars may claim that their own disciplinary approaches 'do not translate to studies of teaching and learning' Linkon and Bass (2008) believe that the problem is different: *literary scholars are not yet fully applying the methods of the discipline*' in this work (p.260, italics in original). The articles in *Pedagogy* showed that the interpretive practices of close reading (arguably, the field's signature method) were applied to texts about teaching. They were not yet being applied to *texts of student learning*. Accounts of student learning tended to be told about in generalized terms, not subjected to a close reading as an 'integral part of the argument' (p.255)—so that it is the teacher's practice, not the student learning, that is the 'focus of these narratives' (p.257).

Thus Linkon and Bass suggest that stretching (my word) their field's method (close reading) to texts of student learning would be an approach that might feel right to practitioners, speak usefully to problems students encounter in literary studies, and appeal to a broader audience of literary scholars and even beyond. Look at the different kinds of 'reach' they imagine for 'rigor' of this kind:

> Developing protocols and a vocabulary for reading students' work would, we believe, facilitate the process of applying insights from one's individual teaching experience to other, quite different situations….It would…not only make specific cases more fully generalizable [one kind of reach], it would also help us, as a discipline, to develop a shared understanding of the nature of students' learning [a second kind of reach], and have a transformative impact on way we imagine designing disciplinary curricula (a third kind of reach], as well as on the discipline's contributions to a larger curricular design [a further reach] (2008: 259-260, my comments in brackets).

All three cases - borrowing methods far from home; developing new methods close to home; and stretching one's own signature methods - promise both an increase in rigor (defined here as lenses that extend or sharpen our visual field) and in reach, whether conceptualized as generalizability of results, increased understanding of learning, or impact on teaching and curricula in our own or others' fields.

Yet to some extent, these effects depend on a fourth kind of reach - appeal to an audience that can read, critique, and build on the findings. This is an area where there's still important work to do. If we want the work to influence and appeal to our disciplinary colleagues - or even to be recognized and rewarded by them - we must be careful to keep our work somewhere near their Vygotskian 'zone of proximal development' and provide scaffolding that enables them to access it. Or to put it less fancy terms, scholars of teaching and learning need to help their disciplinary colleagues see why the work is intellectually serious and worth paying attention to. Using methods (whether borrowed, blue, old, or new) that

these colleagues can appreciate, and that answer questions about learning that they consider worth asking, can help keep them in the conversation. And keeping colleagues in the conversation is key if we really want insights from the scholarship of teaching and learning to influence pedagogy, curricula, and assessment in our departments and fields.

For many within the scholarship of teaching and learning community, rigor - the right use of the right methods - is seen as key to gaining respect. Still, it is good to be wary of that what has rightly been called *rigor mortis*. As one leader in our CASTL survey succinctly said: 'What are appropriate models for doing SoTL well without professionalizing it as a field exclusive to a small number of specialists?' This tension will probably always be with us. How do we find that sweet spot where increasing the work's rigor - its power to answer good questions - also increases its reach?

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Connecting scholarship to teaching:

The merits of a scientific interdisciplinary approach

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Introduction

Since Boyer (1990) instigated the SoTL movement by cogently arguing that teaching should be viewed as a valuable scholarship activity in itself, it is now a widely held belief that practitioners (academics or faculty) who engage in this scholarship are those who communicate and disseminate the teaching and learning practices of their discipline to relevant communities for peer review (Martin et al., 1998; Hutchings and Schulman, 1999; Healey, 2000). It is this connection to the peer community which distinguishes a fully research-based teacher from one who engages in related activities, such as scholarly teaching, or excellent teaching (Hutchings and Schulman, 1999). Kreber and Cranton (2000) have notably articulated the meaning of SoTL and developed a model focusing on reflection that explains how academics develop scholarship in teaching. Indeed, in the modern HE climate of widening participation it has been strongly argued that the considerable critical discourse on SoTL cannot be ignored (Elton, 1992) and there have been a number of key publications aimed at helping individuals (Kreber, 1999; Kreber and Cranton, 2000; Murray, 2008) and institutions (Boyer Commission, 1998; D'Andrea and Gosling, 2005) adopt and embed a SoTL culture.

It has long been accepted within the SoTL community that a clear methodological approach is required if purposeful research and scholarly activity in relation to teaching and learning in higher education is to occur (D'Andrea, 2007). Congruent with the argument for clear methodological approaches to SoTL, this paper presents the authors' recent advances in providing a methodological approach to engaging academics in SoTL activities and forming communities of practice (Wenger, 1998).

This paper presents a pragmatic refinement of a methodology the authors' introduced in 2006 (Tepper, Liggett and McNeil, 2006) to better address the needs of an interdisciplinary group of scientists engaged in SoTL projects funded by a sabbatical scheme awarded by the University's CETL. We first evaluate the efficacy of the initial methodology and then examine the merits of this interdisciplinary approach by performing a simple force field analysis and as a result argue that for effective academic and professional learning communities to occur, a SoTL development methodology whose activities are underpinned by the well founded principles of systems development, action learning and coaching are an essential pre-requisite. However, such a methodology is expensive and will only be effective in disseminating teaching practices to audiences beyond the local institution (i.e. enabling level 3 SoTL as defined by Ashwin and Trigwell, 2004 - see table 2) if adequate *time* and *resource* is made tangibly available for regular individual and collaborative reflection.

**Iterative refinement methodology for publication development**

In 2006 the authors developed an iterative refinement methodology that combined the main tenets of information systems development methodologies (Avison and Fitgerald, 2002; Martin, 1996) with that of personal coaching (Whitmore, 1996) and action learning research (Revans, 1998) to facilitate an individual's SoTL within a peer review framework (Tepper, Liggett and McNeil, 2006). A combined process and framework was developed to enable academics to create, apply and disseminate their knowledge, understanding and experience of learning and teaching to scholarly peers.

The methodology consists of a five-phased framework where each phase shares the following characteristics:

- Consecutive
- Time-driven
- Iterative
- Composed of a number of well-defined steps that produces the desired outcome (for the phase)

Central to this methodology, is the use of a structured online discussion forum as part of the existing Virtual Learning Environment for both the easy access to the peer review community and easy transition of documents through the phases. A schematic of the initial methodology is shown in figure 1.

Figure 1. The initial prototyping methodology to facilitate individual SoTL (2006).
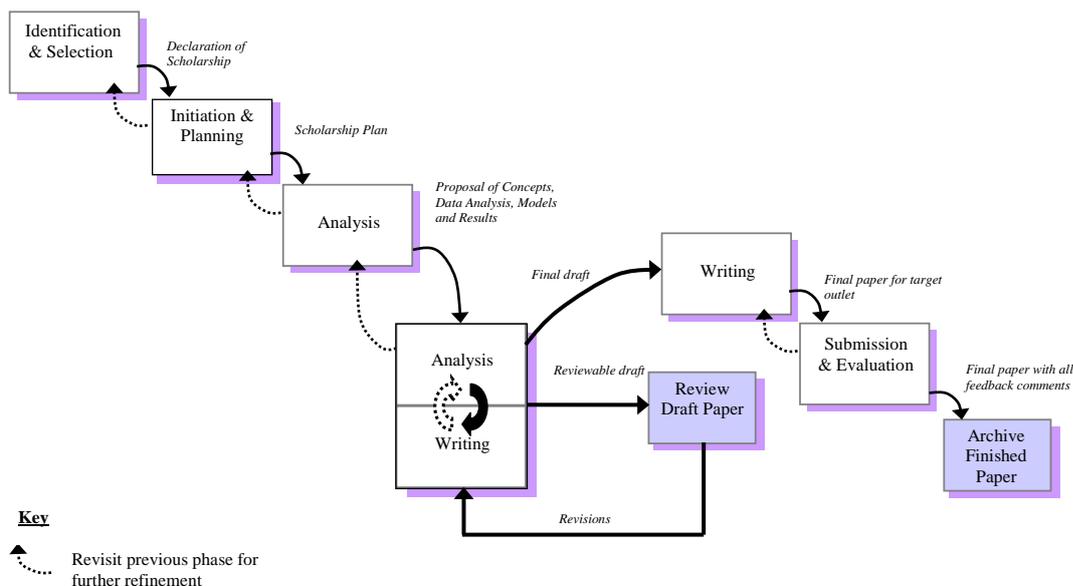
As can be seen in figure 1, 'identification and selection' is the first phase of the methodology. The researcher identifies a suitable focus for study. Selection criteria are provided to enable

the participant to identify the most realistic options given the time and resource available. The key output from the phase is the participant's 'declaration of scholarship'. This is a public declaration, providing extrinsic motivation and an opportunity for collaboration and peer support. Collaborators or buddies may also be identified at this stage.

When the 'declaration of scholarship' has been produced, this is passed as input to the next phase, which is 'initiation and planning'. Goal planning is a central part of phase two. Here the participant concentrates on resource identification to support the research activity over the maximum 18 month period, scheduling in milestones relating to the methodology. The output of the stage is the writing and publication of a scholarship project plan. The researcher invites the participating community to comment and reflect upon the plan focusing realism and appropriateness of the tasks and timeframe identified. Peer review thereby gives the project momentum and to some extent positive endorsement or reinforcement.

In the analysis stage the researcher is prompted to address a range of steps which follow the basic research process notably: to perform a literature review; to identify and use an appropriate research methodology and data analysis tool. The output will vary depending on the type of paper being produced and articulated in the scholarship analysis document. Peer support at this stage may take the form of 'critical friends', advice or more extensive collaboration.

Given the iterative nature of the methodology, the initial output of writing phase may be a first draft of the structure, the key arguments to be made or the entire paper ready for submission. Participants are asked to produce a draft of their paper which reflects the scholarship analysis document and is cognisant of the published guidelines for the target publication. Participants again benefit from peer support in the form of feedback or informal review.

Finally, during the submission and evaluation phase, the participants submit their paper for peer review and evaluate the whole scholarship process using the six criteria identified by Glassick et al (1997) (shown in table 1) and peer review feedback.

Six criteria for evaluating a scholarship process (Glassick et al., 1997)
1. **Clear goals**—Does the scholar state the basic purposes of his or her work clearly? Does the scholar define objectives that are realistic and achievable?
2. **Adequate preparation**—Does the scholar show an understanding of existing scholarship in the field? Does the scholar bring the necessary skills to his or her work? Does the scholar bring together the resources necessary to move the project forward?
3. **Appropriate methods**—Does the scholar use methods appropriate to the goals? Does the scholar apply effectively the methods selected? Does the scholar modify procedures in response to changing circumstances?
4. **Significant results**—Does the scholar achieve the goals? Does the scholar's work add consequentially to the field? Does the scholar's work open additional areas for further exploration?
5. **Effective presentation**—Does the scholar use a suitable style and effective

organization to present his or her work? Does the scholar use appropriate forums for communicating work to its intended audiences?

6. **Reflective critique**—Does the scholar critically evaluate his or her own work? Does the scholar bring an appropriate breadth of evidence to his or her critique? Does the scholar use evaluation to improve the quality of future work?

Table 1. Glassick et al's criteria for evaluating a scholarship process.

Case study 1 - The Scholarship of Learning and Teaching Network (SoLTN)

The Scholarship of Learning and Teaching Network (SoLTN) was founded at the authors' university to strengthen the culture of publishing new knowledge developed through research, synthesis, practice and therefore teaching. The iterative refinement methodology applied to SoLTN provided a workflow process that supported academics who traditionally engage in disciplinary research to realise scholarship of their teaching practice as complementary research with natural synergies rather than separate domains working in competition for time and resource and space (Brew, 2006). By recognising an artificial separation between traditional disciplinary and pedagogic research cultures the methodology sought to provide an effective conduit to ameliorate such pressures.

An initial call for interest across the academic community generated considerable enthusiasm. In excess of 40 participants, broadly representative of the university faculty, came together in a workshop to explore the potential for collaboration. It became possible to categorise the enthusiasts into two broad groups, namely those who were active researchers in their own discipline who wished to explore a wider learning and teaching focus and those who classified themselves as 'new researchers' and who were looking to begin a research career within a supportive framework and taking a pedagogic focus.

The initial enthusiasm subsequently generated a range of collaborations, with more experienced researchers giving their time and expertise to others. By 2010 some of those collaborations remained intact and had generated a number of research outputs including Hand and Brysons' research into student engagement. The Network was successfully facilitated in the early months by the efforts of the architects of the methodology, Tepper, Liggett and McNeil (2006) and included: a discussion board, initial resources, some all-Network events (e.g. training for educational research).

On reflection and within a year of the Network's inception it became apparent that the momentum was becoming difficult to sustain. The methodology had been positively evaluated but engagement with the process was on balance limited. Participants continued to demonstrate their wish to engage but organisational drivers were increasingly frustrating the efforts of individual academics. It became apparent by the end of 2007 that without funding and staff time buyout the Network could not be self-sustaining. The barriers which

had constrained individual academics aspirations remained firmly in place. A point reflected by Norton (2009) who notes that pedagogic research like all research requires time, commitment and resources to be successful.

Iterative refinement methodology: repositioned for SoTL project development

The implementation of the initial development methodology was unsustainable due to lack of funds, nevertheless it was clear that the methodology itself had provided a sound means of facilitating academics to engage in SoTL. After 2007, it was therefore decided to reposition and apply the methodology to the whole SoTL process for individual and group-based sabbatical projects associated with the authors' institution's Centre for Excellence in Teaching and Learning (CETL). The CETLs were funded by the Higher Education Funding Council for England (HEFCE) and expected to primarily '….sustain and stimulate further excellent practice through teaching that is informed by scholarly reflection, developed through innovative and adventurous thinking, extended to learning in new contexts, and (reach a wider audience) through active dissemination of good practice' (Invitation to Bid 2004/05, paragraph 16). CETLs therefore have a principle aim of engendering SoTL communities although it is recognised that such a framework provides a number of challenges for knowledge production and dissemination in relation to SoTL (Gosling, 2008).

The Centre for Effective Learning in Science (CELS) was established in 2005 to enhance the learning environment of students primarily within the School of Science and Technology. The School consists of five distinct academic communities each relating to a particular branch of science or technology and employs 116 academic staff. CELS is one of 74 CETLs established in 2005 and only one of the six CETLs in the UK with a science focus.

Case study 2 – The Centre for Effective Learning in Sciences (CELS)

A key aspect of the CELS approach to SoTL was to provide a sabbatical award scheme whereby individual or groups of academics can engage in a project as a vehicle for developing their individual and/or collective teaching philosophy and practice. Awards would typically enable an individual (who may be leading a group) to be allocated either half a day or one day a week (depending on the demands of the project) to work on their project for an academic year (September to July). Each funded SoTL project must be clearly linked to the School, CETL and institutional learning and teaching enhancement strategies and related objectives. As described by McNeil et al (2008), the aims of the scheme were to:

- Invest in the continuing professional development of staff;
- Engage colleagues in developing and implementing quality enhancement activity in support of the Learning and Teaching Enhancement Strategy;
- Through their professional practice provide opportunities to develop the learning, teaching and research cultures;
- Provide an impetus for the development of innovative practice.

To enable the SoTL projects to meet their stated aims, the sabbatical process was mapped onto the iterative development methodology to provide a formalised community-based support mechanism through each phase of the lifecycle. Rather than focus on the dissemination aspect of SoTL and on discussion boards for community support, the funding

provided capacity to extend the methodology to provide a support programme using three independent consultants, including one of the authors, at every stage of the project from planning and development to evaluation and dissemination. To further minimise the common issues associated with lack of available time to engage in SoTL projects due to teaching loads, a system of 3-year fixed-term lectureships was used to provide teaching cover for staff on sabbatical projects.

Each year two different types of learning communities were formed from across five distinct science-based disciplines: Teams for Integrated Projects in Science (TIPS) and Teams for Outreach Projects in Science (TOPS). The TIPS community focused on: exploiting educational technology for developing e-learning resources to support the learning of scientific concepts; portfolio and student ambassador support schemes to support the development of lab skills and transitions into HE and finally exploring techniques for developing student autonomy and employability skills. The TOPS community undertook projects to design and deliver primary and secondary school activities for learning science. A total of 28 SoTL projects were undertaken and completed over the five year period involving 35 academics from across the School. The average number of sabbatical staff leading a project per year was 10.

After a number of reconfigurations of the support methodology to engender effective learning communities, the implementation of the revised methodology applied over the last two years (shown in figure 2) met each of the following seven principles for cultivating communities of practice defined by Wenger, McDermott, and Snyder (2002):

i.   Design for evolution
ii. Open dialogue between inside and outside perspectives
iii. Invite different levels of participation
iv. Develop both public and private community spaces
v.   Focus on value
vi. Combine familiarity and excitement
vii. Create a rhythm for the community.

Design for evolution was achieved through the iterative development methodology whereby monthly review meetings were held that alternated between one-to-one tutorials with the independent consultants and an action learning set meeting to collaboratively reflect on progress, problems and solutions. A key focus of these meetings was also to review project plans with respect to the goals and ensuring development and evaluation activities remained constructively aligned to them (Biggs, 1996).

The action learning set meetings and interim seminar presentations amongst community members were used to obtain and share perspectives amongst sabbatical staff and thus community members who share the same context. Outside perspectives were elicited through the introduction of three workshops conducted by external guest speakers from across the wider University and HE sector to discuss issues relating to pedagogic research and strategies for disseminating project outcomes to various HE publication outlets.
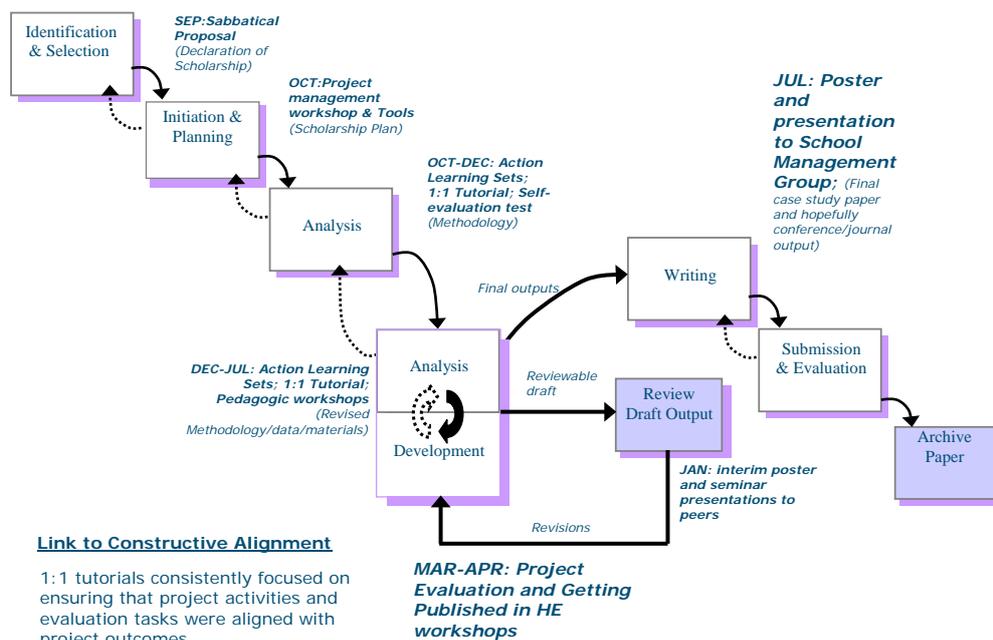
Figure 2. The revised prototyping methodology adopted by CELS to facilitate SoTL development.

Multi-modal participation was facilitated in numerous ways from the use of a dedicated online workspace and discussion forum on the Virtual Learning Environment (VLE) to the filmed interviews of various members during the learning set meetings to develop video case studies highlighting how the projects were evolving. Each member would present and lead discussions at alternate learning set meetings.

Public community spaces were provided via two means: face-to-face action learning set meetings and an online discussion forum for building and establishing collective understandings and relationships. Private space was assured through the use of a dedicated CELS building with an office for sabbatical staff where they could concentrate on their projects with minimum interruption from aspects of their substantive posts. One-to-one tutorial meetings with independent consultants facilitated personal reflection and introspection.

The aims and values of the project were formally established during application stage, although it was the action learning sets and interim seminar presentations in January that really facilitated sabbatical staff to identify, articulate and refine their own values with respect to their project and underlying teaching philosophy. A reflective log book was provided to all staff to encourage formal capture.

In terms of integrating familiarity and excitement and also providing a rhythm for the CELS SoTL community, all members of the community were provided with a programme of seminars and support activities at the beginning of the year which combined the regular tutorial/action learning set meetings with external workshops conducted by Director's of other CETLs, representatives from Higher Education Academy, and experts on learning theory, enterprising the curriculum and impact evaluation. A common focus across years

was on constructivism and educational technology to facilitate their application of a wide repertoire of effective teaching techniques such as problem-based learning and blended learning methods. The schedule also indicated formal symposium events where staff would have opportunity to communicate their findings to the wider School and University. For national and international dissemination, staff were also provided with candidate conference and journal outlets suitable for their projects.

As can be seen from figure 2, the general form of the revised iterative development methodology remains intact and it is the overlay of the enriched support programme which makes the approach more effective. The indicative activities undertaken and support provided during the 12 month sabbatical process are annotated on the diagram. All action learning sets and one-to-one tutorials were conducted by the three independent consultants. The following output was required from sabbatical staff as *a minimum*:

- Sabbatical proposal (declaration of scholarship) providing rudimentary objectives of the SoTL project that are aligned to the strategic learning and teaching enhancement objectives of the CETL, university and School
- Project Plan
- A completed self-evaluation test between October and December regarding teaching philosophy
- Updated reflective log with indicative answers to the following questions to be discussed during one-to-one tutorials and action learning sets:
  - Is my work on track?
  - What have I accomplished?
  - What's going well?
  - What's not going well?
  - What have been the barriers to my progress?
- Interim drafts of selected work for review and comment between December and July
- Interim poster and seminar presentations to sabbatical community in January
- A poster and seminar presentations to School Management Group in July
- A case study paper in the format of a chosen conference or journal outlet

A total of 28 SoTL projects were undertaken and completed over the five year period involving 35 academics from across the School. To evaluate the degree to which SoTL had occurred using the revised methodology and expensive support framework, the projects were evaluated against Ashwin and Trigwells' (2004) pedagogic investigation taxonomy shown in table 2.

Level	Purpose	Research processes verified by	Outcome
1	To inform oneself	Self	Personal knowledge
2	To inform a group within a shared context	Those within the same context	Local knowledge
3	To inform a wider audience	Those outside of that context	Public knowledge

Table 2. Pedagogic investigation categories defined by Ashwin and Trigwell (2004)

It was clear from the evaluations performed by the independent consultants that all community members had realised level 1 and 2, presenting and reflecting on their research individually and collaboratively throughout the development process. The evaluation also revealed that the projects impacted on the learning experience of 8,000 students overall. As projects were aligned with University and School strategic objectives, presentations at School and University learning and teaching conferences were also deemed local knowledge and thus to reside within the level 2 category.

Disseminating beyond the community context proved less encouraging. Although, 90% of the sabbatical staff were research active in their subject discipline this did not appear to translate over to their SoTL project with only 4 of the 28 (14%) sabbatical staff publishing the outcome of their work to a peer-reviewed national/international journal or conference (level 3). This is a disappointing finding given the support offered and is considered to be a side effect of favouring short sabbatical structures (one day per week for a year) over fewer yet longer and more significant projects (five days per week for six months to a year). It was also determined through the evaluation process that a number of research active staff valued their discipline research over their SoTL research.

In a bid to further understanding the enablers and resistors for promoting staff scholarship in learning and teaching a force field analysis was undertaken of the feedback collected from the CETL evaluation process undertaken by independent consultants.

Force field analysis of revised methodology

After interviewing all sabbatical staff regarding their experiences, Kurt Lewin's force field analysis technique was applied to the data to provide a framework for identifying the factors or *forces* that influenced whether or not staff adopted a scholarly approach to their learning and teaching project. The resulting force field analysis diagram is shown in figure 3.
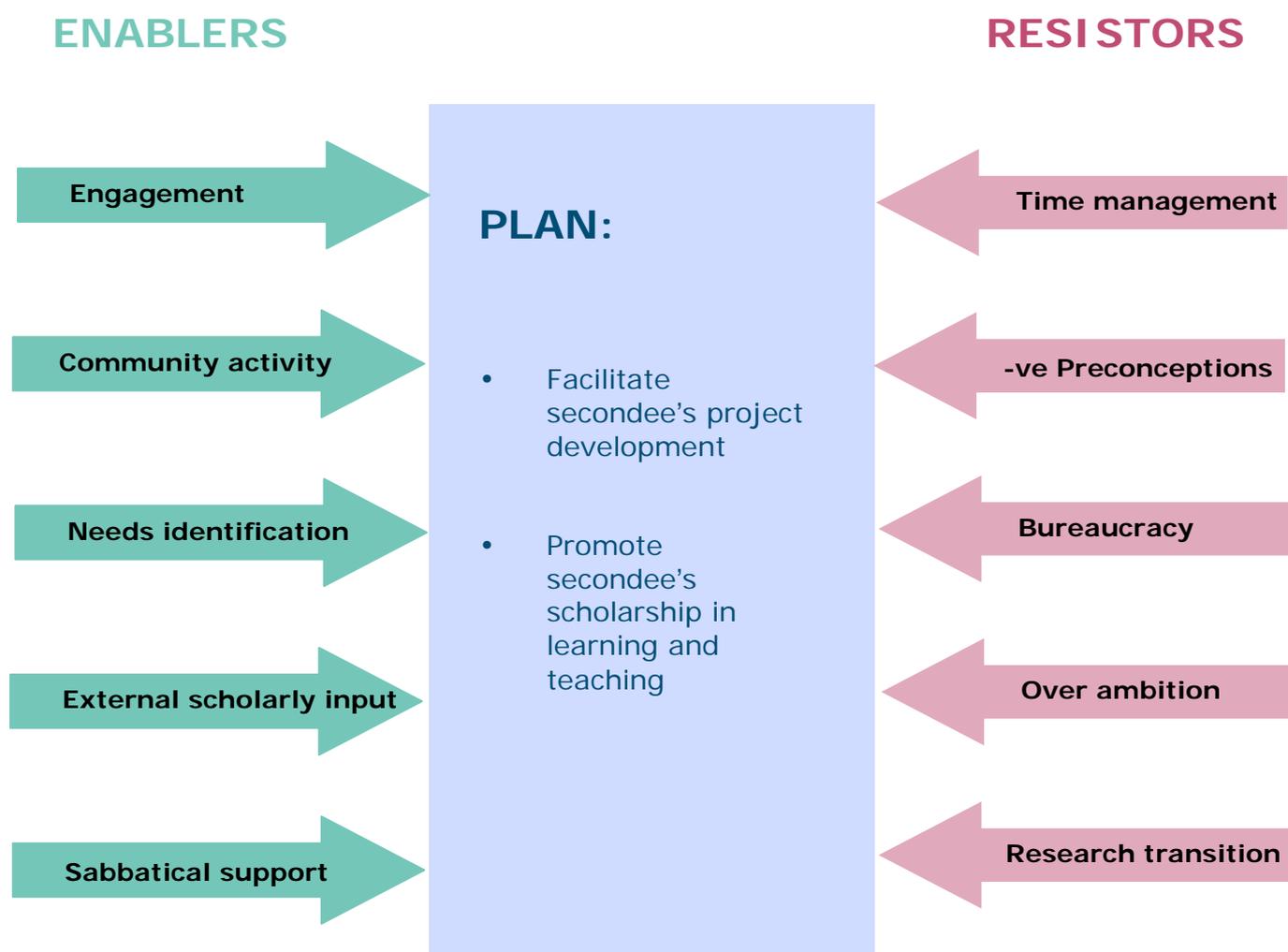
ENABLERS

Engagement

Community activity

Needs identification

External scholarly input

Sabbatical support

PLAN:

- Facilitate secondee's project development

- Promote secondee's scholarship in learning and teaching

RESISTORS

Time management

-ve Preconceptions

Bureaucracy

Over ambition

Research transition

Figure 3. A force field analysis of the CELS sabbatical scheme.

The following comments were received in relation to the enabling forces:

- Personally, I can see myself getting "addicted" and wanting to get more and more involved as time goes on' **(engagement)**
- 'I thought that it was thoroughly useful and worthwhile, but many of the long term benefits come from reflection' **(engagement, community activity and sabbatical support)**
- 'Provision of [CELS] lecturer to take over teaching duties was good' **(needs identification, sabbatical support)**
- '[It was] useful to hear the breadth of what is being done [within and beyond the community], and have the chance to provide input and get feedback from others' **(community activity and external scholarly input)**
- 'An important part of the embedding process has been with myself and the way in which I now teach' **(engagement and sabbatical support)**

It was clear from the wider feedback that support for promoting both individual/private and community-based learning is essential for enabling staff to take a scholarly approach and therefore should be maximised. The following were consistently identified as enablers:

- One to one support
- Flexible availability of consultants to respond to needs of sabbatical staff
- Online resources in project management, pedagogy and evaluation
- External workshops in pedagogic research and evaluation of pedagogic projects
- Interim and final seminars for sharing progress and output as a community

In terms of the barriers to taking a scholarly approach, the following sample of feedback statements highlights a key resistor as being time:

- I need more time, but I'm not sure how this can be accommodated. I need to try harder to make time.
- In hindsight, I would have liked to have at least double the time
- Lack of free (uninterrupted) time has been the main problem throughout
-

The wider feedback elicited revealed the following resistors and means of minimising them:

Minimising Resistors:

- Time
  - academic management to ensure time is explicitly given to all sabbatical staff
  - Integrate group-based action learning set meetings with external workshop events
- Bureaucracy - support programme integrated with School calendar
  - Consultants deal with bureaucracy e.g. ethics form, poster production, reflective logs
- Negative preconceptions about SoTL (with respect to their own subject discipline)
  - Further promote HE/SoTL conference and journal publications
  - Increase the number of external speakers providing further insights into pedagogic theory and also advice on publishing

Although the actual iterative development methodology is well principled and is augmented with a costly support programme, the analysis reveals that such a methodology is likely to be effective in enabling level 3 SoTL to occur (according to Ashwin and Trigwells' (2004) pedagogic investigation taxonomy) if adequate *time* and *resource* is made tangibly available for regular individual and collaborative reflection.

Conclusions

It has long been accepted within the SoTL community that a clear methodological approach is required if purposeful research and scholarly activity in relation to teaching and learning in higher education is to occur (D'Andrea, 2007). This paper has demonstrated that a clear methodological approach which has been both tested and evaluated will not bring about desired scholarly output in isolation of other factors. Clearly resources or notably a lack of adequate resources as defined by Norton (2009) will act as an inhibitor to change in scholarly practice and the achievement of project or plan 'success' indicators (SoLTN). Yet resources even when wedded to a successful methodological approach are not necessarily a guarantee of success.

In the CELS case study it can be argued that the high profile, competitive bidding process associated with the HE UK Centres for Excellence in Teaching and Learning initiative, can be characterised by both rigour and prestige. The awarding of CETL status should not be underestimated not least in recognising the contribution of a new funding stream but that it also channels senior management support and a wide range of enhancing employment practices. It can be argued that this level of investment is unique and in the current UK HE environment unsustainable. Yet it is our belief that the lessons learnt from the experience can be both scalable and self-sustaining. As the methodology is predicated on generic development processes rather than on institution-specific tasks and behaviours, we are confident that the model is transferable to other institutions.

The authors argue that 'success' as demonstrated in the CELS case study relied upon a complex range of interacting variables. Clearly success in the competitive bidding process ensured the best possible of starts, ensuring senior staff buy in and practitioner enthusiasm. This coupled with a fully funded and valued sabbatical process mapped onto the iterative development methodology produced intensive, structured support for individuals. The problems of knowledge production and dissemination within CETLs has been well articulated by Gosling (2008) and even with the CETL funding available, only 14% of the 28 CELS sabbatical projects to date has resulted in an international or national peer-reviewed publication outlet. An evaluation and force field analysis revealed that this is largely due to time constraints and value afforded to SoTL projects.

In terms of the future, the iterative development methodology for SoTL projects will be further refined to support the institution's embryonic pedagogic research group which aims to submit to the REF unit 45 (Education). A data collection phase is currently underway drawing together a range of pedagogic outputs from the university faculty. Academics are currently aligning their expertise to specific areas of pedagogic research which underpin the university's strategy. In the coming months it is envisaged that the lessons learnt and the adaptations made to the methodology will be result in a further refinement and iteration.

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Expanding the disciplines through SoTL

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The panel - pro and anti disciplinary SoTL - that this paper contributed to - sought to debate whether disciplines inhibit or build up SoTL. Torgny Roxa argued persuasively, as ever! that disciplines exert a structural and epistemological control such that SoTL cannot find a place to operate or be as effective as it should be.

This paper seeks to take an opposite position. This is not to deny several of the 'anti' points: including that disciplinary hierarchies and research agendas can act in the inhibiting way he described. Indeed, it is precisely because I agree with the potentially vitiating and stultifying nature of the discipline as a tightly bounded research community that I feel so strongly that disciplinary SoTL is vital and vitalising. For the essence of SoTL - the exploration by the teacher of some problem that has puzzled her and the ownership and publication of that exploration – I argue here can, rather, make disciplinary development swift and teaching-centred. It is precisely because of the separating off of research structures - research leave, research grants, research CVs all accounted for differently from teaching - that disciplinary SoTL has a space to develop and to affect and effect. And, whereas the disciplinary agenda has traditionally followed that of the research community, with at best 'research-informed teaching', SoTL gives teachers in their own right, as teacher-scholars, an arena and a base from which to transform their discipline.

Indeed, some of the roots of SoTL were, via what could be termed 'teaching-led scholarship', in challenge to the research discipline's epistemological agenda and presumptions and its way of disciplining its students. For instance, in David Perkins original conception of troublesome knowledge (Perkins 1999) the 'trouble' was to the discipline: in looking at the alternative explanations students come up with when lacking the discipline's 'correct' model, SoTL posited new potential paradigms for the discipline. It takes a SoTL approach to perceive the possibilities: a 'disciplined' teacher committed to research-informed teaching will simply run a red pen through the students' work as ignorant of the concept that would have explained the phenomena or data 'correctly'. But Perkins pointed out that such 'undisciplined' explanations challenge the research discipline's presumptions and just might provide the next great paradigm shift in subjects such as physics or economics.

 Salvatori's difficulty papers (seminally described in Hutchings, 2000), likewise, reveal difficulties in disciplinary methodology or epistemology that researchers have long accepted as the way the discipline works. Again, the research-informed teacher may tend to see the difficulty as that of the student's lack of disciplinary knowledge and understanding; at it is true that the difficulty would disappear given feedback that explained that knowledge and understanding. But that is to posit that difficulty as the student's deficit state rather than as a valid question.

I have taken this to heart and for ten years now have started my 3rd year Literature students, coming to the strange and challenging compulsory Greek tragedy texts they are set, by

asking for a pre-term 'difficulty paper'. I ask them to write about what they find alien and alienating before they come to the plethora of expert lectures and reading that will explain or at least fit that alienness into a 'domesticating' research agenda. Because I take it that these strange and estranging plays should disturb and that by fitting them into a research agenda it is possible to neutralise that disturbance that is the very reason for still studying them.

The argument has been made that disciplinary research academics tend to the conservative, preserving disciplinary and sub-disciplinary boundaries. I think that is often true: many an innovatory disciplinary thinker has had to advise their research students against moving too far away from the disciplinary agenda and its writing, argument and citation practices in their theses and in their submissions to the most prestigious and well established journals and conferences. For, for those bound within the research community, issues of power and control operate. Becher's seminal work on 'academic tribes and territories' (Becher, 1989) divided disciplines and their practitioners into epistemological tribes along two axes: hard/soft and pure/applied. Citation studies such as Hyland's (Hyland, 1999) felt able to divide disciplines along equally distinct lines by showing the inflexible rules of citation in different disciplines; Tight (2008) traced Becher's tribes in practice by mapping distinct and seemingly exclusive co-citation groupings. Such studies emphasise research disciplines as rigidly bounded and hierarchical institutions, as Kuhnian 'paradigms' that set not only the questions to be addressed but the practices and forms by and in which they are to be answered. That is why the first major piece of writing doctoral students usually undertake is the literature review – an account of the state of the research discipline and where their research fits and serves a common aim.

My point here is to stress that beginning career academics must be conservative and 'disciplined' in their research; not so in their SoTL work, where they can address any issues, ask any questions about disciplinary epistemology, ontology, affect and effect that they can satisfactorily investigate and report.

Other challenges to the research agenda from disciplinary SoTL comes from SoTL's investigations of new ways of exploring and reporting the discipline. Whereas the research article and dissertation must follow established argument and citation practices – thus circumscribing the epistemological claims that can be made – SoTL projects on digital narratives (e.g. Coventry et al, 2008), multimedia and 'alternative' dissertations,(e.g. Crème and McKenna, 2010); the virtual knowledge project (e.g. http://virtualknowledgestudio.nl/current-projects/knowledge-space-lab/ and the Visible Knowledge projects (18 case studies reported in Academic Commons Jan 2009 ed. Randy Bass and Bret Eynon) - have challenged both the possibilities and meaning-making processes of the discipline. Such SoTL projects have challenged the form of the research article, for disciplines are discourse communities as well as communities of practice and what is written shapes what can be written: e.g. the form of argument and induction/deduction from theoretical models. Such SoTL projects have, in short, challenged what it is to 'write the discipline'.

Of course there are many more enlightened disciplinary models than the hierarchical, prescriptive research model referred to above; none more so than Huber and Mills' (2005) model of a disciplinary discourse and epistemology 'Trading Zone'. But there is no doubt that many new academics perceive their discipline as a power that must be obeyed and their role

as new teachers as mediating disciplinary skills and a knowledge base which is perceived as both accretive and prescriptive.

But, rather than this standing in the way of disciplinary SoTL, I see this as both enabling and rendering transformatory, disciplinary SoTL, which becomes a vitalising and autonomy-granting approach. For SoTL originates in the exploration by the teacher of some problem that has puzzled her; s/he then owns and should present and publish that exploration. Disciplinary SoTL forms an inclusive alternative community, drawing together scholars who may well also 'research'(e.g. the first ISSOTL Special Interest Group – that of History, formed at Washington ISSOTL in 2006 (Pace, 2007)), bringing together across the world scholarly investigation and, yes, curiosity and imagination. This paper argues that disciplinary SoTL can make disciplinary development swift and teaching-centred. This is because SoTL asks basic questions which may model the discipline differently: questions about what it is to study a discipline, what it is to be 'disciplined', what it is to write the discipline (Parker, 2007): essential epistemological and ontological questions which need to be asked afresh at the start of each new teaching session.

The richness of SoTL questions comes because they arise from our, as teachers, always having to think of the discipline as addressed to the needs and interests of three different cohorts: students who are temporary visitors to our disciplines – taking one semester or one module because they are curious or attracted to the subject matter, or because they want to balance their university education by taking a course that demands a different approach or skill set from those they are acquiring in their 'major'. At the same time, we need to look to attract, train and retain proto-researchers – those who are looking to follow us into our discipline and who need to compete and succeed in a very tough market.

Perhaps most challenging, we need to address the needs and wishes of those who are taking our discipline as their major university course but have no plans to become researchers. Most challenging, because we have to question the roots of our discipline and its place and importance for society at large, right now. That importance may well not be immediate applicability, it may, more subtly, be the quality, nature and scope of the questioning, argumentation and meaning-making processes; the range of addressees and modes for the writing, argument and presentation of those questions; the nature, complexity and thoughtfulness of the critical practices; the 'humane' and 'liberal' outcomes of a liberal arts curriculum…

Our SoTL investigations therefore take place within a more multi-dimensional disciplinary landscape than that envisaged by research examination and funding communities, whose concern is in keeping the knowledge-gathering procedures rigorous and convergent. For course planning, assessment practices and outcomes must weave together and engage the interests (in the rich sense) and investment of all three groups – the temporary visitors, the proto-researchers and the single-discipline honours course members. The result is a continuous investigation and re-invention of the central concerns of the discipline by a mixed group of teachers and students engaged in the present. A new and very welcome stimulus to disciplinary SoTL work has been the inclusion of student researchers; an outstanding and stimulating account of student and teacher SoTL research has recently been published by Werder et al. (2009).

Any SoTL conference reports initiatives that change the discipline as taught: change the nature of the questions asked and the processes by which they are answered. Disciplinary knowledge and understanding are not created 'out there' in research centres and initiatives and transmitted to students via a research-informed curriculum; rather disciplinary future trajectories are re-engaged with the present concerns of these different cohorts. It might be thought that this is rather a 'luxury', for disciplines where the knowledge and understanding are liberal rather than professionally qualifying: after all a doctor or engineer needs a non-negotiable, non-disputed body of professional knowledge with which to operate. But even, or perhaps especially here, student-led curriculum developments have changed not the body of knowledge but the informing framework of understanding: risk, beauty, sustainability, health writing, medical humanities, nettlesome knowledge, health workers creating patchwork texts…were all brought into innovative engineering and medical courses by the early 2000s. Investigated as they were by action research methodologies that have many similarities to those that underpin SoTL, they surely stimulated the founding of what are now recognised fields within engineering and medical studies.

The argument here is that disciplinary SoTL can be transformatory and forward-looking. It can be transformatory and forward-looking not just for the discipline as taught but of disciplinary processes, period. There are two evaluated teaching and learning international discipline-challenging initiatives that predate a fully institutionalised SoTL but now feed into and feed off SoTL methodologies: Writing [in] the Disciplines (Monroe, 2002) and Threshold Concepts and Troublesome Knowledge (e.g. Meyer and Land, 2006; Land, 2008). Both 'initiatives' or, perhaps better 'interventions', are rooted in and challenge disciplinary meaning-making and identity; both do so from scrupulously thoughtful observation of students.

First, Writing in the Disciplines, which started with a prizewinning Cornell chemist's perception that he didn't 'do' and then 'write up' Chemistry; he wrote Chemistry (Monroe, 2002).The result was disciplinary writing-intensive courses through all 4 college years, i.e. into the Majors, studying a wide variety of those who had written the discipline but also contributing to that project: with student writing being published. As writing is disciplinary meaning-making rather than the mere reporting of research results, such student writing potentially contributes to the discipline as a discourse community; as writing - like teaching and assessment - is a disciplinary process, its evaluation contributes to the model of the discipline as a community of practice; both round out disciplinary models drawn from research writing and research processes.

The argument here is that SoTL and complementary teaching-based initiatives can and should be transformatory of the disciplinary epistemological frameworks. Writing in the Disciplines also affects students' disciplinary identity by engaging them also with the past – some WiD projects start locating students in the discipline by having them come into dialogue with and write about some of its foundational thinkers and writers: those who 'wrote the discipline'. To write about such (cf Google Scholar's 'Stand on the Shoulders of Giants') puts the student – whether temporary visitor, delimited-stay or proto-researcher – into dialogue with those who shaped the discipline of which they are now coming to be a part. Into dialogue rather than into discipleship, as independent members of a community of discourse: for it follows from Writing [in] the Disciplines' founding vision that involving students in writing involves them also in writing the discipline. Seeing the discipline as an

inclusive community of discourse rather than a hierarchical institution brings students, even those 'short stayers'- for the outsider sometimes sees more of the game - into membership of that community.

Disciplinary SoTL comes into this because a Writing in the Disciplines approach changes the aims and nature of course assignments and assessment, hopefully as part of a structured and SoTL-evaluated and -disseminated programme (just one example is Maxwell, 2010). To change the assessment and assignment process is to change the nature of learning and potential meaning-making in the discipline as a whole; to go further and publish student writing can add new dimensions to the discipline as a whole.

The second teaching-led, discipline-challenging intervention is that of troublesome knowledge and its companion project that of threshold concepts. Ray Land and colleagues, through a series of conferences and books (Meyer and Land, 2006; Land, 2008), set disciplines a radical question: what are the threshold concepts in your discipline? Threshold concepts are discipline-shaping concepts which offer a gateway into a new way of visualising disciplinary data and content. They are essentially irreversible – once absorbed it is not possible to see the discipline in the 'old' way. But such concepts cannot just be 'taught'; the student has to get to a point where the 'old' paradigm is no longer enough: a point of 'stuckness', painful and disorientating, a necessary pre-requisite for trying to find a place in the 'new', equally disorientating, paradigm.

It is intrinsic to threshold concepts that, like riding a bicycle! once absorbed and internalised it is difficult to imagine thinking without them. Again, a SoTL approach can investigate the processes and turn back to the discipline the nature, implications and perhaps limitations of these central concepts. For threshold concepts potentially offer two challenges to the established paradigm that informs disciplinary researchers. Firstly, the epistemological challenge is the need to see and map the discipline as a sequence of essential conceptual framings (as they are irreversible, the 'disciplined' academic has long absorbed the final concept and finds it difficult to 'unpick' the previous layers of disciplinary understanding).The need to investigate student 'stuckness' and the difficulty and deep reluctance inherent in crossing the threshold may be illuminating: what do they have to relinquish in order to move on? A lesser understanding, surely, but also perhaps confidence in the way the field and data work? Maybe a richer or more 'real world' or 'natural' or 'grounded' understanding of the work they are engaged with? As always, SoTL investigations bring out both epistemological and ontological aspects of the discipline: what it is to understand, to make independent meanings of disciplinary material; but also what it is to see oneself as an 'x' – a mathematician, economist, doctor, literary critic…

The second challenge to the 'disciplined' academic through SoTL investigation of threshold concepts is how to deal with troublesome knowledge, made in the absence of the next concept. Of course the easy thing is for the teacher to dismiss the assignment, explaining that an essential concept is needed. But David Perkins' (1999) original conception was that in the absence of the recognised disciplinary paradigm, students make their own sense of disciplinary data and agendas. And from that uncertain sense-making may come challenges to the disciplinary paradigm. Kuhn's concept of the paradigm came from physics, where a radical challenge may break the paradigm, as the Einsteinian broke the Newtonian, and Perkins talked of troublesome knowledge as potentially stimulating the next breakthrough.

Paradigms in accumulative disciplines like Chemistry and in essentially dialogic and disputed disciplines like Literary Studies may operate differently – perhaps SoTL studies of students and troublesome knowledge may result in a visualisation of troublesome knowledge not as breaking the paradigm but as turning the kaleidoscope by which multi-approach disciplines' multivariate data are seen.

Whether that is true of narratives around and before the acquisition of the next threshold concept, I would like to put the whole issue into a SoTL framework. Because much SoTL work seems to me to have potential to produce troublesome knowledge: really taking account of students 'difficulty' papers, treating the difficulty as not necessarily specific to the student but one which may be asking a question of the discipline. Likewise, a digital narrative or multimodal assignment raises issues about what it is to 'write the discipline'.

In any case, I see SoTL's disciplinary contribution as being to ask troublesome questions and to bring into disciplinary conversations the troublesome knowledge generated in the teaching and student experience. A vital and vitalising mission.

The argument here is that SoTL investigations and innovations can have a transformative effect on the discipline. Of course there are generic SoTL projects which inform all teachers but the arguments here are based on evaluations of teaching initiatives by which SoTL, in effect, investigates and changes the epistemological structure of the discipline – which is particular to that specific discipline - and the ontological status and development of those in the wider disciplinary community. SoTL at its best forms additional communities of practice within the disciplines – communities of practice which are essentially inclusive, with agendas coming from SoTL workers but also drawing in all kinds of co-workers into an open conversation, one which suggests further SoTL investigations.

Whoever leads the research – which of course must be evaluated and published like any other kind of research – SoTL's rootedness in the teaching and student experience of teaching reorients the discipline's questions. And, most importantly, it moves teaching away from a transmission or knowledge transfer model: i.e. away from the teacher delivering disciplinary content created elsewhere in the discipline. SoTL's transformative investigations of new ways of exploring and reporting the discipline - digital narratives, multimedia dissertations, the visible knowledge project and so much more - have challenged both the possibilities and meaning-making processes of the discipline. SoTL disciplinary knowledge is just that: mobile, transformative, disciplinary knowledge about meaning-making and agenda-setting for the discipline's future.

This is admittedly a hard argument to win. Research stars, research writing, research universities are all accorded automatic primacy over their teaching equivalents. The original SoTL claims in the US aimed to accord equivalent status and T and P regard for SoTL and 'Research' aka Scholarship of Discovery. The danger in well-developed generic SoTL, with its own stars, is that it continues a pernicious siloing of teaching and research. The argument here is that disciplinary SoTL allows teaching and research to be mutually informing, mutually developing of the discipline. And as Michael Bérubé, in introducing a day panel at MLA 2011 on 'The Academy in Hard Times', said, various disciplines are facing very hard times indeed. We can't afford siloes, we can't afford disengaged researchers, we can't afford

not to enable students to invest, and carry on investing in their chosen disciplines. I see transformatory, engaging, disciplinary SoTL as the main hope for such disciplines survival.

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An evaluation of the relevance of Vygotsky's theory of learning and development in the analyses of learner interaction and knowledge construction in an online communication course

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Introduction

Human et al. (1999) contend there is a need for educators to contribute to the 'scholarship of teaching' by documenting and evaluating teaching experiences, in new and diverse contexts. Lally and De Laat (2002) concur and add that unless we are able to create links between our teaching and student learning it may be difficult to improve practice and therefore student learning. That said, Nutbeam and Harris (2004) acknowledge that:

> One of the greatest challenges for practitioners is to identify how best to achieve a fit between the issues of interest and established theories or models which could improve the effectiveness of a program or an intervention (p. 8).

The aim in this paper is to exemplify synergies between theory, research and practice to promote thinking about how knowledge from each may be used to improve educational practice in online learning contexts.

Literature review

Distance education is a complex, diverse and rapidly evolving field (Anderson, 2008), one which has moved to the forefront of educational practice as the result of unprecedented developments in technology and communication (Garrison, 2000). Many higher educational institutions offer distance education programs and have begun to invest heavily in on-line teaching (Bartolic-Zlomislic and Bates, 1999). In Australia, this investment is evident in government policy which has placed increasing importance on flexible learning and online delivery (Kilpatrick and Bound, 2003).

Online environments are acknowledged to offer an educational domain unique in their potential for interaction, participation and collaboration (Kumpulainen and Mutanen, 2000). Research suggests that interaction among learners makes a positive contribution towards student learning and is a significant factor in successful online learning (Su et al, 2005). Among the benefits to be derived from collaborative learning are the development of critical and problem-solving skills and a social atmosphere where learners can share, consider and challenge one another's ideas (Bruffee, 1999). Although the question of how learners interact in computer-mediated, group-based learning contexts has received increasing research attention (Strijbos et al, 2004), little is known about the dynamics and processes of learner-learner interaction and how these relate to learning (Kumpulainen and Mutanen, 2000).

Constructivist views of learning pervade contemporary educational literature (Howe and Berv, 2000). They represent the dominant learning theory (Karagiorgi and Symeou, 2005)

and are frequently associated with online learning (Garrison; 2009; Kirkpatrick and Bound; 2003). Although there are many versions of constructivism the unifying concepts are that learning and understanding are inherently social rather than individual and that cultural activities and tools are integral to conceptual development (Palincsar, 1998). During the process the use of language among learners becomes a social mode of thinking where students learn by engaging in dialogue (van Boxtel, 2000) and the thinking of individuals is influenced by the group in which they are working (Schrire, 2002). Thus from a constructivist standpoint learning necessitates interaction with others (Strijbos et al, 2004).

Although constructivist theories are frequently utilised as conceptual frameworks in the analyses of computer-mediated discussions (Hendriks, 2002; Schrire, 2002), the relationship between social constructivism and online interaction is considered tentative and not fully supported by previous research (Hendriks and Maor; 2004). Indeed, Wise and Quealy (2006) are critical of the conceptual conjoining of social constructivism and online learning and are of the view that there is, currently, no connection between constructivist theory and practice in the paradigm of applied research. The underlying assumption within current literature and the premise of Vygotsky's theory of development is that learning is a dynamic, interdependent, intrapersonal and interpersonal process. Within this study Vygotsky's theory was utilised as a sensitising concept and point of theoretical departure (Wells, 1999; Vygotsky, 1986).

Conceptual frameworks
Although theoretical frameworks are common in quantitative research, controversy exists about whether, and how, these may be used in qualitative studies (Corbin and Strauss, 2008). Theoretical frameworks are acknowledged to consist of a system of concepts, assumptions, expectations and beliefs that support and inform the research process (Maxwell, 2005). As such they offer a guide that may be used to select concepts for investigation, research questions and to frame research findings (Corbin and Strauss, 2008). The imposition of a conceptual framework is, however, considered a considerable threat to validity in interpretive research (Robson 2002). Therefore in qualitative studies theories are regarded as signposts or sensitising concepts and considered useful if they are examined in conjunction with theories that emerge from the data (Corbin and Strauss, 1990; Glaser, 1978). Utilised in this way there is an opportunity to develop sensitising concepts as the study progresses (Gibbs, 2002).

Vygotsky conceptualised development as the transformation of socially shared activities into internalised processes and recognised a complex relationship between history as change and history as universal human progress (Wertsch et al, 1995). The significance of Vygotsky's theory in relation to this study lies in his explanation of the dynamic interdependence between social and individual processes in knowledge construction. Three major themes explain the nature of this relationship in learning contexts; these are: that individual development, including higher mental function, has its origins in social sources; that human action on both a social and an individual level is mediated by tools and signs and that the first two themes are best examined through genetic analysis (John-Steiner and Mahn, 1996; Palincsar, 1998). Figure 1 offers a visual representation of Vygotsky's theory, based on the researcher's understanding of the theoretical constructs and the relationship between them. The diagram incorporates the principal constructs of the theory, which

include: historical development, which is depicted as a time continuum and forms the foundation of the learning community; semiotic mediation, which is depicted as the interaction that occurs between and among members of the community; and interdependence which is represented by the zone of proximal development (ZPD), which is located in the centre of interaction and at the intersection between individuals and others. The illustration shows that the exchange of knowledge, experience and understanding occurs through interaction within the ZPD between individuals and others within the community.
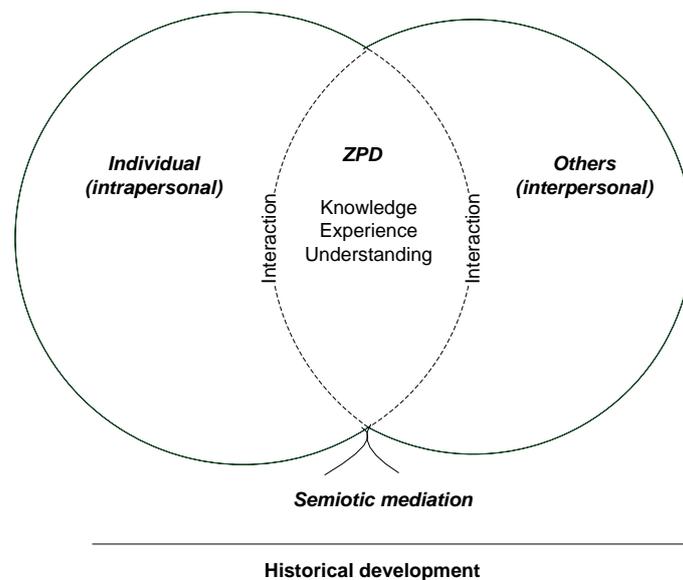

ZPD

*Individual
(intrapersonal)*

Knowledge
Experience
Understanding

*Others
(interpersonal)*

Interaction

Interaction

Semiotic mediation

Historical development

Figure 1 Conceptualisation of Vygotsky's theory of development

Method

This research examined the processes of, and the relationship between, learner-learner interaction and knowledge construction in online learning contexts within a single cohort of undergraduate students. The research strategy was a single case study with an embedded case design. Social network analysis (SNA) and constant comparative method, which incorporated the analytical procedures of constructivist grounded theory were utilised to analyse data collected from the case. Social network analysis (SNA) is a method of mapping and measuring relationships and flows of information between people and groups; it provides a visual and mathematical analysis based on the way actors are connected, in order to identify underlying patterns in interactions (Scott, 2000). Within the analytical framework of constructivist grounded theory data are subjected to a multilevel analysis through a successive coding process, which includes initial, focused and theoretical stages (Charmaz, 2006). Within this study the use of these two diverse but complementary methods led to a macro level analysis of the interactions that facilitated knowledge construction within the course and micro level analyses of the processes of interaction and knowledge construction, during synchronous and asynchronous discussions.

The course, which constituted the case, was a fully online, undergraduate unit of study offered by a regional university in Australia. The course, which was available from 6 March to 2 June 2006, was a first year unit of study within a Health Promotion degree and an

elective for several different programs offered across faculties throughout the university. Ethical clearance for the study was granted by the university's human ethics committee. Twenty-one students completed the course and were invited to participate in the study; one learner chose not to participate. Research participants were enrolled in eight different undergraduate programs. Although the age of learners ranged from 19 to 61 years of age, the mean age was 31, the median was 23 and the mode was 21 years. Ten per cent of the participants were male; each participant has been identified by a pseudonym.

The course had been designed to promote learner engagement with course content through weekly pre-reading material, PowerPoint presentations and a range of individual and group activities. Learning activities were directly related to the content for the week and varied in number. Over the duration of the course these activities offered students the opportunity to discuss and analyse written, observed and experienced interpersonal interactions. For example, content in week 3 addressed theoretical concepts associated with relationship development; the corresponding activities included an individual submission which required students to discuss and analyse a written scenario between two individuals from diverse cultural backgrounds. Two small group activities required students to observe interactions presented on a compact disk and to discuss and analyse aspects of self-disclosure and issues related to relationship development and maintenance. A 'topical issue or class discussion' was a recurrent large group activity conducted asynchronously each week. Students were required to discuss, relate and/or demonstrate the application of communication theory to a given or selected topic or personal experiences. Participation and interaction in online activities accounted for 25% of the total grade awarded for the course.

As a case, the course offered an opportunity to examine the phenomena of interest within an authentic educational setting, among a single cohort of students in groups of different sizes as they engaged in synchronous and asynchronous discussions to complete collaborative learning activities. A series of questions was formulated to guide the collection and analyses of data and included: how do learners interact and construct knowledge within a large, asynchronous discussion group? How do learners interact and construct knowledge within small groups in asynchronous and synchronous environments? How do individual learners conceptualise interaction and knowledge construction within the context of an online course? And in what ways do learner perceptions shape communication and learning in online groups?

The principal sources of data within this study were electronic transcripts, retrieved retrospectively from an archive of the communication course. Observational data were recorded in an electronic journal retained by the co-ordinator during the course (participant observation) and from transcripts of participant interaction (direct observation). Data were also obtained from non-interactive, static records produced by the learning management system (LMS) in the form of system logs and course statistics. Data collection and analyses commenced with the large group. This initial selection provided a point of departure in terms of sampling and maximised opportunities to identify events, incidents or happenings indicative of learner interaction and/or knowledge construction within the group during asynchronous discussion. Preliminary analysis of the large group informed subsequent sampling. The selection of small groups and individuals was not predetermined.

Results

The analyses of data from the case led to the construction of a substantive theory, which explains the conditions, processes and consequences of learning relationships in online contexts. Theory generation tends to occur around a core category, which has explanatory relevance because of its potential to link all other categories. The analytical power of the category is derived from the fact that it can convey, theoretically, what the research is all about. Figure 2 offers a diagrammatic representation of the substantive theory and an overview of learning relationships which emerged as the core category.
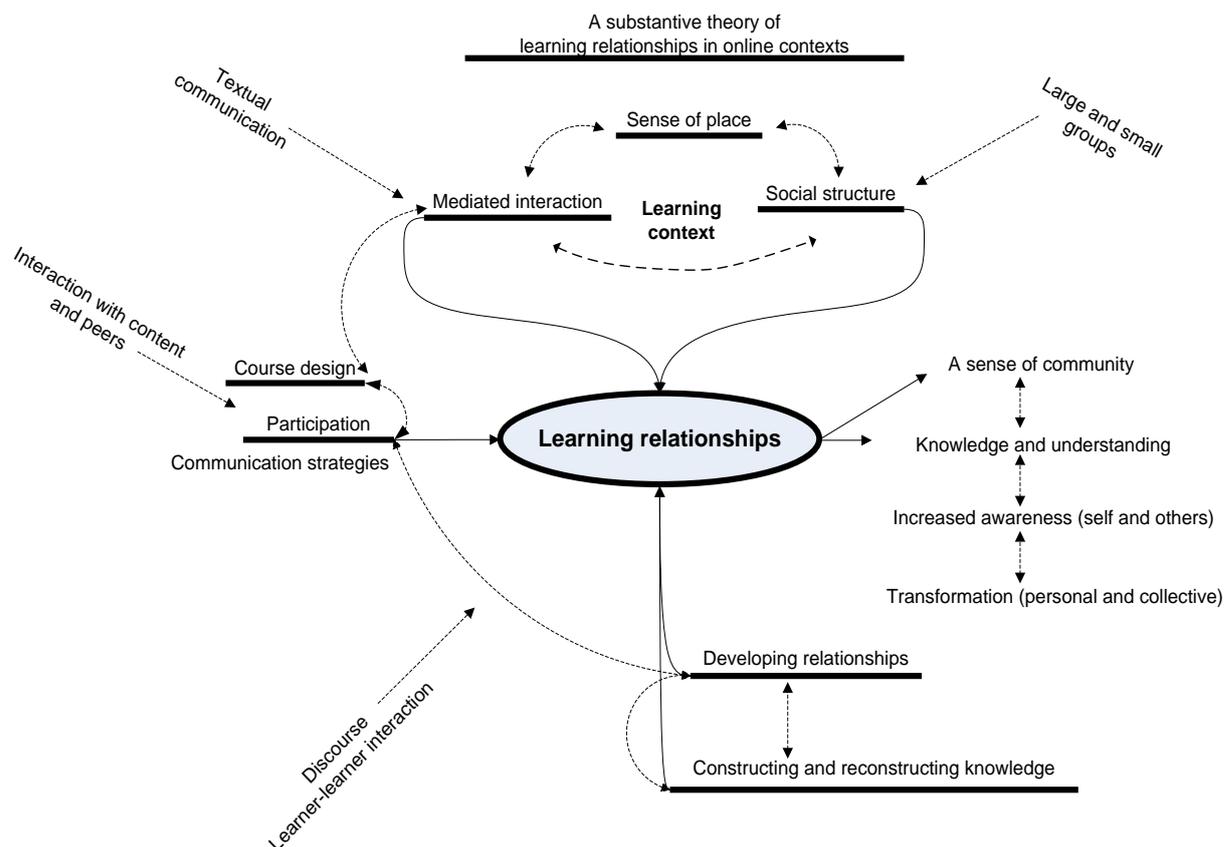

Figure 2 Modelling learning relationships in online contexts as a substantive theory

The model illustrates the significance of the learning context as enacted through four dimensions: mediated interaction (asynchronous and synchronous communication), social structure (group size), course design (learning activities) and learner-learner interaction. The model was designed to promote understanding of the research findings and to facilitate visualisation of the theoretical concept. In this case, contextual conditions and learner perceptions shaped learning relationships. Participation in collaborative activities was characteristic of the course design yet the nature of that participation was self-determined and influenced by contextual conditions. Learners interacted with content and other learners to meet learning objectives and initiated communication strategies to overcome the challenges they associated with textual communication and collaboration in online groups. The learners' sense of place, participation in collaborative activities and communication strategies promoted the development of open, supportive relationships in large and small groups. The openness of those relationships facilitated a conversational mode of learning,

which necessitated remembering, negotiating and articulating experience, knowledge and understanding. The connections between, and support among, learners promoted a sense of community. The learners' ability to share and model experiences, knowledge and understanding, combined with their perceptions of one another, led to increased understandings of self and others and resulted in personal and collective transformations.

The results of this research have implications for educational practice as they reveal information about conditions for effective learner-learner interaction and knowledge construction in online courses. These findings are significant because they demonstrate that undergraduate learners participating in a first year online course can develop close relationships with peers and a sense of community. They can also experience learning which leads to personal and collective transformation within a 12 week term (Rossi, 2010).

Figure 3 utilises the conceptual model of Vygotsky's theory to frame the research results. As before the key constructs of Vygotsky's theory are represented. In this case, semiotic mediation corresponds with asynchronous and synchronous communication within the online course and the ZPD is depicted as the intersection between individuals and others. The distinction between, but the overlap of, individuals and others in small groups and the large group reflects the embedded case design, illustrates the social structure of the online learning course, and demonstrates the interdependence between the individual and others referred to in Vygotsky's theory. The concept of genetic or historical development is illustrated as a time continuum which extends beyond the 12 week term, as learners engaged with course content and each other several weeks prior to and for several weeks after conclusion of the academic term.

Based on the analyses intrapersonal activity is positioned within the sphere of the individual; interpersonal activity, which includes learner-learner interaction, the development of relationships and knowledge construction are located within the ZPD; and the consequences of these processes are located within the sphere of the learning community. Interaction, which encapsulates the ZPD, is shown as permeable, and reflects the communication between and the interdependence of individuals and others within the course. Learners are interdependent as they are required to collaborate as members of a large and a small group to complete learning activities.
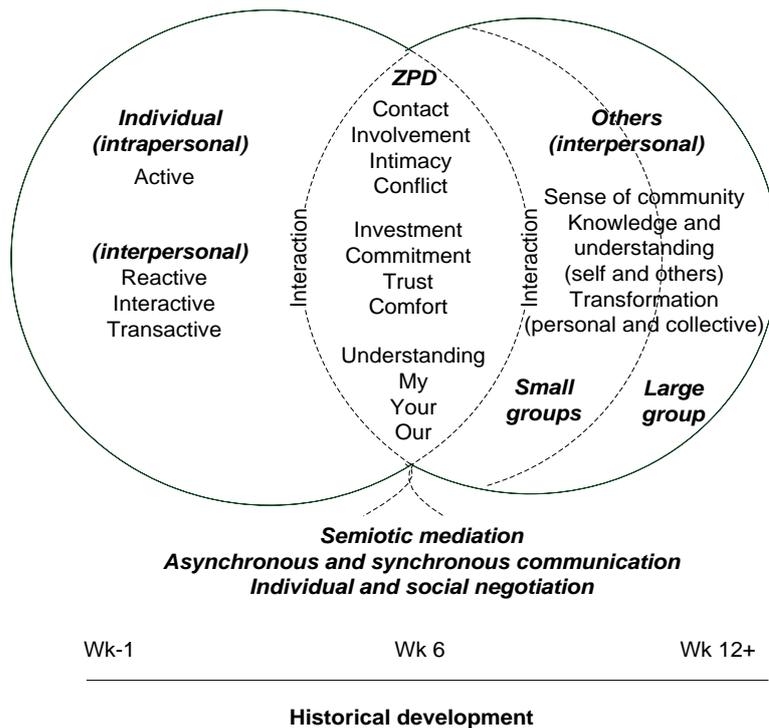
Figure 3 Research results framed by a conceptual model of Vygotsky's theory of development

What is both striking and significant, within Figure 3, is the dominance of relational characteristics within the ZPD. Particularly as learning relationships emerged as the core category within the study and it was around this concept that the substantive theory was constructed. Vygotsky contends that 'all higher mental functions are internalized social relationships' (Vygotsky 1981, p. 164). Given that higher mental functions relate to memory, attention, thinking, meaning and perception and are associated with learning, Vygotsky's theory implicitly acknowledges the significance of relationships in the learning process.

Discussion

While the results of this research are important and have significant implications for educational practice, the primary purpose of this conversation is to offer an evaluation of the relevance of Vygotsky's theory based on the analyses of learner-learner interaction and knowledge construction within the online course. The underlying intent being to demonstrate the fit between theory, research and practice and to show how, as educators, we may use new knowledge to improve pedagogies within online learning contexts.

The literature review emphasised a knowledge gap as although social constructivist theories are frequently used as conceptual frameworks in the analyses of interaction and learning in online contexts, the relationship among theory, mediated communication and knowledge construction is considered tentative and not fully supported by previous research (Hendriks, 2002; Hendriks and Maor, 2004; Schrire, 2002; Veldhuis-Diermanse, 2002). The analyses in this case show synergies among Vygotsky's theoretical constructs, online learning contexts,

the importance of learner-learner interaction, and the significance of relationships between learners.

Within Vygotsky's theory the concept of semiotic mediation is considered the key to all aspects of knowledge co-construction, within this case, as Figure 3 illustrates, asynchronous and synchronous communication facilitated collaboration by connecting individual learners with others through electronic text. Thus textual communication mediated interaction and knowledge construction within the online course. The behaviour and beliefs of learners within the course suggested that Vygotsky's distinction between monologic and dialogic speech can equally be applied to synchronous and asynchronous communication, although Vygotsky was referring to written and verbal communication.

In this case, synchronous contributions were generally shorter, associated with immediacy and viewed similar to verbal speech while asynchronous posts were often long and complex contained a range of points and in many ways were monologic. Vygotsky associated dialogue or social speech with immediate, unpremeditated utterances, which reflects learner views of synchronous communication. By contrast, written speech was associated with linguistic elaboration which could be attended to leisurely and consciously. Vygotsky considered this form of communication to be more complex than dialogic speech and acknowledged that learners required more words and more skill to express their meaning (Mejias, 2004; Vygotsky, 1986). These characteristics are reflected in the length of asynchronous contributions, learner perceptions about the time they spent and the time required to consider and construct asynchronous responses and the challenges they reported communicating textually.

Wells (1999) outlines four conditions, which he contends apply, when making meaning with text in any context:

> First, there must be an activity system and associated community within which the writing plays a significant role. For the writing to engage the commitment of the writer the resulting text must be functional with respect to joint activity in which the writer is involved with at least some other members. Second it must concern a topic in which the writer is interested and about which he or she believes there is more to discover. And third, the writer must care sufficiently about the aesthetic quality of the textual artefact that he or she is creating to engage with, and find solutions to, the problems that arise in the process of its creation. Finally the writer must be able to count on the community to give help in accessing textual and other relevant resources and in providing support and guidance as this is felt to be necessary (p. 289).

These conditions are significant for a number of reasons. First they reflect conditions that Vygotsky himself proposed (Wells, 1999), and they offer guidelines for educational practice, particularly within online learning contexts. They are also evidenced within, and are therefore supported by, the findings of this study. For example, the online course reflected an online learning community and learners engaged in the course perceived a sense of community. The community consisted of a large group, small groups and individuals who were required to communicate textually to complete collaborative learning activities in order to meet the educational requirements of an educational unit of study. Learner participation in activities

was assessed and learners were observed offering and receiving material and emotional support from members in their learning groups.

Vygotsky conceived of the concept of a ZPD to support his view of learning and development. His theory emphasises the interdependence between individuals and others and identifies context as a condition of development and development as a process. In this case, contextual conditions were found to shape learner-learner interaction, learner-learner interaction emerged as a condition for relationship development and dialogic learning and learning relationships formed the basis, and were therefore a condition in the development of a sense of community among learners. Consequently, the relationship discerned between context, individuals and others in this case reflects the thoughts and assertions of Vygotsky. Moreover, Wells (1999) locates the ZDP *in the interaction* between learners engaged in activity; as such Figure 3 illustrates, both conceptually and metaphorically, the position of the ZPD.

Internalisation plays a central role in Vygotsky's theory, to the extent that Wells (1999) suggests that interaction could be considered the means and internalisation the end within the ZPD. The question of internalisation is, however, one aspect of Vygotsky's theory that has been contested, as some believe that the concept lacks explanatory power while others consider the differentiation between internal and external processes to be too distinct (Wells, 1999). In this case, the collective reflection of learners and their practice of submitting extensions and additions to individual and other contributions indicate that students internalised external activity and the knowledge and experience of others. Thus they were at once dependent on, yet contributed to, the development of others within the learning community. Figure 3 illustrates, through the dimensions of learning (my understanding, your understanding and our understanding), that the concept of internalisation need not preclude interdependence between the individual and others within a learning community, and therefore lends support for the inclusion of internalisation as a concept within Vygotsky's integrated theory of development.

Vygotsky's theory looked beyond the development of the individual because he believed development could not be separated from a community or the practices of individuals and others within it (Palincsar, 1998; Wells, 1999). To this end he emphasised the need to concentrate on process rather than product (John-Steiner and Mahn, 1996) and identified four levels of analyses, with different foci operating on different time scales which could be used to study any form of development (Palincsar, 1998; Wells, 1999). When viewed through Vygotsky's framework, the results of this study offer developmental insights about the course and learning activities (microgenesis), individual learners (ontogenesis) and groups within the case (cultural development).

Vygotsky's theoretical constructs were relevant, valuable and useful in understanding the nature and significance of learner-learner interaction and the relationship between individuals and others in online learning contexts. However, they did not offer an effective means of comprehending the processes of knowledge construction within the course. Although in this course learners were found to demonstrate achievement of higher mental function, this outcome did not explain how knowledge was created within online learning groups. However, Mezirow's (1991) theory of transformational learning was found to be

important based on the process of knowledge construction, the relationships among peers and the personal and collective transformation that occurred (Rossi, 2010). The need to utilise a secondary conceptual framework lends support to assertions that no single theory or method can adequately explain complex phenomena (Cohen and Manion, 1994; Patton, 2002). It may also offer a response and explanation to critics who contend that, even among those who embrace a constructivist paradigm, there has been a reluctance to examine the nature of knowledge constructed and how the processes of learner interaction can be related to the processes of knowledge construction (Bereiter and Scardamalia, 1996). Perhaps the problem can be seen to lie with the functionality of the theoretical framework, rather than unwillingness on the part of researchers to investigate these aspects of the learning process. As evidenced in this case Vygotsky's theory alone could not facilitate understanding of the relationship between learner-learner interaction and knowledge construction in online learning contexts.

Conclusion

In this case it was appropriate to utilise Vygotsky's theory as a sensitising concept, as on their own the key constructs could not explain the processes of learner-learner interaction and knowledge construction within the online course. The strength of Vygotsky's theory, as predicted, lay in its explanation of the dynamic relationship between individuals and others. The conceptual model of Vygotsky's theoretical constructs was useful as it visually supported the significance of relationships among learners and made it possible to conceive how internalisation and interdependence could coexist as concepts within an integrated theory of learning. It also showed that the consequences of learning relationships had an impact on individuals, others and the community as a whole. The results of this research reveal information about conditions for effective learner-learner interaction and knowledge construction in online courses, but they also offered a means with which to demonstrate the synergies between theory research and practice. This knowledge, in conjunction with the results of the study, offers a sound evidence base from which to improve educational practice in online courses.

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SoTL for Undergraduate Education in Psychology and Beyond

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The scholarship of teaching and learning is woven throughout an initiative by the American Psychological Association (APA) to envision the future of undergraduate education in psychology. APA organized the 2008 National Conference on Undergraduate Education in Psychology at the University of Puget Sound. The working conference consisted of 9 working groups, each with a leader, an APA liaison, and 6-7 other members consisting of higher education faculty, high school psychology teachers and one graduate student. Consequently, there are really approximately 80 authors of this paper. Each working group contributed a chapter to a book (Halpern, 2009) that examines the ways that psychological research informs the scholarship of teaching and learning (SoTL), the importance of SoTL for teaching in our discipline and others, and provokes some questions for reflections by SoTL practitioners from many disciplines.

Psychology as a discipline has much to contribute to SoTL since its subject matter includes learning, development, communication and assessment. Chapter 8 of the book reviews the research on learning on cognition (e.g., Halpern and Hakel, 2003) that yields 'promising principles'. For example, we know that 'desirable difficulties' yield deeper learning (Richland, Linn and Bjork, 2007), that people learn better with spaced practice in a skill than 'cramming for the test' (Cepeda, Pashler, Vul, Wixted and Rohrer, 2006), that they understand complex material better when they engage in deep explanatory processing (Pashler, Bain, Bottge, Graesser, Koedinger, McDaniel and Metcalfe, 2007), that testing, as form of retrieval practice actually enhances ability to remember the information (Karpicke and Roediger, 2008), and that students can learn better study habits when they are encouraged to engage in reflecting on their own thought processes (Schunk and Zimmerman, 1998). However, Chapter 8 goes on to point out that many of these principles lack the translational research that would demonstrate them in real world classrooms and evaluate their effectiveness. Such demonstrations need to include control/comparison groups if they are done for formal scholarly, generalizable purposes. Institutional reward structures that honor and encourage such scholarship would help to facilitate this translational work.

Given what we know about teaching and learning, one might ask, as did the authors of Chapter 6, 'What is the optimal process for teachers to select, implement and assess teaching methods in order to achieve desired learning outcomes?' They came to the conclusion that the number of teaching methods is large and diverse. All methods are effective in some situations but ineffective or counterproductive in others.

There is no single best teaching method for all teachers, all students, and all topics and teaching effectiveness is the result of a complex interaction of multiple factors (Dees, Ingram, Kovalik, Allen-Huffman, McClelland and Justice, 2007). They introduced a contextual model of reflective practice in teaching as well as an overview of evidence-based teaching methods. This model recognizes that characteristics of the teacher will influence his/her setting of goals for the class and that these in turn will affect the efforts of the teacher

in the classroom. In the teaching event, teaching strategies will affect the learning strategies of the learner, which are also influenced by characteristics of the learner, which are in turn shaped at least partly by the form of assessment set by the teacher.   In-the-moment reflection helps the teacher monitor all these processes, which will output as levels of student understanding. When the teacher reflects, after the fact, on the student levels of understanding and interprets it in the light of his/her own characteristics and then starts the process again with planning and goal setting. All of this takes place within the context of the student-teacher rapport and classroom atmosphere. The working group for Chapter 7 on technology agreed that optimal learning occurs at the intersection of student characteristics, pedagogy and technology and that we should encourage empirical assessment of new technologies in class contexts. Several chapters bear on the question of why SoTL is important to teaching psychology and other disciplines. Reflective scholarly practice grounded in SoTL is essential because of the variety of teachers, students, and contexts in which learning takes place.

Some instructors have extensive pedagogy knowledge and little subject knowledge, while others have the reverse. For example, virtually all preparation in graduate school is for research, and very little for the teaching portion of professional lives. The authors of Chapter 2 argue that this is currently out of balance and there needs to be more time devoted to preparation for teaching. By contrast, high school teachers of psychology have extensive pedagogical training and almost no formal instruction in psychology. Nearly 50% of credit hours in US colleges and universities are taught by contingent faculty who may have as little as 18 credit hours of subject-matter coursework; at the same time, relatively few resources are dedicated to developing the teaching skills of 'nonpermanent' faculty. We believe that educators with any type of faculty appointment can be successful. For example, Leslie and Gappa (2002) reported that part-time faculty are comparable to full-time faculty in terms of meeting student learning outcomes, achieving student retention, and earning high student evaluations. Preparation in one's discipline and in pedagogy are essential to the success of educators regardless of appointment type.

As noted by the authors of Chapters 4 and 5, students are also increasingly diverse group, and formal educational institutions vary in missions and media (e.g., distance education). Students also learn about psychology from a variety of other sources, including less-reputable ones. Faculty and advisors should be aware of and sensitive to the demographics and developmental trajectories of their students and employ instructional and advising strategies designed to engage the full range of students.   Faculty and administrators with responsibility for faculty development should provide opportunities for faculty members to develop their multicultural competencies, and hold faculty members accountable for effectively applying these skills.

Because of this diversity, faculty members will be most effective if they follow a model of scholarly investigation: they set their instructional goals, use research literature to select instructional methods to reach those goals, assess their effectiveness, and reflect/revise their goals and approaches (Glassick, Huber and Maeroff, 1997; Richlin, 2001). Chapter 2 provides a rubric, based on Bernstein and Huber (2006) that articulates developmental progress within each of these skill domains. For example, within the domain of providing evidence for one's teaching effectiveness, an entry-level educator might provide no measure of student learning or mismatch assessments to espoused goals, while a basic level skill

educator might provide at least some evidence linking student performance to espoused goals. A more-advanced, professional level educator presents student performances to show that deep and /or broad learning is taking place, and an advanced level educator provides evidence that exemplary learning is taking place. Such a rubric might even be used to evaluate faculty members teaching credentials for merit, promotion or tenure.

An initiative such as this by American Psychological Association prompts some possible reflections by SoTL practitioners from a number of different disciplines, e.g., What other discipline-specific initiatives address the future of undergraduate education? Can SoTL provide a model for helping all faculty members reflect systematically on their teaching practice? Is scholarly teaching a possible new definition for effective teaching? How might that be nuanced by disciplinary similarities and differences?   Assuming that scholarly teaching is a good thing, what methods have faculty developers found effective for educating faculty about scholarly teaching?

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