Pragmatic Constructivism in Higher Education

Chris Procter

Degree of Doctor of Philosophy

Salford Business School, University of Salford, UK

2019

Contents

Index of tables and figures

Acknowledgements

First of all, thanks to my partner Kim and family for always supporting me in my work and affording me the time needed over many years.

Secondly, thanks to Marie Griffiths, my supervisor, Nadia and Suzanne for their feedback, and so many other colleagues for their help, support and collegiality.

Finally, thanks to thousands of students for always being up for the great experimentation of learning (well, I generalise) and paying my wages at the same time!

Best wishes to everyone in their future lives and professional development.

Abbreviations

BAM	British Academy of Management
CAL	Computer Assisted Learning
CATE	Collaborative Award for Teaching Excellence
CEPPL	Centre for Excellence in Professional Placement Learning
CTI	Computers in Teaching Initiative
ERDF	European Regional Development Fund
ESRC	Economic and Social Research Council
ECE	Education in a Changing Environment
GTA	Graduate Teaching Assistant
HE	Higher Education
HEA	Higher Education Academy (formerly Institute for Learning and Teaching ILT and now renamed as Advance HE)
ISBE	Institute for Small Business and Entrepreneurship
ISI	Informing Science Institute
LTSN	Learning and Teaching Support Network
MNC	Multi National Company
PDP	Personal Development Planning
PRHE	Practitioner Research in Higher Education
QAA	Quality Assurance Agency
SME	Small and Medium sized Enterprise
SRHE	Society for Research in Higher Education
USIR	University of Salford Institutional Repository
UVAC	University Vocational Awards Council
VLE	Virtual Learning Environment
WBL	Work-Based Learning
ZPD	Zone of Proximal Development

Definitions

Definition of Pragmatic Constructivism used in this document***: Pragmatic constructivism is an instructional framework to guide the constructivist development of learning***

Social Constructivism is concerned with: ***The importance of collaboration with others, either student with student or student with teacher and views social interaction as the primary means by which learners construct new meanings***

Abstract

This critical review of the author's educational research focuses on two long running points of difference in higher education.

The first is whether to use an approach of instruction or construction. Should students be regarded as 'empty vessels to be filled' or 'fires to be lit' (e.g. Freire, 2018, Plutarch, 1927)? Will they learn more by rote or by creating a solution to a problem using their previous experience? Is learning a sequential process or an iterative journey? The published works and the critical review clearly locate the author on the constructivist side of this debate. Constructivism in education is related to interpretivist epistemology and agile methodology in practice. However, in certain circumstances, e.g. learning specific functionality of a software package, instruction may be simpler and more appropriate. Furthermore, effective construction requires structure, and agility requires a plan. So, adopting Perkins' (1999) terminology, the author distinguishes himself from 'Ideological Constructivism' and instead advocates 'Pragmatic Constructivism'. This is defined by the author within this review as an instructional framework to guide the constructivist development of learning.

The second, long running point of difference is between research and teaching. This is an issue in academic departments the world over. The author came from a teaching background but discovered how research could inform and strengthen teaching and vice versa. Vygotsky famously compared how water is made from the combination of hydrogen and oxygen to how human consciousness is formed from the combination of thought and speech. Speech (and other communication) involves social interaction, and consciousness cannot exist without this combination. Similarly, learning comes from the combination of research and practice. In the case of my work, practice and change came first, research second and publication third, in a cycle. The practice on the part of the student requires social interaction, including the assistance of skilled peer or teacher.

Thus, pragmatic constructivism is meaningless as a concept on its own. The contribution of the constructivist must be judged on the way in which they combine theory with practice, research with teaching and teaching with learning. It should be judged on how they reflect

upon this combination, and thus further develop their learning. The constructivist cannot be judged solely on their citations nor on their student output alone. It is the combination or blend that matters, and that is the contribution of this work.

On a theoretical level, the work develops pragmatic constructivism as an approach to pedagogy. In an original way, the review demonstrates the synergy between constructivist pedagogy, an interpretive philosophy and an agile approach. This is illustrated through a sequence of simple yet similar iterative models. An iterative approach has significant consequences for the methods used in the design and practice of teaching and learning. Thus, a contribution is also demonstrated in the practical development of pragmatic constructivism. This is explained through the themes of the published work; the use of technology in teaching and learning, the development of partnerships and work-based learning, and the significance of guiding students to thresholds in their learning. These contributions are summarised in the conclusions of this review.

Summary sheet (copy of each publication in appendices 1-6)

1. Heinze, A., & Procter, C. (2004). *Reflections on the Use of Blended Learning* 2nd Education in a Changing Environment, Salford published at www.ece.salford.ac.uk
2. Heinze, A. & Procter, C. (2010). *The significance of the reflective practitioner in blended learning*. International Journal of Mobile and Blended Learning 2(2), pp. 18-29
3. Procter, C. (2012). *Peer mentoring to secure student placements* Higher Education, Skills and Work-based Learning 2(2), pp. 121-131
4. Procter, C. (2011). *Employability and entrepreneurship embedded in professional placements in the business curriculum* Journal of Chinese Entrepreneurship 3(1), pp. 49-57
5. Procter, C., & Whatley, J. (2010). *Use of E-Portfolios to Facilitate and Assess Student Work Placements* in Buzzetto-More. (Eds.). Ch. 9 in The E-Portfolio Paradigm: Informing, Educating Assessing, and Managing with E-Portfolios. Santa Rosa, California: Informing Science Press pp. 175-191
6. Procter, C., Harvey, V. (2018) *Realising the threshold of employability* Chapter 14 inn Carter, O'Grady, Rosen (Eds) Higher Education Computer Science, Springer

Statements concerning apportionment:

Statement concerning papers 1 & 2:

I agree that the work represented in the following two papers:

1) Heinze A and Procter C (2010). *The significance of the reflective practitioner in blended learning*. International Journal of Mobile and Blended Learning (IJMBL), 2(2), April – June 2010 (pps 18-29)

2) Heinze A, Procter C. (2004) Reflections on the Use of Blended Learning 2nd Education in a Changing Environment, Salford published at www.ece.salford.ac.uk

should be apportioned as follows: 50% Dr Aleksej Heinze and 50% Chris Procter

Dr Aleksej
Heinze Salford
Business School

Statement concerning paper 5:

"Hi Chris,

I am happy that we apportion the authorship of that book Chapter 50/50.

… Janice"

Dr Janice Whatley
Live Projects Coordinator
CMDT
Manchester Metropolitan University

Statement concerning paper 6:

"Dear Chris,

To whom it may concern:

I agree that the work represented in the following paper: Procter C, Harvey V, Christie F (2018), *Realising the threshold of employability*

Should be apportioned as follows: 50% Chris Procter 50% Vicki Harvey

Vicki"

Vicki Harvey
Associate Lecturer, Salford Business School

Chapter 1 Introduction and Background

This Chapter explains how I came to write this critical review, and my personal journey from practice to research and back again. It introduces the idea and the application of social constructivism in learning, in the context of a policy of quantification in Higher Education (HE), which is explained. It then summarises the essence of constructivism, which is the integration between theory and practice. This leads to a brief introduction to the published works and the relationship between these and what has been accomplished in practice. The Chapter concludes with a summary of the document structure.

1.1 My personal journey from practice to research and back again

In 2002 Thomas Pocklington and Allan Tupper published 'No place to learn: why Universities aren't working'. Based on research amongst Canadian Universities, the book argues that the University research agenda was so dominant for academic staff that the education of students was of little consequence. In terms of recruitment, promotion and recognition, research was paramount. Furthermore, such research was not necessarily related at all to the teaching and learning of students. This book struck a chord with me, and many others will recognise a kernel of truth in their findings. At that time, ten years into a lecturing contract, I wanted to reflect on my practice to date and realised that: 1) the lecturer is in a very privileged position, able to freely experiment and innovate with a view to improving their practice and enhance their learning or that of their students and 2) whilst good practice will directly benefit a specific cohort of students, without being published it often gains little recognition, and its impact is temporary or even ephemeral.

The academic is thus not a passive observer of the phenomenon observed by Pocklington and Tupper, but one of the most influential stakeholders in Higher Education. Teaching and research had always appeared to myself, colleagues and students to be separate activities, but their integration is very powerful. The academic can experiment in the most effective ways to nurture student learning, reflect upon this and share the experience, with a view to improving practice. This cyclical process fitted with and informed my own philosophy of learning and teaching which I have come to know as social constructivism. I had a constructivist approach in my teaching despite having very limited background in either

educational theory or philosophy. It followed that I needed to more clearly integrate my teaching practice with research, both to propagate that practice, but also to learn from previous research and thus enhance my practice in the context of a constructivist philosophy. The publications in this document and the account of my practice are evidence of the efficacy of this approach.

1.2 The policy context

Whilst constructivist ideas have had significant influence on UK Higher Education (UKHE) over the last 50 years, quantitative measures (or metrics) have had a very strong and growing impact over policy and practice in the last two decades. Higher Education is not alone in experiencing this impact. Jerzy Muller, in his recent book 'The Tyranny of Metrics', (2018) discusses how (in the words of Rakesh Khurana) 'our attempts to improve organizational outcomes through quantitative measures have metastasized into a culture of gaming and manipulation.' Muller discusses this in relation to education, health care, policing and many other government services. Muller shows how a metric driven quality regime can have many consequences that may be the opposite to the purpose of the institutions involved. For example, the police may decide not to prosecute rape cases which may be lost in court, the surgeon may not perform a risky but necessary operation, the school may advise a weak student to stay at home on the day of an exam, and the academic may not publish socially valuable work which is not measured or undertake innovative teaching that students may object to.

Spence (2019) in a recent paper entitled "'Judgement' versus 'metrics' in higher education management", develops this much further in the context of UKHE, arguing that:

> On one hand, pursuing research excellence in the current policy climate in the UK leaves us with vast quantities of articles and other outputs that are well crafted but often lacking in social meaning. On the other hand, the new agenda for teaching excellence in a marketised environment is encouraging institutions to take all sorts of intellectual short cuts in order to improve statistics on student satisfaction and employability. Overall, the pursuit of excellence, as currently conceived by UK HEIs, engenders mediocrity.

Whilst neither Spence nor Muller are opposed to measurement per se, what Tenner calls 'the cult of quantification' engenders mediocrity. A good example is the current concern with grade inflation. The British Government body, The Office for Students, is concerned that 'the number of graduates being awarded first and upper-second class degrees rose from 67% in 2010-11 to 78% in 2016-17' (BBC 2018) is a direct consequence of student attainment being used as a measure of quality of delivery.

The 'cult of quantification' can also influence decisions concerning the allocation of funding so that vocational degrees are considered more valuable than, for example, those in the arts. The continued recognition of 'higher order' professions and programmes of study such as medicine, engineering and law, critiqued by Schön in 1983, contrasts with populist criticism of 'Mickey Mouse' degrees (Daily Mail 2018).

This also has an impact on teaching and assessment. In secondary education this is characterised by a policy return (in the UK) to a much heavier reliance on the final examination. In Higher Education, the dominance of an instructionist or positivist approach is characterised across the sector by processes which; limit the type and quantity of assessment the tutor may use, the precise criteria they must apply in this assessment, the amount of words they might specify, and the exact information they must provide to students including (often) templates for students to complete in their coursework and examinations and so on.

In the context of this thesis, of greater concern is the fact that UKHE may seek to influence methods of teaching and assessment used by academic staff in order to inflate the metrics. This approach can also engender practice that is the clear opposite of that intended. Thus, Tayraukham (2009) shows how plagiarism is motivated by student performance goals. Standardised, predictable assessment can facilitate plagiarism.

Whilst the dialectics of higher education are not the subject of this thesis, nevertheless the discussion can help us to understand why a constructivist approach to teaching and learning may always be seen as alternative or innovative, discussed further in the conclusion chapter.

1.3 Significance of social constructivism

The two ideological approaches to education, instructionism and constructivism, are discussed in more depth in Chapter 2. Argument between the two approaches go back to classical philosophy. Plutarch argued in his essay 'Listening to Lectures' in the volume Moralia, published in the first century AD, that:

> For the mind does not require filling like a bottle, but rather, like wood, it only requires kindling to create in it an impulse to think independently and an ardent desire for the truth (Plutarch, 2019, p. 259).

Plutarch argued that, just as the 'well-bred guest at dinner' does not just come to 'have a good time while others toil' but has a 'function to perform'. The teacher has to select the right kindling so that the purpose of listening to a lecture should be 'to cultivate independent thinking along with our learning' and not simply 'acquiring mere information'.

Contemporary instructionist approach to education (also referred to as didactic) was informed by behaviourist psychology, often attributed to J.B. Watson (Watson 1925) and later B.F. Skinner (Skinner 1961). It is underpinned by an objectivist epistemology. Knowledge exists independently of the learner, and understanding is coming to know that which already exists. Teaching is a matter of transmitting this knowledge and learning the process of receiving, storing and using it (Biggs 1996). This view shapes teaching design, delivery and assessment. For example, the transmission may involve the reciting of instructions followed by the students repeating them back. Through repetition comes improvement.

Biggs argued in 1996 that this was still the "dominant theory-in-use" and that is still true today. The theory underlying this approach was strongly challenged in the early to mid-20th century, also by psychologists, and especially those working with children. Particularly influential has been the work of Dewey, Vygotsky and Piaget who separately emphasised the value of working with the student to construct knowledge, particularly in the company of others. Hence the term social constructivism. The similarities, differences and influence of their work is discussed in s. 2.3.

These contrasting ideas form a spectrum, which is of considerable importance to contemporary teaching theory and practice (see figure 1). For example, jobs whose development relies upon instruction are much more susceptible to automation than those

requiring more critical, analytic and reflective skills, which are better developed using a constructivist approach.

Figure 2 Spectrum of Instruction and Construction

Today we have the benefit of a substantial body of experience in this area discussed in Chapter 2, allowing us to consider the circumstances under which a particular approach may be more appropriate, and the extent to which we might combine elements of instruction and construction. The term 'Pragmatic Constructivism', explained and defined in Chapter 2, refers to a constructivist epistemology that relies upon clear guidance (or instruction) from the teacher[1] to enable learning. It is thus somewhere on the constructivist spectrum but not at the end.

The widespread introduction of technology into education at the end of the 20th century brought this discussion again into sharp relief (Tam 2000). The use of new technology in 'delivery' and 'implementation' emphasised the continued dominance of instructionist approaches to teaching and the measurement of teaching efficacy (e.g. Oliver & Trigwell 2005). As Lebow notes:

> Traditional education technology values of replicability, reliability, communication and control (Heinrich, 1984) contrast sharply with the seven primary constructivist values of collaboration, personal autonomy, generativity, reflectivity, active engagement, personal relevance, and pluralism. (Lebow, 1993, p.11)

Witt's critique of the PowerPoint approach to education (Witt 2009) was one of many texts following the turn of the century that criticised practice that combined instruction with technology. The process of learning should not commence with what the teacher is going to present, but with how the student is going to engage. As Shuell (1986, p. 429) points out: "It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does." Theoretical support for this is provided by

[1] Note that the term teacher is used interchangeably with 'lecturer'. Possibly a term such as 'educational facilitator' should be used through the thesis, in line with constructivist thinking, but this seems a bit convoluted

constructivism, or more precisely, social constructivism, commonly associated with the ideas of Vygotsky (1978), discussed in more detail in Chapter 2. The role of the teacher is to guide the student in constructing their learning. Social constructivism relies on the interdependence of the social and the individual. The 'social' is crucial since students will potentially learn more from each other than from the teacher. This, however, does not happen automatically – it needs constructing. The lecturer, student and other class members work together to construct and share knowledge, as shown in figure 2.

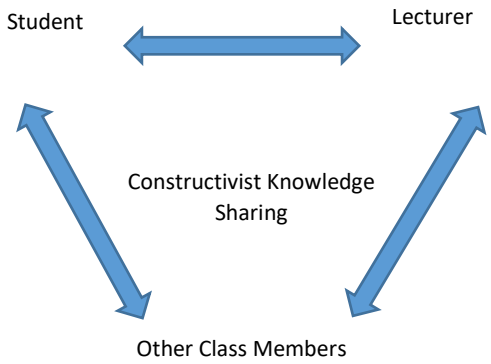

Figure 3 Interaction in Social Constructivism (adapted from Draper, 2013)

It should be noted that the original diagram by Draper used the word teacher, instead of lecturer.

1.4 Themes of the published work

The publications within this document cover three themes in which pragmatic constructivism has significantly influenced my practice and vice versa. These themes evolved from my initial experiences in teaching. The first is the use of new technology in teaching and learning, which I was experimenting in from the mid-1990s, since the World Wide Web clearly had a lot to offer to higher education. Although I did not use this terminology at the time, technology was in fact being used as an additional tool to help students construct their learning. Research into the deployment of technology, and specifically internet based technology, revealed the second theme, namely the significance of partnerships and engagement with stakeholders i.e. the social in social constructivism. Students told us how important it was that they had the

opportunity to learn from each other. More recent research has revealed the third theme; the importance of guiding students towards thresholds in their learning. It is fascinating to see how practice continually leads to broader bodies of research. This work is still developing, and it is becoming more and more clear that that there is a fourth theme to emerge, which is the importance of confidence (or psychological capital) in students attaining thresholds. Interestingly, the literature in social constructivism is all rooted in the work of social psychology, and some of the most interesting work today in capitals in education is also rooted in psychology (Tomlinson et al 2017).

In each of these themes, the integration of theory and practice is fundamental. Each of them is explained and illustrated in the following three sections to show the cyclical process involved in the construction of learning as well as the involvement of stakeholders. These inter-connected themes are discussed further in Chapter 4 in relation to the six papers included in this critical review and briefly also in the conclusion in Chapter 5.

1.4.1 The use of new technology in teaching and learning

Working as a lecturer within the area of Information Systems, I had already established an interest in the development of technology for learning (Procter 1997, 2001, 2002) and had experienced a year of working in distance learning (1999-2000). The turn of the century saw a substantial growth in the research and application of technology for learning, and especially the use of the Internet in Higher Education. Having helped to establish the first Virtual Learning Environment (VLE) at the University of Salford in 1999, I was interested to research how this could enhance the learning experience. My paper on the use of a VLE to support placement management (Procter 2001) included analysis of the value of discussion boards to enhance communication between students.

I sought to explore the concept of blended learning (Procter 2002, 2003) based on the practice of using the VLE in combination with classroom teaching. These papers challenged the definition of Blended Learning as a 'mixture' of teaching and learning methods, and instead used the real meaning of the verb blend, which is *to combine to enhance quality*. In the context of the combination of online and face to face learning, this idea is still very powerful and is discussed in more detail in Chapter 4.1.

I secured a European Social Fund (2003-6) grant of approximately £500,000 for three projects to design and implement a blended learning degree for students with full time jobs, and to pay a full-time researcher to investigate this using action research. The consequent publications in this field (from 2003 onwards, largely with Dr. Aleksej Heinze), discussed later, have made a valuable contribution to the development of theory and practice in this important area. Evidence of this (and justification for including such an early conference publication) is the substantial number of citations these papers have enjoyed. We helped to establish the definition of blended learning (see paper 1 s. 4.1), the crucial role of the lecturer in designing the blend, and the importance of the social in the student experience of blended learning. Pedagogical understanding was of far greater significance than technical ability in the design process.

The process we went through can be illustrated by figure 3 below; theory was developed after practice using action research. We commenced with the initial learning objectives and our teaching design. We then constructed the blended learning environment combining face to face teaching and learning, online learning and group working, building on the model shown in figure 2. We then investigated and evaluated the feedback and related this to theory, allowing us to re-design and go back through the cycle.

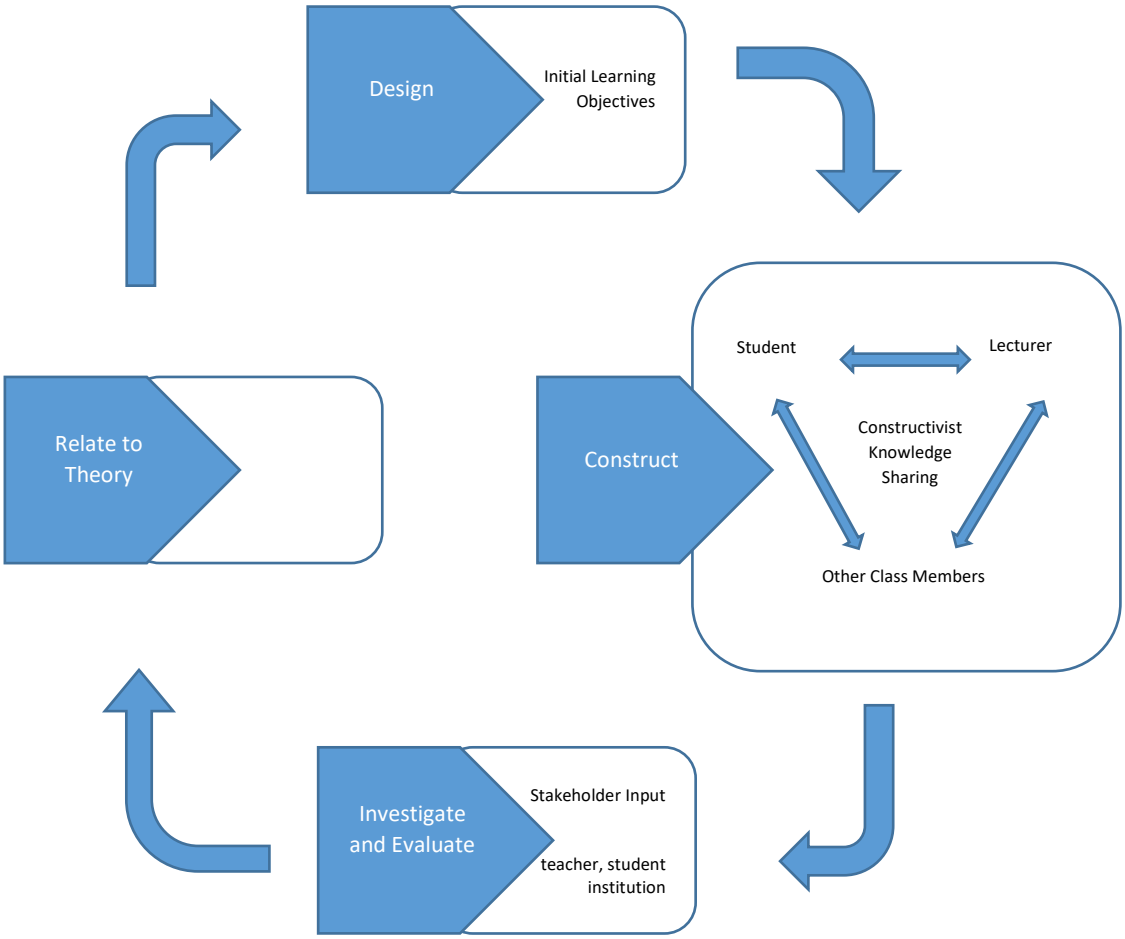

Figure 4 Constructivist approach to Blended Learning

1.4.2 The significance of partnerships and engagement with stakeholders

The way in which students learn from others is also the crucial element of work-based learning (WBL). Social constructivism is fundamental to the efficacy of WBL: this is continually demonstrated in research into practice (e.g. Toledo 2017).

The value of placements, internships and experiential learning in general is very well established. Experience, however, does not guarantee learning. The student needs motivation, guidance and peer support. The partnership with the employer and with other students can help the internee to construct their learning. This is illustrated in figure 4 below, which builds upon the model in figure 2 adding in the employer as an additional source of knowledge sharing:

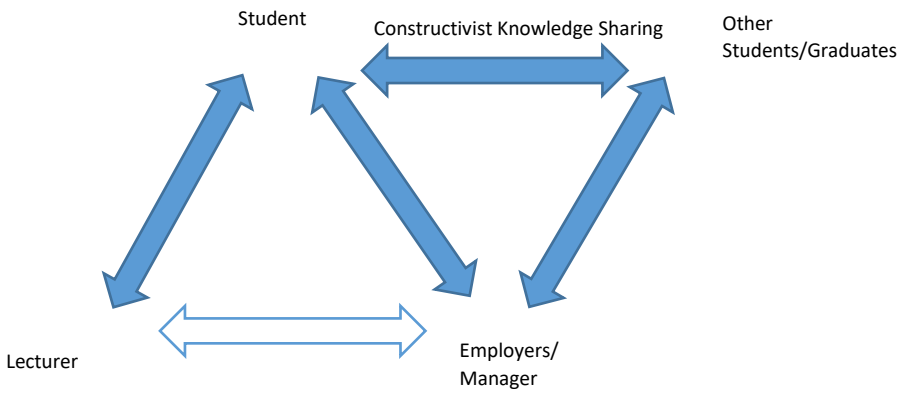

Figure 5 Interaction in Placement Learning

Building on twenty years of experience of developing such partnerships (Procter 2011), in 2011 I secured funding to research the use of peer mentors to assist students planning to undertake placements (Procter 2012). The peers were students who had already undertaken a placement year themselves. They were paid a modest weekly fee to provide both face to face and online mentoring to second year undergraduates interested in placements. The research demonstrated not only the benefits to the mentees but, more importantly, the benefit that could be gained by mentors in reflecting on their own experience and thus guiding new students: a classic example of reflexivity. The use of mentors was one example of intervening in the process of work-based learning which was used to enhance the learning experience of students. The process can be illustrated in the simple figure below, again showing a cyclical process of practice integrated with research. Figure 5 helps to explain my constructivist approach to work-based learning. This figure includes the model in figure 4 as the process 'Manage Work-based Learning' and then builds around it the processes already discussed of Evaluation, Research and Design shown in figure 3. Figure 5 is thus an adaptation of figure 3.

This experience proved to be very valuable in the European Regional Development Fund project UNITE from 2010-2015 (value to Salford University £1 million) which brought together 6 Universities and their staff, with students and graduates undertaking successful internships with over 1,000 local small and medium sized enterprises (SMEs). I managed this project on behalf of Salford. For many students this experience was a crucial step in their progress to employment/ self-employment (Procter et al., 2015). The colleagues in SMEs also learnt a lot

about the benefit of collaboration with the University, which many would not have considered previously.

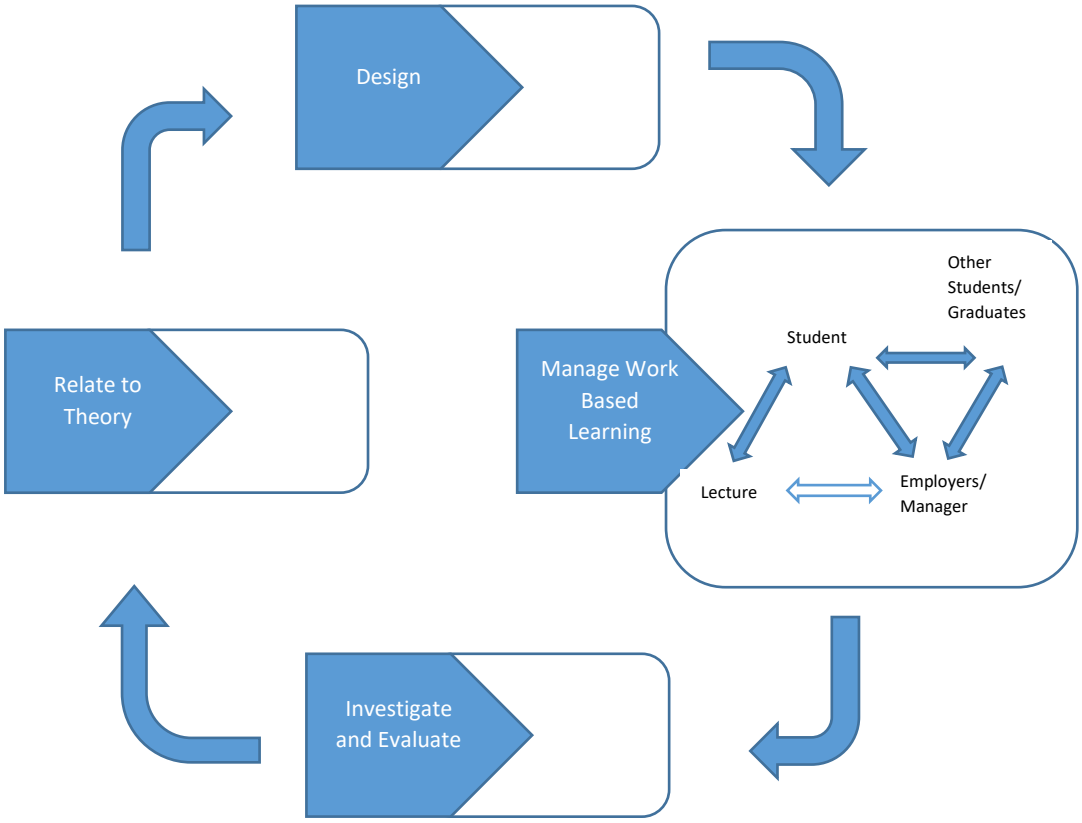

Figure 6 Constructive approach to Work-Based Learning

1.4.3 The importance of guiding students towards thresholds in their learning

By 2010 I had spent nearly 20 years working in employability in higher education, managing placements, organising work-based learning and programmes of study for those in work and securing funding to facilitate research and development in this area. However, through my involvement in publishing my work, and in the University Higher Education Research Centre, I came to appreciate the relevance of published work to advancing my own practice and career. Particularly influential was the experience of working with David Boud, who came to Salford briefly on secondment, and later also Ray Land.

Boud's work on Experiential Learning (Boud et al. 1985) is discussed in more detail in Chapter 2; a strong emphasis is placed on the value of assessment in constructing learning. The theory of Threshold Concepts of Meyer and Land (2003) is also discussed in more detail in Chapter 2. Their research suggests that in every subject there are fundamental thresholds to be reached, the attainment of which is irreversible. Reaching such thresholds is essential to progress in the discipline.

Combining Boud's work on the use of assessment to drive motivation, together with ideas of practice such as the design of a 'patchwork' of assessment (Winter 2003), culminating in reflection, could help to construct a stairway to the threshold of employability. Whilst students could construct their own knowledge, the practitioner had a crucial role to play in facilitating this construction. Summative and formative assessments are a very important tool in the hands of the pragmatic constructivist – an idea developed later in Chapter 2. Thus, theory was being used to continually redesign practice.

These ideas led to the design of a Professional Development module in 2013 that has since been undertaken by over 2,500 students. The module has in turn been continually strengthened by reference to experience and theory. A paper on this experience applying and developing Meyer and Land's theoretical model was presented at the International Threshold Concepts conference in the USA in 2018. It has been published in a new book on teaching in higher education (see s. 4.6). A key foundation of the research of Meyer and Land was that of Perkins (1999) 'The many faces of constructivism'. His argument is that, in essence, constructivism is about experimenting with what actually works. This ethos underlies this whole document. Recent research into the student experience conducted by one of my doctoral students (Vicki Harvey), alongside studying the recent development of theory by

Rattray (2016), Timmermans (2018), Tomlinson (2018) and others has led me to an appreciation of the significance of confidence in the attainment of a threshold. This will influence our teaching practice in the future.

On a more practical level, in 2017 we introduced video interviews as a formative assessment, owing to their growing prevalence in recruitment and anecdotal evidence concerning the importance of live experience with this tool. Unfortunately, only 5% of all eligible students undertook this assessment. When the same exercise was made summative the following year in 2018 (albeit for a very small mark), 90% of students completed the exercise and many commented on its value in terms of developing their confidence.

The fact that the module has been nominated for numerous awards (see section 1.5) is indicative of a constructivist approach of Design/Implement/Evaluate/Relate back to theory that works. The approach to the module, as discussed above, is illustrated in figure 6. It can be seen that this is also an adaptation of figure 3. The initial learning objectives were put into practice: this practice included the use of assessment as a fundamental element of motivation to build students learning, working with each other and guided by the lecturer or facilitator. Investigation and evaluation of this was then related to theory, leading to adjustment of the design and new practice:

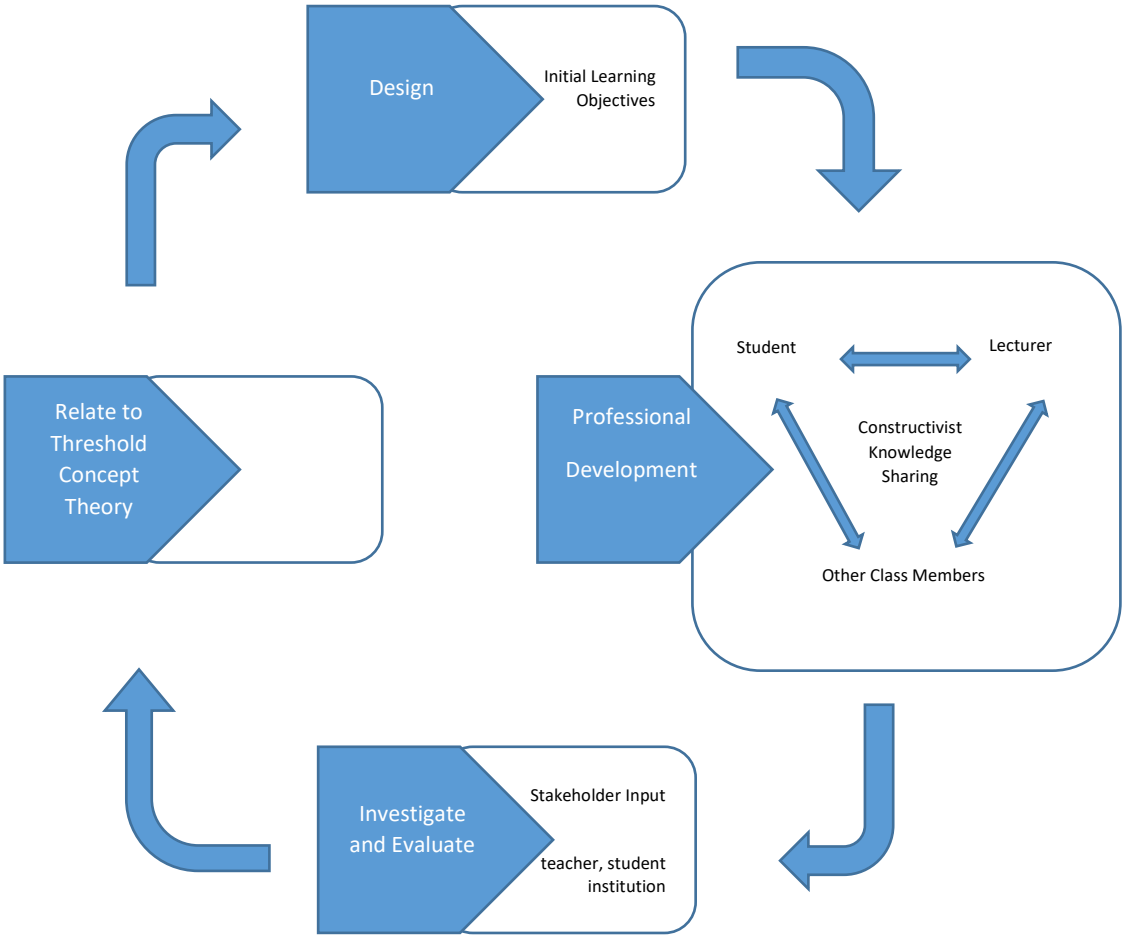

Figure 7 Constructivist approach to achieving the Thresholds of Professional Development

Each of the figures presented in sections 1.4.1, 1.4.2, and 1.4.3 illustrate a cyclical approach to learning and teaching of design, practice, evaluation and research. They all present a model of reflection upon practice that works and thus is of value for others. It is the premise of this whole work that the cyclical nature of social constructivism bears a close resemblance to a cyclical approach in other disciplines and is of very broad applicability. This is discussed at more length in Chapter 3 and is a significant contribution of this research.

1.4.4 Impact of papers

Evidence of the impact of the papers, which are included in this critical review, is that together they have over 681 citations (Scholar.google 21/5/2019). The University of Salford open access repository shows approximately 20,000 downloads for this group of papers (USIR 2018) and there are downloads recorded in many other locations; for example, the Informing Science Institute reports 8,600 downloads for a version of paper 2 from their website (ISI 2018).

Together with co-authors, I have also presented the research at many conferences over two decades.

1.5 Relationship between theory and practice

Vygotsky argued that social constructivism was a foundation to research, but also emphasised the importance of a holistic approach. He famously used the following analogy: a chemical breakdown of water shows us that it is composed of hydrogen and oxygen, but this does not tell us about the properties of water. Learning development is the combination of thought and word. To understand constructivism means to understand the integration of theory with action. Social constructivism is a foundation to research into learning, but a theoretical idea alone, or the analysis of one element (e.g. hydrogen) is of little benefit. The essential integration of theory and practice is illustrated in the Yin & Yang diagram in Figure 7. I was strongly influenced by the argument of Steve Fuller's keynote at the Society for Research into Higher Education (SRHE) conference in Brighton in 2006 and also subsequently at Education in a Changing Environment (ECE) in Salford in 2007 (both unpublished) that for the constructivist scholar, curriculum development is the essence of research.

Figure 8 The Yin and Yang of theory and practice in social constructivism

The leading constructivist theoreticians discussed in Chapter 2 all played a prominent role during their lives in the development of educational policy and practice. Palincsar (1998) developed this idea further, discussing the importance of integrating research and practice. The use of activities, argued Palincsar, should be a unit of analysis in research: the value of constructivist theory should be assessed by its deployment.

Palincsar (1998) argues that application in practice is in fact an essential part of social constructivist thinking:

> It is important that inquiry conducted within this perspective shares a dual orientation to theory and practice (Cole 1996), designed to deepen our understanding of cognitive development as well as to produce change in everyday practice… social constructivist perspectives … have been extremely useful to understanding and describing the complexities of teaching, learning, and enculturation into schools. However, they have had little influence on the practices of schooling (Palincsar, 1998, p. 371).

Thus, following Palincsar, I argue that to assess a scholar's contribution to constructivism necessarily involves evaluation of the influence of their practice alongside their published work. This forms part of the Conclusion, Chapter 5.

1.6 Achievement in practice

Alongside my contribution to the research discourse and the research community, a brief outline of my achievements in teaching is thus relevant evidence concerning the actualisation of social constructivism.

I helped to establish the first Graduate Teaching Assistant (GTA) scheme at the University of Salford (Procter et al. 2004) which was subsequently adopted across the University and highly praised in a QAA report (QAA 2008). This scheme, which was more widely established in the USA at the time, pays a bursary to doctoral students who are required to undertake a limited amount of teaching responsibility over a three year period. Essentially, it is designed as a lecturer apprenticeship, and thus an employment pathway. Approximately 100 students have completed funded PhDs through this scheme, whilst participating in teaching.

Eleven of the doctoral students that I have supervised have graduated since 2004 and 9 of these continue to pursue academic careers, publishing their work and teaching. Just recently two have published case studies arising from their research (Fenton and Procter 2018, Kozak-Holland and Procter 2019). In 2006 and 2008 I was the University of Salford nominee for the HEA National Teaching Fellowship Scheme. A key feature of each nomination was my contribution to experiential and work-based learning, my development of partnerships with staff, students and industry in the construction of the curriculum and learning, and my expertise in encouraging more widespread adoption of successful learning innovations. For

example, I established the first professional placements for postgraduate students. All Masters students were offered the opportunity to undertake a placement culminating in a reflective report as an alternative to the traditional research dissertation. In 2012 I received the Vice Chancellors Distinguished (individual) Teaching Award: this included in part recognition of my leading role in the development of a £10m European funded project to match students with SMEs (http://www.salford.ac.uk/business-school/business-services/unite-with-business). In 2014 I received the Student's Union award for Best Academic Support and in 2017 we received the Vice-Chancellors Distinguished team Award for our Professional Development module (see s. 4.6). The external examiner commented in her annual report:

> The professional development module is what I would refer to as the 'gold standard' in preparing students for both their placement year and provides the relevant experience for entering the world of work. The quality of these experiences provides the students with instant feedback on which they can work and improve. The level of organisation and cross-service collaboration is simply excellent (Fran Walker, Senior Lecturer, UCLAN, 2018).

We were nominated for the HEA (now Advance HE) national Collaborative Award for Teaching Excellence (CATE) in 2017 and again in 2019, shortlisted for the Guardian newspaper 'Best Curriculum Design' award in 2018 and nominated for the Guardian newspaper 'Best Employability and Entrepreneurship' award in 2019. Application of pragmatic constructivism was core to this recognition.

I have sought to promulgate my ideas of learning and teaching practice: I have been approached by the University Pro Vice Chancellor with a view to adopting the module discussed in Chapter 4.6 across the entire University as a best practice model. I have organised numerous workshops and conferences concerned with the development of pedagogy alongside the development of teaching practice in higher education[2]. This has included my involvement in; the establishment of the Higher Education Research Centre at the University of Salford; organisation of 6 international Education in Changing Environment conferences

[2] It should be noted that although andragogy is the scientifically correct term (eg Knowles, 1984) when discussing the teaching of adult learners, in common with current practice, pedagogy is used throughout this thesis

(www.ece.salford.ac.uk), two of which I co-chaired (2009 and 2011); involvement over many years with many of the leading professional organisations in the area of educational research and practice (including SRHE, HEA, BAM, ISBE, UVAC, CEPPL, PRHE, LTSN), and involvement as external examiner with 11 other institutions over the past 18 years.

I co-organised the University of Salford colloquium in July 2018 bringing together research on work, careers and employability[3]. I have played an active role in establishing the Salford Community of Excellence in Learning and Teaching (SCELT) whose objective is to help nurture effective teaching practice and policy based upon research. Helping the organisation move to a learning centred institution is relevant to measuring the contribution of one's research. These achievements provide evidence of the impact of my teaching theory in practice.

The table below provides a timeline highlighting key dates, developments in practice and publications:

[3] Published at https://tinyurl.com/ycdhhaex July 2018: for the purposes of clarity this material is not all publicly available and thus this is not included in the references.

Table 1Timeline of work and publications

Year	Landmarks in practice	Publications (those in this review are in bold). Note that references are abbreviated
1991	Commence working at Salford. Take responsibility for placements, commercial development and some teaching	
1992	Appointed as Lecturer	
1993-9	Steadily increased teaching management responsibility and increasing number of students. Introduced first teaching of WWW. Introduced VLE. Started and abandoned PhD	First conference publications, esp. on technology in teaching and learning e.g.: C. Procter (1997) Evaluation of the delivery of teaching material through use of the World Wide Web
1999-2000	Year in New Zealand in distance learning: teaching and development	First journal publication: Procter C and Symonds J (2001) *Designing for Web site usability*
2000-2005	Established first blended learning degree with European funding (£500k). Helped establish Higher Education Research Centre at Salford and also Education in a Changing Environment (ECE) conferences. First PhD supervision. Significant roles in School and University management structures. Promoted to senior lecturer.	Many conference papers on technology and learning and blended learning including: Procter C. (2003) Blended learning in practice Procter C (2002) Proportion, pedagogy and processes: the three p's of e-learning **Heinze A, Procter C. (2004) Reflections on the Use of Blended Learning** Heinze A, Procter C (2005). Creation of Student Communities in Blended Learning Also published a group of papers on the value of GTAs in teaching
2005-10	Nominated by the University of Salford in 2006 and 2008 for the HEA National Teaching Fellowship Scheme, particularly for work in blended learning, use of GTAs, employability and management of team projects. Merged into Business School and thus teaching Business students for the first time. Significant role in staff development internally and externally. Many external examinerships. Fellow of HEA	Series of journal papers on blended learning: Heinze A and Procter C (2006) *Online Communication and Information Technology Education* Heinze A, Procter C, Scott B (2007) *Use of Conversation Theory to underpin Blended Learning* **Heinze, A., & Procter, C. (2010). *The significance of the reflective practitioner in blended learning*** **Procter C (2011) Developing professional placements in the Business curriculum**
2010-2015	Substantial funds secured/ managed (>£1m) to establish student/SME internships. This was part of a partnership of 6	Many additional papers in learning & teaching Inc. **Whatley J. and Procter C. (2010) Use of E-Portfolios to Facilitate and Assess Student Work Placements**

	North West Universities. The UNITE project broke all targets for number of internships, jobs and GVA. Significant development of teaching in Professional Development and also in Project Management. Many more PhD completions and associated publications arising from these. University of Salford Student Union's award for 'Best Academic Support' 2013-14, Vice Chancellor's Distinguished Teaching (individual) Award 2012. Senior Fellow of HEA	**Procter C. (2012) Peer mentoring to secure student placements** Also discipline specific publications e.g.: Shemi, A.P & Procter, C.T (2013) *Explaining Contextual Factors affecting E-commerce Adoption Progression in selected SMEs: Evidence from Botswana* International Journal of Management Practice (IJMP) Special Issue on: *Challenges and Issues of Technology Adoption in Small Businesses – Beyond the Rhetoric* Vol 6(1) Kozak-Holland M. and Procter C (2014) *Florence Cathedral Duomo Project (1420-1436): learning best project management practice from history* International Journal of Project Management – IJPM February 2014, 32/2 Businge M. and Procter C. (2014) *Involve Users or Fail: an IT Project Case Study from East Africa* International Journal of IT Project Management Vol 4(4)
2015-2019	Secured prima facie approval for PhD by published works (2018), submitted (2019). Many teaching awards: Nominated for The Guardian University Awards 2019 'Employability and Entrepreneurship', shortlisted 2018 'Best Curriculum Design'. Vice Chancellor's Distinguished Teaching (team) Award 2017 (Professional Development Module Team) Nominated by the University of Salford for the HEA Collaborative Award for Teaching Excellence (CATE) 2017 & 2019 (team leader)	Additional papers in teaching and learning: **Procter C, and Harvey V. (2018) Realising the threshold of employability in Higher Education** Also discipline specific publications e.g.: Fenton A., Procter C., McLean R (2019) *Understanding social media fans and social capital: developing online relationships on a global scale* Journal of IT & People (accepted subject to corrections) Kozak-Holland M and Procter C. (2019) *The Giza Pyramid: learning from this megaproject* Journal of Management History (accepted subject to corrections) Kozak-Holland M and Procter C *Managing Transformation Projects: Tracing lessons from the Industrial to the Digital Revolution* Currently being reviewed by Palgrave Macmillan (deadline May 2019)

1.7 Structure of critical review

The critical review contains five chapters:

Table 2 Structure of document

Chapter	Content
1	Introduction including motivation, themes and relationship between theory and practice in constructivism
2	Evolution of theory in social constructivism
3	Constructivism, interpretivism and agile: harmony of ideas
4	Summary of the publications
5	Conclusion, discussion of contribution and future work

This introduction is followed by Chapter 2, which is a more thorough explanation of social constructivism and develops the theory of pragmatic constructivism. Chapter 2 discusses the application of constructivism to higher education and specific theory that is relevant to my own work. Chapter 3 relates constructivism to the interpretivist philosophical paradigm and agile methodology. It justifies the use by myself and co-researchers of agile, qualitative research and the research methods used within my publications. Chapter 4 critically discusses each paper in detail, explaining their origins and relationship to other work not included here, and their contributions. Chapter 5 summarises my research contributions, discusses my current research, and discusses how these contributions can be further developed. The five chapters are followed by the six papers, each as an appendix, and then the full set of references. Since each paper is reprinted in full there is inevitably significant duplication of references.

1.8 Summary

The chapter has outlined my motivation for conducting this work: my background in the practice of constructivist teaching and learning and my development through research. It has presented models of blended learning, partnerships in learning (and particularly placement learning) and teaching and learning to achieve thresholds. These thematic models have great similarity, all representing the application of pragmatic constructivism in different contexts. They all reflect the interaction of theory and practice, which is fundamental to this review

and forms the latter parts of Chapter 1. The chapter has thus introduced all the themes of this work and outlined the origin of these to the reader.

Chapter 2 Literature Review

2.1 Introduction

Webster and Watson suggest that:

> There are two points in a scholar's life that lend themselves naturally to writing a literature review. First, those who have completed or made substantial progress on a stream of research are well positioned to tell their colleagues what they have learned and where the field can most fruitfully direct its attention. Second, scholars who have completed a literature review prior to embarking on a project and have developed some theoretical models derived from this review are also potential authors (Webster and Watson 2002, p. xiv).

This review adopts the former approach. Indeed, to use terminology from Information Technology, to some extent this review represents an exercise in reverse engineering. I have looked at my output, i.e. publications and practice, and then re-read the theoretical foundation for this practice. This has allowed me to understand the theoretical antecedents of my work, and how previous practitioners have used similar practice to good effect. This reading has in turn informed the development of the practice and the publications; a cycle which continues to this day. Thus, the chapter does not include 'mind-numbing lists of citations and findings that resemble a phone book' (Bem 1995, p. 172), but instead discusses literature that underpins the publications and practice described within this critical review.

It explains in more depth the development of pedagogical constructivism from its theoretical origins. It then discusses the development of ideas of constructivism in relation to higher education and the evolution of Pragmatic Constructivism. To ensure the relevance of the literature to the papers presented in Chapter 4, section 2.5 presents specific examples of the application of these ideas to assessment, and to the use of technology in education. This is followed by a discussion of the vital relationship between social constructivist theory and practice. Thus, the literature outlines the theoretical and practical background to my work.

2.2 Distinguishing constructivism

In his paper 'The fault lines of recontextualization: the limits of constructivism in education' McPhail (2016) argues that in discussing constructivism in education we should distinguish two types. Although the terminology that he uses is confusing in part, we can explain this distinction as follows.

The former, which we could term Epistemological Constructivism could be characterised by the definition of Duffy and Jonassen (1991): Constructivists believe that 'knowledge and truth are constructed by people and do not exist outside the human mind'. This world view has significant ontological implications and is thus closely related to theory of relativism and postmodernism. It is the subject of substantial debate. It is strongly criticised by McPhail who quotes Devitt suggesting that 'Constructivism attacks the immune system that saves us from silliness'. It is also the subject of sustained attack from leading scientists such as Richard Dawkins. This is not a core element of the work in this thesis.

The second type is Pedagogical Constructivism. This is concerned with the process we use to guide student learning and was the concern of Dewey and others as discussed in this thesis. Whilst a constructivist will always question the truth to which they are leading their students, this thesis is concerned with Pedagogical Constructivism.

2.3 The development of pedagogical constructivism

Ideas of social constructivism in education developed as a reaction to the dominant instructional form of teaching, based on a behaviourist psychological model of human behaviour. This behaviourist model was associated with the work of John Watson. Like Pavol's famous experiment with dogs, Watson argued (1925) that behaviour could be conditioned: consciousness was not relevant. Language was a manipulative habit. In this same tradition, Thorndike, in his book published in 1906, 'The principles of teaching, based on psychology' suggested that teaching involved a sequence of instructional procedures including modelling, demonstration, reinforcement, and testing. These were built into a curriculum that ensured the acquisition of prerequisite skills before progressing to more advanced material. In this approach, the teacher has an active and directive role controlling the pace, sequence and content of the learning:

> The teacher, in a face-to-face reasonably formal manner, tells, shows, models, demonstrates, and teaches the skill to be learned. The key word here is teacher, for it is

the teacher who is in command of the learning situation and leads the lesson, as opposed to having instruction “directed” by a worksheet, kit, learning centre, or workbook. (Baumann 1988, p. 174 cited in Palincsar (1998)).

The use of terms such as deliver, acquire, implement are all characteristics of an instructional approach.

Long before the advent of computer assisted learning (CAL), B.F. Skinner pioneered the Teaching Machine (Skinner 1961). This was adapted from techniques that he had adapted from training rats in his psychology research. The machine was a wooden box that would display questions, the user being rewarded/ allowed to continue only with the correct answer.

Figure 9 Skinner's teaching machine

This shows the paper discs which were inserted with answers written along the radii. One question would appear on the window in the centre. The student writes their answer on the paper tape to the right and advances the mechanism. This reveals the correct answer (Smithsonian)

The underlying instructional design bears many similarities to later Computer Assisted Learning (CAL) packages and more recent e-learning tuition.

Widespread concern was raised over 100 years ago with these ideas. Dewey argued (1902) that they did not really explain how learning took place, and that social processes, which are fundamental to any definition of the human condition, appeared to be invisible. Behaviourist psychology minimised or ignored the importance of consciousness, arguably the essence of intelligence. Thus, followers of Dewey would contend that the Pavlovian approach to conditioning of behaviour is of little or no relevance to the teaching of higher order skills. An instructional transfer approach, whilst possibly effective in teaching factual content, is less useful in developing higher order skills such as reasoning and problem solving (Peterson & Walberg 1979), which are the essence of higher education. Palincsar conducted a thorough review of the literature of the 1980s and 1990s and concluded that 'talk that is interpretive (generated in the service of analysis or explanations) is associated with more significant learning gains than talk that is simply descriptive' (Palincsar, 1998, p. 365). Widespread theoretical and practical interest in the latter part of the twentieth century in alternatives to behaviourist/ instructional approaches to education led to renewed study and application of the early proponents of constructivism.

Arguably, the most influential authors in the development of constructivist philosophy are three psychologists, all born in the nineteenth century: John Dewey, Jean Piaget and Lev Vygotsky. Relevant ideas of these three are explained here.

2.3.1 John Dewey

Dewey predated both Piaget and Vygotsky (both born in 1896). His best-known treatise on education came out shortly after the turn of the nineteenth century ('The child and the curriculum', Dewey 1902). Fundamental to Dewey's book was the belief that learning is a social and interactive process. Education of children should not be concerned with their acquisition of a set of pre-determined skills, but their realisation of their potential (Dewey 1897). He criticised what is now characterised as a behaviourist approach, whereby the purpose of education was the transfer of knowledge concerning a particular subject – the idea that 'the child is simply the immature being who is to be matured' (Dewey 1902). On the contrary, education should be a social process that seeks to relate to the prior experiences of the pupil allowing them to construct their learning and relate prior experience to new

situations. More recent ideas, such as experiential education and even problem-based learning, can be traced back to these ideas of constructivism.

However, Dewey criticised those, such as Montessori, who sought to develop his ideas into the wholesale rejection of behaviourism or instructionism, and who attempted to establish education that was wholly child centred. As Kierstead argues:

> Whereas Maria Montessori believes that humans are born with a divine animating spirit, John Dewey believes that no such spirit exists, and that it is society which shapes the child. Their definitions of education reflect this difference. For Montessori, education is a natural process that develops spontaneously in the human being, and formal education assists the child in this spontaneous process (Kierstead, 1980, p.1).

Dewey's view was that society and the teacher should shape the situation in which learning takes place; very similar to later work of Vygotsky. The distinction is significant since this discussion placed Dewey firmly in the camp of what I later term 'Pragmatic Constructivism'.

Dewey's early work, which developed his theory of pedagogy concerning the socialisation of the child in school, developed later into more political texts, such as Democracy and Education (1916), arguing for the role of the school in developing these social processes and achieving reform. Thus, he sought to use his influence to put into practice his ideas on a large scale: a clear framework or structure was necessary within which to practice constructivist ideas.

The idea of forming an instructional framework to guide social constructivism is a core part of the argument of this critical review. This is illustrated in the paper 'Realising the Threshold of Employability' s.4.6, which discusses the development of student's professional development. The paper relates how students can construct their employability by relating the competencies required by employers to their prior experience. This however is set in a fairly rigid structure of assessment, as explained by the paper.

2.3.2 Jean Piaget

Born late in the nineteenth century, Piaget was also a psychologist whose ideas concerning the cognitive development of children (Piaget 1936) have been very influential on educational theory. His qualitative research suggested that intelligence was not something that was fixed, but evolved in stages, subject to biological and external influences. In later publications, in

particular his jointly authored book 'The growth of logical thinking from childhood to adolescence' (Inhelder & Piaget 1958), he further developed ideas of active learning. Problem solving skills could not be taught, they must be learnt: a fundamental principle of constructivism. Although Piaget's early research was not specifically concerned with education, it was very relevant and influential on educational theory since the implication was that the teacher could guide the child's intellectual development. This guidance would include a focus on the process rather than the result, the use of active methods including collaborative activity, and the deployment of useful problems, which were set at an appropriate level, or stage of the child's development. Given that his research was entirely concerned with the cognitive development of children, it had its most direct impact on childhood education. For example, Donaldson (1978) explains how influential Piaget's thinking was on the Plowden Report into Primary Education in the UK published in 1967 (Plowden 1967). The report stresses the importance of child centred education, that 'at the heart of the educational process lies the child'. Founded on constructivist ideas the report favoured positive discrimination in deprived areas, banning physical punishment, the introduction of nursery education for all and (most importantly) the establishment of comprehensive education for all children in the UK at secondary level.

Piaget's ideas on intellectual development, particularly 'Construction of reality in the child' (1954) and 'The growth of logical thinking from childhood to adolescence' (1958) have contributed greatly to the evolution of constructivism. He is quoted as saying:

> Education, for most people means trying to lead the child to resemble the typical adult of his society ... but for me and no one else, education means making creators ... you have to make inventors, innovators – not conformists (Bringuier, 1980, p. 132).

Like Dewey before him, he came to see education as fundamental in the development of the human condition. He also emphasised in his research findings the significance of socialisation in children's intellectual development. He thus also sought to use his intellectual influence to effect social practice, for example in his role as Director of the International Bureau of Education (UNESCO, 2019).

Piaget was keen to also challenge the prevailing positivist research methods used by his contemporary psychologists including, for example, observation of children's learning. Like

Dewey, his ideas have also had substantial influence on higher educational policy and contemporary constructivist practice, particularly since the 1960s and 1970s when ideas of student-centred education became more popular. His work, for example, was very influential in the development of ideas of scaffolding understanding, whereby the learner matures by relating new concepts to their existing knowledge (Palincsar 1986), as well as the work in Threshold Concepts (as discussed further in section 2.4.5).

2.3.3 Lev Vygotsky

Possibly the leading influence on contemporary constructivism is the work of Lev Vygotsky. He was also a psychologist interested in childhood development. He died at a young age (37) but two of his books, Mind in Society (1978) and Thought and Language (1989)[4] continue to be widely cited. These translations brought the work of Vygotsky to a much wider audience. He used his empirical work to fundamentally criticise a behaviourist approach to psychology and education:

> Practical experience also shows that direct teaching of concepts is impossible and fruitless. A teacher who tries to do this usually accomplishes nothing but empty verbalism, a parroting repetition of words by the child, simulating a knowledge of the corresponding concepts but actually covering up a vacuum (Vygotsky 1989, p. 150).

Vygotsky repeatedly emphasised the importance of the social experience in the development of critical learning i.e. the essence of higher education. It is the definition of social constructivism attributed to Vygotsky that I use in this work: social constructivism is concerned with the importance of collaboration with others, either student with student or student with teacher and views social interaction as the primary means by which learners construct new meanings. As with Piaget and Dewey before, he also later sought to implement his ideas in practice, through Russian government educational policy. His early publications developed fundamental ideas about the way in which thought and language combine. Childhood development and learning only result from this combination and thus the famous analogy of water: an amazing compound that can only be created by the combination of the

[4] Please note that these are modern translations. The title 'Thought and Language' can also be translated as 'Thought and Speech', which is possibly more expressive

two elements hydrogen and oxygen. The relationship between thought and word is a continual social process.

In Thought and Language, he discusses at length the work of Piaget, which he critiques, arguing that thought does not originate with the individual but with the social. This difference is fundamental to the difference in the influence the two scholars have had and the reason why Vygotsky is cited much more frequently within this thesis. Whilst Piaget argued that development arises from socio-cognitive conflict, i.e. in peer interaction amongst children, Vygotsky's research laid much greater emphasis on the interaction between the adult and the child. Whilst Piaget saw maturation as a precondition of learning, Vygotsky proposed that 'learning is a necessary and universal part of the process of developing culturally organized, specifically human, psychological functions' (Vygotsky, 1978 p. 90). The most important conclusion of this difference was not theoretical but practical: Vygotsky emphasised the significance of 'social influence in the phenomena of development and learning' (Lourenco 2012). Further, in his debate with William Stern, Vygotsky suggests that intelligence is socially acquired and not the essence of the individual (Harré 2000). The role of the teacher as guide is therefore fundamental to Vygotsky's constructivism.

Zone of Proximal Development

These ideas led to the development of Vygotsky's theory of the Zone of Proximal Development (ZPD), for which he is possibly best known. The theory is in fact beautiful in its simplicity, and a cornerstone of contemporary constructivism often now associated with scaffolding. The concept of scaffolding had become popular in the early 1970s (Pea 2004) but it was the 1978 translation of Vygotsky's 'Mind in Society' that leant this concept much greater weight.

Vygotsky discusses the example of two ten-year-old children who are tested and subsequently assessed as having a mental age of eight. The functions they are capable of are their 'actual development level'. If we now separate these two children and provide them with different adult guidance in ways to solve the same problem, we discover that one can now deal with problems at the level of a 12-year-old and one at the level of a 9-year-old. This is termed as their 'level of potential development'. The ZPD is the difference between their actual level of development and their potential level of development as "determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978,

p.86). Vygotsky explains the ZPD as defining those functions that are the buds or flowers of development, rather than the fruit. Understanding this is key to the application of constructivist thinking. The constructivist seeks to know the social processes that can be used to bring these buds and flowers to fruition. A monkey, he thence suggested, does not have a ZPD because we cannot intervene with these social processes to develop their intelligence. This is a fundamental difference from a behaviourist approach. Vygotsky goes on to argue that 'The only good learning is that which is in advance of development' (Vygotsky, 1978, p. 89).

This is why Vygotsky is also often linked to the idea of 'scaffolding' in education, whereby the teacher is continually guiding the student in the construction necessary to reach the next level, acknowledging that they can only progress one level at a time. Interestingly, the importance of the active design on the part of the teacher leads to the use of the term 'Instructional Scaffolding' (Beed et al. 1991) which is core to the idea of Pragmatic Constructivism. Perkins' work, discussed in s 2.4.4, also addresses the criticism (e.g. Perkins 1992) that constructivism can become unduly ideological. Perkins (1999) also further developed the ideas of scaffolding in his discussion about the transformative nature of new knowledge. This idea was adopted and developed by Meyer and Land (2003) in the creation of Threshold Concepts. The work on Threshold Concepts alone has generated considerable scholarly work (Flanagan 2017). There have also been a series of international conferences dedicated to discussion of the adoption of threshold concepts theory in practice. This is one significant branch of a large body of work that can trace its roots to ZPD.

2.4 Evolution of constructivist ideas

The period of the 1980s/ 1990s saw a flourishing of constructivist research. New research sought to reinterpret the ideas of Dewey, Piaget, Vygotsky and others and apply these to different contexts. This section discusses some of this research that is of direct relevance to the papers in this critical review. Whilst the research discussed in section 2.3 was largely concerned with the education of children, there is a substantial body of more recent research that applies these ideas to higher education.

2.4.1 Schön and the Reflective Practitioner

Donald Schön was a student of philosophy whose PhD thesis was concerned with an examination of Dewey's work. He had a lifetime interest in pedagogical theory, alongside his interest in the philosophy of pragmatism and rationalism, which he combined in his work on organisational learning. His interest in the combination of practice and education is highlighted by the title of the Chair he held at MIT, the Ford Professor of Urban Studies and Education. He is not typically located in the pantheon of constructivists, and his work is more frequently cited in the context of organisations adopting to disruption. However, his contribution to the epistemology of practice brings together theoretical ideas of interpretivism and constructivism, which is very relevant to this body of work. His influential book published in 1983 'The Reflective Practitioner' is of particular significance. Although it is not specific to higher education, it is particularly relevant to this review since Schön argued so clearly for the integration of theory and practice, the cyclical pattern of practice, experience, reflection and improvisation. Schön presents a strong argument against Technical Rationality as a model of developing professional knowledge. The Technical Rationalist approach to education is characterised by the application of scientific principles based upon recorded knowledge as the best means to deliver learning. In this approach, professional practice is a type of instrumental activity based upon empirical evidence.

Schön critiques the work of Nathan Glazer, who argued that the professions of law and medicine were of a 'higher' order owing to their strict adherence to a systematic knowledge base. This knowledge base is firmly bounded, scientific and standardised. Furthermore, in Glazer's higher order of professions there is a strict delineation between practice and research. Practitioners neither experiment nor improvise: the object of their practice and expertise are clients, patients, subjects and students. Glazer's language is inherently positivist. Schön saw this underpinning the prevailing model of higher education curricula: 'The order of the curriculum parallels the order in which the components of professional knowledge are "applied."' (Schön, 1983, p. 27). Thus, students are initially provided with the scientific core knowledge. Later they develop the skills to build upon this core. Schön gives the example of the President of Harvard School of Business Administration arguing that students should only be provided with case studies when they have learnt the accepted scientific and analytic techniques. Thus, Schön argues that 'higher order' professions are built upon Technical Rationalist approaches to education and identifies that in fact this instructionist approach is

built upon a positivist epistemology. His example from Harvard was used to illustrate how other disciplines sought to ape this approach to establish their credibility.

In contrast, Schön proposes that practitioners adopt a Reflection in Action approach. Reflection in Action encourages innovation and experimentation.

> The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation (Schön, 1983, p. 68).

Schön later distinguished Reflection **in** Action from Reflection **on** Action. Reflection on Action integrates practice and research. The practitioner experiments and reflects upon the experience relating the practice to their 'repertoire' of knowledge:

> When a practitioner makes sense of a situation he perceives to be unique, he *sees* it *as* something already present in his repertoire. To see *this* site as *that* one is not to subsume the first under a familiar category or rule. It is, rather, to see the unfamiliar, unique situation as both similar to and different from the familiar one, without at first being able to say similar or different with respect to what. The familiar situation functions as a precedent, or a metaphor, or… an exemplar for the unfamiliar one (Schön, 1983, p. 138).

In this way, the effective practitioner develops a feedback loop of practice, experience, and learning, developed further in ideas of experiential learning (Kolb, 1984) and situated learning (Lave & Wenger 1991).

2.4.2 Willis R2D2

In his review of Instructional Design, published in 1995, Willis sought to establish principles of Constructivist-Interpretivist Design as opposed to traditional Objective-Rational Instructional Design. His model is sometimes abbreviation to R2D2 (Recursive Reflective Design and Development). Note that the term Instructional Design, widely used in the literature of that time, did not imply Instructionism as used within this thesis. The principles Willis proposed are

worth listing here since they have much in common with the philosophy enunciated in my work and in Chapter 3. Indeed, they have much in common with what I later term 'Agile Research':

1. The design process is recursive, non-linear, and sometimes chaotic.
2. Planning is organic, developmental, reflective, and collaborative.
3. Objectives emerge from design and development work.
4. General ID experts do not exist.
5. Instruction emphasizes learning in meaningful contexts (the goal is personal understanding within meaningful contexts).
6. Formative evaluation is critical.
7. Subjective data may be the most valuable (cited in Tam, 2000, p.55)

2.4.3 Biggs and constructive alignment

In Biggs' paper 'Enhancing Teaching through Constructive Alignment' (1996) he proposes a marriage of two theoretical ideas: 'Constructivism being used as a framework to guide decision-making at all stages in instructional design'. He discusses the application of this approach at three stages: the design of the curriculum and learning objectives, the teaching and learning activities used, and the assessment strategy for a given unit/ module. He illustrates his argument with description of specific teaching units: however, his contribution was not the description of practice, but the development of the framework shown in the model below. The model shows the interconnection between learning outcomes, assessment and teaching and learning activity:

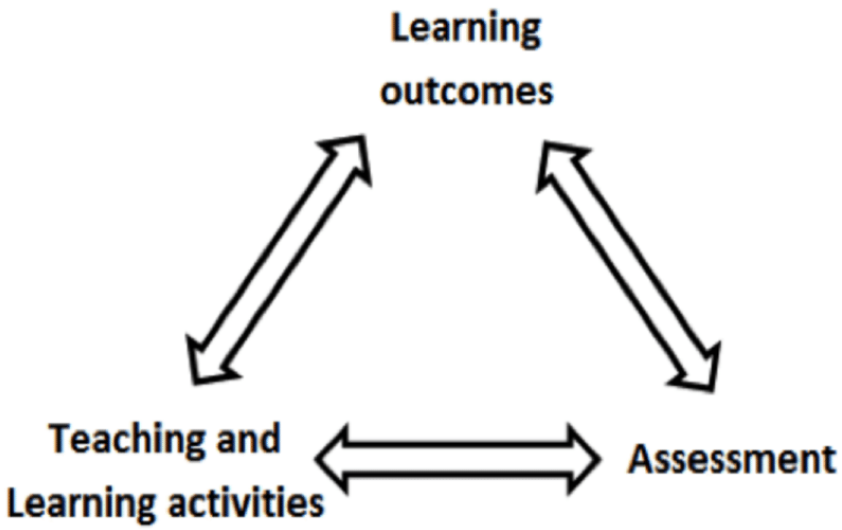

Figure 10 Constructive Alignment (Biggs, 1999)

Biggs' work has been very influential since, in a simple and clear way, it questions whether standard processes of teaching and learning such as lectures and examinations are adequate to achieve tertiary or 'high level' learning objectives. He goes on to propose alternative approaches, for example a portfolio of assessment, which have much in common with the work outlined in papers no. 4 & 6. A subtle difference to his definition is explained in the next section.

2.4.4 Perkins & Pragmatic Constructivism

Perkins, in his influential paper 'The Many Faces of Constructivism' published in 1999, cites Phillips (1995) who identified three distinct roles in constructivism: the active learner, the social learner and the creative learner. Taken together, Perkins argues that these roles provide the toolbox for problems of learning. In particular, he argues that constructivism provides suitable responses to the development of 'troublesome knowledge': 'when knowledge is not particularly troublesome for the learners in question, well forget about active, social, creative learners. Teaching by telling may serve just fine' (Perkins, 1999, p.11). In other words, instruction is suitable for learning repetitive tasks, but cannot develop active, social and creative learning.

Although not referring to Dewey or Vygotsky, Perkins raises many of the same issues in a more contemporary context. He concludes the discussion above by examining the difference between 'pragmatic constructivism' and 'ideological constructivism':

> But the constructivist ideas assembled here are anything but ideological. They make up what we might call pragmatic constructivism. Their message asks us to view constructivism as a toolbox for problems of learning. Troublesome knowledge of various kinds invites constructivist responses to fit the difficulties – not one standard constructivist fix. If a particular approach does not solve the problem, try another – more structured, less structured, more discovery oriented, less discovery oriented, whatever works. And when knowledge is not particularly troublesome for the learners in question, well forget about active, social, creative learners. Teaching by telling may serve fine (Perkins, 1999, p. 11).

This quote defines the term Pragmatic Constructivism used within this critical review: it is a toolbox for problems of learning rather than a rigid ideology:

> The term *constructivism,* with its ideological overtones, suggests a single philosophy and a uniquely potent method – like one of those miracle knives advertised on late-night TV that will cut anything, even tin cans. But we could look at constructivism in another way, more like a Swiss army knife with various blades for various needs (Perkins, 1999, p.11).

Ideological constructivism holds that the unexamined fact is not worth believing, just as the unexamined life is not worth living. In fact, Perkins suggests, we may come to understand Newton's laws without the need for deep inquiry. He takes issue with the presentation of constructivism as a magic solution: a knife that will cut anything in anyone's hands. Pragmatic constructivism, very much in the spirit of Dewey, is, as Perkins argues above, more like a Swiss army knife where the instructor knows which tool to use to apply to which situation. Sometimes a simple instructional tool is the most appropriate. Pragmatic constructivism is akin to an instructional framework to apply and guide constructivist ideas. The pragmatic constructivist in education innovates in their practice and works with the students to develop their learning. They reflect upon their action with reference to their 'repertoire' (Schön, 1983), possibly learning how to better use their tools in future. Thus, both the work of Schön and Perkins is very relevant to contemporary ideas of lifelong learning.

How then does the pragmatic constructivism of the title of this critical review, and as explained above, differ from Biggs' constructive alignment? Biggs talked about constructivism being

used as a framework to guide decision making in instructional design, but I would argue that it is more appropriate to reverse this. Pragmatic constructivism, in my view, is about constructivist learning design within an instructional framework. Thus, the structure or framework of the learning in a module aligns the assessment with the learning objectives, but constructivist activities are used to guide the student to achieving these objectives. This also aligns closer to the original work of Vygotsky.

It is not the contention of this work that Perkins invented the term Pragmatic Constructivism but that his use of the term in education most closely fits the author's contribution.

2.4.5 Threshold concepts

Perkins work contributed to the constructivist theory of Threshold Concepts in 2003 published by Meyer and Land. They argue that in any discipline there are Threshold Concepts; these may be considered 'akin to a portal, opening up a new and previously inaccessible way of thinking about something . . . it represents a transformed way of understanding, or interpreting, or viewing . . . without which the learner cannot progress' (Meyer and Land, 2003, p.1). In our careers in Higher Education we can, for example, relate this to students understanding the value of referencing: a threshold in its own right. Until students master the significance of this concept they might simply include references as a requirement to gain good marks and fail to appreciate that citation is not the same as plagiarism.

Meyer and Land's work was inspired by a research project into the characteristics of effective undergraduate education, particularly in the field of economics. It became clear to them that certain concepts were central to mastery of the subject. They also discovered that assessment could be used effectively to help students to achieve this mastery, citing Biggs' work appreciatively. Like Perkins, their research is clearly located in the pragmatic area of constructivism and is concerned with the application of constructivism in higher education. They argue that the knowledge required for students to develop as active, social and creative learners in higher education is necessarily troublesome, and thus a social constructivist approach to education is essential. Subsequent investigation has shown that the central tenet of mastery of a subject via Threshold Concepts could be applied to any subject, demonstrating the broader applicability of Meyer and Land's original findings. They relate (Meyer & Land, 2005) subsequent discussion with colleagues from other disciplines identifying examples of

thresholds such as "*precedent* in Law, *depreciation* in Accounting ... *entropy* in Physics and so on". Cousin has demonstrated the significance of Threshold Concepts in developing pedagogy as well as facilitating subject specific knowledge. She gives Meyer and Land's example of *a student of the French language* achieving the threshold of becoming *a speaker of French* to illustrate the new understanding that can come with achievement of a threshold (Cousin 2010).

Achievement of such a threshold, considered so important by tutors, is both transformative and irreversible and is not discipline specific: Threshold Concepts have non-subject specific features in common. Their significance in Higher Education has been explored more fully in a collection published in 2016 (Land, Meyer & Flanagan). Flanagan (2017) has summarised the features of Threshold Concepts, in table 3 below:

Table 3 Summary of Threshold Concepts (adapted from Flanagan, 2017)

Threshold Feature	Impact Characteristics
Transformative	Once understood, a Threshold Concept changes the way in which the student views the discipline
Troublesome	Threshold Concepts are likely to be troublesome for the student. Perkins (1999) has suggested that knowledge can be troublesome e.g. when it is counter-intuitive, alien or seemingly incoherent
Irreversible	Given their transformative potential, Threshold Concepts are also likely to be irreversible, i.e. they are difficult to unlearn.
Integrative	Threshold Concepts, once learned, are likely to bring together different aspects of the subject that previously did not appear, to the student, to be related.
Bounded	A Threshold Concept will probably delineate a particular conceptual space, serving a specific and limited purpose.
Discursive	Meyer and Land (2006) suggest that the crossing of a threshold will incorporate an enhanced and extended use of language.
Reconstitutive	Understanding a threshold concept may entail a shift in learner subjectivity
Liminality	Comparing the crossing of the pedagogic threshold to a rite of passage, involving a potentially messy journey to learning. Liminality requires active engagement of the learner, as this threshold is crossed back and forth as the student experiences both positive and unsettling shifts in comprehension.

The concept of liminality resulted from additional research by Meyer and Land, published in 2006. Liminality involves the active engagement of the learner, as this threshold is crossed back and forth as the student experiences both positive and unsettling shifts in comprehension. Cousin (2010) compares this idea to the age of adolescence. The student may attempt to speak French, be disappointed with the result, and revert to being a student of French. Liminality can involve a period of understanding and misunderstanding at the same time: the experience can be very emotional. These theoretical ideas are explored in depth in the sixth paper discussed in Chapter 4 'Realising the Threshold of Employability', which explains how they were implemented in practice.

2.4.6 Online and blended learning

The different theoretical approaches to education are of great relevance to the phenomena of online and blended learning, addressed in the first two papers discussed in Chapter 4; 'Reflections on the Use of Blended Learning' (Heinze and Procter 2004) and 'The Significance

of the Reflective Practitioner in Blended Learning' (Heinze and Procter 2010). Oliver and Trigwell in their paper 'Can Blended Learning be Redeemed?' (2005) demonstrate how most definitions of blended learning, at the time of their publication, did not include a blend and concentrated on teaching rather than learning. Simply mixing methods of teaching, i.e. online and face to face teaching, did not constitute a blend. Furthermore, papers concerned with blended and online learning always commenced with experience in teaching using new technology. Oliver and Trigwell argue that 'Under any current definition, it (i.e. blended learning) is either incoherent or redundant as a concept.' Referring to constructivist ideas they suggest that: 'What it is that teachers intend their students to learn (e.g. through blended learning) may bear little relation to what it is that students actually experience' (p. 22). Their implication was that the new advocates of technology in learning had assumed an instructionist approach.

Oliver and Trigwell go on to argue that if student's learning improves through a blend of online technology and face to face support, this may be attributable to the variation that they experience. Variation Theory (Bowden & Marton 1998), itself based in constructivist thinking, suggests that for learning to occur, variation must be experienced by the learner. 'Without variation there is no discernment, and without discernment there is no learning' (Oliver & Trigwell, 2005, p. 21). Discernment is about the experience of difference. Different educational experiences will enable learning just as variations of seeing enable sight. Their conclusion is that educational designers/ module leaders need to plan for the variation that can be experienced in the different spaces that they design. 'From this point of view the space of learning is the defining characteristic of the conditions of learning' (p. 24). The combination of techniques of teaching per se may or may not benefit the learner. It is the quality of the blend that will enable scaffolding, and this has to start by examining the experience of the learner rather than the experience of the lecturer.

Although this paper was published after our first paper on Blended learning discussed in Chapter 4 (Heinze and Procter, 2004) we came to the same conclusion via a more pragmatic path. One of the key findings of our research into blended learning was that whilst seeking to carefully blend the online and face to face experience, we had paid insufficient attention to facilitating peer to peer or social learning: we had neglected the social element of social constructivism. Interviews and focus groups with students continually returned to the

importance of communication, socialisation and community. In our paper 'Online Communication and Information Technology Education', published in 2006, we related this back to both Vygotsky's Zone of Proximal Development, and Lave & Wenger's work on Communities of Practice (1991).

2.5 A constructivist approach to assessment

Assessment is one of the most useful tools in the academic's toolbox in guiding student learning. This had always been at the core of my teaching philosophy. For example, I had used multiple assessments within first and second year undergraduate, and also postgraduate, modules as a means of guiding student learning. First year students were, for example, allocated to groups in week 1 and asked to present on a case study in weeks 2 & 3. I also managed a multi-year team project with live projects for many years (Cooper & Heinze 2007). The module design and implementation preceded my understanding of the theoretical relevance of using assessment to guide learning.

2.5.1 Boud and experiential learning

David Boud spent a period in 2010 as a visiting scholar at the University of Salford and his research was influential in my research and practice as can be seen in a number of the publications in Chapter 4. Both the papers in s 4.3 and s 4.4 are concerned with the value of placements to student learning and the processes used to manage and assess this. Boud places a very strong emphasis on the application of teaching theory, and he could be characterised as one of Perkins' pragmatic constructivists. He is well known (Boud, Keogh, and Walker 1985) for his research in experienced based learning, which is directly relevant to most of the publications contained within this work. Learners must be given the opportunity to draw upon their prior experience and engage actively in their learning. Boud's jointly edited book published in 1985 'Reflection: turning experience into learning' contains a number of papers discussing how to guide students in reflection. Theoretically, this draws heavily on Dewey, and also Kolb's theory of experiential learning (Kolb 1984).

Kolb's learning cycle is one of the very best-known constructivist learning models, a simplified version of which is shown below:

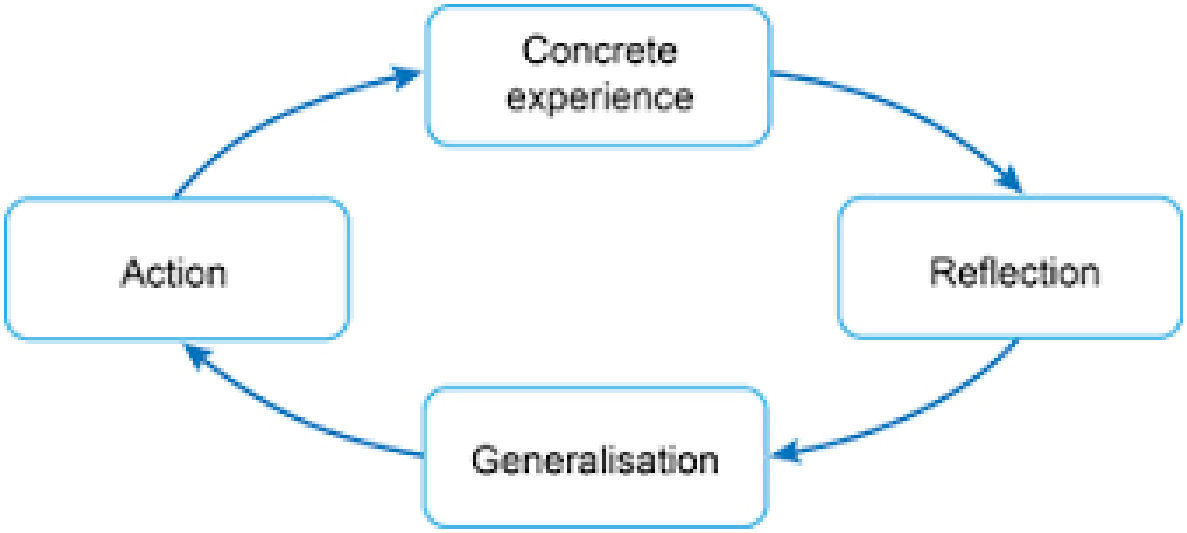

Figure 11 Kolb Learning Cycle (adapted from Kolb, 1984)

Kolb's learning cycle commences on the left-hand side of the diagram with planning & experimentation, followed by experience. This is in turn followed by reflective observation and learning from the experience (i.e. generalisation). The cycle then repeats with further planning & active experimentation.

Similarly, Boud suggests that the teaching process needs to enable students to draw on their previous experience and knowledge so that they can 'take some significant responsibility for their own learning over and above responding to instruction' (Boud 1988 p.32). He suggests that this is most effectively actualised through assessment. In other words, the design of the assessment can be a catalyst for the learning cycle.

2.5.2 Assessment for learning

Wiggins and McTighe (1998) also argue in their book 'Understanding by Design' for the idea of deciding first upon the learning outcome required, and then designing the assessment accordingly. As Villar and Albertin (2010) suggest, students need to become more actively involved and responsible for their education, investing in their own social capital. Providing students with a better understanding of how to do this, and opportunities to participate in student-driven activities, can develop and/or demonstrate proactive personality in a practical way. These ideas have become well established in the paper on 'Assessment for Learning' written by Sambell et al. (2013), developing the idea of using assessment to promote learning. This constructivist idea differs fundamentally from the basis of assessment in an instructionist or behaviourist approach, which is simply to measure achievement. The paper in s. 4.5 'Use of E-Portfolios to Facilitate and Assess Student Work Placements', is a good example of the

value of assessment in learning: the paper explains how the value of the e-portfolio was limited by not being a required component of the summative assessment. A similar point is made from practice in s. 1.4.3.

If it is accepted that a) assessment should be used to promote learning and that b) assessment can help to develop reflection, it follows then that assessment should be authentic. Authentic assessment is a term popularised in the paper with that title by Fook and Sidu (2010) and of relevance to most of the papers discussed in Ch. 4. As John Biggs points out in a recent interview for anyone unclear about this term (Biggs, Harris and Rudolph 2019) 'Multiple Choice Tests are obviously inauthentic'. The paper in s 4.6 in particular develops in practice these ideas adopting Winter's notion of a Patchwork of Assessment (Winter 2003). Students undertake a series of authentic assessments which guide their learning, culminating in a reflective piece.

2.6 The symbiosis of theory and practice

Winter's paper is typical of much of the literature discussed in this Chapter in that it is directly concerned with the experience of a constructivist approach in practice. This is an essential characteristic of a pragmatic constructivist (to use Perkins' term), which characterises my own work. For the pragmatic constructivist, theory and practice cannot be separated just as learning and teaching also cannot be separated. The constructivist cannot discuss their contribution without reference to their practice, and for the social constructivist this means going further and discussing the role of the stakeholders within this.

Both the third and fourth papers in this critical review (s 4.3, 'Peer Mentoring to Secure Student Placements', & 4.4, 'Employability and Entrepreneurship Embedded in Professional Placements in the Business Curriculum') concern the organisation and management of placement learning. I was involved in the management of placements from 1991, long before encountering constructivist theory. It was apparent to all the key stakeholders then i.e. the students, the employers and the University staff that well managed placements (also known as internships) provided very valuable learning experience. A few elements of this experience were essential to success. Firstly, the social component: students fare much better when they collaborate well with others. Secondly, the provision of effective guidance in work: whilst it is true, as Boud argues, that students need to take some responsibility for their work in order to

flourish, this seldom is possible in the absence of good management. Thirdly, the use of assessment to ensure the reflection and abstract conceptualisation which Kolb discusses: the placement assessment involves students keeping a weekly logbook. Credit is given for the reflection within this, rather than just description, and emphasis is placed upon the quality of illustration of their development.

Every year, without fail, some students have complained about this requirement when completing a module evaluation. Not only is it a chore, but reflection does not come easily. In 2017 a lengthy discussion took place as to whether or not to continue with this assessment. Employers, academic staff and students were consulted on this. Interestingly there was strong support from all stakeholders to continue with a reflective log. The process of reverse engineering, discussed in the chapter introduction, was also refreshing in providing a theoretical justification for this assessment. Sambell's paper (2013) concerning the significance of assessment as a tool to develop learning, and Winter's paper on a Patchwork approach to assessment (2003), which argues for the value of a reflective piece of student work to conclude many components to strengthen prior learning, also influenced revised guidance for the logbook assessment. The construction of learning is not always popular, and reflection does not necessarily come easily, but the experience of practice linked to theory is that reflection enables the development of learning.

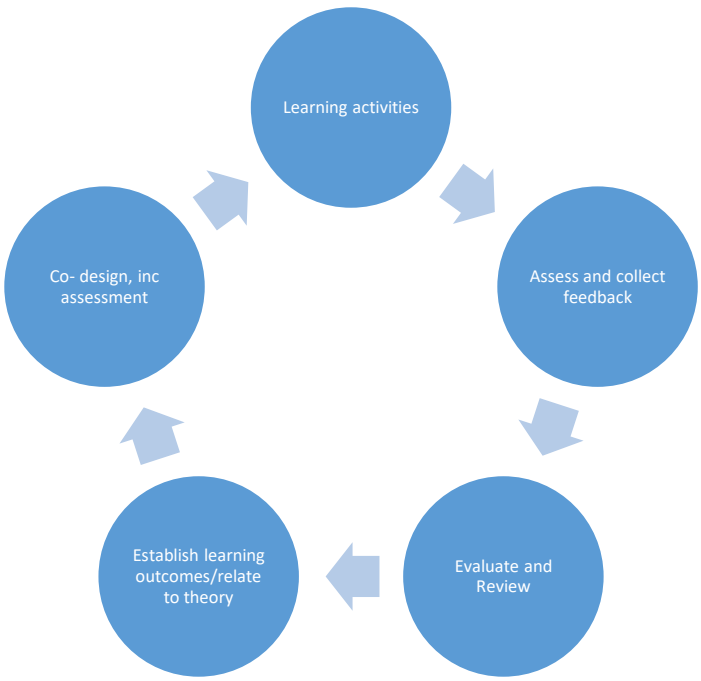

Figure 12 Model of Pragmatic Constructivism

Figure 11 summarises the model used in my teaching practice. The model has no obvious starting point: whilst it may start with learning outcomes or with design, in practice it may commence with learning activities. Whilst different in appearance it is largely the same as figure 6 in Chapter 1 in content. As has been discussed in the previous text, the experience of evaluation and review has been used in practice to alter learning outcomes and alter the design. Both in content and in its cyclical nature the model bears a strong resemblance to Kolb's cycle and to the models presented in Chapter 1. Chapter 3 shows also how this model bears a strong resemblance to those from other disciplines.

2.7 Summary

This Chapter has reviewed the work of Dewey, Piaget and Vygotsky whose combined work has contributed so much to the development of social constructivism. The contribution of all three scholars to practice was discussed. The Chapter then reviewed more contemporary application of these ideas. The term 'Pragmatic Constructivism', coined by Perkins, has been strongly emphasised since this accords closely with my own ideas and practice. I define this, for the purposes of this critical review, as an instructional framework to guide the constructivist development of learning. This has been linked with the work of McPhail on Pedagogical Constructivism and many others. The chapter has discussed what pragmatic constructivism looks like in its application to higher education and gives the specific example of assessment as being a vital implement in the academic toolbox. Key developments in the application of constructivist theory, such as Threshold Concepts, are explained, culminating in the argument for the integration of theory and practice. The following chapter explains the philosophy underpinning these ideas.

Chapter 3 Philosophy and method

This chapter contrasts the positivist and interpretivist research paradigms. The difference in practice is illustrated in a discussion concerning the postgraduate research student journey: PhD supervision is at the intersection of research and practice and thus of great interest to constructivists. In this context, Agile is introduced. The chapter relates constructivism, which can be classed as a philosophy of education, to the interpretivist philosophical approach to research and the Agile approach to project management in a completely original way, which is a significant contribution of this work. The conceptual model for each is iterative, rather than sequential, and this has major consequences for practice in research and teaching. The relevance of these ideas to my publications and practice is explained.

3.1 Why interpretivism?

3.1.1 Positivism

Collis and Hussey present a scale of paradigms for research, ranging from positivism to interpretivism, arguing that the prevailing research philosophy is positivism (Collis and Hussey 2014). This paradigm or approach is based upon the principle that there is a singular and objective view of reality that can be described by measurable properties, which are independent of the researcher and can be classified objectively (Myers 2013). The positivist identifies the research problem, they read the literature concerning this problem, develop a hypothesis as to the solution to the problem, and implement a method to test their hypothesis. The research is thus conducted in a sequential manner. Typically, the methods used are quantitative. Frequently a causation is assumed between variables. The dominance of this philosophy in practice was discussed in Chapter 1.

3.1.2 Interpretivism

For the interpretivist, phenomena are understood by the meaning attached to them by people (Orlikowski & Baroudi 1991). Klein and Myers (1999) argue that research can be classified as interpretivist if we assume that our knowledge of reality is derived from social constructions

such as shared meanings, consciousness, and language. They thus make an explicit connection between interpretivism and social constructivism.

The interpretivist does not necessarily know the destination of their research. They know the problem they want to investigate, but once they collect data they discover that the problem may be different to how they had conceived it. The problem may be 'wicked' (Rittel and Webber 1973), and itself obscure other problems. Finding the answer to one research question may lead to new questions arising. Almost inevitably the scholar therefore will return to adjust their research questions and their literature. The research is thus not sequential but cyclical or iterative.

3.2 A positivist paradigm for PhD research

3.2.1 University processes for assessment of PhD research

Problems with a positivist approach is illustrated by discussion of the postgraduate research journey. The doctoral process enshrined in UK University regulations codifies this philosophy. At the University of Salford, the student must first identify their research problem, then complete their literature review (upon which they are examined), then complete their methodology and data collection (upon which they are examined), and then complete their discussion and conclusions (upon which they are examined at their viva voce). The regulations, as with those of other Universities, assume a sequential journey. The doctoral student registers for 3 years but is expected to complete within 4 years.

The available evidence suggests that for a substantial proportion of postgraduate research students in the UK, this approach does not work. A report published by the Higher Education Funding Council in 2013 (HEFCE 2013) estimated that 72.9% of doctoral students would complete within 7 years. Less than 60% would complete within the target duration of 4 years and in some Universities, the majority of those enrolled were unlikely to ever graduate. Very few complete within 3 years, which is given as the target completion period at the outset of most full time PhDs. The report revealed some Universities where less than 20% of their doctoral students completed within 4 years.

In an effort to improve the early completion rate, government funding bodies introduced a sanction upon institutions (ESRDF 2019) with a submission rate of less than 60% of PhDs submitted within 4 years of funding commencing. There is substantial variation between HEIs in their performance in this respect (HEFCE 2013). However, many have adjusted their rules to more closely monitor the supervision and assessment of doctoral students and have tightened up the requirements of their written work. In most cases this has involved a greater element of coercion rather than a different paradigm.

3.2.2 Shortcomings of the positivist approach

These processes do not help the research student to reflect, conceptualise and experiment on their experience, they do the opposite. They encourage the student to discard troublesome knowledge, focus on process to the detriment of content, and for many this means abandoning their research. The output of an approach limited to sequence and instruction is not necessarily what is required by the outside world (Boyatzis 2008), since core competencies such as teamwork, creativity, innovation, leadership and communication may have not been encouraged.

The social constructivist on the other hand emphasises these competencies. These are the very attributes needed by active, social and creative learners. They are also essential to interpretivist scholars. Indeed, it is not possible to conduct interpretivist research without deploying some or all of these competencies. The interpretivist is continually adjusting their research based on their social interaction with others. They are continually reflecting, innovating and communicating, and need to be agile for the whole duration of their journey. Whilst the positivist researcher can predict their destination at the outset, the interpretivist cannot know the destination and can only say that they will stop at a station on the way. Together with others they can decide when to stop. Interpretivist methods such as grounded theory or action research are agile by definition since they necessarily involve a journey into the unknown. Similarly, techniques such as the open interview invite research subjects to share their ideas in a social way. Interpretivist, social constructivist and agile ideas have much in common.

3.3 Agile

The author was involved in the teaching of iterative software development in the 1990s and has seen this evolve into the very widely practiced contemporary agile project management. A grounding in (pragmatic) agile project management can in turn greatly assist with the implementation of constructivism and use of interpretivism.

Agile project management was pioneered in the late 1990s to address problems of software projects. It is variously referred to as a methodology, philosophy or approach. Agile developed from persistent problems of software projects being delivered late, failing to meet customer requirements or being abandoned mid-term. Widespread criticism was made of the well-established sequential Waterfall Model (Royce 1970), with many alternatives proposed, the best-known being Boehm's Spiral Model (Boehm 1988). Boehm's model was one of iterative development, with the customer involved during every iteration. Throughout the period from 1970 to the turn of the century both researchers and practitioners experimented with alternative models of development (such as the Spiral Model, Evolutionary Development Model, Incremental Development Model) and methods based upon these, such as Rapid Application Development, Dynamic Systems Development Method and Extreme Programming (Beck, 1999). A characteristic of all these approaches was iterative development and a greater involvement by a range of stakeholders. The basic approach is summarised in figure 12. The similarity to figure 11 is deliberate:

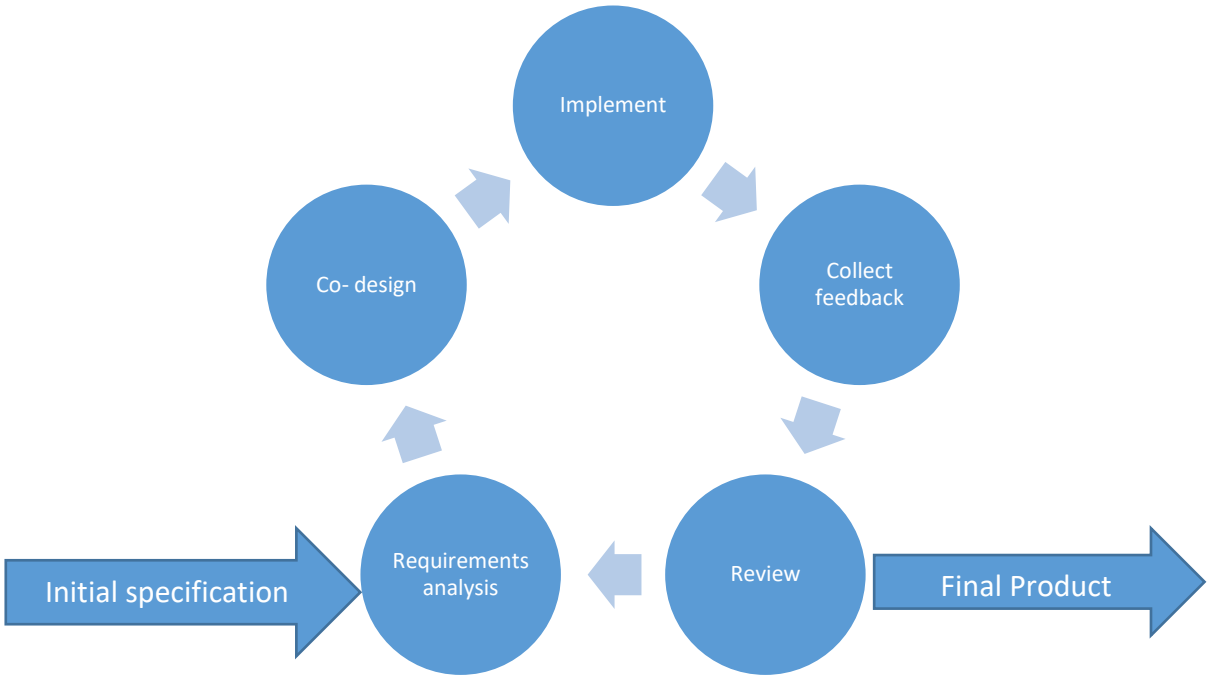

Figure 13 Iterative approach to Software Development

Kent Beck, author of Extreme Programming, was one of the developers instrumental in the meeting held in Utah, USA which agreed upon the Agile Manifesto whose principles were as follows:

- Individuals and Interactions over processes and tools
- Working Software over comprehensive documentation
- Customer Collaboration over contract negotiation
- Responding to Change over following a plan

(Agile 2001)

An agile approach assumed that change would take place and indeed welcomed it as evidence of the engagement of stakeholders. In this context, the details of the development could not be predicted at the outset of a project. Whilst this was created as a manifesto for software development, it was quickly adopted in other fields so that agile project management has become a mainstream approach, which has spawned multiple methods and consultancies. Thus, agile construction includes iterative and incremental development, and agile manufacturing seeks to involve customer collaboration. Organisations also now have adopted agile working and agile management as terms that involve much greater flexibility on the part of their staff, both in terms of their job roles and their locations, for example abandoning designated offices and desks. The ideology of Agile has much in common with constructivism.

Shortly after the publication of the Agile Manifesto, Boehm published an influential paper 'Get ready for agile methods, with care' (Boehm 2002). Contrasting Agile to 'Plan-driven methods' Boehm discussed the problems project managers would face with an agile approach, which he had already experienced with the implementation of his Spiral Model. For example, the problem of the customer endlessly changing their requirements, the problem of stakeholders failing to agree, the problem of having no clear project stopping point. Whilst welcoming the introduction of Agile, Boehm advocated a *pragmatic* approach to its deployment to achieve effective results. A project using an agile philosophy still needed a plan/structure. I suggest that this idea is equally applicable to educational design as to information systems design.

Whilst Agile has been used in educational development (e.g. Mor et al. 2015) and is extensively used in Market Research (e.g. NewMR 2017), surprisingly it has made little or no impact upon the academic research process in general or doctoral research process in particular, even though it enjoys many similarities with an interpretivist approach. Figure 13 shows a model of an agile approach to research. It accepts from the outset that as a result of data collected and subsequent reflection, research questions will need to be changed, new literature explored, and new data collection planned. Interestingly, it bears many similarities to the Model of Pragmatic Constructivism, figure 11, presented in Chapter 2.

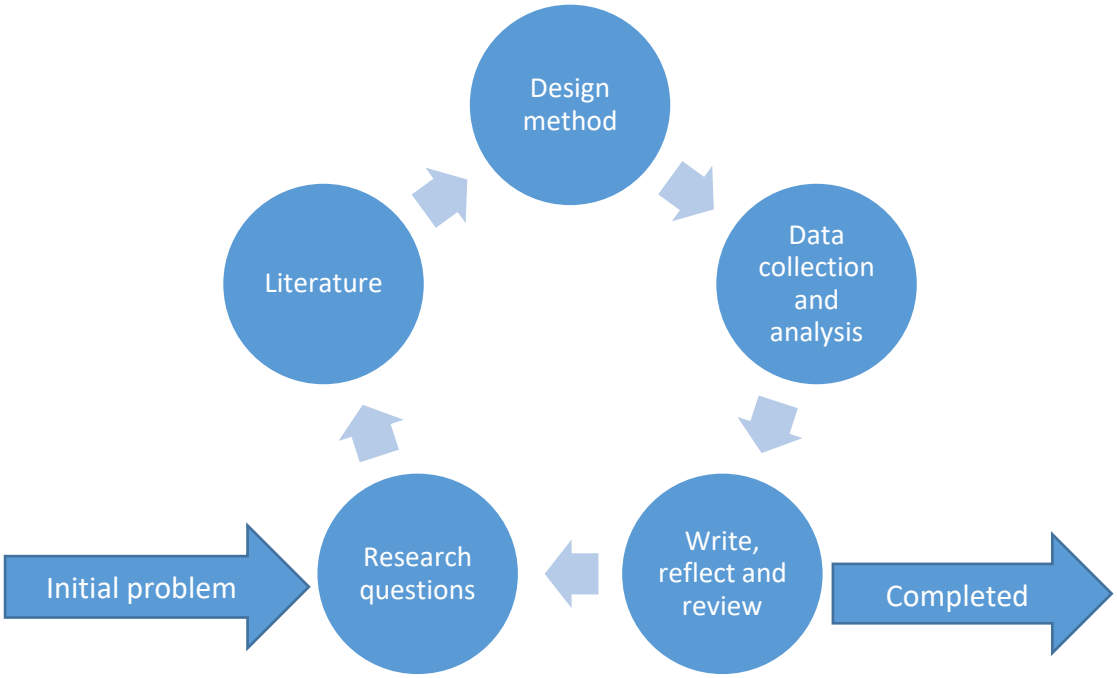

Figure 14 Agile Research Approach

It can be seen that the structure of the model is identical to the model of iterative software development (i.e. figure 12).

However, research processes have been relatively impervious to change. This model fundamentally challenges the prevailing approach to research, and thus has important implications for both research and practice, discussed in section 3.4. Research students are still encouraged to use 'mixed methods' when blended methods would be a more useful term, and they are still governed by sequential processes when an agile approach is more realistic and more likely to achieve results.

3.4 Relationship between research and educational philosophies

It is interesting to note the close parallels between a positivist approach to research and a behaviourist or instructional approach to learning. The purpose of assessment for the behaviourist is both the development of a work ethic and measurement. Measurement separates those who pass from those who fail, and at the level of postgraduate research, as referenced above, many learners fail or abandon. Whilst the pragmatic constructivist would readily accept the use of a quantitative method in certain situations, they could not accept it as a de facto standard *methodology*. I argue that unquestioning acceptance of the positivist paradigm in research is just as stultifying as the acceptance of instructionism in teaching and learning.

Interpretivist researchers are not rigid in their approach to seeking answers but approach reality through the perceptions and experiences of participants of the research, just as constructivists do in their educational practice. Indeed, Guba and Lincoln (1994) in their well-known classification of four paradigms of qualitative research, refer to constructivism instead of interpretivism.

By definition, the interpretivist scholar cannot have completed their literature review after the first year of their doctoral research, since they don't yet know the issues raised by their data. The constructivist supervisor would encourage the doctoral student to scaffold their learning interspersing their study of method, data collection and literature review. This can only be managed with an agile rather than sequential approach. The iterative approaches of interpretivism, constructivism and Agile have much in common, and are a theme of my own

practice. As discussed above, neither the published work nor the practice is a contribution alone. The contribution is in their synergy.

3.5 Research approach in practice and in publications

3.5.1 A constructive (agile) approach to PhD supervision

I have supervised 14 PhD students since 2003, and assisted many others, with 11 graduating to date. All of them conducted their research in the interpretivist/ qualitative tradition and nine are now postdoctoral researchers/ current lecturers/ professors in different countries continuing to develop the knowledge from their PhD and still co-writing with the author in their own subject area.

The most recent successful completion, Doctor Alex Fenton, whose research journey roughly followed the model in figure 14, completed his part time PhD in less than three and half years. No record could be found of such a rapid completion, which was timely given the nature of his data on social media (Fenton 2018). The findings of his research are being used in our teaching through the recently published case study (Fenton & Procter 2018), whose purpose is to help students learn how to **blend** research methods. This prompted another recently published case study (Kozak-Holland & Procter 2019) arising from the doctoral research of Mark Kozak-Holland also being used to guide postgraduate students in their choice of methods.

Drawing on my background in project management, in every case I have encouraged these students to adopt an agile approach to the construction of their research. A fundamental tenet of interpretivism is that the researcher does not have a clear hypothesis and does not therefore clearly know at the outset exactly what their aims/ literature/ and even method is. Iteration in their research life cycle is inevitable, and data collection must start early on in order to complete on time. Through early data collection, the student is able to understand the significance of theory, re-evaluate their questions, literature and method and thus progress. Arguably, the adoption of an interpretivist approach thus involves a greater use of higher order thinking skills than a positivist one, as was argued previously in relation to constructivism.

The approach recognises that an agile method is needed to manage interpretivist research. The student needs to know from the outset that their literature review will continually evolve,

and their research questions will change, according to the data they collect. Their data collection is not something that takes place late in their research journey, but as soon as ethical approval is secured. It is the supervisor's role to help the student to construct this research and avoid such pitfalls as being stuck in a continuous loop or making simplistic early conclusions. This approach was presented as a paper, 'Agile Research', in the British Academy of Management (BAM) Management Knowledge and Education conference in 2019 (Procter 2019): development of ideas of agile research are long overdue. This paper outlines the problems inherent in processes that assume a sequential research journey, as outlined in s. 3.2, and advocates an Agile model for research as discussed in s.3.3 above. This is a significant contribution considering the dearth of literature on agile research. Whilst Boyle et al (2006) have contributed work on Agile design in the context of learning objects, very little appears to be published about Agile and the student journey.

3.5.2 The relationship of the philosophy to the practice discussed in the publications

An interpretivist approach underpinned qualitative methods of data collection for all six papers within this critical review. Papers 4.1 and 4.2 originated from action research using interviews and focus groups, the data for paper 4.3 came from interviews and observation, paper 4.4 from observation and reflection, 4.5 from interviews and 4.6 from student testimony, now being developed further into grounded theory using interviews and focus groups. Thus, all six papers have used qualitative methods widely adopted in interpretivist research. This data has been triangulated in some of the papers with data collected from documentary sources and supported by statistical data where appropriate. In the pragmatic vein, it would clearly be inappropriate to reject the use of all quantitative methods and indeed it is a fallacy to suggest that interpretivist scholars reject the use of quantitative data. They just need to talk more about the blend of methods they use, rather than the mixture!

Each paper is based upon analysis of teaching practice and in every case (with the possible exception of paper 4.5) the practice described is social constructivism organised within an instructional framework. Papers 4.1 and 4.2 are the product of evaluation of an entire degree organised using blended learning. Every module included a set number of hours for face to face interaction, with an emphasis on group work, together with guided use of the Virtual Learning Environment, including for example, the use of discussion boards together

with set course material: this level of prescription was unusual in 2002. Papers 4.3 and 4.5 are concerned with reflection upon the organisation of specific scaffolded support provided to placement students, namely the use of peer mentors to those seeking placements and e-portfolios for those on placement. Paper 4.4 explains the precise organisation of placements that allows students to flourish. Six assessments were required of each student culminating in reflection, and extensive support for students from their University supervisors was specified. Two meetings at minimum were held with the company supervisor to ensure their contribution to the student's development. The final paper, 4.6, explains a module undertaken by thousands of students undertaking multiple assessments, again culminating with reflection, providing them vital experience within which to construct their learning about employability. The paper also outlines the extensive support provided to these students to help them realise their competencies/ construct their knowledge and achieve the threshold of employability. The papers all involve a substantial element of collaboration, which is of course an essential component of social constructivism. The final paper illustrates this best, involving the partnership of students, University teaching and support staff, including those from human relations and from finance, employers, careers and welfare staff and others.

I am still evolving the ideas and the practice described within the papers in Chapter 4. If revisions of these papers were to now be published they would be improved: that is inevitable for a constructivist scholar who continually seeks to integrate research and practice. For example, in 2015 I was invited to give a keynote presentation in Rome (Procter 2015) on blended learning. In order to get the audience to experience (and not just hear) my fundamental point – the difference between a mixture and a blend – I organised them into groups to discuss and agree the best recipe for Penne Pomodoro. This strategy led to the construction of valuable ideas in a way I would not have had the confidence to carry out years previously. More recent practice in placement management and supervision would lead me to more explicitly discuss in papers 3,4 and 5 the scaffolding inherent in the assessment process and give examples from other Universities for which I have worked as external examiner. The final paper is still the subject of research together with Vicki Harvey (e.g. Harvey & Procter 2019).

3.5.3 Ethical issues involved in the research

All research conducted within the papers included in this thesis conformed to ethical procedures required by the University. Thus, the purpose of the research was explained to those who participated, their anonymity was guaranteed, and they were assured of their right to withdraw their co-operation at any stage. The interpretivist researcher acknowledges their influence on the research (Myers 2013) and the subjects of the research. Clearly, there is also a power imbalance between the lecturer and the student (Rowland 1991). In this situation, the reflexivity of the lecturer acting as researcher is vital (Bourdieu & Wacquant 1992). In four of the papers (1, 2, 3 and 6), the primary research was conducted by a postgraduate student, which, it could be argued, lessened the power imbalance involved. Furthermore, in every case student research subjects were appraised of the benefit to themselves in participating. Thus, for example, research in papers 1 & 2 contributed to actions to change the student experience. Research in papers 3, 5 and 6 allowed students to work with staff to reflect and learn.

3.6 Summary

The chapter has explained the philosophy underpinning the author's published works and educational practice, whilst also demonstrating the similarity of paradigms from very different traditions i.e. constructivism, interpretivism and agile. It has advocated interpretivism against positivism through example. It highlights the proximity between an interpretivist philosophy of research and a constructivist philosophy of learning, building upon literature discussed in the previous chapter. Constructivist pedagogy and interpretivist research have much in common: developing the active, social and creative learner/ researcher, iterative development, a reflective and critical approach. The chapter then related these approaches to Agile, which could be described as a philosophy of practice. A model of agile research is presented which is nearly identical to previous models of Pragmatic Constructivism (Figure 11) and an iterative approach to software development (Figure 12). The paper ends by outlining how these ideas have been used in my practice and in my publications discussed in detail in the following chapter. The theme of collaborative working, advocated through Chapters 1-3, is illustrated more clearly in the papers in Chapter 4.

Chapter 4 Discussion of publications and their contribution to knowledge and practice

This chapter discusses the six selected publications and, for each one, seeks to explain the origin of the paper (since they are interconnected), and their contribution to both knowledge and practice. The full papers are all included as appendices. Other papers are cited which I have authored/ co-authored, which are also relevant to this contribution. Whilst the basis of the thesis is six publications, the sections demonstrate how there is a significant additional body of work by the author and co-authors that have contributed to the conclusions outlined in Chapter 5.

4.1 Heinze, A., & Procter, C. (2004). *Reflections on the Use of Blended Learning.* 2nd Education in a Changing Environment Conference, Salford published at www.ece.salford.ac.uk

The main contribution in this paper was to help define the term Blended Learning. The paper was the culmination of a few years of research and publications on the use of technology in learning, and then in blended learning. I took part in conferences concerned with the use of technology in learning, for example the Computers in Teaching Initiative (CTI) conference in Dublin in 1997 (Procter 1997). This experience led to my initiative to introduce the first Virtual Learning Environment (VLE) software to the University of Salford in 1999, namely Blackboard, which the University continues to use to this day. However, it became clear then that the use of technology itself and the World Wide Web in particular, was not the issue that needed to be investigated: indeed, technology in teaching was not new and its introduction was inevitable. What was important was to explore the **effective** adoption of technology. I explored techniques to assess the usability of the web in different contexts (e.g. Procter and Symonds *Designing for Web Site Usability* 2001) and designed the first modules to teach this in Information Systems degrees from 1996. Jakob Nielsen's early work and then his book on Designing Web Usability (1999) was influential in this respect. Thus, the application of technology became an abiding interest. I explored, using student feedback, the most effective way of using a VLE to support students on placement (Procter 2001a). I developed these ideas further at the IAIM International Conference on Informatics Education and Research in 2002

(Procter 2002). This paper argued that the introduction of online learning required the lecturer to consider the proportion of technology their teaching would adopt, the pedagogy justifying this use and the processes that would be used to ensure that learning developed i.e. 'The three P's of e-learning'.

The prevailing discourse at the time was concerned with how to **mix** traditional teaching with technology. Computer Assisted Learning (CAL) and Technology Enhanced Learning (TEL) were commonly used acronyms. During this period at the turn of the century there was little theoretical or practical discussion on the distinction between 'mixed' or 'flexible' learning and distance learning. It wasn't unlike the paucity of ideas and discussion today concerning 'mixed methods' of research.

I became more interested in the idea of Blended Learning and sought to move the discussion away from the idea of a simple **mixture** to a **blend**, since the word itself means a combination to **improve quality**.

I helped organise the first ECE conference in Salford in 2003, whose aim was to get academic practitioners to reflect upon their practice and develop it into published research. I presented a paper on 'Blended Learning in Practice' (Procter 2003) which sought to provide a definition of the term that would equip practitioners. It was important to establish that blended learning was not the province of technology experts:

> Identifying blended learning (or e-learning) with distance learning is a mistake that has significant implications for programme design and delivery. The design of distance learning requires that all learning outcomes are anticipated and this may require expertise beyond the scope of most academics. Distance learning therefore involves substantial development time and a project management approach that is essentially sequential. The consequence is that flexibility is impaired (Procter, 2003, p.3).

The paper went on to take issue with Orey's definition of blended learning as the 'organization and distribution of ALL available facilities, technology, media and materials to achieve an instructional goal' (Orey 2002). It argued for an alternative constructivist definition of blended learning arguing that: 'It is probable that a combination of instruction and construction will continue to prevail for a number of reasons, including purely pragmatic reasons of cost and benefit.' (Procter, 2003, p.3).

The definition developed was: 'Blended learning is the *effective* combination of different modes of delivery, models of teaching and styles of learning'. Thus, the definition sought to build upon theoretical ideas concerning the adoption of technology, such as the paper by Duffy and Jonassen (1991), who discuss models of teaching and learning, and well-established research on learning styles such as that of Honey and Mumford (1992).

At the same time, I was supervising the doctorate of Aleksej Heinze in Blended Learning, allowing for the exploration of these ideas in practice using action research. He introduced new theory into the discussion, also influenced by constructivism, especially the research of Diana Laurillard and her book 'Rethinking university teaching: A framework for the effective use of educational technology' (2002). Our application of blended learning showed how the previous definition of blended learning (above) had underestimated the significance of students learning from each other. One student after another talked about how important it was that the blend of teaching should still allow for peer interaction, which they felt was when true learning took place. Relating this to theory, we were finding the social in social constructivism. Thus, we published a new paper in 2004, at the second ECE conference, entitled 'Reflections on the Use of Blended Learning'. This concluded with a new definition of Blended Learning below, which went on to be very widely adopted and cited:

'Blended Learning is learning that is facilitated by the effective combination of different modes of delivery, models of teaching and styles of learning, and founded on transparent communication amongst all parties involved with a course'.

Although the paper 'Reflections on the Use of Blended Learning' from 2004 (Heinze and Procter 2004) is many years old, it has made a lasting contribution to theory and practice with 403 citations at the time of writing (Scholar.google 2019). This is why it is included within this submission. It built upon the paper from the previous year (Procter 2003) with 92 citations. This paper has helped to define blended learning and emphasise the significance of communication between all stakeholders. Many of the publications that cite this paper discuss the development of blended learning in practice, and how our knowledge of blended learning has grown as a result (e.g. Neumann & Hood 2009).

4.2 Heinze, A., & Procter, C. (2010). *The Significance of the Reflective Practitioner in Blended Learning*. International Journal of Mobile and Blended Learning, 2(2), pp. 18-29

This paper builds upon the paper in 4.1 in developing the discussion about key stakeholders in blended learning. The main contribution of this paper and others cited below to emphasise a) the significance of reflection in blended learning and b) the importance of the 'social' in constructivism. The theoretical work of Vygotsky is very significant to this discussion. Paper 4.1 was followed up by many subsequent conference and journal publications, including Heinze & Procter (2006), Heinze, Procter & Scott (2007) and Heinze & Procter (2008). The 2006 paper in the *Journal of Information Technology Education* sought to discuss our findings in relation to Vygotsky's Zone of Proximal Development, whilst the 2007 paper in the *International Journal of Teaching and Case Studies* sought to discuss our findings in relation to more modern theory developed by Laurillard (Laurillard 2002). They have not been included in this document since it is recommended that papers should have been published in the last ten years. All three papers explored the role of stakeholders in blended learning. The theme of each paper was not a concern with the sophistication of the technology, but a growing appreciation of the social in social constructivism. The action research conducted for this paper demonstrated that the successful adoption of technology, i.e. where technology enhances learning, in every case depends upon the engagement in this adoption by the key stakeholders involved. Student's sense of community was critical to their adoption of technology in learning. This is also an important theme in 4.5 below.

The Significance of the Reflective Practitioner in Blended Learning (published in 2010) referred back to Vygotsky's Zone of Proximal Development, discussing the importance of the teaching practitioner engaging in a continuous process of reflection and development. The understanding of theory built upon constructivism, such as the Conversational Framework (Laurillard 2002), was fundamental to enhancing the experience of the student learner. The paper's conclusions in turn relate this back to the research of Biggs (1999), who pioneered ideas of teaching as research, which have led to many initiatives aimed at critical reflection, peer review and subsequent publication of research into Higher Education. Within Salford, the Education in a Changing Environment conferences were part of that development. On a national level this discussion led to the establishment of the Institute for Learning and

Teaching in Higher Education (of which I was a fellow), later renamed as the HEA (of which I am a Senior Fellow) now renamed as Advance HE. My active involvement in these organisations is a component of my contribution to knowledge.

4.3 Procter, C. (2012). *Peer Mentoring to Secure Student Placements* Higher Education, Skills and Work-based Learning 2(2), pp. 121-131

This paper is a clear explanation of social constructivism in action, explaining and reviewing a project to enable students to mentor each other in experiential learning. It builds upon a prize winning conference paper (Procter 2010). It developed from the experience outlined in the previous two papers, especially that concerning the importance of partnerships and engagement with students. It provides evidence for Figure 4 in Chapter 1. Having possibly underestimated the significance of peer support in learning, this project sought to use peer mentors to give other students the confidence to seek and secure professional placements. As the author of the project, I established the detail within which this social construction could take place. This built on a previous paper (Procter & Keegan 2006) 'Peer to peer communication between students to facilitate placements.'

The paper was the product of research funded in part by a grant from the Centre for Excellence in Professional Placement Learning (CEPPL). It sought to address a fundamental problem in placement learning, which is the lack of engagement of many students in the opportunity to undertake placements. Whilst all stakeholders agreed with research that demonstrated the value of experiential learning, students lacked both motivation and confidence in applying for such positions whilst studying for their degree. Under my guidance, the grant allowed for the temporary employment of a selected group of students who had successfully completed their placements to mentor others considering such positions. The mentoring could take the form of practical assistance with job applications, as well as more motivational support and encouragement. The paper recounts interviews with both groups of stakeholders and reinforces the findings of Mackenzie et al:

> A student's colleagues often represent the least recognized, least used and possibly the most important of all the resources available to him (Mackenzie, Evans & Jones, 1976 p. 1).

Interestingly the paper found the greatest benefits of the mentoring scheme to be those experienced by the mentors who learnt a lot from having to help guide others, supporting the work of Goldschmid and Goldschmid (1976) and much other work on reflexivity, which in hindsight could be explored in more depth in the paper's conclusions. This is explained further on film (YouTube, 2010). This of course reflected the experience of so many of us that there is no better way to learn than to teach. The paper is a good example of scaffolding in practice.

4.4 Procter, C. (2011). *Employability and Entrepreneurship Embedded in Professional Placements in the Business Curriculum.* Journal of Chinese Entrepreneurship 3(1), pp. 49-57

This paper builds upon my experience over a long period in managing placements. It clearly outlines the importance of the development of partnerships between students, staff and employers in education and the value of placements and work-based learning to all parties involved. I was invited to write the paper following a presentation to a Business conference in Beijing (Procter 2009). The intention was to take this experience out to a broader audience, particularly in China, where there was not such a strong tradition of experiential learning, especially in the context of the strong tradition of didactic teaching that prevails there.

The style of the paper is therefore largely prescriptive and draws upon accumulated feedback from stakeholders involved in placements over 20 years. It explains the use of a patchwork of assessment, allowing the student to scaffold their learning whilst working, and it explains the nature of the partnership involved between student, employer and lecturer. The paper thus is a good illustration of pragmatic constructivism. An instructional framework is devised where the structure of work-based learning within the curriculum is established. The benefits are explained to all stakeholders, i.e. the University staff, the students and employers, and in particular, the opportunity for students to construct their own competencies and ideas about their future in a way that simply is not possible within the University. The paper is insufficiently clear about the link to theory: for example, it does not explain how the six elements of

assessment used within the placement module, culminating in reflection, fit with Winter's patchwork of assessment (2003) and other research discussed in s. 2.3. This would have been helpful to the reader and is rectified in the paper in s. 4.6 below.

4.5 Procter, C. & Whatley, J. (2010). *Use of E-Portfolios to Facilitate and Assess Student Work Placements* in Buzzetto-More. (Eds.). Ch. 9 in The E-Portfolio Paradigm: Informing, Educating Assessing, and Managing with E-Portfolios. Santa Rosa, California: Informing Science Press.

This paper builds upon the experience of blended learning discussed in s. 4.1 and 4.2, but with the difference that this pilot was part of a University led initiative, unlike the programme led initiatives discussed previously. It fits into the cycle of practice/ evaluation/ research/ change discussed in Chapter 1. The paper explains the adoption of an e-portfolio system for supporting students in their placement learning. This was conducted in the context of widespread take up by Universities across the country of Personal Development Planning (PDP) following the Dearing report (NCIHE 1997). Frequently PDP was supported by e-portfolios. The paper discusses the application of new technology to practice and reflects upon its efficacy.

The most important finding was that the technology was not perceived to provide sufficient benefit to students to make its use worthwhile. Their adoption of the software was not linked to their module assessment. This supported the research of Conole and Dyke (2004) who demonstrated that the 'affordance' of any system depends upon its utility and perceived benefit. Put another way, the research suggested that students needed to see how the technology would help them to construct the solution they were seeking. In conclusion, we recommended that technology used in learning needed to fit well with software with which students were familiar, that its use value should be apparent and should be linked to assessment, and it needed active participation on the part of all stakeholders including the student supervisors. It was apparent in this research (although not explicit in the paper) that the use of the e-portfolio loosely followed an instructional framework but was not founded on constructivist ideas. Whilst most papers concerning technical innovation tend to triumph success, this paper illustrated that the failure of the University to meaningfully engage the key

stakeholders (i.e. lecturers and students) in their e-portfolio project ultimately led to the project's failure.

This paper was the culmination of many years' partnership with the Informing Science Institute whose international conference we hosted in 2006. At the time of writing, the paper has been downloaded 8,600 times through their website. The paper was also presented and subsequently published at the Education in a Changing Environment conference in 2011 and, for copyright reasons, this is the version included in Appendix 5. Please note a slight difference in the title 'Using e-portfolios to support student work placements'.

These findings were all relevant to the final paper below.

4.6 Procter, C., Harvey, V. (2018). *Realising the Threshold of Employability* Chapter 14 in Carter, J., O'Grady, M., & Rosen, C, (Eds.) Higher Education Computer Science, Springer

A previous version of this paper was presented at the 7th Biennial Threshold Concepts Conference in Oxford, Ohio in June 2018 and has subsequently been peer reviewed and published in a book concerning best practice in teaching and learning, specifically in relation to students of computer science. The paper has also been presented at two internal University staff workshops. The paper represents my most significant contribution in the application of the ideas of social constructivism to higher education teaching and learning on a large scale and brings together my learning from previous research and practice. It is an excellent example of the design of an instructional framework to guide the constructivist development of learning which is ideally suited to employability.

Since 2015, over 500 students annually from Salford Business School have undertaken a Professional Development module that I have led and managed. The module involves students in undertaking eight elements of assessment from self-evaluation through to final reflection. The assessment strategy is founded on constructivist ideas developed by David Boud and others (Boud et al., 1985) learning from reflection on our experience, Sambell et al. (2013) on the use of assessment for learning and not just for grading, Winter's paper (2003) on a

patchwork approach to student coursework (2003), and Fook & Sidu's paper (2010) on the significance of authentic assessment informed by a pedagogic strategy.

The paper discusses the significance of employability in education and the potential to develop this within the HE curriculum. It specifically relates this to Meyer and Land's (2003, 2006) work on Threshold Concepts. This is fundamental to employability where, for example, an understanding of the employer perspective can be transformative to the candidate. Land's subsequent research (e.g. Land et al. 2016), and that of colleagues of his (e.g. Rattray 2016), goes on to discuss the difficult situation for students encountering new thresholds. They experience a liminal state as they oscillate between their safe prior knowledge and an exciting new threshold. In this way, a constructivist approach is challenging to the student and to staff. Using narrative evaluation from students, we found that not only was social capital a significant factor, as discussed by Villar and Albertin (2010), but more important to the student was the challenges to their emotional capital (Cousin 2006) and psychological capital (Luthens et al. 2007). Our research suggests that the most important element that we need to help the student construct in relation to employability is their confidence. Whilst the work of Cousin is well established in pedagogic research, the research of Luthens and others is more closely associated with psychology, and contemporary Positive Psychology (Ivtzan & Lomas 2016). This is in turn rooted in more interpretivist, constructivist approaches to that discipline.

Further development of the practice discussed in this paper requires reference to Positive Psychology and the application of ideas on Emotional and Psychological capital. This research and practice is still being developed. Our current work (Harvey & Procter 2019) particularly focuses on the issue of emotional and psychological capital and how best to develop this in practice.

4.7 Summary

Taken together, the six papers and numerous other papers by the author included as references, demonstrate specific areas of contribution, and in particular the integration of practice and learning. Referring back to themes introduced in Chapter 1, these include; contributions in the use of technology in learning, development of partnerships to help in the construction of learning and the vital importance of stakeholder engagement, and more recent publications on threshold concepts. Evidence is also provided of the impact of the

published works. Every publication is located in practice and seeks to push the frontiers of practice. They each thus have in common ideas of social constructivism, and more specifically the application of pragmatic constructivism. This contribution is summarised in the final chapter.

Chapter 5 Conclusions

5.1 Review of research contributions

In addition to the requirement for all doctoral work to contribute to knowledge, the PhD by published works is required to include a 'critical review' including a 'critical appraisal of the work from a micro and macro perspective. This is undertaken to demonstrate that the candidate has subjected their work to scrutiny and review at the individual publication level and also within the wider boundaries of their specific discipline' (Salford, 2014, p.52).

This scrutiny has been carried out at the individual publication level in Chapter 4 and the analysis of papers has allowed for the framing of the analysis presented. Possibly, however, this is not 'within the wider boundaries of the specific discipline'. The author would locate the contribution of this work in education, but clearly much of the discussion goes outside the boundaries of educational or pedagogical research. Discussion concerning constructivism is by definition relevant to multiple disciplines, and the multidisciplinary background of the author has strengthened the contribution.

This critical review has argued that the cycle of development in Computer Science and Information Systems is closely related to the concept of agile in Project and Business Management, which are in turn linked to the life cycle of interpretivist research and the learning cycle of constructivism as shown through many figures in this document. The thesis shows how the philosophy of interpretivism has much in common with constructivism in education. In this way, a background in multiple disciplines allows for a broader contribution to ideas concerning pedagogy in general and pragmatic constructivism in particular. It is this multi-disciplinary background that has allowed an understanding of the relationship between the cycle of learning and the cycle of research. Meyer and Land (2005) express their 'hope that the idea of a threshold concept will serve to operate as a threshold concept'. The discussion of their work and that of others in Chapter 2 has helped the author to appreciate that achieving the synthesis of practice and theory in pragmatic constructivism is indeed a threshold, and this is also a research contribution.

Each of the six papers in this document, together with many other publications that have been cited, have made contributions to specific areas of practice. The best example of this is

the series of papers on blended learning (including papers in s. 4.1 and 4.2). These have been very widely cited and have helped to steer the definition and practice of blended learning away from a mixture of methods or 'flexible' learning to a design that enhances quality from the student perspective. The final paper (s. 4.6) on thresholds integrates all the themes of the research and indicates future research, as discussed in s. 5.4.

However, the argument of this entire document is that the publications included within this critical review stand as superstructure to the significant contribution, which is the application of knowledge in practice, evidenced further in s. 5.3. Slightly differently to Biggs' theory of constructive alignment, 'Constructivism being used as a framework to guide decision-making at all stages in instructional design' I have proposed the idea of an instructional framework to guide the constructivist development of learning. In the context of this document, the six papers and other references are the framework, as required by the regulations. Their content explains the constructivist design and the review 'critically appraises this from a macro perspective'.

Taken together, the papers advance the idea of pragmatic constructivism: an instructional framework to guide constructivist ideas. This thesis has cited Palincsar's (1998) argument that application in practice is an essential part of constructivist thinking. Evidence for this includes the fact that the leading architects of constructivism all became involved in the development of policy alongside their research. This thesis has explained how the practice came before the research, and that discovering theoretical justification for what had been already carried out was indeed a threshold, since published work has enhanced my practice and that of others and created a symbiotic relationship. The analysis of the group of published works has allowed further development of theory.

5.2 Review of philosophy and method

Whilst a constructivist approach to education, and a social constructivist approach in particular, appears to be common sense to the author, the problem is that (as Voltaire is said to have observed) 'Le sens commun n'est pas si commun' - Common sense is not so common. Instructionist or didactic approaches have been the dominant educational philosophy both in the UK and around the world. Chapter 1 showed how the policy context was relevant to this

dominance. Whilst the constructivist can demonstrate the importance of their approach to the development of competencies vital to their graduate's future, such as creativity, innovation and critical thinking, prescriptive approaches to higher education and assessment hold sway. Instructionist techniques continue to prevail in e-learning, with organisations across the globe buying into training packages that only allow the user to progress when they press the right button. Except in the interface, little progress is apparent since Skinner's Teaching Machine of the 1960s or the typical computer software tutorial of the 1980s. The traditional educational technology values discussed by Lebow (1993) still appear to dominate.

Whilst we can share our ideas about constructivist approaches to HE freely, their practice requires an element of subversion: pragmatism is essential. Despite the benefit of a Patchwork approach (Winter 2003) to assessment, for example, being well established in the literature, a University rule that one module can only include 2 assessments (including the number of words that these may involve) is clearly in contradiction. Authentic assessment (Fook & Sidhu 2010), such as working in groups on live briefs with external partners, offers great opportunities to students to develop their confidence and experience in the liminal space between education and work. Such assessment however is troublesome, complex and risky. It is more likely to fall foul of quality assurance processes than examinations where students are graded on their ability to reproduce material from lectures. Appraising the students of the questions in advance is the final surrender of the behaviourist approach.

As discussed in this review, there is a close correspondence between social constructivism and the interpretivist philosophy. Again, despite being well established, the interpretivist will always be swimming against the prevailing positivist paradigm. Interpretivists will continue to find it harder to publish or have their findings accepted. Doctoral students who identify with interpretivism will continue to find their research necessarily follows an iterative path, whilst the assessment processes of their University seek to keep them on a sequential track that may result in their work lacking depth. In this context, the application of agile project management to doctoral research is something I have pioneered and am promulgating (Procter 2019).

However, it is a mistake to think that constructivists do not seek to give instructions in their teaching, just as it is a mistake to think that interpretivists do not seek to use quantitative data. Indeed, a social constructivist approach requires a very clear and well- defined structure within which creativity and learning can take place. This was an essential component of the

theory of ZPD developed by Vygotsky. The placement module referred to in two of the publications above and the Professional Development module referred to in the sixth publication both include a very high level of detailed organisation and guidance. Given the very wide extent of partnerships involved in both, this is essential. Similarly, the putative interpretivist scholar needs a very clear project plan from the outset of when they will conduct their field work, when they hope to achieve data saturation, when their writing will take place, how many times they will go around the loop shown in Figure 13, as well as preparing to justify their methodology against prevailing approaches. Whatever method they choose they need to decide upon how many iterations they will carry out and how many stations they will visit en route to their destination.

5.3 Impact in numbers

In addition to the discussion above concerning the research contribution of this work, this section seeks to quantify the impact of the practice discussed throughout this thesis. The numbers given are fluid (for example citations will increase).

Citations and downloads from the University repository of the six papers (as at June 2019) and other related papers as cited

Citations total: 664 Downloads: 16,200

Many additional downloads from other online repositories

Impact on students

I have taught over 10,000 students. They form the majority of my 3,300 connections on LinkedIn. This has included supervising/ managing the supervision of approximately 1300 students on placement and supervising 11 PhD students to completion. I helped establish the Graduate Teaching Assistant programme at Salford. This has allowed over 250 students to undertake funded doctoral research (completion rate not available).

I have secured and managed 16 funded projects to develop student learning, in particular work-based learning. These have ranged from a £1,000 4 week in house project, to a £1,000,000 four-year European Regional Development Fund (ERDF) project. A substantial number of students have benefitted from these projects. Thus, for example, in the ERDF project, a collaboration between six North West of England UK Universities, 3,500 students

benefitted from funded internships in local SMEs. The figures for jobs created arising from this project broke all targets.

Recognition of my contribution to curriculum design

I have been active in curriculum design throughout my career, as discussed through this thesis. Recognition of this has come through many awards/ nominations:

University awards for best teaching practice: three

National awards for best teaching practice, as nominated by the University of Salford: six

Collaborations around pedagogical research on a local/ national level

Collaboration around my work and that of others in similar areas or in best teaching practice more generally is best illustrated through my involvement in co-ordinating/ co-organising relevant workshops and conferences over a 20-year period:

University workshops/ research symposia on teaching practice organised: six

National workshops/ research symposia on teaching practice organised: four

National/ international conferences on educational practice co-organised (i.e. Education in a Changing Environment conferences): six

Contribution to the academic community

The traditional measure of one's contribution to the academic community is through published works and presentations. The content of some of these has been discussed throughout this thesis:

Books/ chapters on pedagogy: six

Journal papers: four

Conference papers: 34 including three prizes for best conference papers. These include papers on the following topics: Use of technology in learning/ blended learning: 14, Developing work-based learning/ placement learning: 10, Developing a Graduate Teaching Assistant programme 3, Developing an effective teaching and learning strategy: three, Student collaboration with SMEs 3, Designing out plagiarism 1

External Examiner roles held: 10

Recognition through position as Senior Fellow of the HEA

5.4 Scope for future research and practice

5.4.1 Developing research and practice in the significance of psychological capital, particularly in respect of employability

Issues raised in the sixth paper, discussed, and explored with other researchers have led to genuine symbiosis between research and practice. Whichever comes first, if using a constructivist approach, you have to be continually experimenting with your practice, introducing more ways of engagement, partnership and assessment and investigating the consequences to feed into the next iteration. This is addressed in the conclusions of the sixth paper. Chapter 1 discussed three themes addressed in the six papers. These were the use of new technology in teaching and learning, the significance of partnerships and engagement with stakeholders, and thresholds of learning. These themes have all coalesced in the practice discussed in paper number six, 'Realising the Threshold of Employability'. The findings from our Professional Development module suggest that even more important than social capital in student's engagement with employability, is emotional capital and psychological capital (Tomlinson et al., 2017). As we saw in Chapter 2, social constructivism originated in psychology, and as we see in the discussion of this paper, its contemporary application takes us back to psychology. It is clear that more experimentation needs to be carried out. Firstly, to identify the significance of psychological capital to developing employability, and secondly to more consciously apply the ideas of positive psychology (Ivtzan & Lomas, 2016) towards guiding students to the thresholds of employability.

5.4.2 Exploring further the implications of the confluence of constructivism, interpretivism and agile

Ideas developed in the work concerning the similarities between constructivism, interpretivism and agile, and both the theoretical and practical implications of this need further development and evidence. Just as the published work has established the importance of a blend of methods of learning 'to enhance quality' in a constructivist approach, so it needs to be established that a **blend** of research methods is more relevant to interpretivism than a

mixture. The implications of agile research, introduced in Chapter 3, have important consequences for research students and would benefit from further research and discussion.

5.4.3 The significance of reflexivity in pragmatic constructivism

The author must acknowledge at this point that a significant element of Schön's research was to examine how effective practitioners reflected on their action. Reflection is not simply about learning and adjusting. Alvesson and Sköldberg argue that 'Reflective research has two basic characteristics: careful interpretation and reflection' (Alvesson and Sköldberg, 2018, p.11) and go on to argue that 'Reflection can, in the context of empirical research, be defined as the interpretation of interpretation'. A reflexive relationship is bidirectional with the lecturer and student learning from each other. The interesting area of reflexivity has not been properly addressed in this work. The paper on mentoring revealed that it was the impact on mentors that was of more significance than on mentees. The paper on e-portfolios revealed that it was the reflection on practice by the practitioners, which was more important than the experience of the students in question. Bourdieu's analysis of reflexivity has also been ignored. There is a significant power imbalance between the lecturer and the students, which necessarily affects the habitus of the students when the lecturer enters their social field as a researcher. An essential feature of constructivist pedagogy in teaching and learning is that it applies just as much to the teacher as the student. In the context of the work within this review, this would be a completely new area of research since it also then has implications for constructivist epistemology.

5.5 Student testimony

The PhD by published works route requires a critical review of the author's publications but it has been argued that the contribution of pragmatic constructivism must be judged also by the impact in practice. The default (quantitative) response to this would be simply to provide a measure of citations/ students taught/ module evaluations with the word excellent etc. However, in the spirit of interpretivism and constructivism this former student testimony seemed to be the most appropriate closing remark:

I first met Chris Procter at an open day at the University of Salford (UoS) in 2005. He suggested I should do an access course rather than have a go in the deep end joining a BSc (Manchester Met had already offered me a place). I didn't agree at first, but he made an impression, and I took his advice which probably made the difference from me receiving a 2:2 or a third, rather than the first-class degree I later attained.

Taking Chris's advice was one of the most important things I did in life, it also reflected the drive and commitment I needed and to prove to myself I could do this. You only get one chance. I realised it was important for me to get the basics right (writing reports, essays, referencing, presenting etc.) and build on them every step of the way which was imperative to my foundation and learning as I was not strong academically.

After finishing top of the year at College on my Access course I returned to the UoS. I always found Chris someone great to bounce strategic ideas around and use as a sounding board, he would always provide straight advice when needed to bump me in the right direction rather than tell me the path.

For example, I was not going to do a placement initially, I thought I had some great experience, setting up a new business and working with my father. Chris told me that the experience was ok but real experience that would count was working for a large Multi-National Company (MNC) and looking after European or worldwide accounts. This made me reset expectations and thoughts and think there is a larger world out there.

The team projects module that Chris managed at the time was key here as it gave me real life projects and experience with Citizens Advice Bureau and Coop Financial Services to talk about in my CV and interviews. I managed to get a position at Intel. Moving away to Swindon alone helped me become a man and learn how to manage myself and become more mature. A lot of intangible experience was learned and shaped me with regards to who I am today. Chris again helped with the "moving away" part.

The placement year at Intel went great, I finished top of the intern year and was offered a permanent place where I am still today in a senior global role.

I came back to the University of Salford after my placement and became a mentor. I managed to help others with my experiences and stepping stones with Chris's advice as a foundation to build on. The key here was to help students get the basics right such as CVs, buzzwords and what experience matters. Also, in my final year, with Chris' support we entered the Association for Project Management national student competition. I was the team leader and we won! It was the first time UoS students won the competition; key factors were building on the previous real-life practical experience.

The guidance from Chris was indispensable; it was not micro managing but a great way for him to nudge or direct me on the right trajectory. He also understood my capabilities and pushed me higher and harder in a short and sharp way knowing I will find a way whenever a roadblock appears, by using my experience and capabilities which I never knew I had until he highlighted them to me, so I could explore, build and advance to the next level. The key for me was not getting the answer but the guidance to find my own way, with my own style.

I'm glad I did not go Manchester Met, I very nearly did. The sign of a great teacher is to adapt their style based on bringing the best out of a student's potential, not all students learn the same way as thresholds and experiences differ; in my opinion Chris nailed it with me! And I acted on his advice (Umar Qadir 14/1/19).

Appendix 1: paper 1[5]

Reflections on the use of blended learning

Heinze, A and Procter, CT

[5] Please note that all papers are reproduced as published in line with the guidelines, despite there being minor errors in some papers

Reflections On The Use Of Blended Learning

Abstract

This paper reflects upon the experience of the delivery of a program at the University of Salford using blended learning. Facilitated by action research, it reports on the lessons learnt since the paper by Procter "Blended Learning in Practice"(Procter, 2003). Within the first cycle of action research we captured staff and students' opinions regarding the program, these are discussed in this paper. A number of lessons and conclusions are drawn, in particular, we argue for the need for theoretical underpinning and that Laurillard's Conversational Framework (Laurillard, 1993)is a valuable tool for blended learning, leading us to test the theory in practice over the coming two years. One of the main findings is the importance of transparent communication on a blended learning course.

1. Introduction

Online learning has its drawbacks. One of the main disadvantages is the lack of social interaction which is taken as given in conventional settings. This creates a special need to motivate the less independent student (Salmon, 2002). The need for a compromise between the conventional face to face sessions and online learning leads us towards a new approach to teaching and learning, the so called hybrid or blended learning (Rogers, 2001).

The Department for Education and Training (DET) provides a definition of blended learning:

"learning which combines online and face to face approaches".

(DET, 2003)

Figure 1 visualises blended learning as defined above. There are overlaps between the pure

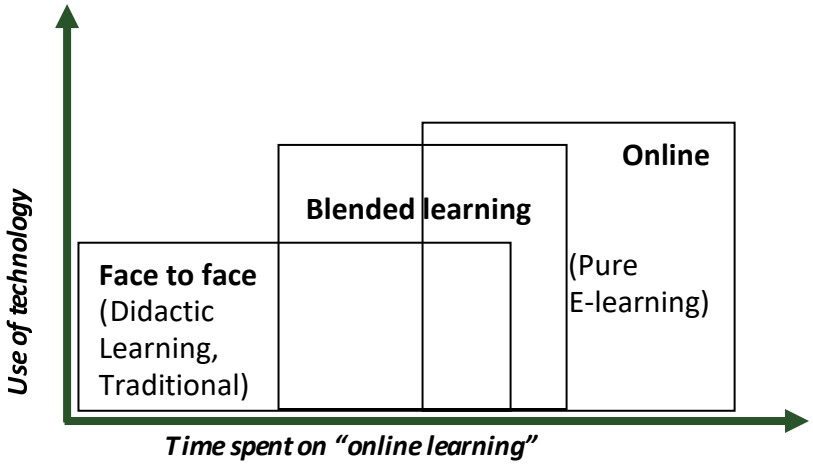

Figure 1. Conception of Blended Learning.

face to face sessions, which use some kind of online activities, and the "pure" online learning, which combines some kind of face to face event. The DET has the virtue of simplicity but does not capture the potential richness of it as expressed in the definition from (Procter, 2003: 3):

"Blended learning is the effective combination of different modes of delivery, models of teaching and styles of learning".

This definition is more comprehensive, adding the dimensions of teaching and learning styles. In this paper we use theoretical frameworks, and real life data to help our understanding of blended learning in practice and the way it fits the above definition. As a case for our action research we focus on one year of a program on a part time course in the Information Systems Institute. This particular part time course was re-designed in 2003 to reduce the face-to-face contact time in order to accommodate the expansion of the online resources. Our evaluation draws on data from practical experience of staff and students on the course and educational theories such as the E-moderating model (Salmon, 2002) and the Conversational Framework (Laurillard, 2002).

2. Literature

We focus on the conversational framework because one of the main arguments of it is that learning should take the form of an interactive dialogue and no one medium is perfect for it – hence the need for a mixture of media. The e-moderation model is perceived to be valuable as it focuses on the introduction of online media onto the course.

2.1. E-moderating

Gilly Salmon's e-moderating model (Salmon, 2000), (see Figure 2) describes a five-stage process, engaging the student with online communication technology. It is based on a principle that there are certain things that have to exist in order to achieve the effective operation of the learning via technology. One underlying issue here is the use of activities,

to make students interact with each other and the E-moderator, rather than only accessing information such as handouts and presentation material.

One drawback of the E-moderating model is its prescriptive nature. Lisewski and Joyce (2003) argue that in practice there is a need for flexibility not provided by this model. The application of this model to blended learning is limited as the face to face aspect is not incorporated in this framework.

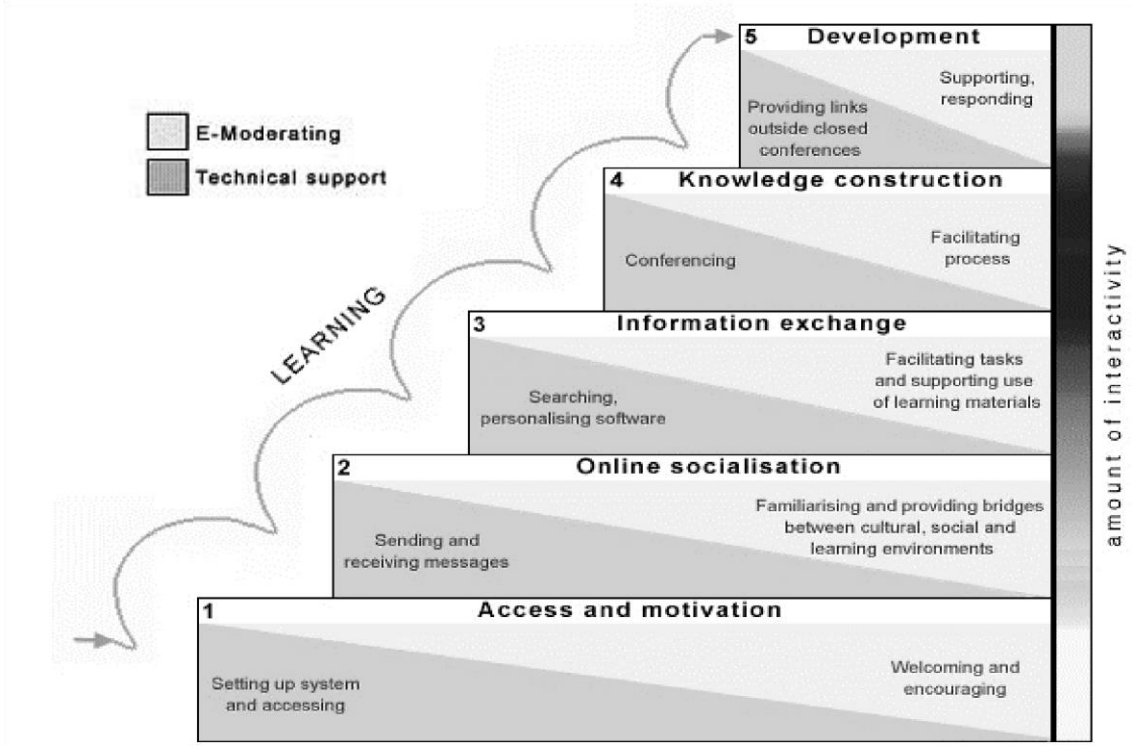

Figure 2. E-Moderating model. Reproduced with kind permission of Gilly Salmon

2.2. Conversational Framework

Diana Laurillard applied the underlying ideas of dialogue as proposed by educators and psychologists to teaching and learning such as Pask (1976) and Ramsden (1992). The conversational framework depicts the communication process which occurs between the lecturer and student in the development of student's knowledge. The 2002 version of this framework is shown in figure 3.

Figure 3 depicts the 12 stages that are recommended to take place when teaching students. This includes three cycles on which a student has the opportunity to communicate with the teacher. The teacher in turn has the opportunity to evaluate students' understanding at an early stage and correct it if there are any misconceptions. Using conversation as the basis for teaching, the learning relationship becomes more transparent and open to both student and teacher. The two important issues emerging from the conversational framework are:

1) The iterative dialogue nature of the model, requiring at least three engagements with one topic, meaning that a student will have the opportunity to improve on the same task
2) There is no one right media for delivery, each media has its own drawbacks

Subsequent criticism of the conversational framework includes the work of Draper (1997) who argues that there is lack of attention to the management of learning and the need for

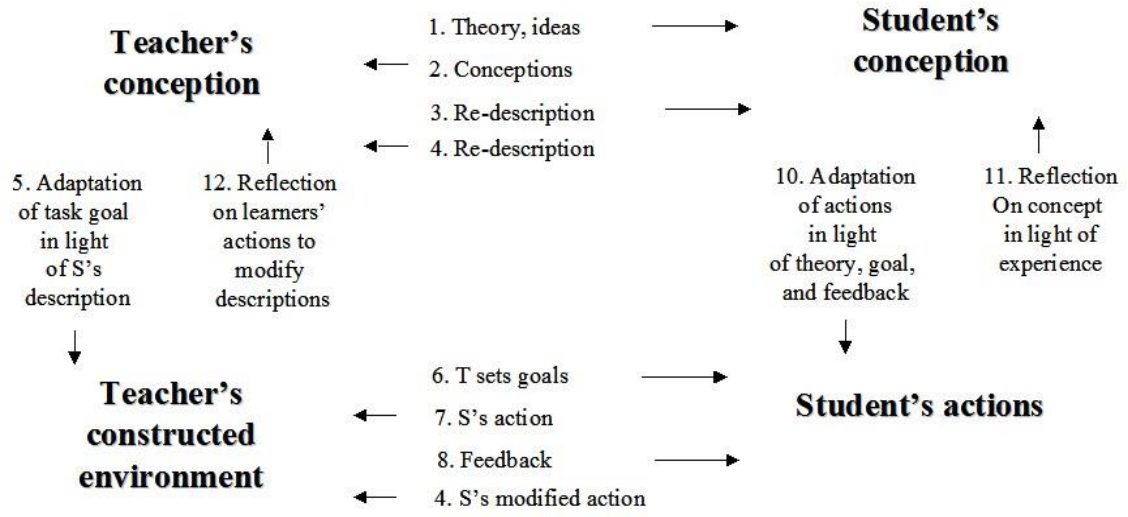

Figure 3. A framework for analysing educational media. Adapted after Laurillard (Laurillard, 2002)

learning negotiation between the students and the teacher. Other limitations include the application of conversational framework to online group based learning (Britain and Liber, 1999). Further critiques are discussed by Rosa Michaelson (2002).

3. Research method

An action research model has been adapted for the overall structure for our work. It offers a good combination of practical and theoretical enquiry; it is a means of generating and proving scientific theory (Baskerville, 1999, Mumford, 2001).

Lau advocates the definition of action research as provided by Hult and Lennung (1987):

> (Action research) simultaneously assists in practical problem-solving and expands scientific knowledge, as well as enhances the competencies of the respective authors, being performed collaboratively in an immediate situation using data feedback in a cyclical process aiming at an increased understanding of a given social situation, primarily applicable for the understanding of change process in social systems and undertaken within a mutually acceptable ethical framework.

(Lau, 1997: 34)

Action research offers considerable potential for educational research, which can benefit both the students who take the researched course as well as those who research it. On the other hand, we are aware of drawbacks. These include the data validity and potential infinite length of research.

Seeing the action research model (Figure 4) some readers might be reminded of the Kolb's "Experiential learning cycles" (Kolb, 1984). Kolb divides learning into four stages: Concrete experience learning, Reflective observation, Abstract conceptualisation and Active experimentation. The similarities between the two are in the ideas of reflective practice and continuous improvement, in essence it is "learning by doing". Features, such as iteration (see arrows on figure 4.), structure for enquiry, combination of theory and practice, allowance for the researcher to take part in the change activity etc. have been perceived as important, hence the choice of action research.

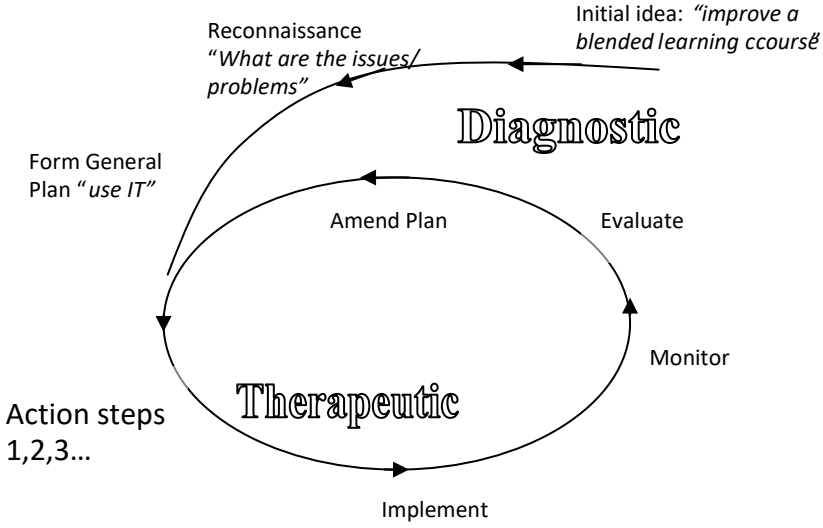

Figure 4. Lewin's cyclical model after Burns (Burns, 2000)

3.1. Data analysis rationale

Data was collected using focus groups and interviews. Every participant was issued with a consent form that outlines the research background and draws attention to the anonymity of the participants. A video recording of the interview/focus group was made and transcribed afterwards. The transcription was shown back to the participants for verification.

The objective of the data collection was to gather the real life staff and student experience of being part of blended learning course.

Having collected the data, we identify the main categories emerging and relate these to educational theories (Conversational Framework and the Five Stage model), and finally we draw conclusions on our understanding of blended learning.

3.2. Data sample

Students, predominantly mature, with widely diverse skills and experience, are studying on a part time course in information technology. This comprises of 4 modules per academic year and is supported by one lecturer and a graduate teaching assistant per module, who were available online, via email, telephone or for face to face support by appointments.

4. First year evaluation/ reflection

The following issues were collected from student focus groups. Figure 5 illustrates some of the main course related strengths and weaknesses emerging from these groups. Below we will reflect on some of the weaknesses.

Weaknesses

- Not enough guidance despite the reduced contact time
- Blackboard usage technical issues (access, navigation, etc.)
- Lack of communications on the VLE, late ice breaking session. Poor use of discussion boards
- Unsatisfactory use of the face to face session time

Strengths

- BL is compatible with working life
- Suits different types of learners
- Flexible, reduced attendance, increased e-learning Good student support

Figure 5. Students' points of view

4.1.1. Student guidance

Some students felt that they were not receiving enough guidance or structure to their learning, one said:

"Students don't get ideas about reading round, etc – need some guidance outside of lecture to put what is learned into overall perspective which only emerged at the time of final assessment"

They wanted to have an exact list of activities that tells them precisely what is expected of them. A member of staff, who stated that part time mature learners require a more structured approach to material delivery, supported this claim. This could imply that blended learning is not welcome if it involves more student centred approach.

We believe that we are confronted with the “culture” of adult learners, who have been through the school system with the teacher playing the role of ‘sage on the stage’ and the students absorbing the knowledge.

4.1.2. Communication on the VLE

In order to “break the ice” (Online Socialisation Step 2 of the E-moderating model - figure 2.), a free non-assessed discussion was facilitated. Some students felt very enthusiastic about it and posted very long and technical messages. The situation deteriorated once the same students had to contribute to an assessed discussion. At this stage the discrepancy of the students’ knowledge/experience made some of them uneasy about their contribution. Comments on this were as follows:

> People felt out of their depth by online discussion forums, which knocked confidence. [Need for] closer control from lecturers or graduate teaching assistants to calm people down. Discussion forum guidelines are good but are they observed? It would be nice to mention these issues in the induction where dos and don’ts for online discussions will be explained…. Long postings are skipped [by some people] and only short, sharp points are read and responded to. Long postings usually have people digressing – long winded.
>
> …Due to recent events in my personal life and the frustration of not being able to connect to the internet at an earlier date, I have decided not to return to the course this year. I have already achieved [X] but seeing what my fellow students were contributing online with all their experience in IT where mine is mainly educationally based, quite frankly, scared me and made me realise that I could be letting my ‘team’ down…

One student gave the latter comment as one of the reasons for leaving the course. The issue of governance of online communications was researched and discussed by Bell and Heinze (2004). In practice this issue was addressed in the second semester:

a) Lecturers were not using assessed online discussions (discussion boards are only used for student support)
b) Online discussion board guidelines were introduced

However, the damage had been done and the following are comments from the second semester focus group:

“There is a lack of communication on VLE” and

“I don’t like discussion boards because there is too much off topic communication”.

4.1.3. Unsatisfactory use of the face to face time

There are several comments that recur in both focus groups where students express their disappointment at the time usage during face to face sessions:

“Poor use of time in college” was a typical comment.

4.2. Staff points of view

The staff workshop/focus group was held at the end of the first academic year and was attended by academic staff involved with the course delivery, support and administration.

4.2.1. Technological platform

The standard technological platform (Blackboard) offered this course a robust, centrally supported and comprehensive infrastructure. However, there was the aspect of being overwhelmed by the functionality:

“I think that one of the things that I would say is that when I first looked at the VLE last year I was a bit horror struck at how much functionality there was there.” This was perceived as an opportunity rather than a threat:

“…we are one year into it, and we are all on a learning curve aren’t we, it’s just, eventually you will just say oh it can do this and it can do that and you just build on this I suppose.”

4.2.2. Student centred/ increased flexibility

Staff believed that the course was indeed student centred, and that there was a higher level of flexibility. However, they also believed that students abused the flexibility issue:

> I asked them to read things… they weren’t doing it. … Well that is then the nub of the course, it is the expectation of the student of what they [students] are expected to do [by a student centred course]. If they [students] think by coming in half as many hours a week as a traditional part time course it is to do half as much work, we haven’t really achieved what we were initially trying to achieve. What we are expecting them to do is quite a bit more on their own, aren’t we? Using whatever resources we provide them.

One of the suggestions to resolve this issue was by assessment:

…”So that is carrot and stick then isn’t it, just the same with the [full time] undergraduate students, they won’t do it unless you make it assessed.”

Staff also mentioned that the induction was neither successful in technically equipping the students nor socialising. Too many induction issues were left to students to discover on their own.

4.2.3. Facilitation of blended learning

Some of the members of staff had attended an e-moderating course, which provided them with some theoretical background, however this was not used to its full potential. Generally there was no consistency between the lecturers and the way they interpreted blended learning on the individual modules. Simply using Blackboard instead of web pages

to deliver the handouts and presentations and combining it with discussion boards resulted in some staff stating that we were not really doing any e-learning on the course: "At the moment the VLE is a communication and support tool, it is not a learning tool."

"… at the moment it is used as a central repository, it is keeping everyone together, especially the discussion board."

In respect to the face to face sessions, lecturers outlined their actions as follows:

> …I tended to do … a formal lecture when they came in, not every time but that is what I ended up doing, because it seemed to be the only thing that worked. I found that when I asked them to read something and then expected them to come in and be ready to discuss it, they hadn't read it they just haven't done it. So you had to tell them things before they could discuss it.

5. Discussion and conclusions

5.1. Communication

Communication emerged as one of the major issues in the first academic year (i.e. 4.1.1.; 4.1.2). We believe that implementation of aspects related to aspects of the Conversational Framework will be able to address the difficulties with communication. This is because central to the concept of it is the dialogue between the student and teacher, if a continuous dialogue is established, misunderstandings are more likely to be pre-empted and learning facilitated.

Figure 6 illustrates the way the communication channels, available within our environment, can be ordered in respect of their Efficiency and Effectiveness.

In this model we grade options to both staff and students to communicate on channels available on the course. Most efficiency is achieved online on discussion boards, and maximum efficacy is achieved in the face to face sessions. For example greater efficiency can be achieved through encouraging students to support each other through discussion boards, leaving the resolution of the more challenging issues to the face to face sessions with members of staff. This means that students don't have to wait until they have a chance to speak to a member of staff, but can get help and continue with their work. If a question and/or the answer are complex, it is better to use face to face sessions, which have greater efficacy, and are "richer" (Daft and Lengel, 1984), the same applies to issues that are sensitive and are best discussed in person. This emerges from students' comments that understanding/learning is easier in class (using visual, audio and body language) than through online discussions (textual communication).

Taking into account the E-Moderating model as proposed by Gilly Salmon, we can see some parallel developments emerging that urge us to think about a more careful student induction. In particular the student induction to the communication tools available, would benefit from an approach that introduces the discussion boards and the way these have to be used by individuals for communication. It would also be of benefit to encourage the

use of appropriate media by suggesting good practice examples. However, we contend that one advantage that Blended Learning has over E-learning, is the participants being able to socialise face to face.

In relation to learning styles, a reliance on the conversation within the learning process may disadvantage those students who are not keen on discussions. Discussions, however, are an important component of Key Skills (Verbal Communication), which in turn are essential for student employability. Adoption of the conversational framework would require interactive lectures/tutorials that are extended to online discussions. Students will be expected to do more reading and preparation outside the face to face sessions and interact with their online, discussing for example answers to some homework questions.

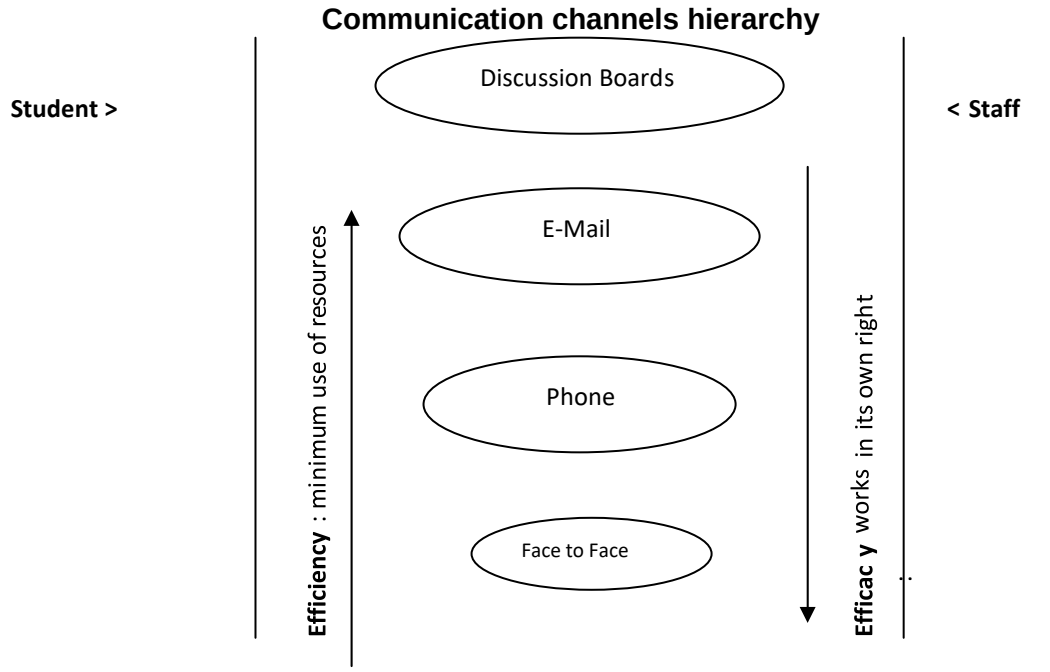

Figure 6. Communication channels on a course

5.2. Experience

There was a lack of experience amongst both staff and students with regards to a blended learning course. It is our opinion that being able to see both the practical side of the course and further reflect upon the course is a major step forward for our understanding of blended learning. We believe that the advantages offered by action research have materialised, and have provided an ethical framework for co-operation of staff and students, encouraging the reflective practice to take place. Being exposed to the theory i.e. through staff training, cannot replace experience, hence we will continue with our action research framework.

We believe that it is also important to maintain a team culture that enables communication between members of staff. It was the sharing of the experience and group

reflection upon the course that made our progress possible. Several issues have been agreed as being important. These include the management of expectation where students will be expected to do more independent learning by all members of staff who will adopt the same approach. Within the E-moderating model greater attention will also be paid to enrolment and induction processes.

5.3. Conversational framework

Our findings are limited to one year of experience (see 3.1.). However, because the issue of communication is so interleaved with the other aspects of Blended Learning such as different media and modes of delivery, we believe that it is possibly one of the vital components of a blended learning course. Therefore we could add communication to our definition, which can be based on the Conversational Framework.

5.4. Blended learning

An initial definition of blended learning encompassed the need for an effective combination of different modes of delivery, methods of teaching and styles of learning. In the light of the above findings we believe that the definition would have to be either altered, or we will not be able to refer to our course as a "true" Blended Learning course. The course has room for improvement. We think that the Conversational Framework and the E-Moderating model are theories with potential and we hope these will add the necessary structure to our course; this will be tested in the coming years.

An appreciation of communication is so strong on a blended learning course that we feel that a new definition can therefore read as follows:

Blended Learning is learning that is facilitated by the effective combination of different modes of delivery, models of teaching and styles of learning, and founded on transparent communication amongst all parties involved with a course.

Acknowledgements

We would like to thank staff and students of the First year IT degree in 2003/2004 academic year for their cooperation.

The course received support through the European Social Fund project "Flexible IT for workers".

References

Baskerville, R., (1999) Investigating Information Systems with Action Research, in *Communications of the AIS,* 2(19).

Bell, F. and Heinze, A., (2004) With regard to respect: a framework for governance of educational virtual communities, in *International Journal Web Based Communities,* 1(1)**,** 19- 34.

Britain, S. and Liber, O., (1999) A Framework for Pedagogical Evaluation of Virtual Learning Environments, In *Report 41*JISC Technologies Applications Programme, Manchester.

Burns, R. B., (2000) *Introduction to research methods.* Sage Publications: London.

Daft, R. L. and Lengel, R., (Eds.) (1984) *Information Richness: a new approach to managerial information processing and organisational design,* JAI Press, Greenwich, Connecticut.

DET, (2003) Blended Learning, NSW Department of Education and Training.

Draper, S. W., (1997) Adding (negotiated) learning management to models of teaching and learning, Vol. 2004 ITFORUM.

Hult, M. and Lennung, S., (1987) Towards the Definition of Action Research: A Note and Bibliography, in *Journal of Management Studies,* 17(2)**,** 241 - 250.

Kolb, D. A., (1984) *Experiential Learning: Experience as the Source or Learning and Development.* NJ: Prentice Hall: Englewood Cliffs.

Lau, F., (1997) A Review on the Use of Action Research in Information Systems Studies, In *IFIP 8.2.*(Ed, A. Lee, J. L. a. J. D.) Chapman & Hall, London, pp. 31 - 71.

Laurillard, D., (1993) *Rethinking university teaching: A framework for the effective use of educational technology.* Routledge/Falmer: London.

Laurillard, D., (2002) *Rethinking university teaching: A framework for the effective use of educational technology.* Routledge/Falmer: London.

Lisewski, B. and Joyce, P., (2003) Examining the five stage e-moderating model: designed and emergent practice in the learning technology profession, in *Alt-J,* 11((1))**,** 5566.

Michaelson, R., (2002) in *The International Journal of Management Education,* 2(2)**,** 15 - 29.

Mumford, E., (2001) Advice for an action researcher, in *Information Technology & People,* 14(1)**,** 12-27.

Pask, G., (1976) Conversational techniques in the study and practice of education, in *British Journal of Educational Psychology,* 4612 - 25.

Procter, C., (2003) Blended Learning in Practice, In *Inaugural Education in a Changing Environment conference* University of Salford, Salford.

Ramsden, P., (1992) *Learning to teach in higher education.* Routledge: London.

Rogers, P. L., (2001) Traditions to Transformations: The Forced Evolution of Higher Education, in *Educational Technology Review,* 9(1).

Salmon, G., (2000) *E-Moderating: The key to Teaching and Learning online.* Kogan Page Limited: London.

Salmon, G., (2002) *E-Tivities: The key to active online learning.* Kogan Page Limited: London.

The significance of the reflective practitioner in blended learning

Heinze, A and Procter, CT

http://dx.doi.org/10.4018/jmbl.2010040102

The Significance of the Reflective Practitioner in Blended Learning

Aleksej Heinze, University of Salford, UK

Chris Procter, University of Salford, UK

ABSTRACT

This paper examines the introduction of blended learning on a part-time higher education programme for mature students. The interpretive work draws on four action research cycles conducted over two years with two student cohorts. Discussion is based on observations, staff and student focus groups and interviews examining the students' expectations and experiences. The initial focus of the action research was on the introduction of technology into the teaching and learning experience. However, the advantage of an interpretive approach is allowing the findings to determine the course of the research. During the first action research cycles, the focus of the research changed from the use of technology in blended learning to the role of the practitioners involved. The authors advocate the key role of reflective practitioners in facilitating blended learning and suggest that action research is a useful framework.

Keywords: Action Research, Asynchronous Communications, Blended Learning, Educational Technology Implementation, Electronic Learning (E-Learning), Teacher Improvement, Teacher Preparation

INTRODUCTION

The United Kingdom (UK) Government has recently decided to shift its emphasis from getting 50% of 17 to 30 year olds into higher education to educating the overall workforce (Gill, 2008). This results in the targeting of those in work who are willing to engage in higher education, and is in line with international developments where adults have to continue developing in order to remain competitive in the global world economy. In the UK, the move to target the labour market as a source for education is exemplified by the "Higher Education at Work"

consultation document (Department for Innovation Universities & Skills, 2008). This document outlines some of the key challenges facing part-time students, who tend to be adult workers and have families and other commitments:

Employees have to balance commitments with work and family.

But research suggests there are almost two million people in the labour market potentially prepared to access higher education. Higher education providers must develop new ways of working if they are to meet the potential market from employers and employees... (Department for Innovation Universities & Skills, 2008, p. 7)

The consultation document also acknowledges that higher education providers must adapt to the "new customer" and offer educational routes to engage with the potential market of employers and employees. Furthermore, there is a need for "demand-led skills" meeting the needs of individuals and employers (Lord Leitch, 2006). This political landscape inevitably demands continual development of higher education programmes.

One of the attractive methods of delivery that lends itself to part-time student education is blended learning (Heinze & Procter, 2008; Procter, 2003). Blended learning is often associated with flexibility for the learner whilst offering a structure that provides students with time frames and deadlines to manage their learning process. The flexibility is apparent in the reduced need for attendance at long face-to-face sessions, removal of associated travel to and from these sessions, and in the increased use of e-learning tools to facilitate the student learning process. Blended learning can offer advantages in comparison to learning which is exclusively by distance (i.e. distance learning) or exclusively online (i.e. e-learning). By retaining face-to-face sessions, blended learning programmes may allow more development of social learning, a sense of community and related student-student support and staff-student personal support (Heinze, 2008; Heinze & Procter, 2006).

Despite the growing significance of blended learning, there is little in the way of programme wide research, a gap that this work attempts to

address. The main question this research seeks to address is – What are the critical success factors of blended learning implementation?

This study relies on data source triangulation of both staff and students' observations of a programme, focus groups and semi-structured interviews, thus enabling a critical appraisal of the practice and theory of blended learning.

This paper is structured as follows: first, we examine the literature that highlights the role of blended learning and how it impacts on the associated pedagogy. Second, an overview of the research method will be provided including the context within which a programme was developed. Third, data findings are outlined and discussed in relation to the literature. Finally, conclusions are drawn, limitations of the study are highlighted and future work in this area is suggested.

FINDINGS FROM THE LITERATURE

Blended Learning

Blended learning has existed for many years, where face-to-face sessions have been complemented with communication tools such as radio, telephone and television. Over the last ten years, as a result of mass access to the Internet, blended learning has begun to make a major impact on higher education. This impact has been supported by educational technologies such as Content Management Systems, for example Blackboard or Moodle, that enable a "Virtual Learning Environment", where facilitators and students can interact and learn online. The interaction and learning activities are further enhanced by Web 2.0 tools such as wikis that allow a more efficient content creation process when compared to technologies such as email and discussion boards.

However, there is little research evidence to prove that technology has either a positive or negative impact on learning – Ramage referred to this as the "No significant difference" phenomenon (Ramage, 2001). For this reason, studies that claim to have found a positive impact of technology on learning are always treated with suspicion. For example, student feedback is often used as a tool to evaluate learning and teaching, yet this may not always be a reliable guide. This is because both the impact of a positive approach and charisma on the part of the lecturer influence the student's perception of learning (see Alauddin

& Butler, 2004). In the famous "Dr Fox Effect" study (Ware & Williams, 1975), feedback on what was essentially a meaningless lecture was very positive when the style of the performance was appreciated. Ware and Williams (1975) conclude from this that a positive student evaluation does not necessarily equate with effective learning.

However, blended learning is proclaimed by many to have several benefits when compared to either pure face-to-face or pure online learning. Potentially it can offer the best experience of both the face-to-face and online worlds (Heinze & Procter, 2006). Some particular examples of blended learning benefits include an increase in the number of students feeling the sense of belonging to a learner community (Rovai & Jordan, 2004) and an increase in student support and consequently improved student retention rates (Hughes, 2007). On the other hand, there are also the critics who suggest that the promises of blended learning are not fulfilled (Hofmann, 2005) and others who feel that the concept of blended learning is meaningless and requires further studies (Sharpe et al., 2006).

Blended Learning Pedagogy

Since the introduction of technology usually means changes to the teaching and learning process, it is important to root the work in relevant pedagogic theory. In a review of current pedagogic research it was suggested that constructivist theory was becoming the predominant view influencing "new pedagogy" (Cullen et al., 2002:11). It is not the intention of this work to explore all of the ways in which constructivism could be implemented on a blended learning programme: this is outside of the scope of this research and has been done by others (Heinze et al., 2007). The emphasis of the current work is on the student-student and teacher-student interactions; it is the relationship of these interactions to constructivist theory that are of interest here. Teacher-student interactions are examined in the light of conversational methods and the student-student interactions are examined in the light of the social theories of learning. In doing this, one is aware that pedagogic theories can be "…joined up as compatible sub-themes" (Mayes, 2007, p. 84). Constructivists, particularly social constructivists, recognise the individuality of learners and their social nature. Thus, individuals are at

the centre of the learning process and teachers are there to facilitate their learning. The term facilitator (instead of teacher or tutor as above) is therefore utilised to denote the constructivist nature of learning.

The theory developed in the Conversational Framework (Laurillard, 2002) is specifically concerned with interaction between facilitators and students. This work is widely recognised as a major influence on the pedagogic design of Virtual Learning Environments (Cullen et al., 2002). The Conversational Framework has its roots in Conversation Theory (Pask, 1976) and Learning Conversation (Harri-Augstein & Thomas, 1991), both of which highlight the importance of facilitator-learner interaction in the development of learning. However, although widely cited, the Conversational Framework is rarely used in practice (Dyke et al., 2007), possibly due to practical considerations (Heinze & Heinze, 2009).

Group dynamics and the study of students in a group have been examined by a number of researchers. One of the key figures in this research is Vygotsky, whose work on the Zone of Proximal Development (ZPD) is of particular importance. Vygotsky argues that if interaction between the learner and the facilitator does not take place, the learner will fail to develop to the level of the facilitator. Using the language of the Zone of Proximal Development (Vygotsky, 1978), the learner can develop only as far as the facilitator is able to challenge them (Heinze et al., 2007).

RESEARCH METHOD

The underlying philosophical assumptions of our work are interpretive and are based on Chua's classification (Chua, 1986). This means that ontologically, we believe that the conclusions are assessed via the criteria of logical reliability and subjective interpretations (Oates, 2006). Moreover, ontologically, reality is subjectively constructed and objectified through human interaction (Chua, 1986). Interpretive action research allows for the creation of change whilst simultaneously studying the effects of this change (Baskerville & Myers, 2004), and was therefore selected as the research method for this study. Continuously evaluating intervention and associated results and interpretations allows for a better understanding of the situation from different points of view (Miles &

Huberman, 1994). Furthermore, some argue that action research provides the most effective way of engaging academic staff in their continuous development in order to achieve improvement in their educational practice (Biggs, 1999).

Ethics are an important consideration of action research. Formal approval of Ethical Consent for the conduct of this research was granted by the institution's Research Governance and Ethics Sub-Committee and the consent of each participant was secured at all data collection stages.

Data Sources

Four action research cycles were conducted. Each cycle was one academic semester long. The research looked at one or two groups of students in each cycle. One cycle would involve a process of programme design followed by implementation, data gathering, data analysis, followed by further improvement and development. Data was gathered by participant observation that was triangulated with 8 focus groups, 31 semi structured interviews and other documentary sources. The use of multiple sources of data in this research was designed to guard against the "Dr Fox Effect".

The questions used for the data collection probed the individuals' experience of blended learning on the programme in question. Emphasis was placed on the perceived benefits and drawbacks of blended learning and how the use of blended learning could be improved. Particular attention was paid to the use of time in the face-to-face sessions and to the online interactions. The questions also probed whether blended learning was appropriate for part-time mature students and the reasons underlying this. The data was all transcribed for analysis. The analysis was undertaken using NVivo QSR software. For the whole dataset described above this resulted in 211 nodes and related concepts. At each cycle of the action research the main themes from these results were highlighted and used in discussions by the teaching team.

All students on the programme were invited to attend focus groups and data from these groups were fed back to the staff meetings and staff focus groups. The staff focus groups were open to all academic and support staff involved in the programme. Staff discussed their views, the student focus group data, observations and any other relevant data such as "student exit"

statements and as a result of these sessions, actions were agreed.

Research Setting

Both authors of this paper were involved with the delivery of the current programme. One of the authors was the director of the programme. The second author was a member of support staff, namely a graduate teaching assistant (GTA). Nine members of lecturing staff participated in the interviews represented in this study. Most were Information Communication Technology (ICT) literate with a wealth of lecturing experience. Some had taught in the past using websites to communicate information, and had supported students via email and other technologies. Although the majority had been lecturing for several years, there was still a wide diversity of experience, including staff with less than five year's experience and others who were nearing retirement.

There were three support groups directly involved with the programme: administrative staff; technical support and GTAs. The GTAs were postgraduate students and usually there was one GTA and one lecturer allocated per module. Of these, six individuals participated in interviews. Several other members of support staff also participated in the focus groups but are not specifically identified due to their limited input and the complexity of identifying them as individuals in a group discussion.

The study was at the University of Salford at the time of the introduction of a new part-time BSc in Information Technology programme. Students who enrolled on the programme were predominantly mature (21+ years of age) and the majority of them were in full time employment. The nature of their employment varied, with some students already working in the IT industry and wanting to progress to a higher level, and others in different industries wishing to enter the IT domain. The majority did not meet standard BSc entry requirements but had plenty of prior experience and learning. In the first year (cohort 1) of the current research, approximately 40 students enrolled on the programme, in the second year (cohort 2) there were about 20 students. Overall, eight students took part in interviews in this study. The majority of student data however, was collected through focus groups.

The blended learning was implemented as follows: attendance

was required for one 3.5 to 4 hour face-to-face evening session each week. E-learning elements were facilitated through the Blackboard Virtual Learning Environment (VLE) and other electronic resources such as SkillSoft Learning Objects, external book publisher websites, multiple-choice questions and other electronic tools. Students were also required to engage in self-study including extensive reading on their own, encouraged through a range of individual assignments.

It was agreed that a blended learning approach to programme delivery would be utilised. As such, it was intended that the face-to-face component of the course would be the main opportunity for socialisation. Support for coursework would be available face-to-face as well as virtually. It was agreed that an action research approach to delivery and the development of the programme would be used to allow for continuous improvement. Furthermore, a graduate teaching assistant would be employed to carry out the necessary research. His roles would include: supporting the day-to-day running of particular modules on the programme; supporting students through online, face-to-face, telephone and email communication; the support of the administration of Blackboard VLE in all its aspects – the creation of groups, assignments/assessments, moderation of discussion forums and student/staff training; and the evaluation of both student and staff feedback.

FINDINGS AND DISCUSSION

Four cycles of action research were held. After each cycle (corresponding to a semester of the academic year) research was conducted with both students and staff. The key findings are summarised below .

Benefits of Blended Learning

Several perceived benefits of the blended learning programme were identified in this work. These included the locality, the time of the sessions and having to attend the physical university premises just once a week.

Some students stated that the social aspects of coming in and seeing people face-to-face each week were the things that made them choose this programme, as illustrated by the following quotes:

I don't know about other people, but I feel like when I haven't done an assignment and then I find out that I

am not the only one I feel like yeah… [Gesture of his fist hitting the air]. Student A in Focus Group

I looked at other courses at the Open University, but I thought, I mean you meet here once a week … Student B in Focus Group

I would say what this course offers, that say the Open University doesn't, is the face-to-face meeting, rather than Blackboard itself. Student C interview

Academic staff also observed the importance of the role of social interaction. This is echoed in the comments from a lecturer on the programme:

You see we have an older bunch of students here and it is partly you know I suppose confidence in your material, but then in terms of what they have learned in terms where did they learn the most, I don't think it would have been in my module, they probably had a bit of a good time, you know and enjoyed a bit of banter. Lecturer A interview

This finding supports earlier work suggesting that blended learning can improve the sense of social community amongst students (Rovai & Jordan, 2004). It also highlights the impact of social constructivist pedagogy, where students learn and support one another during the process of study. The opportunity for communication offered in face-to-face sessions is therefore valuable in building social support and student confidence, which might be more difficult in online communication. This also helps others developing blended programmes in using the face-to-face time for social interaction activities such as in-class discussions, group activities and brainstorming tasks. The key purpose of the face-to-face time is to "bond" the students and make them feel at ease with each other. This time could be used for example for researching and delivering a group presentation or peer evaluation of others work.

Moreover, the face-to-face session attendance was also beneficial for structuring learning and developing a learning routine for students. This is evident from observations and students' comments expressing the importance of attendance in imposing a discipline to their learning:

There was also a positive feeling of structure to the programme imposed by assignment submission deadlines and weekly attendance. Student

F in Focus Group

It was difficult [referring to a fully online course] but here we come in, we get our assignment and we have time to do it. There is more structure to it. Student G in Focus Group

Generally, they felt that blended learning was suited to part-time students. Similar findings are reported on other courses where student support was improved due to the use of blended learning (see Hughes, 2007). Our findings suggest that the weekly face-to-face evening sessions encouraged a student learning routine and are a reasonable practical commitment for mature students. The vast majority of them have successfully time managed their working life, social and family commitments with studying on the current part time programme.

Communication

A number of issues were raised in relation to communication between students, and the limitations of electronic communication as far as they saw it. Despite the positive observations of some students about the benefits offered by the social interaction in the face-to-face time, as mentioned in the section above, there were some who felt that more social time was needed between students:

There are still some areas that can be improved, in particular on the social side of things […]. I know that students were trying to organise a social […] but it did not happen. Student H in Focus Group

Students also discussed (in the following passage) the difficulty of discussing problems (online) with their learning:

What would happen with our full time students is that they would have a lecture, they would listen to the lecturer and they would go away to the canteen and they would talk about what was said in the lecture and somebody would say - I didn't understand that. Did anybody understand that bit about whatever? And they would talk about that. And somebody would say well I have done that bit before and this is what it means, and they would explain to each other and they re-enforce it. Do you get an opportunity to do that? Lecturer P in Focus Group

We have not been using (the discussion board) to discuss it in that way. It was not used to bounce ideas of each other it was more like if

somebody has got a problem then Student J in Focus Group

You don't want to look stupid I think Student K in Focus Group

[laughter]

Yes, you have to be brave to be able to say I am the first one and I didn't understand that Student J in Focus Group

Yeah, it is just getting the confidence in using it Student K in Focus Group

Yeah, but I think that we expected it to happen and we have not seen it happening. Student J in Focus Group

These students clearly expected a greater level of communication online and were disappointed with the provision facilitated as part of this blended learning programme.

The predominant communication tool used was an asynchronous discussion board. In addition to the issue raised above, concerning confidence with using the discussion board, another drawback was that students were not sure if they should reply to messages that were a couple of days old:

… you know that we are all part-time and we can't access the discussion boards at the same time so you are finding yourself answering questions that are two or three days out of date. For example, if you are looking at things and you see [Name] asking a question and you think "oh I know what you should do but then you think oh it is three days ago, they probably know the answer". Student L in Focus Group

Although students were encouraged to reply to old messages, it was difficult for some of them to get quick responses. The informal agreement was that the GTAs would check the online discussion boards at least every other day. This research predates the widespread use of RSS (Really Simple Syndication) feeds and email notification updates for students and staff, which make it easier to ensure timely responses. Furthermore, wikis have been introduced much more widely into teaching since the research was conducted. However, the introduction of new tools emphasises the importance of the facilitator regularly using the tools they provide for the students, to keep discussions active. We argue therefore that it is the facilitators who always have to listen to their students and adapt to the programme needs. This raises the

need for reflective practitioners, which was facilitated through the action research cycles and continues with learner observations and feedback from the learners.

Staff Development and Autonomy

The research highlighted one of the underlying difficulties in implementing proposed actions: namely academic staff autonomy and a resistance to change or learn to from the mistakes of others. The above comments about the communication issues were identified early on in the first action research cycles and the summary of the actions were communicated to the staff taking over in the subsequent semesters. However, not many of these new staff were engaged in the learning from their peer evaluation process.

For example, a guide to the effective use of the Blackboard VLE, incorporating lessons learned through the first cycle of action research, was emailed to all staff involved in the programme. Staff were given the opportunity to attend programme meetings and away days. There were many positive observations from staff who did attend these sessions and engaged in dialogue and learning with colleagues and implemented the observations of others in their teaching. One of these examples was the implementation of a standard navigation bar for all modules on the Blackboard VLE:

You know literally some lecturers have had twelve options down the left hand side. It was trimmed down to four or five options. Lecturer D in Staff Focus Group

However, interest in these events varied and despite the action research framework adopted by the core team of the programme, not everyone engaged in the action research fully, hence the lessons learned were not taken on board by everyone. One member of staff felt that the change in a lecturer's development was slow and therefore required time so that all staff could manage to implement their own lessons learned:

Well I think that lecturers have learned, … they are developing themselves slowly…the individual tutors are autonomous and therefore they will do what they want to do and there is not much that can be done about that. Lecturer K interview

The mode of delivery was a challenge that was highlighted by a number of

lecturers and one of these emphasised the required changes to their practice:

I think for the lecturers the biggest issue is changing their mode of delivery. Because this course is different to courses which most lecturers have been used to teaching on. For example, the standard mode of delivery now in most Higher Education [institutions] is PowerPoint lectures, I don't know what proportion but the great proportion of lecturers in this university and elsewhere use PowerPoint lectures and then they may have seminars to support that. But that mode in my opinion doesn't really suit Blended Learning so… That means that there is quite a lot of work for lecturers to do to actually develop that. A lot of thinking in terms of designing their teaching and learning. Lecturer F interview

Another lecturer discussed how they had enjoyed adapting their practice:

Well I have enjoyed teaching, or helping the part time students to learn, as against teaching, because it was far more interactive. I think it was a critical point, in the sense that it wasn't as much teaching as prompting debate and discussion and putting some theoretical points forward and asking them what is your experience, do you think this model or concept is flawed, justify your critique of this model or theory, you can't just criticise. So it was the interaction that I enjoyed. Lecturer K in interview

Some were unwilling to change their teaching style at all:

…but I have always taught like that for the last 30, 40 years and that is the way that most people that started in my era actually teach. Lecturer Y interview

Generally, those staff who neither participated in the staff development activity nor engaged in the action research, did not adapt their teaching style to accommodate the new requirements of students on a blended learning programme. The issue of academic staff development was identified as one that could not be easily resolved and past experience and lack of enthusiasm for change was highlighted by many as is illustrated in this quote:

To be fair, we did try and do something like that last time but none of the staff would come, would they? Lecturer D in Staff Focus Group

Some staff argued that they were not reluctant to learn per se, but they did not like the process of going away and discussing issues in a focus group. They felt that it was a matter of individuals going through a process of learning from their own personal experience, rather than relying on the observations and experiences of colleagues. This process of personal development goes directly against the social constructivist pedagogic beliefs such as the Zone of Proximal Development and any other conversation theory related practices. How could professionals teach others if they themselves don't like to learn in a collective way? Little evidence was found in our research that this individual approach led to effective change, or that there was significant engagement from such staff with the research literature on teaching and learning in higher education.

The difficulties in developing the practice of academic staff are commonly recognised (Wilson & Stacey, 2003). For example, Biggs (1999) argues that attending staff development workshops is not a sustainable staff development process, since after the post-workshop enthusiasm wears off, staff are likely to revert to their previous teaching styles. Some argue that action learning offers a good basis for staff development (Ellis & Phelps, 2000). Staff centred approaches such as continuing professional development and approaches such as action research, that see teaching as continuous research (Biggs, 1999) are presented as being more able to allow staff to keep up-to-date with change and allow them to continuously improve their teaching. Thus, it is suggested that peer observation, where colleagues observe each other's sessions and reflect on the practice, is a valid and useful way of encouraging staff development (Kohut et al., 2007). However, our data suggests that it depends on the individuals and whether they engage with the research process or not. It was found that those engaging in action research and willing to learn and develop their practice were able to benefit both themselves and their students.

Staff Charisma and Enthusiasm

The role of charisma and an individual lecturer's qualities and rapport with their students was highlighted in all action research cycles. One main issue was that the

individuals who taught or facilitated sessions were important:

I was given a PowerPoint presentation ... but the personality of that person who did that material is not going to be present. Now if I injected something else in there, that is small, something humorous, but it distracts, it lightens it up and makes it easier to go through.[…] Humour is a fantastic tool in learning. Support Staff A interview

It is difficult, because they have to a) know their stuff and b) be enthusiastic about it. Otherwise students are going to think hell he[/she] is boring, I am going to sleep now. Lecturer H interview

This individual staff charisma and enthusiasm was also prominent when students were asked about their impressions of individual modules. One observation made by several students was that an important part of a module's success was related to the individual lecturer. The question "what is it that makes a module either a good module or a less desirable one?" attracted the following reply:

The lecturer. I think […] was good on that score certainly. Student L interview

The issue of individual lecturers being responsible for the learning experience was evident in one case where a student felt that a member of staff was lazy and that this dictated their module delivery:

With [Name], all our people are convinced that this guy wants us to pass. Having said that he is lazy, he wants us to pass because he is lazy, it is more difficult to fail a student than to pass them. [laughter]. They do agree that he seems to be on our side. [laughter]. Student G interview

Whether or not staff enthusiasm was linked to student success was not measured in the research and would be a valuable component of future research in blended learning. However, findings in the current blended learning study support earlier work done on the Dr Fox Effect.

This again underlines the need for academic staff to engage with their peers in developing their teaching practices. Otherwise, if the only measure for student success is student feedback – we realise that those staff who treat their students well but don't engage in teaching them can still get good feedback. This finding also suggests that any blended learning evaluation study

must take into account the measure of the staff perceptions and peer reviews instead of relying on students' views only. Yet again, this finding would not have surfaced if the action research method was not adopted in the current study.

CONCLUSION

The findings in this study suggest that blended learning is valuable to part-time students in combining work and study. In particular, our findings support earlier studies that show a relationship between blended learning and students' sense of community. Face-to-face contact can offer social advantages in comparison to a virtual course and thus sessions should be designed to allow students time to socialise with one another.

However, the extent to which the learning advantages are achieved is dependent upon the engagement of stakeholders in the mode of delivery – this is the main finding to our research question aiming to identify critical success factors of blended learning implementation. Our reflections on the use of action research have allowed us to re-consider the overall teaching and learning process. In particular, the need for interaction between the learner and the facilitator was identified, and a key variable that made a difference in the student learning experience was found to be the facilitator. The level of engagement of academic staff in blended learning is key to the success of this mode of delivery. Some staff were reluctant to engage with others on either a formal (e.g. staff development activity) or informal basis, and this limited the effectiveness of blended learning that was facilitated by them. Vygotsky's concept of the Zone of Proximal Development is relevant, suggesting that those staff who actively engage with others in a continuous process of reflection and development are more likely to improve their practice in the context of new methods of teaching and learning. Those who engage in the Zone of Proximal Development are more likely to benefit from the common knowledge. Thus, a vital element in the introduction of blended learning is the ability of the facilitator to see teaching as a continuous process, building on peer interaction. The introduction of effective blended learning on a part time programme does not fit with a didactic approach of teaching. Our evidence suggests that a project to implement blended learning needs

to start with a process of facilitating the facilitators.

We haven't researched the best ways to do this but brief suggestions are given below. Potentially, staff could introduce the concept of the critical friend to help each other to improve: mentoring and peer-observation may enhance the level of reflection and engagement more effectively than wholesale staff training. This process can be developed further by regarding teaching as research, as suggested by Biggs (1999). This builds in critical reflection and opportunities for external critique for colleagues by presenting their work at conferences and in peer reviewed publications. Action research is a valuable method in introducing and reflecting upon change but on its own does not guarantee peer interaction.

Our findings are aimed at anyone involved in blended learning programme developments, implementation and improvement and are independent of the particular form of technology used. Clearly, they are limited in their generalisation due to the method used, the relatively small data sample, and the use of just one programme in one institution. Furthermore, the interpretive action research concentrated on the process of teaching and learning and not the outcomes. We suggest that further studies in this area be undertaken. Further research could broaden the data sample to compare programmes or institutions. This could follow our findings investigating how facilitators adapt (or not) to the use of blended learning in higher education.

It would also be valuable to investigate how best to facilitate the facilitator. Furthermore, future research could be advanced by investigating the pedagogic design of blended learning in practice. In particular, we need to investigate how support for socialisation and communication is best provided within blended learning. In this way future action research in blended learning can address the process of introducing technology into teaching and learning alongside the consequent (and changing) learning outcomes.

ACKNOWLEDGMENT

The authors would like to acknowledge and thank the action research collaborators comprising staff and students involved in the BSc Information Technology at the Salford Business School, University of

Salford. The programme received support through the European Social Fund project “Flexible IT for workers”. The ideas for this paper were further developed at the Annual Blended Learning Conference 2008 at the University of Hertfordshire. We would also like to thank the anonymous reviewers of the International Journal of Mobile and Blended Learning for their constructive and helpful comments.

REFERENCES

Alauddin, M., & Butler, J. E. (2004). Teaching economics in a changing university environment: Some Australian experience. *International Journal of Social Economics*, *31*(7), 706–720. doi:10.1108/03068290410540891

Baskerville, R., & Myers, M. D. (2004). Special issue on action research in information systems: making is research relevant to practice - foreword. *Management Information Systems Quarterly*, *28*(3), 329–335.

Biggs, J. (1999). *Teaching for quality learning at university: what the student does*. Buckingham, UK: Open University Press.

Chua, W. (1986). Radical Developments in Accounting Thought. *Accounting Review*, *61*, 601–632.

Cullen, J., Hadjivassiliou, K., Hamilton, E., Kelleher, J., Sommerlad, E., & Stern, E. (2002). *Review of current pedagogic research and practice in the fields of post-compulsory education and lifelong learning (Report)*. London: The Tavistock Institute.

Department for Innovation Universities & Skills. (2008). *Higher Education at Work- High Skills: High Value*. Sheffield, UK: Author.

Dyke, M., Conole, G., Ravenscroft, A., & De Freitas, S. (2007). Learning theory and its application to e-learning . In Conole, G., & Oliver, M. (Eds.), *Contemporary perspectives in e-learning research* (pp. 82–97). London: Routledge.

Ellis, A., & Phelps, R. (2000). *Staff development for online delivery: a collaborative team-based action learning model.* Paper presented at the Australasian Society for Computers in Learning in Tertiary Education, Brisbane, Australia.

Gill, J. (2008, April 17). Labour concedes that it won’t deliver its 50% target on time. *Times Higher Education*, 14.

Harri-Augstein, S., & Thomas, L. F. (1991). *Learning Conversations*. London: Routledge.

Heinze, A. (2008). *Blended learning: an interpretive action research study*. Unpublished PhD Thesis, University of Salford.

Heinze, A., & Heinze, B. (2009). Blended E-Learning Skeleton of Conversation: improving formative assessment in undergraduate dissertation supervision. *British Journal of Educational Technology, Special Issue: e-Assessment: developing new dialogues for the digital age, 40*(2), 294-305.

Heinze, A., & Procter, C. (2006). Online Communication and Information Technology Education. *Journal of Information Technology Education*, *5*, 235–249.

Heinze, A., & Procter, C. (2008). *Is Blended Learning a ‘silver bullet’ for part-time mature student education?* Paper presented at the Blended Learning Conference 2008. Retrieved from http://www.herts. ac.uk/fms/documents/teaching-and-learning/blu/ conference2008/Aleksej-Heinze-2008.pdf

Heinze, A., Procter, C., & Scott, B. (2007). Use of Conversation Theory to underpin Blended Learning. *International Journal of Teaching and Case Studies*, *1*(1-2), 108–120. doi:10.1504/IJTCS.2007.014213

Hofmann, J. (2005). Why blended learning hasn’t (yet) fulfilled its promises: Answers to those questions that keep you up at night . In Bonk, C. J., & Graham, C. R. (Eds.), *The Handbook of Blended Learning: Global perspectives* (pp. 27–40). San Francisco: Pfeiffer.

Hughes, G. (2007). Using blended learning to increase learner support and improve retention.

Teaching in Higher Education, *12*(3), 349–363. doi:10.1080/13562510701278690

Kohut, G. F., Burnap, C., & Yon, M. G. (2007). Peer Observation of Teaching: Perceptions of the Observer and the Observed. *College Teaching*, *55*(1), 19–25. doi:10.3200/CTCH.55.1.19-25

Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of educational technology* (2nd ed.). London: Routledge/Falmer. doi:10.4324/9780203304846

Lord Leitch. (2006). *Prosperity for all in the global economy - world class skills*. London: HM Treasury.

Mayes, T. (2007). Learning theory and its application in e-learning . In Dyke, M., Conole, G., Ravenscroft, A., & de Freitas, S. (Eds.), *Contemporary perspectives in e-learning research: themes, methods and impact on practice*. London: Routledge.

Miles, M., & Huberman, M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. London: Sage Publications.

Oates, B. J. (2006). *Researching Information Systems and Computing*. London: Sage Publications.

Pask, G. (1976). Conversational techniques in the study and practice of education. *The British Journal of Educational Psychology*, *46*, 12–25.

Procter, C. (2003). *Blended Learning in Practice*. Paper presented at the Inaugural Education in a Changing Environment conference, Salford, UK.

Ramage, T. R. (2001). The “No Significant Difference” Phenomenon: A Literature Review. *Journal of Instructional Science and Technology (e-JIST), 5*(1).

Rovai, A. P., & Jordan, H. M. (2004, August). Blended Learning and Sense of Community: A Comparative Analysis with Traditional and Fully Online Graduate Courses. *International Review of Research in Open and Distance Learning*.

Sharpe, R., Benfield, G., Roberts, G., & Francis, R. (2006). *The undergraduate experience of blended e-learning: a review of UK literature and practice*. Higher Education Academy.

Vygotsky, L. (1978). *Mind in Society; The development of Higher Psychological Processes* (Cole, M., John-Steiner, V., Scriber, S., & Souberman, E., Trans.). Cambridge, MA: Harvard University Press.

Ware, J. E. J., & Williams, R. G. (1975). The Dr. Fox effect: a study of lecturer effectiveness and ratings of instruction. *Journal of Medical Education*, *50*(2), 149–156.

Wilson, G., & Stacey, E. (2003, December 7-10). *Online interaction impacts on learning: teaching the teachers to teach online.* Paper presented at the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE), Adelaide, Australia.

Appendix 3: paper 3

Peer mentoring to secure student placements

Procter, CT

Peer mentoring to secure student placements

Abstract

Purpose

This paper describes a case study where student peer mentors were employed to motivate and assist undergraduates to secure optional professional placement positions.

Design/methodology/approach

The paper describes the reasons for establishing the project and the recruitment of mentors. It outlines a survey of students who had not undertaken placements the previous year to try to identify the activities that would be most effective on the part of the mentors. It then describes the mentoring that was conducted. The mentors, together with the placement co-coordinator, devised support ranging from one to one mentoring, drop in 'clinics', online support through a social network and large group talks. It discusses the results of this work and evaluates the oral and written responses of both mentors and mentees.

Findings

Those mentees who took part in the mentoring were typically those who were already enthusiastic about placement opportunities. The majority of students did not take advantage of mentoring support either face to face or online. It was found that the mentoring scheme did not significantly affect the proportion of students seeking or securing placements. However, the mentors themselves gained tremendous benefits from the mentoring scheme in particular developing their communication skills and confidence.

Research limitations

A thorough survey of potential mentees was not carried out after the project to ascertain the reasons for their lack of engagement.

Practical implications

There are two separate implications of this project: 1) The mentoring scheme was valuable primarily for the mentors and not the mentees and 2) The level of support provided by the University is not the main factor in the low take up of optional placement opportunities. If such learning opportunities are felt to be sufficiently valuable for the student learning experience they need to be compulsory with appropriate support available – a mentoring scheme might then be of far more value to mentees.

Originality/value

There is very few publications concerning the use of mentoring to facilitate work-based learning. Furthermore most published work on mentoring is located in the 'best practice' school of pedagogical research where it is implicitly assumed that one must report on the success of an intervention. Frequently it is more valuable to examine more unexpected results of an intervention. This paper however shows much greater benefits achieved by the mentors than the mentees.

Keywords:

Case study, mentor, work-based learning, placement, social network

1) Introduction

Many British Universities offer undergraduate students the opportunity to undertake a paid one year placement (or internship) within an organisation undertaking work relevant to their degree, between their second and final year of study. This opportunity is widely known as a 'sandwich' year. In common with other types of work-based learning, the sandwich year confers significant advantages to the student involved. These include their future employability, their degree results, and more broadly the breadth of their University experience and discussed further in section 2.

For many years, students on undergraduate programmes within Salford Business School have had the option to choose between undertaking a three year degree, or a four year programme that includes such a placement. The student who goes on placement is allocated a supervisor and the placement year is assessed by means of reports, presentation and an assessment of performance in the workplace. This assessment contributes towards the degree classification as well being eligible for an external (City and Guilds) award. Over the 5 year period 2004-9, 92% of those completing a placement year within their degree graduated with a 2:1 or 1st class honours degree, in comparison to 53% of the general population. It is worth noting, however, that students with higher results tended to be those who secured placements.

However, the allocation of a student to a placement position is the decision of the employer alone since in most respects a placement differs very little from any other contract of employment. Thus placement positions are competitive and require tenacity on the part of the student in applying.

Support is provided to the student seeking a placement both within the Business School and by the University Careers Service. The support is fairly extensive and ranges from placement

opportunities, talks by visiting employers, invitations to placement 'fairs', guidance on the application process including support for CV writing, applications, interview and employment tests. Support is provided face to face, by telephone and online.

Over previous years it had been found that the range of additional support provided had not substantially affected the proportion of students seeking placements or securing them. Despite the clear advantages of a placement to the student's future career, a small proportion takes up this option. Typically the proportion is around 10-12% in any given year, although in 2009-10 only 26 from 312 eligible students secured a placement i.e. just over 8%. Whilst the decline on the previous year (12%) was in large part due to the onset of the economic recession, nevertheless it was felt by those tutors involved that it was also attributable to a lack of motivation on the part of the students for an optional part of their course.

2) Value of placements

The benefits of student placements are well established. Employers recognise the value of new temporary employees with fresh knowledge, skills and enthusiasm, typically at relatively modest salaries, who are potential future long term employees (Harris 2004). Universities and students have recognised many benefits of vocational learning and placements, with research showing students with placement experience substantially enhancing their employability (Neill and Mulholland 2003). This is particularly the case during difficult economic times (Lightfoot 2009). A number of studies have shown the benefits of placements to students (Mandilaras 2004, Rawlings et al 2005), especially the development of students' soft skills such as communication and team working skills (Neill and Mulholland 2003, Hordyk 2007). This has also been recognised in numerous policy documents, most notably in the UK in the Dearing Review (Dearing 1997) and the Leitch Report (Leitch 2006) which both stressed the value of vocational education. Furthermore, one year long placements, as described in this paper, allow for depth in the student experience which is not possible to achieve in short placements/internships.

Huw Morgan (2006) has however shown that students are often reluctant to undertake placements. His research suggests that the level of University support and specific concerns about the placements themselves are factors involved in this reluctance, both of which could potentially be addressed through engagement with peer mentors.

3) Mentoring of University students

The efficacy of student peer mentoring is less well established. This is perhaps surprising, given the well-established practice of employing students to conduct undergraduate teaching. Goldschmid and Goldschmid (1976) conducted a review of the practice of peer

mentoring as developed in the 1970s and concluded that peer mentoring (or peer teaching as they preferred to call it) provided significant benefits for both parties:

"The evidence reviewed suggests that peer teaching, best used in conjunction with other teaching and learning methods, has great potential for both student 'teacher' and student 'learner', especially if one seeks to enhance active participation and develop skills in cooperation and social interaction"

They cited the work of Mackenzie (1976) who enunciated the significance of student peers known to all teachers:

"A student's colleagues often represent the least recognized, least used and possibly the most important of all the resources available to him" (Mackenzie et al 1976).

More recently Allen et al (1999) report on the value of student mentoring, albeit primarily in relation to the socialization of new students. Second year MBA students were found to provide valuable support to first year students. Their work is widely cited as empirical support for the development of mentoring in higher education. Kane (2006) discusses the value of peer to peer mentoring for nursing students. There have also been a number of more recent publications discussing the value of social media for mentoring (e.g. Booth and Esposito 2011).

Other authors thus have tried to establish guidelines for effective mentoring. Fred Newton and Steven Ender in their book 'Students helping students' (second edition published in 2010) provide one of the most comprehensive texts on the development and effective practice of student peer mentors. Terrion and Leonard (2007) further review the literature to propose a taxonomy of characteristics of effective mentors.

Not all case studies on student peer mentoring report unequivocal success. Paglis et al (2006), reporting on doctoral peer mentors, found that students with greater incoming potential received more adviser mentoring, and that mentoring did not significantly contribute to important student outcomes.

4) The project

Thus we established a project in the knowledge that a) the benefits of placements are well established, b) many of our students were reluctant to undertake the work necessary to secure a placement and c) student peer mentors could potentially provide the necessary motivation and support to significantly increase the proportion of students undertaking a placement.

In 2009 funding was secured from the Centre for Excellence in Professional Placement Learning (CEPPL) Innovation Fund. The purpose of the funding was to pay students completing their own placement in 2009, and thence entering the final year of their study, to act as mentors to students commencing their second year in 2009. The mentors would inspire, encourage and assist second year students to secure their own placements the following year 2010-11. They would provide support additional to that already available and described above.

All students completing their placement in the summer of 2009 were invited to apply for mentoring positions that included around 80 paid hours work over the forthcoming academic year. The method of application was a one page outline of their ideas as to how to establish an effective mentoring scheme. 11 students applied, and all were recruited as mentors from September 2009 to May 2010. Prior to the start of the Semester they all undertook half a day of training from a professional mentor guide/coach. This covered the roles and responsibilities of mentor and mentee, the boundaries of appropriate support, and identification and practice of skills required by an effective mentor. This was followed by a discussion with the project co-ordinator concerning the design and implementation of activities to achieve the project objectives taking into account the ideas suggested by mentors.

5) Why students did not undertake placements

Prior to defining the exact nature of the mentoring activity, it was decided to try to identify the reasons students gave as to why they had not gone on placement. A questionnaire was designed by two of the mentors, together with the academic member of staff responsible for placements, and issued to final year students who had not undertaken a placement. This was conducted during their induction week in September 2009 and just prior to the start of their semester. 150 students completed the survey. It is thought that these responses were representative of the year group (286 in total): they were simply those who were present in the lecture theatres at the time the survey was undertaken. The following is a summary of the results of this survey:

76 students (51%) considered going on a placement year

51 students (34%) made applications for a placement: out of those who made an application 9 made between 1 and 2 applications, 24 made between 3 and 5 applications, 6 made between 6 and 10 applications and 12 made 11 or more applications

60 respondents (40%) did not attend any workshops or support sessions for students interested in undertaking a placement

In response to questions probing reasons for not applying/ not trying to secure a placement:

77 said they wanted to finish University as soon as possible

28 thought that the jobs available did not appeal to them/ weren't appropriate 21 did not want to relocate

8 did not feel they were capable of doing a full time job
9 felt they couldn't afford to do a placement
9 did not have time to apply

The following examples illustrate the range of reasons given in response to the open question 'Please discuss any reasons you had for not undertaking a placement':

Difficulties in finding a position

"I didn't get a placement despite applying for many vacancies"

"The recession"

Perceived lack of support

"The Uni does not do enough for students to secure a placement"

"Recommendation (i.e. by the University) is the best way of offering places to students in need of placements"

Education weariness

"It's good to get a placement but I wanted to finish Uni as soon as possible" "I had already taken a gap year and didn't want to do another"

Not necessary

"My degree will be enough"

"I'm going to do a Masters"

"I already had full time and part time professional work experience"

"I am working with my family"

Personal reasons

“Regrettably I was too lazy”

“I didn’t have confidence and I felt I wouldn’t be successful”

“I applied for a placement but had to resit my second year”

“I felt a little old”

“I thought if I left Uni for a year and then came back it would be very hard to adapt again”

It can be seen from this short survey that two thirds of the students concerned did not make a single placement application and the majority of the student group were keen to just complete University as soon as possible, without the delay that a year on placement would entail. Many felt that they already had sufficient qualifications or experience to equip them after graduation, but interestingly quite a few felt they didn’t have the time or confidence to secure a placement position. Some had the impression that they would be given a placement in much the same way as work experience had been organised when they were at school. Only a small proportion of those who had been unsuccessful in securing a placement (twelve out of the sample of 150) had made more than ten applications.

6) Mentor activities

A meeting was held directly after this to organise activities that would address issues raised in the survey. It was agreed that initially the most important objective was to motivate second year students to apply for placements, take advantage of support that was provided, and make good quality applications. Mentors went to speak to all students within their lectures to relate their own experiences and offer mentoring help. This help was provided in the following ways:

- Two mentors were available every weekday lunchtime for two hours for the entire semester sitting at a desk in a very busy part of the School to answer any questions that students or help that they needed on a casual drop-in basis
- A Facebook group was established and widely advertised for any students to join and discuss online any concerns they had or help they needed. Staff were initially reluctant to join this lest their presence inhibited the discussion but mentors felt that they should participate.
- Mentors attended weekly workshops listed on all student timetables and run by the placement coordinator. Students could discuss any issues with the mentors before, during or after each workshop.

At the end of the first semester (December 2009) a meeting was held between all the mentors and the placement co-ordinator to assess the value of the activities conducted thus far. The mentors reported that they had had very little response to the lunchtime drop-in sessions and on many occasions no-one talked to them at all. Some students had asked

mentors if they could write applications for them or find jobs for them which was felt to be inappropriate. The Facebook group did have 29 members after two months, but this included the 11 mentors and three staff and there was very little communication taking place: typically less than one posting per day. The workshops had been very busy early in the semester but towards the end attendance had tailed off and students attending were more interested in speaking to the placement co-ordinator than the mentors.

Thus it was clear that a change of activity was needed, and the mentors felt that the most effective support that they could provide was if they were each allocated a group of students to mentor on a one to one basis. Thus at the beginning of Semester 2 (January 2010) the mentors and placement co-ordinator visited and spoke at all the lectures for second year students asking that any students who were interested in undertaking a placement and being contacted by/ meeting a mentor on a one to one basis should leave their email addresses. 145 students responded positively, which was felt to be an excellent response, and these were divided between the mentors i.e. approximately 13 each. Where possible the mentee was allocated to a mentor on the same programme of study. It was agreed that every mentor would seek to meet with their mentee within the space of two weeks. It was agreed that these meetings should only be held in public locations e.g. the student canteen, and that mentors should be careful not to give out personal details. In practice in some cases phone numbers were exchanged. Lunchtime drop in sessions were reduced to just two per week and mentors continued to attend weekly workshops.

A meeting was held four weeks later to evaluate the results of this new activity. All 145 students who had expressed their interest had been contacted by email to suggest a face to face meeting. Less than one third (41) had replied; i.e. 104 students who had expressed their interest had failed to reply to an email, and in most cases a second reminder email; this surprised the mentors. Of these 28 had held meetings with their allocated mentors, in 4 cases on more than one occasion. Those mentors who had held face to face meetings felt they had been very productive with advice being given to students at various stages of the application process (e.g. help with application forms/ psychometric tests/ telephone and face to face interviews/ assessment days), and in some cases just discussion about personal issues such as lack of confidence. Students ‘dropping in’ to see mentors on the lunch time sessions slowed from a trickle to nothing and these were cancelled midway through the semester and little assistance was required from mentors in workshops.

The mentoring scheme ended as planned in April 2010 and was followed by evaluation with all stakeholders.

7) Results and feedback

From a cohort of 330 students 36 secured one year placements in 2010. Whilst this was significantly higher than the previous year (when 26 students secured placements), it was from a larger cohort size and there were more vacancies as the economic recession eased slightly. The total securing placements was in fact less than in 2008 so the increase from 2009 to 2010 could not validly be attributed to the mentoring scheme.

Mentee feedback

At the end of the second semester all mentees, i.e. all second year students, were interviewed to one of two focus groups to evaluate the efficacy of the project. Seven students attended these discussions, all of whom had either secured a placement or were at an advanced stage of the application process. Thus their views cannot be seen as being representative of the whole cohort. It is not possible to say whether or not they would have been successful without the support of mentors, but they had demonstrated their enthusiasm for placements throughout the year. All seven had received help including face to face meetings with mentors and felt that the mentors had been really helpful in their efforts to secure a placement. They referred to specific help they had received such as looking at their CVs, looking at their online applications, suggesting where they should apply and practical advice concerning employer assessment centres. They commented favourably on the accessibility of the mentors. A number of them referred to the importance of motivation:

“Motivation is the main benefit students got from mentors … after getting a rejection you get scared and give up easily. The mentors encouraged us to talk about it and try again”, and

“We could come along and share our experiences and ask mentors any questions at all – they’d been through it themselves”, and

“The mentors gave us confidence in our applications and that we could actually do the job”.

They were also asked about their opinion about the lack of take up of the placement group on Facebook. One response to this seemed to be representative of the group’s opinion: “Facebook is where we go for our social life, it’s not where we want to go to get help about placements – we’d sooner see you (i.e. staff) for that”.

Mentor feedback

All mentors completed both a written and oral evaluation of the project and their role within it. Further feedback from the mentors is available at:

http://www.youtube.com/watch?v=dSKhQp2RO2o&feature=player_embedded#at=107

Mentors were without exception very positive about their experience.

In response to the question 'Have you enjoyed your work as a mentor?' all eleven responded positively:

"great opportunity", "great satisfaction", "exciting experience", "very fulfilling", were some of the comments.

In terms of the benefits to themselves they were very positive. Their comments included: "helped improve my time management, counselling and decision making skills", "improved my communication skills", "gained confidence in my own applications", "I have learnt about using tact and diplomacy when highlighting the strengths and weaknesses of others", "I have improved organisational skills", "developed one on one skills which will be important throughout my career", "I have gained people skills learning how to listen and behave with other people", and "I've gained experience in team working, leadership and motivational skills".

The mentors did feel that they had helped students with many practical issues from writing letters to confidence and conduct in interviews. In some cases they said that the more informal support they could provide was particularly useful, and that they could show through their own experience the benefits of placements. They felt that both mentors and mentees would gain lasting benefits from the experience, for example after graduation.

Mentors were critical of other students in some cases:

"some mentees want everything on a plate i.e. do not want to help themselves" and "the problem lies with the willingness of students to engage and ask for help" and "students don't respond". In more than one case mentors commented that it seemed to be the most able and motivated students who sought their assistance: "sometimes you think you're just helping the ones who're going to get placements anyway" and "two students who I saw a few times were already very confident and just needed some suggestions at the final stages of interviews". A few of the mentors stressed the importance of interaction with students throughout the placement process with the onus being on the student to take advantage of opportunities available. One mentor went further saying that "it is important when allocating mentors to distinguish between those that are truly committed and interested and those that want it all done for them". The implication of this comment was that mentoring should only be provided for students prepared to undertake the hard work of applications themselves.

Mentors also made a number of constructive suggestions as to future use of mentors. In particular they felt it was important to allocate mentors to mentees at the very outset with defined meeting points and times that fitted within student timetables:

"I think the idea of splitting students to each mentor is really good – it is clearly the most productive way" and "Mentoring should be more organised and a computer room booked for every week", "an organised session between mentors and students needs to be organised every week with both sides agreeing on their objectives" and "these need to be promoted with influential presentations, rather than informative ones". Some felt that mentors should have specialist roles, such as assistance with different stages of the application process. Some suggested use of additional communication channels such as using text messages to establish initial appointments.

The development of the mentors themselves was the most rewarding part of the entire project. Many staff commented on their maturity, agility and all round communication skills. They were of course a self-selecting confident group in the first place, but it was no surprise to see many of them secure prizes such as 'Best final year student' at their graduation. Without exception they have all gone on to good graduate positions or postgraduate study.

Staff feedback

It was clear that in a well organised system mentors could provide additional support to full time staff, as a result of their availability and in some cases because they had greater empathy and rapport with the students concerned. However, frequently students preferred to see the member of staff concerned due to their greater experience and/or influence. The work of the mentors was excellent and they grew in maturity and knowledge as the year progressed. They were reliable, professional and innovative. If there was anything to fault at all it was that the mentors expected other students to share their enthusiasm.

However, the staff involved were disappointed that the mentor scheme did not have a greater impact, despite the range of support offered. The lack of voluntary take up of the mentoring reinforced the experience that incentives and support do not make a substantial difference to the proportion of students securing optional placements. It strengthened the staff opinion that the majority of students would only take work-based learning seriously, and thus persevere with applying for and securing placements, when it was a compulsory part of their programme. This has subsequently led to significant programme amendments so that for many programmes the placement year is now a compulsory part of the degree as in many other institutions

8) Conclusions

This paper has described and evaluated a scheme to employ student peer mentors to assist undergraduates in securing placement positions. Students with placement experience were recruited to design and implement appropriate mentoring activities, taking into account the reasons students gave in a survey concerning their problems and reluctance in relation to placements.

The scheme had mixed results with limited evidence of increased enthusiasm for work-based learning or greater take up of placements. Whilst some students did seek assistance from peer mentors, at times (for example during drop in sessions) the mentors had little or no mentoring to do, and when students needed help they wanted to see academic staff instead. There is significant contemporary interest in the use of social media for mentoring, but in this project the Facebook group established by student peers to facilitate/encourage placements had very little take up. Some students felt that their use of Facebook and their placement applications should be kept separate. In common with the work of Paglis (2006) we did find that overall those who used the help of mentors the most were students with the greatest incoming potential.

It was felt by the mentors that some improvement could be made to the future organisation of a peer mentoring scheme to encourage and develop students seeking professional experience. In particular it was suggested that the mentoring scheme needed to commence with a range of inspirational communication followed by the allocation of one to one mentoring in appropriate rooms scheduled within the timetable.

However, overall the lack of impact of the project amongst the mentees was not a result of poor organisation, training or activity on the part of the mentors, but mainly attributable to the lack of enthusiasm for optional work-based learning/ placements on the part of undergraduates. Symptomatic of that lack of enthusiasm was the large number who did not reply to mentor email despite indicating their interest orally in lectures. This paper does not attempt to analyse this lack of enthusiasm which is a valid subject for future research.

The project did have a substantial positive impact on the mentors. Unanimously they expressed the widespread benefits they felt that both they and mentees had achieved. All had clearly developed their range of skills substantially and were very well equipped for future careers. This was commented on by many staff. As in any teaching and learning context, it is frequently the teachers who learn the most.

The author would like to thank the Centre for Excellence in Professional Placement Learning (CEPPL) for their funding of this project.

References

Allen TD, McManus SE, Russell JEA (1999) "Newcomer socialization and stress: Formal peer relationships as a source of support" *Journal of Vocational Behavior* Volume 54(3), pp 453-470

Booth M, Esposito A (2011) "Mentoring 2.0 High tech/high touch approaches to foster student support and development in higher education" Edited by: Wankel LA, Wankel C *Cutting-edge Technologies in Higher Education* Volume 2 Emerald pp 85-103

Dearing R (1997) "The National Committee of Enquiry into Higher Education" available at https://bei.leeds.ac.uk/Partners/NCIHE/ (accessed 10/5/2011)

Goldschmid B and Goldschmid L (1976) "Peer Teaching in Higher Education: a Review" *Higher Education* Volume *5* pp 9-33

Harris KJ, Zhao J (2004) "Industry internships: feedback from participating faculty and industry executives" *International Journal of Contemporary Hospitality Management*, Volume 16(7) pp 429 – 435 Hordyk V (2007), "A convergence of perspectives: enhancing students' employability" in E. O'Doherty

Education in a Changing Environment, Proceedings of the fourth conference, www.ece.salford.ac.uk (accessed 10/5/2011)

Kane A. (2006) "Peer-to-peer mentoring by nursing students" *Nursing Times* 30/11/2006 http://www.nursingtimes.net/nursing-practice-clinical-research/peer-to-peer-mentoring-by-nursingstudents/207779.article (accessed 10/5/2011)

Leitch Review of Skills (2006) "Prosperity for all in the global economy - world class skills – Final report" HM Treasury available at http://www.official-

documents.gov.uk/document/other/0118404792/0118404792.pdf (accessed 10/5/2011) Lightfoot L (2009) "Graduate jobs crunch calls for experience" *The Times* 18/01/09

Mackenzie N, Evans M, Jones AC (1976) *Teaching and Learning – an Introduction to New Methods and Resources in Higher Education* Unesco International Association of Universities Paris 2e

Mandilaras, A. (2004) "Industrial Placement and Degree Performance: evidence from a British Higher Institution" *International Review of Economics Education* 3(1), pp 39-51

Morgan H. (2007) "Why Students Avoid Placements" in E. O'Doherty *Education in a Changing Environment, Proceedings of the Fourth conference*, www.ece.salford.ac.uk (accessed 10/5/2011) Neill, N. and Mulholland, G. (2003), "Student placement - structure, skills and e-support" *Education and Training*, 45(2) pp 89-99.

Newton FB Ender SC (2010) *Students helping students – a guide for peer educators on College campuses* Wiley, San Francisco, 2e

Paglis LL, Green SG & N. Bauer TN "Does adviser mentoring add value? A longitudinal study of mentoring and doctoral student outcomes" *Research in Higher Education* Volume 47 (4), pp 451-476

Rawlings, P., White, P. & Stephens, R. (2005) "Practice-Based Learning in Information Systems: the Advantages for Students" *Journal of Information Systems Education* 16(4), pp 455-63

Terrion JL, Leonard D (2007) "A Taxonomy of the Characteristics of Student Peer Mentors in Higher Education: Findings from a Literature Review" *Mentoring & Tutoring: Partnership in Learning,* Volume15(2) pp149-164

Appendix 4: paper 4

Employability and entrepreneurship embedded in professional placements in the business curriculum

Procter, CT

http://dx.doi.org/10.1108/17561391111106025

Employability and entrepreneurship embedded in professional placements in the business curriculum

Abstract

Purpose

This paper explains the practice of professional placements in a large UK Business School, grounded in literature and research concerning the relationship between professional experience and employability. It explores possible further developments of this practice into student entrepreneurship.

Design

The paper outlines the relevant literature and then describes the operation of the scheme in practice. It identifies relevant problems and discusses opportunities for both development and research.

Findings

Professional experience is of immense value to both students and the organisations that host them. Despite reluctance on the part of some of these two key stakeholders, it has the potential for further expansion in terms of number of students on placement, their location, their experience and integrating placements with entrepreneurship education.

Practical implications

Organisations may see the benefit of employing students on one year or shorter contracts, Universities not currently offering professional placements *within the curriculum* to their students may wish to adopt best practice, and those that are already involved may wish to consider the optional/compulsory element of the placement experience in order to address the reticence of many students to secure this experience. The paper suggests solutions to the well-established question 'Can entrepreneurship be taught?' by investigating the idea of Enterprise Placements.

Originality/value

This work helps to explain, in a practical way, the opportunities and problems associated with the implementation of a placement scheme in the context of relevant literature.

Keywords

Placement, professional experience, internship, work-based learning

Introduction

The University of Salford was one of the first Universities in the United Kingdom (UK) to pioneer the idea of a 'sandwich degree' whereby an undergraduate worked for a year in an organisation between the second and final years of their degree. A one year period of employment is an excellent opportunity for the student to develop knowledge and skills in their discipline and for the employer to assess the suitability of a student for a long term future graduate position. Students benefit substantially in developing their professional skills, defining their career objectives, and learning about the different organisations and opportunities available to them.

The paper commences with reference to relevant literature. It then describes how professional placements have been integrated into the curriculum in a large UK Business School. This has taken place across the entire portfolio of programmes at both undergraduate and postgraduate level. This integration has involved the internal and external accreditation of placements, including the participation of employers in assessment. This accreditation has made it possible for the assessment of work-based learning to contribute to a student's final award.

The paper describes the support provided to students, the interaction with employers, and highlights the problems that have been experienced. It concludes by looking at further work that needs to be done to address these issues, potential for research in the field and ideas for further development, and in particular the extension of placements to include enterprise and entrepreneurship.

Please note that some readers will be more familiar with the similar word 'Internship'. Within the context of this paper a Placement is defined to mean a period of employment undertaken by a student that contributes to their programme of study. The type of

placement described in this paper is generally of one year duration, although of course many institutions offer shorter placements.

Literature

Placements in the curriculum bring together two related traditions of practice and research:

the first is the tradition of vocational learning, and the second is more theoretical work advocating experiential learning.

Employers have recognised the value of new temporary employees with fresh knowledge, skills and enthusiasm, typically at relatively modest salaries, who are potential future long term employees (Harris 2004). Universities and students have recognised many benefits of vocational learning and placements, with research showing students with placement experience substantially enhancing their employability (Neill and Mulholland 2003). This is particularly the case during difficult economic times (Lightfoot 2009). A number of studies have shown the benefits of placements to students (Mandilaras 2004, Rawlings et al 2005). This has also been recognised in numerous policy documents, most notably in the UK in the Dearing Review (Dearing 1997) and the Leitch Report (Leitch 2006) which both stressed the value of vocational education.

In Higher Education, work placements offer students the unique opportunity to combine professional experience with their University qualifications. Indeed, many disciplines require student placement experience – for example in most areas of health studies and teacher training placements are a requirement for completing a programme of study. The integration of placement learning is today a common feature of undergraduate business programmes (Evans 2004) and many other disciplines. National organisations (e.g. NCWE, PLACENET and many others in the UK) and international organisations (e.g. WACE) have developed to share experience in placements, and dedicated conferences (e.g. ASET) and journals (e.g. Journal of Vocational Education and Training) have been established to advance knowledge in this field.

More recently, the terms work-based learning and work related learning have become well established. work-based learning can be understood simply as learning that takes place in the workplace; a placement undertaken by a student as part of their programme of study is one type of work-based learning. The term work related learning seeks to distinguish student experience that may not be directly located in the workplace. For the purposes of this paper the terms professional experience, work-based learning and work related learning can all be considered a part of the more generic term ‘experiential learning’.

The value of experiential learning is widely supported in the literature. Generations of scholars of pedagogy have understood the wisdom of the saying attributed to Confucius:

"Tell me and I will forget. Show me, and I may remember. Involve me, and I will understand."

It could be said that this is one of the foundations of constructivism, which is often associated with the theory of active learning (Bonwell and Eison 1991) and experiential learning popularised in the 1980s by Kolb (1984). Kolb drew on the work of scholars such as Dewey, who had stressed the importance of interaction and experience in learning, and Piaget whose research was concerned with the significance of interaction to psychological development.

Kolb developed the Experiential Learning Model (ELM) as being fundamental to learning. The ELM is composed of the following four elements:

- concrete experience,
- observation of and reflection on that experience,
- formation of abstract concepts based upon the reflection,
- testing the new concepts

(http://en.wikipedia.org/wiki/David_A._Kolb)

Essentially these are all components of well organised student placements. Interestingly, this is supported by research conducted by Blackwell et at (Blackwell 2001) investigated the relationship between work experience and employability. They concluded that student reflection on their own learning was a key factor in this relationship. It is also a factor that distinguishes an effective professional placement scheme from basic work experience.

The literature on both vocational learning and experiential learning, which provides us with some theoretical context, is agreed on the close relationship between employability and well managed work placements. The following sections explain how this has been put into practice in one UK Business School.

Salford experience

The University of Salford was first established in 1896 as a Technical College providing vocational training to the working class. Building on these roots, the University, since being established in 1967, has always emphasised the significance of its relationship to industry and commerce. Thus it was natural that Salford was one of the first Universities to offer 'sandwich' degrees on numerous undergraduate programmes. When Salford Business

School was established in 2006 as the result of the merger of 4 former departments, one year placements were already offered as an option to students on BSc programmes in Business and Management, Finance and Accounting and Information Technology/ Systems (IT/IS). Best practice was developed from the scheme offered to IT/IS students so that a 'Professional

Placement Year' module was established common to all students. Students undertaking Leisure and Tourism programmes were subsequently also offered this option. The principles of the module are as follows:

- Students gain experience in the process of securing a placement as well as during their employment
- A Professional Placement should be experience that contributes to a student's learning in their particular degree. This is not the same as work experience, and the University must approve all placements to ensure this fit.
- Students on placement require supervision from both their employer and their University
- This experience should be assessed by both the University and the employer, and contribute towards the student's final degree mark
- This experience generally contributes significantly to the student's results and life chances

Placement module

The Professional Placement module contributes about 11% of the value of the final degree award for those who have undertaken it. The great majority of students who complete a placement (over 90%) achieve one of the two highest classifications of a UK degree i.e. a First class or Upper Second class honours degree. This is in comparison to approximately 50% of the general student population. The assessment includes:

- evaluation by both the employer and University supervisors which they discuss and agree together,
- a presentation to an audience of students, employer and University supervisors,
- a report that describes, reflects upon, and evaluates the experience and
- a weekly logbook

Students may be placed with large multinational organisations which have a well-established route for managing student placements (e.g. Intel take approximately 80 undergraduates on placement in the UK each year) or with small and medium sized enterprises (SMEs) who tend to give the student a greater variety of experience, albeit in a less structured environment. Students are also placed in the National Health Service, local government, and in educational institutions including schools, colleges and universities.

Problems on placement

A number of problems do occur. These can include when the employer is no longer able to employ the student; for example in 2009 one employer ceased trading owing to the recession and the University helped the student secure a position in a second company for six months. Another problem is when it becomes clear that the employer is not providing appropriate experience for the student as described during the application process: this is generally something the placement supervisor can resolve but is in part determined by the ability of the student in question. The third problem is when the student is not able to conduct the work expected of them or when there is a personality clash. In general the University supervisor is able to help resolve these problems but it is must be stressed that such problems are unusual. In general all stakeholders are very satisfied with the outcome of placements; many students return to the organisation for permanent work after graduation, and many employers return to request another student for the following year so that University staff develop an ongoing relationship with specific employers.

External accreditation

In 2008 the Business School secured external accreditation for the placement scheme through the City and Guilds institution. The award of the Licentiate of City and Guilds Institution (LCGI) qualification to students who pass the Professional Placement module is externally verified and enhances the student CVs. External accreditation necessitates an annual visit by an external examiner to ensure the quality of the placement experience and assessment, and the external examiner can pass on their suggestions for continuous improvement.

Postgraduate placements

In 2009 the Salford Business School placement co-ordinator developed the University's first scheme to offer a one year placement option to postgraduate (MSc) students. This commenced as a trial for four postgraduate programmes in 2009-10, and has been extended to all Salford Business School postgraduate programmes from 2010-2011. Students undertaking MSc's have the option, after passing the taught component of their programme, to either complete a dissertation (the default option) or undertake a one year placement.

Securing a placement is conditional upon being offered such an opportunity by an employer. To ensure the academic rigour of the qualification, the main assessment of the placement year is a *work related dissertation*, where the student compares the experience of working in their particular discipline to the theory that they studied during the taught part of the MSc. Thus, for example, a student studying for an MSc in Project Management, who undertakes a junior project management role for their placement, would discuss how

the practice of project management in their experience compares to the theory as covered during their course. The student may investigate a more specific aspect of this experience, for example the application of quality standards in the practice of project management.

At the time of writing it is too early to evaluate the efficacy of this scheme but it is clearly popular with students who recognise the value of experience alongside qualifications.

Support provided

The University provides support for those interested in placements at both a School (Department) level and at a central (University) level. Weekly workshops are provided to students to explain the benefits of placements, how to improve their CVs and applications, good interview technique, and details concerning tests used by employers such as psychometric tests. Support on these human resource techniques is also provided on a one to one basis in response to student demand. Thus for example, students have the opportunity to book a mock interview. Employers are invited to visit the University to speak to students both about opportunities in their organisations, and to give advice on the qualities in an applicant that they seek. An annual placement fair is held

(see http://www.careers.salford.ac.uk/business) where students can meet employers and professional bodies. In addition, during 2009-10, for the first time, ten students, who had returned to the University after completing their placement year, were employed part time to mentor those students looking to secure a placement opportunity. This project was funded by the Centre for Excellence in Professional Placement Learning (CEPPL). The mentors developed new means of support for students, such as daily drop in opportunities and online support through a Facebook group.

Once on placement, the School ensures that every student has an academic supervisor. They visit the student once during the first two months of their placement and once during the last two months. They are also available online or by telephone to provide support should this be needed by the student, and give feedback on draft copies of the student's work. The academic supervisor will also liaise with the employer to ensure that all parties are satisfied with the placement. The supervisor also marks the student's report/ work related dissertation at the conclusion of the placement, which is then moderated by the placement co-ordinator.

Scope for improvement

There are three areas of concern for any placement co-ordinator:

The first is to ensure the quality (and legality) of the placements available and quality of the placement experience. In some cases this means rejecting potential placements as not being suitable to the student's programme of study. In other cases it can involve discussion concerning re-adjustment of the specification of student's duties to more accurately reflect employer requirements or student capabilities.

The second is to ensure a constant stream of suitable placement opportunities to offer to students. This entails continual renewal as organisations close and others open. Ensuring sufficient high quality placement opportunities, which provide a proper salary and meet all required health and safety guidelines, is a challenge during a recession. Some employers are reluctant to invest the necessary time to train students and develop their skills. Offering sufficient placements can only be achieved by a major team effort on the part of staff throughout the Business School and wider University, utilising their contacts for the benefit of students.

The third area of concern is to ensure that there are enough students making good quality applications for every position that is offered. In Salford Business School (at the time of writing) the one year placement is an option. Many students are enthusiastic about this option when joining their programme of study, but this enthusiasm can wane when they are fully involved in their coursework and exams. Securing a good placement can be a long, time consuming and arduous process, and it can be difficult for a student to maintain their enthusiasm after numerous rejections. This reluctance is well established in the literature (Morgan 2006). Thus in practice only a minority take the placement option. In a survey conducted in 2009, of 208 final year students who did not go on a placement year, more than 50% (112 respondents) said they did not undertake a placement because they didn't have the time and/or commitment to make the necessary applications. Some (23 respondents) did not apply because they did not have enough confidence in their own ability, especially if it meant leaving home. Many students (36) also did not appreciate the value of relevant experience to their future job prospects, believing that a degree alone would be sufficient. Finally, many (18) did not see the difference between the casual part time work that is very common amongst British undergraduates, and the professional experience of many one year placement students.

Future development

Student lack of engagement in University initiatives on employability and enterprise is potentially a fruitful area for future valuable research. Perhaps surprisingly, the issue of student motivation to secure placements is a significant concern for Business Schools. Many students do not take part in any University activity that is not a requirement of their

degree, whatever the level of support or opportunities provided. In an effort to increase the proportion of students undertaking placements, from 2011 Salford Business School undergraduate applicants will have to choose whether they want to register on the undergraduate programme with a placement or without. The entry requirement will be higher for the programme involving a placement year and students who register on this programme will be required to apply for and secure a placement year. The University will ensure that the student has all the necessary support to achieve this. Those who are unsuccessful will be able to transfer to the shorter programme without a placement. Not surprisingly, evidence from other UK Business Schools suggests (Procter 2010) that where a placement is compulsory a much greater proportion of students go on placement and are therefore more employable upon graduation.

Enterprise Placements

Entrepreneurship education has assumed greater significance during the recession which developed in Western countries in 2009, being seen by political leaders as an impetus to growth. The placement scheme described above offers serious opportunities for

Entrepreneurship education which are currently being investigated. This investigation is very relevant to the important question posed by a number of authors (e.g. Henry et al 2005, Klein & Bullock 2006) 'Can Entrepreneurship be taught?' Both papers cited above offer evidence from their review of the literature that entrepreneurship can indeed be taught and indeed this was the motivation for the launch of International Journal of Entrepreneurship Education (IJEE). However, I would argue that experiential learning is vital to developing the skills of entrepreneurship.

At Salford Business School we are now adapting the best practice from the well-established one year placement programme to create one year *Enterprise Placement* whereby students effectively employ themselves during their placement. This develops idea of Entrepreneurship education incorporating experiential learning and keeps the University at the fulcrum of innovation.

Research amongst students as to whether they would like to see the aforementioned placement scheme broadened to include one year Enterprise Placements. Four focus groups were held with different student classes on a voluntary basis. The student feedback was very positive and such a proposal is therefore being developed. Within the one year placement scheme, students would have the opportunity not only to be employed in a position relevant to their programme of study, but would alternatively have the opportunity to establish their own business i.e. an Enterprise Placement. The University would approve this on the basis of an assessment of the student business plan and (if approved) provide expert advice in key areas of finance, marketing, information management and physical resources during the year. Thus a group of advisors would liaise

with the student enterprise placement from inception to implementation to review. The student would be assessed on their description, reflection and evaluation of the business they established/ tried to establish and relationship to relevant literature. The grade achieved would not depend upon the success or otherwise of the business. This proposal is creating significant interest amongst all stakeholders and establishes a link between professional placements and entrepreneurship, introducing experiential learning in a valuable way.

Conclusion

This paper has briefly reviewed the literature in vocational and experiential learning which underpins professional placements. It then describes the Professional Placement scheme offered within a major Business School in a UK University. It describes the benefit of such a scheme to students and employers and therefore also to the University itself. It describes the way in which such placements are integrated into the curriculum, the support provided and the problems involved in managing such a scheme. The satisfaction of offering professional placements comes from the academic, professional and social maturity of students returning from placement and the opportunities that open up to them in consequence, alongside the valuable collaboration with employers. The paper has concluded with future developments in a continually evolving and improving project. Most importantly it discusses the possibility of developing professional placements to include Enterprise Placements whereby the student establishes their own business with the support and guidance of the University and as part of their programme of study. This offers the hope that the student may learn Entrepreneurship by doing, and thus address the question 'Can Entrepreneurship be taught?'

References

Blackwell, A. Bowes, L., Harvey, L., Hesketh, A., Knight, P. (2001) *Transforming Work Experience in Higher Education* British Educational Research Journal, Volume 27, Issue 3 pps 269 - 285

Bonwell, C., Eison, J. (1991). *Active Learning: Creating Excitement in the Classroom* AEHE-ERIC Higher Education Report No.1

Boud, D., Solomon, N., & Symes, C. (2001). *New practices for new times*. In D. Boud & N.

Solomon (Eds.), *Work-based learning: A new higher education?* Buckingham: The Society for Research into Higher Education & Open University Press

Henry C., Hill F., Leitch C., (2005) *Entrepreneurship education and training: can entrepreneurship be taught? Part I*, Education + Training, Vol. 47 Iss: 2, pp.98 - 111

Dearing R. (1997) *Higher education in the learning Society* National Committee of Inquiry into Higher Education HMSO

Evans N. *From Once Upon a Time to Happily Ever After: The Story of Work-Based Learning in the UK Higher Education Sector in* Boud D. & Solomon N. (ed) *Work-Based Learning: A New Higher Education?* Taylor and Francis 2004

Gomez, S.L., Lush, D. & Clements, M. (2004) *Work Placements Enhance the Academic Performance of Bioscience Undergraduates.* Journal of Vocational Education & Training. 56(3), 373-85.

Harris K.J., Zhao J., (2004) *Industry internships: feedback from participating faculty and industry executives*, International Journal of Contemporary Hospitality Management, Vol. 16 Iss: 7, pp.429 – 435

Klein P.G., Bullock J.B. *Can entrepreneurship be taught?* Journal of Agricultural and Applied

Economics, 2006

Kolb, D.A. (1984) *Experiential learning: Experience as the source of learning and development* Prentice Hall also see http://en.wikipedia.org/wiki/David_A._Kolb (accessed 17/9/10)

Leitch Review of Skills (2006): *Prosperity for all in the global economy - world class skills – Final report*, HM Treasury

Lightfoot L (2009) *Graduate jobs crunch calls for experience* The Times January 18, 2009

Lucas, U. Tan, P.L. (2007) *Developing a reflective capacity within undergraduate education: the role of work-based placement learning* Report of a research project funded by the Higher Education Academy and the Charitable Trusts of the Institute of Chartered

Accountants in England and Wales 2005–07

Mandilaras, A. (2004) *Industrial Placement and Degree Performance: evidence from a British Higher Institution.* International Review of Economics Education. 3(1), 39-51.

Morgan H (2006) *Why do Students Avoid Sandwich Placements?* Proceedings of the 3rd Education in a Changing Environment Conference www.ece.salford.ac.uk (accessed 17/9/10) Neill, N.T., Mulholland, G.E. (2003) *Student placement –structure, skills and e-support* -Education and Training, Vol. 45 Iss: 2, pp.89 – 99

Procter C (2010) *Analysis of student placement numbers on Business programmes* unpublished report available on request

Rawlings, P., White, P. & Stephens, R. (2005) *Practice-Based Learning in Information Systems: the Advantages for Students.* Journal of Information Systems Education. 16(4), 455-63.

Appendix 5: paper 5

Using e-portfolios to support student work placements

Procter, CT and Whatley, JE

Using e-portfolios to support student work placements

Abstract

Student placements in organisations help to develop graduates with 'employability', defined here as "A set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke 2006 p8) Often the placement is an assessed part of the programme of study, so it is essential that tutors see documentary evidence of achievements of the student, in order to be able to adequately assess the student's performance . This paper presents findings from a trial of an electronic portfolio (e-portfolio) system for students from Salford Business School on a one year placement. Feedback from the students was mixed, some finding it a very good way to collect their evidence of achievements at work, whilst others were critical for a number of reasons. These included a lack of integration with other software and processes they used, non-assessment of their portfolio work and lack of engagement from some tutors. Overall the project was not a success and was not continued. This was not due to intrinsic features of the tool, but the experience provided important lessons for the adoption of e-portfolios, and more generally for the integration of technology into mainstream teaching. We suggest that successful adoption of e-portfolios requires their integration with information systems in daily use, clear explanation of their value, assessment of their use and active tutor engagement. Further research would be valuable concerning the integration of e-portfolios with social media widely used by students and not necessarily supported by their institution.

1. Introduction

This paper gives the findings from a trial of the use of e-portfolios by students undertaking one year 'sandwich' placements. Placements are defined as a period of time that a student spends in an organisation as part of their programme of study, working as an employee of that organisation; the word 'internship' may be more familiar to some readers. In many disciplines in higher education there is a tradition of 'sandwich' courses (Little 2004), which include a placement period nested within the programme, often between the second and final years of study. The benefits of such placements are well established (e.g. Neill and Mulholland (2003).

In 2007 e-portfolios were being investigated by the University Personal Development Planning (PDP) officer, as part of a national UK initiative. The Business School had a well-established, assessed sandwich placement option for undergraduate students. Tutors involved in supervising placement students required documentary evidence of the work conducted, in order to make their assessment, and were interested in adopting new technology that might offer benefits to students and staff involved. Therefore students were selected for a pilot study over a one year period (2007-8). The aim of the research was to study the advantages and disadvantages for placement students of adopting e-portfolios.

The paper begins by briefly discussing some of the benefits of using e-portfolios. It then outlines the implementation of the e-portfolio software for use by students on their placements. This is followed by evaluation of the system used from the student and tutor perspective, considering the affordance of this type of e-portfolio system. The term affordance is used as in the work of Laurillard (2002), and later Conole & Dyke (2004), meaning the behavioural opportunities that the tool affords: for example an e-portfolio affords students the opportunity to keep an electronic collection of their work. Finally there is a discussion of success and failure factors in the adoption of e-portfolios, and guidance for adopting e-portfolios with students on placement.

2. E-portfolios for students in higher education

A portfolio, as a means of showing artefacts relating to learning or experience, is an established practice in disciplines such as the arts, architecture and teacher training. In these fields it is traditional for documentary evidence of achievements or accomplishments to be collected in a paper based portfolio, as a way to show to interested people an individual's capabilities through their past performance. Butler defines a portfolio as:

> "A *collection of evidence that is gathered together to show a person's learning journey over time and to demonstrate their abilities. Portfolios can be specific to a particular discipline or very broadly encompass a person's lifelong learning"* (Butler 2006).

Electronic portfolios provide an opportunity to extend this practice to other disciplines, because digital document exchange and storage allows for a wider range of types of artefact to be included, such as audio, video or other multimedia. An e-portfolio is not only for storing evidence, but can also be used to encourage reflective learning, assessment of learning and showcasing of work to prospective employers. According to Strivens (2007), there has been an uptake of using e-portfolios, in parallel with wider use of digital technologies for learning in higher education, in part driven by findings from the Dearing and Burgess reports. They provide additional opportunities for displaying achievements through different formats and external links, and producing customized CVs.

Abrami and Barrett (2005) suggest that e-portfolios have three objectives: process, showcase and assessment. A view supported by Harper et al (2007), who identify the objectives of eportfolios as structural, learning and showcase. These objectives are linked, as a 'showcase' is valuable for personal reflection and demonstrating career development, but assessment or structural objectives, through collecting and evaluating e-portfolio artefacts, are integral to course structure and assessment (Biggs, 2003). The learning or process objectives reflect an e-portfolio's purpose, which is to document the student's journey. Chambers and
Wickersham (2007) identify the dual objectives of assessment of learning and assessment for learning, and the role of e-portfolios in both of these. Anderson et al. (2009) emphasise the importance of producing a reflective narrative as a learning journey, with links to attached evidence. They report on e-portfolios used with students to populate their curriculum vitae (CV), e.g. outlines of personal goals and self-assessment of completed

learning activities. Within higher education, student placements play an important role in their learning, and using e-portfolios provides opportunities to record experiences and showcase the evidence to tutors, through access over the Internet, providing an extra communication channel. Vaatstra and De Vries (2007) suggested that project or work-based learning is an excellent way to develop generic and reflective competencies. By documenting day to day activities in an eportfolio, and reflecting on actions taken and outcomes from these actions, deeper learning from experiences takes place, new learning is related to prior experiences, solving novel problems can be shown and students come to understand their own thinking and learning strategies. It is this application of e-portfolios that was the intended outcome of this study.

Herner-Patnode and Lee (2009) report on their use of a commercial e-portfolio system with student teachers on their Capstone experience. As a result of this trial the teachers felt that they had a more comprehensive record of their work, and an increased level of reflection, as the system helped the teachers to view their learning process as a whole rather than within discrete subjects. There is potential for e-portfolios as a means of charting a student's journey through work experience, by linking to evidence of achievement (Butler 2006). Here the onus is on the individual to maintain the e-portfolio for their own benefit, to demonstrate professional development.

It is one matter providing software tools to accomplish tasks, but ways in which users actually apply the tools may vary from those anticipated by designers. McGrenere and Ho (2000) defined the 'usefulness' of a system to be its planned action possibilities, and a system 'usability' to be its perceived possibilities. So there may be a difference between the way a system has been designed to be used and the way it is actually used. Although their study was with school aged children, Lakkala et al. (2005) found that affordance played a part in the different ways in which the teaching system was used by the children. McGrenere and Ho (2000) further recognised the need to not only design possibilities of affordance into a system, but also signpost these affordances to the user, to make the system useful. The
'perceived affordance' depends upon the users' experience and knowledge. John and Sutherland (2005) recognised that an actor's past experience affects the use they make of new technology. Another factor affecting adoption of software is resistance to change, on the part of the user, because habit, fear of the unknown and security are well documented reasons why individuals may resist using new technology (Robbins and Judge, 2003:410).

In the next section there is an outline of the rationale for requesting an e-portfolio from students on work placements and description of the particular tool used.

3. E-portfolios for placement students

This research was located at the University of Salford, with students from Salford Business School. An optional one year placement module is offered on all the undergraduate degree programmes. These placements were not simply providing experience of the workplace, but an integral assessed part of the programmes of study. Assessment of the placement required students to produce a personal log book, interim and final reports and to give a

presentation at the university half way through the placement. A tutor from the school visits each student in their placement at least twice during the year, to ensure that the employer is providing a satisfactory learning experience and that the student is recording this experience effectively. Students typically used word processors to record their learning log and to produce their reports, and used other tools for communication with each other, and with university and workplace staff. Using e-portfolio software presented itself as a possible means of formalising the process of keeping electronic records of achievements during the placement year, with the objectives of:

a) enhancing communication with staff at the university and in the work place,
b) assisting with assessment of the placement,
c) allowing the student to have a persistent record that they could continually improve with a view to enhancing their future employability

Students were given autonomy over the content to include, and how they would reflect on their progress. They could permit their tutors to review their progress, could present this record of their progress to prospective employers, and were given responsibility for the content. The adoption of an e-portfolio also offered the staff involved the opportunity to be in the vanguard of the adoption of new technology in teaching & learning.

With these objectives in mind, the placement tutors sought to find an appropriate vehicle for enabling students to record their achievements. The next section describes the system chosen and how the trial was carried out.

4. E-Portfolio software

From three e-portfolio systems evaluated, Nuventive's iWebfolio was selected for a pilot implementation project, (http://www.nuventive.com/products_iwebfolio .html). This decision was based on ease of use, speed of uploading files and the company's previous experience in implementation and training of users. Access to iWebfolio was established for 43 students who were on a one-year placement, together with their tutors. These students were taking either Information Systems or Business and Management undergraduate degree programmes. Each student was provided with a user name to enable them to log in to their personal account. By the time of the start of the trial most of the students had already started working at their placement, so through the university's Virtual Learning Environment (VLE) the instructions and information were made available. Their placement visiting tutor was given similar instructions on using the e-portfolio system. Help was also available from a dedicated member of the student technical services team.

iWebfolio is typical of the range of e-portfolio products available, in that it consists of three main components to enable: uploading items of various formats; entering reflective statements and making presentations as printed documents or web pages. The software guides the user to upload their chosen files to an online repository, then using a template the user can organise a selection of the documents into a portfolio collection. The final portfolio collection can be customised for particular purposes, such as for viewing by the student's visiting tutor, the student's workplace supervisor, or by potential future employers. In order to guide the students, the University took the approach of providing a

suggested template for students to use to present their assorted files and documents, to get them started. But once the students had become accustomed to the software, they could customise their portfolios in any way they chose.

Figure 1 shows the two versions of the template created for the students, slight variations were necessary because of the different assessment of placements for the two programmes of study.

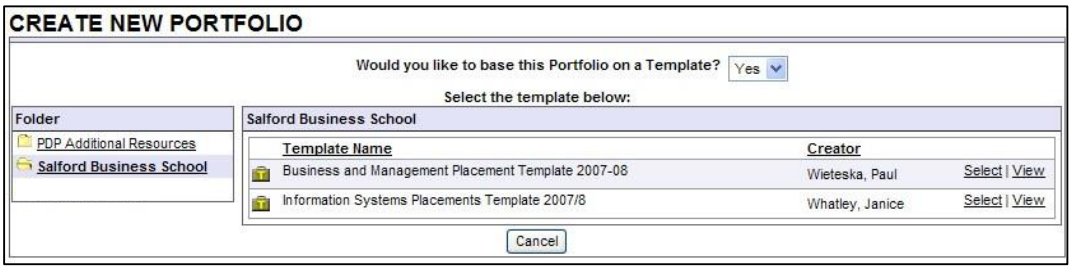

Figure 1 – Templates choice screen.

Templates were designed to guide the students to upload at least a minimum content in the eportfolio, i.e. the Placement Logbook, interim presentation, interim and final reports. Comments or feedback from viewers of the e-portfolio (called 'assessments' in iWebfolio), including the employer and the student themselves, were encouraged (Figure 2). Students were still required to submit these in hard copy format, as previously, partly to guard against any risks involved in implementing the e-portfolio.

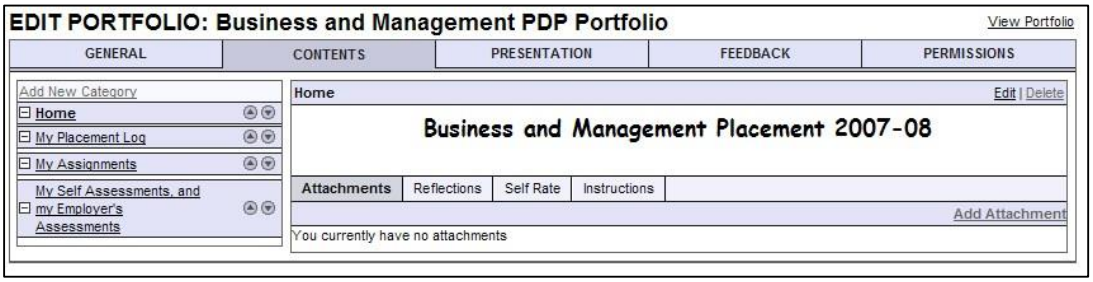

Figure 2 – Content of the template

Figure 3 shows the layout of the area provided for the students to upload their log books on a week by week basis, which could be accessed by tutors monthly.

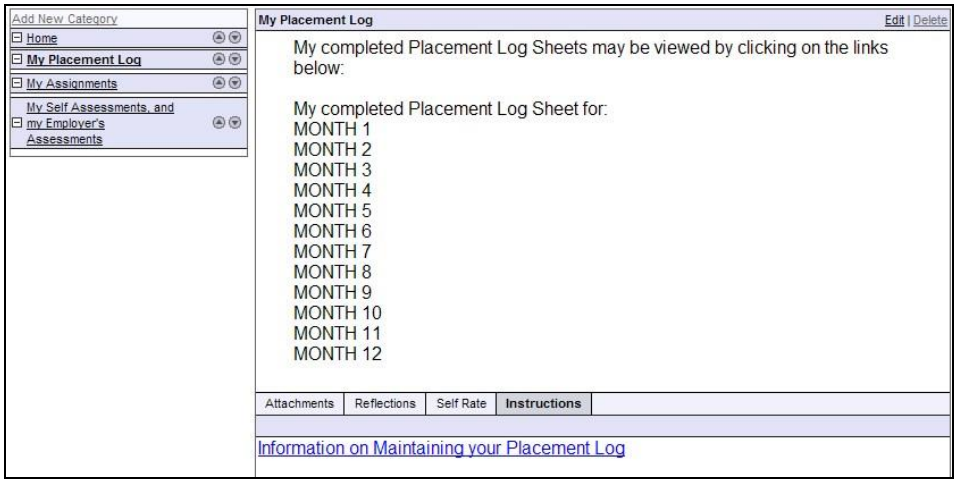

Figure 3 – Screen for access to monthly log book entries

5. Research method

Since the numbers involved (i.e. 43) were relatively small, and we were interested in the feelings of the students towards using an e-portfolio system, an interpretive approach to data collection was taken in this study.

Feedback was elicited from students through two focus groups and face to face interviews. Twenty two students volunteered to take part in the focus groups, where they fed back some of the strengths and weakness of using iWebfolio from their experience. Face to face interviews were also held with six students, in which specific examples were explored. This data from students who were able to provide feedback was recorded and is summarised in the following section.

6. Findings from the trial

In all, 41 of the 43 students on placement used the system. The other two were encouraged to use the e-portfolio on more than one occasion but did not do so. Some simply used the suggested template, uploaded some of their weekly logbooks, but did not continue to use it beyond the first few weeks. Others took great pride in customising the display, and were imaginative in presenting examples of their work to viewers of the e-portfolio.

6.1. Student feedback

The following student quotes represent aspects of their experience raised by more than one student in the focus groups and interviews:

A number commented on ease of use and accessibility – for example:

> *"The software is easy to use"*
>
> *"The instructions sent by the University in the post were very good"*

Others were not convinced about the ease of use or relative advantages of electronic portfolios as against hard copy:

"Keeping logs is essential, but is iWebfolio needed or is it just as easy to keep it as personal folders?" and (similarly raised in the same focus group) *"I would rather just use a folder"*

"I think hard copies are easier to read"

"I find it bulky to use" and *"It seems a bit over complicated"* and *"The navigation is a bit time consuming"*

Interestingly, one student commented that the e-portfolio allowed the tutor to see unfinished work, which he was unhappy about, preferring the tutor to only see finished reports. (The student could in fact have controlled access to specific files but was not aware that the software afforded this facility).

Students commented on intrinsic advantages of an e-portfolio (as against a written log):

"It's good because you can keep all your work in one place" and

"It is handy to have all your stuff in one place"

"It's handy because it can be accessed online"

"Compared to a hard copy logbook it saves paper and so is eco friendly"

"It can look very good with links to work I've created"

One student described how they gave their employer access to their weekly log on the eportfolio, which was then used for their internal review as well as for the purposes of the University assessment.

Many students questioned the participation of their tutors in the project:

"The idea is good but it needs more support from tutors – what's the point of using it if it isn't being looked at?"

"You can see if someone has actually bothered to read it"

"Is anyone looking at the work I put on iWebfolio?"

Some couldn't see the point of using the e-portfolio, or had no motivation to use it, possibly because it was not assessed:

"We still had to hand in a hard copy so what's the point?"

Another student in an interview added that uploading documents to the e-portfolio was just another 'chore' in the week, and that she could more easily have emailed her electronic log to her tutor.

"I don't like tracking my own progress"

"I'm not motivated to use it after sitting in front of a PC all day" This

led some to question the point of adopting the e-portfolio at all:

"I think the money may be better spent elsewhere" and (similarly raised in the same focus group)

"Perhaps improving lecture materials would be a more beneficial use of the time and money"

For many students the use of the e-portfolio was an unnecessary chore, particularly when they did not know if anyone was actually reading the work. Work posted on the e-portfolio was not itself assessed and the commitment of students to personal development and formative assessment was variable. The affordance of the e-portfolio system was not signposted to the students, and there may have been an element of resistance to change, given the additional stress of being in a working environment.

The focus group and interview findings represent a widespread range of positive and negative comments towards the trial. Particularly important to the students was not the issue of whether or not the software was helpful, but feedback from tutors and marks were allocated. In many cases it was clear that tutors had not engaged with their students through the eportfolio.

6.2. Staff feedback

The tutors responsible for organising the placements gave their feedback on the e-portfolio trial in a focus group. One of the tutors made the following observations:

> *"The experience was rather mixed. Some have used it well and some hardly at all. Part of the issue is the extent to which we set expectations – and the extent to which placement tutors follow up in terms of interacting/providing feedback via students' iWebfolios. This itself depends on the extent to which placement tutors 'buy' into the idea themselves. I think this has been patchy at best".*

This tutor identified the key issue as being motivation to use the e-portfolio system, both the students and their tutors. Even though all of the placement students were made aware of the e-portfolio system, as they began their placement year, not all of them chose to look at the system or use it to create an e-portfolio of their work experience.

Another tutor raised the issue of student and staff familiarity with the tool used: iWebfolio did involve accessing and getting used to new software. For tutors, their participation with the student's e-portfolio involved additional work compared to their previous experience of supervising placement students.

Tutors also questioned how the use of the e-portfolio fitted with the broader use of PDP in the University, and assessing learning outcomes of the placement module:

> *"It should be a requirement that students use the e-portfolio system, and that it should form a part of the assessment of the placement."*

This of course replicated comments also made by students concerning assessment.

7. Discussion & suggestions for future use

28 of the 43 students involved in the research took part in focus groups and interviews and we regard the data presented as representative of the whole group. Probably in hindsight this data could have been strengthened by a questionnaire issued to the entire group.

Those observing this trial of an e-portfolio saw sufficient evidence of facilities for learning not possible through more traditional methods of documentation. Opportunities for graphically demonstrating and sharing work are far greater than in a conventional logbook or report. However, there was a lack of alignment of objectives, expectations, implementation and software used. These inter-related issues are discussed in more depth below, in turn leading to suggestions for future use.

7.1. Lack of alignment of the objectives of the e-portfolio project and their implementation

Although the objectives of introducing the e-portfolio were explained to the students (as outlined in Section 3), in many cases the use of the e-portfolio was seen as a 'chore' and did not enhance communication as envisaged. In part this was due to a lack of motivation on the part of the key stakeholders – the students and their tutors. The importance of the relationship between e-portfolios and assessment is recognised in the literature (Strivens et al., 2009), but was not built into this study. There was concern at the outset that there were risks to the students and tutors involved, in being obliged to use unfamiliar software for assessment purposes. In practice these risks were magnified once it was established that work within the e-portfolio was formative only. Where the placement period forms a part of the formal assessment, it is advisable to stipulate that the e-portfolio should be used in the assessment, and tutors should be expected to assess their students' work online. This is unlikely to be effective where the students are required to simultaneously submit work in hard copy.

7.2. Problems with the expectations, perceived benefits and commitment of the stakeholders

The students were free to choose whether to use the e-portfolio system or not. The affordance of any system depends not only upon it being available, but also whether the system is perceived as being useful or providing benefit to the user (Conole and Dyke 2004). Some students clearly saw the e-portfolio as extra work that they were not required to undertake, did not form part of the module assessment, and thus provided little personal benefit. Thus expectations of tutors need to be conveyed to the student users, and continually reinforced.

Part of the failure of this trial can be attributed to some tutors providing minimal support and encouragement to their students, as ongoing feedback. Time pressure and the necessity to learn a new system were cited as reasons preventing tutors from fully 'buying into' the pilot. Furthermore assessed work was also available in hard copy. For an e-portfolio to work in this context it is essential for placement tutors to interact with their placement students by providing feedback on their submissions on a regular basis, including assessment of their students' work online.

7.3. Lack of alignment between the method of implementation of the e-portfolio and the delivery of the module

When the e-portfolio software trial was started, students were given very detailed instructions on using the system, but very little advice on what sort of content to upload, the level of detail to be included and how the content could be incorporated into an e-portfolio. The tutors involved in the trial were also learning the e-portfolio system, so there was a lack of clarity about the content expected from the students, and whether the sort of e-portfolio the system produced would be suitable as the required work for assessment purposes.

7.4. Lack of integration of the software and processes experienced by the student at University compared to on placement

Using e-portfolios with placement students should be viewed within the wider context of personal development planning (PDP) through their whole university career and beyond. Students had no prior experience of the e-portfolio system adopted for this trial, and in general had no interest in using it subsequently. The e-portfolio did not fit with the tools and processes used in any of the students' workplaces, for example staff appraisal. In general, therefore, the benefits of adopting the e-portfolio system did not outweigh the personal cost for the stakeholders. The e-portfolio software should have been introduced prior to the commencement of the placement, with the full involvement of their tutors, who could then have offered relevant guidance on the content uploaded.

Not only should students ideally be familiar with the system prior to their placement experience, but they should see lasting value from its use. PDP is promoted throughout the years of undergraduate study, so the best chance of success for PDP and e-portfolios is if tutors guide and assess students in developing this online presence, throughout the years of their undergraduate degree programs. Thus, for example, when applying for a placement, students could use an e-portfolio to showcase their achievements built up over their first years of undergraduate study. The wealth of experiences students engage in during their placement could be used to provide valuable evidence for subsequent employment. Students at most Universities are familiar with VLEs, some of which also provide e-portfolio facilities. This familiarity offers advantages compared to a bespoke e-portfolio system. Artefacts in a VLE however are not typically accessible to external parties such as employers and may be of limited value to the student in the long term in terms of providing a persistent record.

This is related to a much bigger debate about whether universities should provide students with software tools/ Managed Learning Environments, or integrate with those already in common use (e.g. see Sclater, 2008). The majority of today's students and employers are frequent users of social media, and it is questionable as to whether higher education should seek to integrate PDP with this experience, rather than cultivate alternatives. It may be the case that widely used social media may be more appropriate for the development of eportfolios.

8. Conclusions

Using portfolios within the teaching curriculum is well established, and this paper has considered the specific use of e-portfolios for students, who are away from the university on a placement. It is accepted that developing employability skills, is valuable, and recording achievements electronically offers many advantages.

This trial identified a number of problems, which have provided pointers to ways in which eportfolio systems should be adopted, if they are to be successful. Some of the students in this study did use the e-portfolio system as it was designed to be used, finding it to be valuable.

However, the majority did not use it effectively for a combination of reasons, including lack of motivation or incentive, lack of tutor engagement and difficulties in using the e-portfolio. The findings from the trial suggest that implementing an e-portfolio for placement students could enhance the experience, if the system chosen is:

a) Integrated into information systems in daily use by the student at university, with which the students and tutors are already familiar. In the placement situation it would ideally be capable of integration with any system used in the workplace;
b) Implemented so that the intended affordance of the system is clearly signposted to the users;
c) Made a formal part of the assessment of their work placement;
d) Used to monitor and guide the students as an essential part of the tutor role rather than an optional extra.

It has been suggested that the integration of the e-portfolio with social media widely used by the students in their everyday lives would greatly enhance the objectives of the project. This has not been explored in this paper, but is an area for subsequent research. The findings of this study could have been enhanced by the use of a questionnaire, to give stronger data on perceptions of all of the students in this trial.

9. References

Abrami, P., & Barrett, H. (2005) *Directions for research and development on electronic portfolios.* Canadian Journal of Learning and Technology, 31(3), 1-15.

Anderson D, Gardner G, Ramsbotham J, Tones M. (2008*) E-portfolios: developing nurse practitioner competence and capability* Australian Journal of Advanced Nursing vol 26-4

Biggs, J. (2003) *Aligning teaching and assessing to course objectives* International Conference in Higher Education, Aveiro, Portugal.

Butler P (2006) *A review of the literature on portfolios and electronic portfolios* https://eduforge.org/docman/view.php/176/1111/eportfolio%

20Project%20Research%20Report.pdf

Chambers, S. And Wickersham, L., (2007) *The electronic portfolio journey: a year later* Education, Spring 2007, Accessed January 2011: http://findarticles.com/p/articles/mi_qa3673/is_3_127/ai_n32443655/.

Conole, G. and Dyke, M. (2004) *What are the affordances of information and communication technologies?* ALT-J, 12(2): 113-124.

Harper, W. E., McCowan, C. R., Hauville, K. L., Moody, K. E. & Chorazyczewski, D. M. (2007) *Voluntary or compulsory: Using a variety of approaches and models to implement the Student e-Portfolio across 40,000 students at QUT.* IN: e-Portfolio Australia, RMIT University, Melbourne, 26-27 March 2007.

Herner-Patnode, L. and Lee, H.-J. (2009) *A Capstone Experience for Preservice Teachers: Building a Web-based Portfolio,* Educational Technology and Society, 12(1): 101-110. John, P. and Sutherland, R. (2005) "Affordance, opportunity and the pedagogical implications of ICT", *Educational Review,* 57(4): 405-413.

Lakkala, M., Lallimo, J. and Hakkarainen, K. (2005) "Teachers' pedagogical designs for technology-supported collective inquiry: A national case study", *Computers and Education,* 45(3): 337-356.

Laurillard, D. (2002) *Rethinking University Teaching: a conversational framework for the effective use of learning technologies* (2nd edition). London: RoutledgeFalmer.

Little B. (2004) *Employability and Work-based Learning* Higher Education Academy. York Available at http://www.qualityresearchinternational.com/ese/relatedpubs

/Employability%20and%20workbased%20learning.pdf

McGrenere, J. and Ho, W. (2000) *Affordances: clarifying and evolving a concept* Graphics Interface 2000, Montreal, Canada, May 2000,

Neill, N. and Mulholland, G. (2003) *Student placement - structure, skills and e-support* Education and Training, 45(2): 89-99.

Robbins, S., & Judge, T. (2003) *Organisational behaviour*. London: Prentice Hall.

Sclater N. (2008) *Web 2.0, Personal learning Environments and the future of learning management systems,* Open University Centre for Applied Research Vol 2008/13 http://pages.uoregon.edu/not/LMS/future%20of%20LMSs.pdf

Strivens J, Baume D, Grant S, Owen C, Ward R, Nicol D (2009) *The Role of e-Portfolios in Formative and Summative Assessment: Report of the JISC-funded Study* Prepared by the Centre for Recording Achievement for JISC available at http://www.jisc.ac.uk /whatwedo/programmes/elearning/eportfolios/studyontheroleofeportfolios.aspx

Vaatstra, R. and De Vries, R. (2007) *The effect of the learning environment on competencies and training for the workplace according to graduates,* Higher Education, 53: 335-357.

Yorke M. (2006) *Employability in higher education: what it is –what it is not* in Learning and Employability (series one) Higher Education Academy http://www.heacademy.ac.uk/assets/York/documents/ourwork/tla/employability/id116_emplo yability_in_higher_education_336.pdf accessed 20/1/11

Appendix 6: paper 6

(not yet available in USIR for copyright reasons)

Realising the Threshold of Employability in Higher Education

Procter C, and Harvey V. (2018), Chapter 14 in 'Computing in Higher Education', Springer Editors: Carter, J., O'Grady, M., & Rosen, C.

Abstract A substantial body of work has tested and developed 'Threshold Concepts'. A Threshold Concept may be considered "akin to a portal, opening up a new and previously inaccessible way of thinking about something … it represents a transformed way of understanding, or interpreting, or viewing … without which the learner cannot progress" (Meyer and Land in Threshold concepts and troublesome knowledge 1—Linkages to ways of thinking and practising in improving student learning—Ten years on. OCSLD, Oxford, 2003). Little research however exists on the relevance of the concept to employability. Employability is fundamental to Higher Education, yet its role in the curriculum is unclear and contested. Our practice suggests that developing knowledge about employability is a threshold which, when reached, empowers and gives confidence to the student. To achieve this means embedding this knowledge in the curriculum. The paper discusses the delivery of a large module with this aim, explaining how the design of assessment was fundamental in guiding students to a transformed way of understanding employability.

Keywords Employability · Threshold concepts · Competencies · Professional development

1 Introduction

Since the mid 1960s there has been significant change which has paved the way for the development of the current employability agenda in Higher Education (HE) in the United Kingdom (UK). The Robbins report of 1963 (Barr 2014) heralded the creation of many new Higher Education Institutions (HEIs) to ensure that all who were qualified and wished to enter should be able do so (Barr 2014). Figures fromthe Higher Education Statistics Agency (HESA 2017a) indicate that there have since been consistent increases in student enrolments. With the number of first year, first degree student enrolments standing at 542,575 for 2015/16, this shows a 3% increase year on year since 2006/07.

The UK has the second highest graduation rate in the OECD, with around 47% of school leavers entering HE, but such growth is not replicated in the graduate labour market (The Guardian 2016; CIPD 2015). Government figures suggest that 31% of all graduates are not doing graduate—or high-skilled—jobs (BIS 2016a). Employers report (Archer and Davison 2008; Woods and Dennis 2009) that graduates are not work ready and do not have the requisite competencies. Despite a substantial number of under-employed graduates,

employers continuously report a skills shortage (CIPD 2014; CBI 2015), and the role of HE in facilitating this gap is continually called into question (Cranmer 2006). Successive UK governments have responded by steadily increasing the pressure on HEIs to demonstrate the employability of their graduates. When considering Computing graduates specifically, The Tech Partnership report (Matthews 2017) emphasises the gap between student and employer expectations and the need for Universities to develop employability skills. The review conducted by the Higher Education Funding Council for England (HEFCE) led by Nigel Shadbolt (HEFCE 2017) recommended a much greater emphasis on employability and proposed integrating 'work ready' skills as an accredited part of the curriculum.

Following a brief explanation of the evolution of policy, this paper discusses how employability is defined as a set of competencies by employers. It then addresses how best HEIs can help students to demonstrate their employability arguing that this is best achieved by initiatives embedded within the curriculum. We explain the relevance of theory concerning Threshold Concepts and how assessment can be used as the lever to enable students to realise what we term the threshold of employability. The paper explains the design and implementation of a large multi-disciplinary module undertaken by undergraduates. Whilst they were largely on business related programmes (including IT) the approach is equally valid for computing students. Student reflection and feedback is used to demonstrate the relevance of our approach. Conclusions are drawn concerning the value of embedding employability in the curriculum to help students conquer their 'Monsters of doubt' (Hawkins and Edwards 2013).

2 Development of Government Policy on Employability

For over two decades successive governments have sought to intervene to ensure that HEIs addressed the gap between graduate capability and the requirements of the labour market (Artess et al. 2017). The Dearing report (NCIHE 1997) provided a major impetus for UK HEIs to become engaged in employability skills development. There has been a continued policy emphasis on the strong relationship between HE and economic prosperity, and consequent need for the production of 'employable' graduates (BIS 2016b).

Since the turn of the century policy measures have sought to inculcate employability into programmes of study by the use of national metrics. The Destination of Leavers from Higher Education (DLHE) survey, which commenced in 2003, has been conducted with all former undergraduate students six months after their graduation. It allows for comparison between HEIs in relation to the quality of career/employment destinations post-graduation. The data from this is used as a key measure in assessing the performance of HEIs in league tables. More recent initiatives in the UK linking the achievement of such measures to student funding (i.e. the Teaching Excellence Framework, TEF) are designed to further force the hand of University management in delivering employability. It is worth noting however that any data applied for such measurements needs to be placed in context, as data collection methodologies are reviewed to meet the scrutiny of a wider range of users. As such the next data set for DLHE, implemented as the Graduate Outcomes collection will not be published

until January 2020 (HESA 2017b). Importantly what remains is that Artess et al. (2017) suggest that employability has now become one of the top priorities for HEIs.

3 Defining Employability: Understanding Competencies

Understanding the employer approach to employability is fundamental to addressing the issue. Professional bodies have a substantial influence over the curriculum in traditional vocational degrees, such as law or nursing, and the importance of the curriculum in defining employability, knowledge acquisition and training for a career is widely accepted. Many other programmes, such as those in Computing, whilst they are vocational are not training individuals for specific jobs, do aim to facilitate the possession of a mix of employability skills and business knowledge desired by employers. However, today's school children will likely go on to graduate from University and in future work in organisations and job roles that don't yet exist. Upheaval and fluidity in the job market mean that employability is increasingly defined by one's possession of, and ability to articulate, a given set of competencies, alongside requisite technical skills (e.g. Independent 2015; Times Higher 2015).

The focus on competencies in the job application process has become ever stronger in the 21st century: students who can demonstrate these competencies have a substantial advantage in seeking graduate jobs and future promotion.

The Higher Education Academy (HEA 2015) identified a composite list of 34 terms associated with graduate attributes, suggesting that employability is difficult to define, and being able to demonstrate competency is also rather slippery, described as "*a personal state that individuals occupy"* (Artess et al. 2017, p 10). More usefully, Dubois (1998) defines competencies as those characteristics—knowledge, skills, mind-sets and thought patterns—that, when used whether singularly or in various combinations, result in successful performance. There are numerous lists of the competencies most in demand (Diamond et al. 2011): these typically include teamwork, communication & networking, leadership, business awareness, initiative, flexibility, enthusiasm, personality and many others.

4 The Importance of Articulating Competencies

Therefore, the challenge in HE is not just to teach these competencies but to help students realise their possession and develop the ability to articulate them. Students, however, may not fully recognise the importance of engaging with employability while studying, beyond managing their part-time work (Tymon 2013; Greenbank 2015). Tomlinson, in his Review of Graduate Employability (2012), suggests that many do not appreciate the competencies sought by employers, nor have the knowledge to articulate these, despite this articulation being the most critical component of a typical recruitment process. He adds that it is not just about individuals possessing certain competencies which enhance their employability, but being able to package this for employers:

> Brown and Hesketh's (2004) research has clearly shown that …for graduates, the challenge is being able to package their employability in the form of a dynamic narrative that captures their wider achievements, and which conveys the appropriate personal and social credentials desired by employers. (Tomlinson, p 420)

Tomlinson et al. (2017) have developed this further arguing the need for HEIs to develop a range of 'capitals' with the student:

> Capitals can be understood as key resources, accumulated through graduates' educational, social and initial employment experiences, and which equip them favourably when transitioning to the job market. (Tomlinson, p 17)

Such 'capitals' not only include intellectual capital but social capital as well. If, as suggested, employability for recruiters rests upon an individual candidate's ability to demonstrate their competencies, this has great significance for HEIs developing employability. The challenge therefore is not whether or not HE should seek to develop competencies, but *how and in what ways this could be done*, taking into account some students' historical lack of engagement in employability initiatives.

5 How to Deliver Employability?

All Universities have traditionally encouraged their students to consider their future employment and provided support for this, managed via an extra-curricular Careers Service. Typically, they organise employer visits, recruitment fairs and offer careers information, advice and guidance. However, optional engagement with such activities is not sufficient to reach all students and ensure graduates have appropriate employability knowledge and understanding. Thus, many institutions look to the curriculum to see whether and how they can embed employability. This has been given recent impetus in the UK by the support of the Higher Education Academy (HEA) which published a framework for employability in tertiary education (Cole andTibby2013).TheHEA'sreportonPedagogyforEmployability(Peggetal.2012) includes many case studies on embedding employability in the curriculum. None of these however, explicitly link course assessment to the articulation of student competencies in the way described later in this paper.

6 Should Employability Be Developed Within the Curriculum?

Cranmer (2006) conducted research amongst a group of UK Universities, looking at different models of delivery, and concluded that there was limited evidence of the development of 'employability skills' through classroom teaching. She argued that resources would be more usefully deployed by HEIs in employment based training, employer involvement in the curriculum and opportunities for experience with employers such as placements/internships. Her conclusions suggested that teaching employability skills was not achievable or (even) desirable. Tymon (2013, p 853), acknowledges the complexity of employability and further questioned whether the development of employability was within the capability of HE institutions:

> It is also unclear whether many of these skills and attributes can be developed in practice and, if so, what the role of higher education institutions should be. Putting aside the arguments about whether higher education institutions are able, willing or designed to develop employability, there is evidence to suggest there are alternative options which may be more appropriate.

Tymon (2013, p 853) goes on to declare that with improvement from HEI's:

> Skills can be developed and are embedded in the curriculum, but many first and second year students appear to lack engagement with these activities. This must reduce their motivation to learn and inevitably impact on successful development.

Tymon concludes that "development of these [employability skills] is possibly outside the capability and remit of higher education institutions."

7 Making Employability in the Curriculum Work

There is a lack of evidence of the efficacy of seeking to 'teach' or 'develop' the competencies sought by employers. Such efforts can appear to clash with the priority of the curriculum, rightly focused on the subject content of the degree. Our own initiative arose from reflection on the failure of: a) previous efforts to prescribe a Progress File as part of an earlier Personal Development Planning (PDP) initiative and b) extra-curricular employability initiatives to engage the majority of students. In terms of this study, the demographics of the student population were a key driver behind the embedded nature of the module described below. The University has a relatively high proportion of students from Widening Participation backgrounds, currently standing at 42% of the population (University of Salford 2017).

Thispapersuggeststhatwhileitmaynotbepossibletoinstructstudentsinemployability, we can guide them to construct their employability on the basis of their prior experience and knowledge. This knowledge comes from their learning both within and outside the curriculum. For this to be effective, students not only need to appreciate the importance of employability in general but, most importantly, they need to cross the threshold between *their* understanding *and* that of employers.

8 Threshold Concepts and Employability

Meyer and Land developed the theory of Threshold Concepts in 2003 following a research project into the characteristics of effective undergraduate education, particularly in the field of economics. Akin to a portal, achieving a threshold opened up a "new and previously inaccessible way of thinking about something … it represents a transformed way of understanding, or interpreting, or viewing … without which the learner cannot progress" (Meyer and Land 2003). Subsequent investigation has shown that the central tenet of mastery of a subject via Threshold Concepts could be applied to any subject, demonstrating the broader applicability of Meyer and Land's original findings. In particular, work by Cousin (2010) has demonstrated the significance of Threshold Concepts in developing pedagogy as well as facilitating subject specific knowledge. A good example to illustrate new understanding would be a shift from a student of French to a French speaker (Cousin 2010).

This understanding, considered so important by their tutors, is both transformative and irreversible and is not (we would argue) discipline specific. Threshold Concepts have non-subject specific features in common. Their significance in HE has been explored more fully in

a more recent collection of work published in 2016 (Land, Meyer and Flanagan 2016). Flanagan (2017) has summarised the features of Threshold Concepts, in Table 14.1.

The concept of liminality resulted from additional research by Meyer and Land, published in 2006. Liminality involves the active engagement of the learner, as this threshold is crossed back and forth as the student experiences both positive and unsettling shifts in comprehension. Cousin (2010) compares this idea to the age of adolescence. In learning it can involve a period of understanding and misunderstanding at the same time: the experience can be very emotional. The first experience of a job interview is a good example: the experience can be very emotional involving a combination of understanding and misunderstanding. Effective performance in face to face interviews and other employer engagement (for example assessment centres and online video interviews) require a clear understanding of the employer perspective which, when achieved, is a threshold of employability. Achieving a clear understanding of employability meets the description of a Threshold Concept well.

Burch et al. (2014), in their paper on 'Identifying and overcoming threshold concepts and conceptions', stress the importance and difficulty of changing curriculum design and delivery in order to apply the theory. Cousin (2010) argues that a teaching strategy informed by the practical application of Threshold Concepts allows

Table 14.1 Summary of threshold Concepts. Adapted from Flanagan (2017)

Threshold feature	Impact characteristics
Transformative	Once understood, a threshold concept changes the way in which the student views the discipline
Troublesome	Threshold Concepts are likely to be troublesome for the student. Perkins (1999) has suggested that knowledge can be troublesome e.g. when it is counter-intuitive, alien or seemingly incoherent
Irreversible	Given their transformative potential, Threshold Concepts are also likely to be irreversible, i.e. they are difficult to unlearn
Integrative	Threshold Concepts, once learned, are likely to bring together different aspects of the subject that previously did not appear, to the student, to be related
Bounded	A Threshold Concept will probably delineate a particular conceptual space, serving a specific and limited purpose
Discursive	Meyer, Land and Davies (2006) suggest that the crossing of a threshold will incorporate an enhanced and extended use of language
Reconstitutive	Understanding a threshold concept may entail a shift in learner subjectivity
Liminality	Comparing the crossing of the pedagogic threshold to a rite of passage, involving a potentially messy journey to learning. Liminality requires active engagement of the learner, as this threshold is crossed back and forth as the student experiences both positive and unsettling shifts in comprehension

academics to steer a path between teaching-centred and student-centred education, making it appealing across all disciplines. In practice this involves a change of focus from the teaching to the learning, with a particular focus on how the student can develop their learning on the basis of their prior experience.

9 Constructing Employability

In considering our best approach to guide the students towards the threshold of employability, the solution devised follows a constructivist approach to learning and teaching: our approach can be characterised by a saying attributed to Plutarch: “the mind is not a vessel to be filled, but a fire to be lit”. Boud et al. (1985) work on ‘Reflection: turning experience into learning’ was valuable. This advocates the use of assessment and reflection in motivating learning. Wiggins and McTighe (1998) also argue in their book ‘Understanding by Design’ for the idea of deciding first upon the outcome required and then designing the assessment accordingly. Boud suggests further that the teaching and assessment process needs to enable students to draw on their previous experience and knowledge so that they can ‘take some significant responsibility for their own learning over and above responding to instruction’ (Boud 1988, p 32). As Villar and Albertin (2010) suggest, students need to become more actively involved and responsible for their education, investing in their own social capital. Providing students with a better understanding of how to do this and opportunities to participate in student-driven activities can develop and/or demonstrate proactive personality in a practical way. These ideas have become well established in the work on Assessment for Learning (Sambell et al. 2013), promoting the idea of using assessment to promote learning rather than measure it. We were also influenced by arguments concerning the significance of authentic assessment, a term popularised in the paper with that title by Fook and Sidu (2010).

10 The Patchwork Approach to Assessment

We adopted a patchwork approach to assessment as a mechanism to force the involvement discussed above. This is similar to an assessment approach possibly more widely known as scaffolding. Winter’s paper ‘Contextualising the Patchwork Text: Addressing problems of coursework assessment in Higher Education’ (2003) explains the patchwork approach as follows. Academic staff define the module assessment as a sequence of tasks. The tasks themselves are a process of development designed to guide students to construct their own learning, whilst assimilating new ideas within their existing experience. The tasks are both analytical and experiential.

Winter (2003) likens this to bricolage, where the student is encouraged to improvise for each task according to the social, material and experiential resources they have to hand. In this case students are given quick feedback, and social feedback amongst their peers is encouraged.

Students are asked to synthesise the patchwork through self-reflection at the end. In arguing the value of this, Winter (2003) cites Barnett; “Only in that moment of self-reflection can any real state of intellectual freedom be attained … Only through becoming a continuing ‘reflective practitioner’ can the student … gain a measure of personal integrity.” This offers the opportunity, as Moon (1999) suggests, for engagement in personal or self-development in addition to gaining insights and empowerment. This final review and interpretation thus

also holds the possibility of students demonstrating achievement of a threshold of learning about employability.

11 Professional Development Module

We now discuss how this was put into action in a large 20 credit module (one sixth or a year of study) undertaken by 600s year undergraduates on 11 different degree programmes.

A patchwork of assessment (Winter2003) was designed to achieve student enquiry into their own employability; assessments replicated typical recruitment processes. Figure 14.1 illustrates the assessment tasks of the module which closely follow processes

Fig. 14.1 Professional development patchwork assessment

used by employers in an application process. Academic and careers staff together with employers were involved at every stage—significant evidence is available of the benefits of such partnerships (e.g. O'Leary 2017).

These were initiated by an 'as advertised' job description for which students were set a mixture of tasks, commencing with a self-evaluation presentation to their class. They had to judge their stronger and weaker competencies in relation to the job description, drawing upon a wide range of experiences. They were required to give evidence of their strengths using the Situation, Task, Action, Result (STAR) approach, and an action plan to address areas of improvement. Individual feedback was given and (where necessary) support provided.

Students then created a digital profile using LinkedIn. Unlike other forms of social media, the focus here is upon a professional outlook that illustrates the students' current and future employability, highlighting their skills, experience, extra-curricular activity, as well as a summary of their education.

Students then submitted a CV and covering letter for the job description provided. Evaluation of this work focussed on the quality and relevance of the application to the criteria specified, rather than the calibre of the student achievement.

All students were required to complete a series of industry standard Psychometric tests. These tests were treated as a learning opportunity to be reflected upon in the final assessment.

Students from many degree programmes were randomly mixed for an assessment centre which was conducted together with a company partner, aiming to be as authentic as possible, simulating standard practice in recruitment as used by approximately 90% of medium to large employers (AGR 2016). Each student was allocated to a group to tackle a business problem followed by a team presentation. The following competencies: leadership, teamwork and communication were assessed.

By once again using the 'as advertised' relevant job description provided, each studentundertookapanelinterview.Thepreparationofrelevantanswersandpositive engagement was key for this element. The process was conducted as realistically as possible with appearance, punctuality and body language forming part of the assessment criteria.

At the end students were required to synthesise and reflect upon their experience and discuss how they would continue to develop their employability and articulate their competencies. The potential to reach the Threshold Concepts for employability permeated the whole development process. Importantly students were asked to reflect *not* upon the module delivery but rather their own experience of professional development. This could be a critical incident, or perhaps consequence of their performance, that they considered influential to their future development.

This sequence is illustrated in Fig. 14.1, commencing with the self- assessment, moving clockwise around the hexagon to the interview and then concluding with the student self-evaluation:

Every part of the assessment followed the cycle:

(1) Introduction in lectures by academic staff and explanation by employers and other visitors of the thresholds they expected,
(2) Seminar with opportunity for exercises and detailed explanation, plus questions and answers and feedback on draft work,
(3) Submission of assessment,
(4) Quick feedback online with opportunity for personal feedback in the following seminar or by appointment, allowing for development between tasks,
(5) Finalsummativefeedbackfollowingthefinalwrittenself-reflectionsubmission.

The delivery was resource intensive. Sixty staff, employers and postgraduate students were involved in delivering and assessing the module involving many issues of co-ordination, equity and moderation. Substantial deployment of technology in the assessment process (for example in psychometric testing), numerous different opinions, different cultural backgrounds, and many other 'business as usual' issues created significant complexity.

12 Presentation of Data

The data presented in this paper is drawn verbatim from reflective statements submitted by students undertaking the Professional Development module. It is presented anonymously with their permission. The reflective statements used formed the final element of the patchwork assessment developed for this programme of study (see Fig. 14.1). In this final element, students are encouraged and required to examine both positive and negative aspects of their professional development and are assessed upon quality of reflection rather than specific performance outcomes.

We have deliberately selected those statements (i.e. purposive sampling) that illustrate the argument of the paper. Threshold features were used as a framework for qualitatively analysing this data, taking a discourse analysis approach (Alvesson and Karreman 2000). It should be pointed out at this stage that a significant minority of students did not consider employability to be a subject worthy of time in the curriculum: these views are not used in the following section. The sample reported upon in this paper has not been broken down by specific degree programme or any other demographic parameter. In combination we suggest that the comments used demonstrate the attainment of intellectual freedom referred to by Barnett cited in Winter (2003) above. The selected quotes are intended to illustrate student insights that suggest the development of an appreciation of employability based upon threshold and constructivist concepts. They are presented as distinct sections but the content is all inter-related:

1. A number of students discussed how the module helped them come to understand the processes of employment:

"During the study of professional development module, I realised the importance of employability skills. I came to know that set of qualities, skills and knowledge that all newly graduates should obtain to ensure they have the skills of being persuasive in the workplace for their own benefit and their employers." (S1)

"From this module, I have found that I have developed my key employability skills a great deal and now feel I would have a lot more confidence when applying for a job role. I have a greater understanding of what employers are looking for in an ideal candidate … I have learnt that whilst it is important to possess skills such as teamwork, commercial awareness and leadership skills.., it all depends on how you can demonstrate them to the employer by using key experiences and situations to evidence them." (S2)

Both Student 1 and 2 make the point, also raised by others below, that first they needed to understand what was required, and then demonstrate their attainment of this. For some students, including S2, it was patchwork of the module assessment that gave her confidence.

2. Students discussed from their learning that despite initial misgivings, employability was a process of development:

"At the beginning I was very apprehensive about it working as it is just a University module. However, from completing it I can say that I have improved in all aspects especially

compared to the weaknesses I pointed out I had during the personal skills assessment at the beginning of the module." (S3)

"My journey through Professional Development has been an enlightening and welcome experience. My understanding of self-employability has had a boost and I now feel more confident with the knowledge of what makes me employable such as knowing that being able to demonstrate a skill is just as important as possessing it." (S4)

"By taking this module my employability skills have improved drastically… When I started this module in January I had been rejected by five different companies that I had applied for a placement with. Towards the end I had two placement offers… My employability has increased … and my confidence has grown. By using Gibbs reflective model (1988) "to promote self-improvement and to link practice to theory." I am able to improve my employability even further." (S5)

It is interesting to see how many students refer to the development of their confidence, a theme discussed further below. What can also be seen is a level of commitment to the task and perseverance as the patchwork assessment progresses and that the relationship between the different recruitment processes was being understood.

3. As with Student 4 above, others discussed the importance of reflection and self-evaluation in the employability journey:

"I have learned from this module that regular self-evaluation is essential, that employability is vital to develop continuously, and that seeking and recording experiences that will enhance employability will enable me not to just have a career for life but be employable for life." (S6)

4. Although students didn't use the term 'threshold' the quotes below suggest that this is indeed what some students reached.

"At the beginning of this module, I was terrible at reflective thinking and writing and didn't see the point in it. Then I began to understand the importance of reflection on everything I do within my life. It made me begin to think about why reflection was important and how it linked with my personal employability. It is important, within an ever changing world, to conduct regular reflections in both thought and in writing, to enable us to be the best version of ourselves that we can be." (S7)

"Looking back at the whole experience of the professional development module, I have realised that the subject is a life changing experience. The module has made me become a better person with a strong persona… Although things were hard at first, it got better with time. This module obviously gave me confidence… I believe after accomplishing this Professional Development module I am now able to manage myself as a professional. I have identified areas that need to be developed and I have already started building on them."(S8)

5. As can be seen throughout the feedback, gaining confidence was the single most important achievement for many students. This in turn led to a development of their employability and realisation of a threshold:

“The module has helped me transition from an introvert to an extrovert in the working environment by developing my employability skills. I feel that everything I have learnt and developed throughout this module I can develop it by putting it into context when I am on my placement year and further down the line in my working career. From this moment on it is down to me as an individual to develop on the skills I have gained.” (S9)

“When I originally learnt the details of the course I was incredibly nervous as I never identified myself as a person who excelled in areas such as group and face to face interviews… However, having reviewed feedback from each assessed piece of work I have completed I realise my worries were without basis. … This allowed me to identify my main weakness; and it wasn’t my time management, my level of business awareness or my Microsoft skills; it was in fact my level of self-confidence. This module has enabled me to build confidence and has allowed me to demonstrate to myself that I can excel in a recruitment process… It has helped me grow in terms of my skills but also as a person and I believe my future employment prospects are improved thanks to the strengths and weaknesses I have identified and built upon.” (S10)

“Before starting this module I had low self-confidence and underestimated myself…Overall my feelings at the beginning of this module were negative, however after completing assessments, attending lectures and doing my own research I have learnt a lot about myself in relation to employment. Through feedback and self-evaluation I have determined my strengths [and] this module has helped me develop along with weaknesses which I could improve. As a whole I have achieved well throughout the module which has helped build my self-confidence.” (S11)

“I had not given any thought to the expectations that employers will have from me and was focussed on attaining a good degree. This module has been an enlightening experience to my professional character… The self-reflection I have continuously made in this module has made me realise where my strengths and weaknesses lie.” (S12). Whilst quantitative analysis of this module has not been conducted it is probably relevant that in the two years for which destination data is available for students who have undertaken this module, i.e. 2015–16 and 2016–17, there has been a 4% increase from 2014–15 in the proportion of graduates reporting themselves in work or further study (increase from 84 to 88%). In the absence of further research it isn’t possible to claim an association with the module.

13 Discussion

13.1 Constructing Employability

The evidence provided by these reflective statements illustrates how the module experience helped students actively construct their employability rather than passively learning about careers. Authentic assessment (Fook and Sidu 2010) was used as an opportunity for learning (Sambell et al. 2013) rather than a simple measure. The Patchwork of assessment, linked to expert advice, feedback and reflection allowed students to build upon the development of competencies. This accords with Perkins (1999, p 8) characterisation of constructivism as an energising process of discovery, one that yields deeper understanding. In attempting to

capture the form of active learning described by Perkins, the teaching and learning activities sought to allow students to discover or re-discover principles that fostered understanding with practical results. This is illustrated by comments from S4 who discusses using reflection for self-improvement, and consequently changing from receiving repeated employer rejections to securing new job offers.

It can also been seen that students (S5 and S11 for example) were learning from employer rejection and assessment feedback, experiencing phases of liminality within the process. By continually engaging in various activities, such as job applications and CV improvement, students as learners entered this liminal space, engaging with the mastery of employability (Meyer et al. 2006).

13.2 Achieving a Threshold

The reflective statements illustrate the transformative and irreversible aspects of achieving a threshold of understanding of employability. Understanding why an employer requires a combination of competencies is integrative, and can be morale boosting since the threshold of employability is bounded. For example, the employer may not expect detailed technical expertise from an employee but they may require someone with enthusiasm to learn and an appreciation of their own employability. Student statements highlight the transformation, with S4, S5, and in particular S10 stating their change in attitude towards the module, its teaching and their personal learning. The statements also demonstrate liminality aspects relative to attaining thresholds. The process of understanding is not without difficulty for learners: comments such as feeling “nervous” (S11), having “negative feelings” (S12) or “insecurities” (S13) were common and illustrate the disorientation typical of a state of liminality as discussed by Meyer et al. (2006). Students alternated between embracing and rejecting the module, between anxiety and confidence. Because liminality indicates a period of oscillation, by definition some students will not have realised the threshold of understanding of employability until later in their learning journey. For students, this new understanding can be troublesome in a very specific way. For many employers, demonstration of competencies is valued just as highly as qualifications. Some major employers have explicitly said that qualifications are not their primary recruitment metric (Times Higher 2015); rather evidence of employability is of greater significance. Most students have been brought up to believe that the fundamental purpose of their participation in education is the achievement of the highest marks possible. As the final student (S13) says above “my focus was on attaining a good degree”, but as S2 comments; “I have a greater understanding of what employers are looking for in an ideal candidate”. Empathising with the employer perspective and achieving the threshold of employability involves assimilating this troublesome knowledge and this is an essential part of self-realisation and transformation.

13.3 The Importance of Confidence

The student feedback also demonstrates that a constructivist approach can foster confidence, which is an essential ingredient in achieving the threshold of employability. Other researchers have also noted the significance of confidence in the achievement of a

Threshold (e.g. White et al. and also Berg et al, cited in Land, Meyer and Flanagan 2016). The module helped students understand the perspectives and requirements of employers, understand their own development, appreciate the importance of reflection, gain confidence and thus realise a threshold. As S8 comments, "I have realised that the subject is a life changing experience. The module has made me become a better person with a strong persona… This module obviously gave me confidence". Hawkins and Edwards (2013) discuss the 'monsters of doubt' that students experience when learning about leadership. These same monsters equally apply to employability. A key moment is when students understand clearly the competencies employers seek, why they are sought, and how to articulate them. This threshold may be reached after numerous job applications, assessment centres, interviews, or through real experience in employment. Discovering how to effectively articulate their competencies can be a lightbulb moment for students.

Many of the reflective statements submitted for assessment across the cohort include comments relating to increasing confidence. Once students grasp the linkage between their own skills and those required by employers, i.e. an integrative concept, they are creating knowledge *for* and *of* themselves that can be applied across the various aspects of employability. The confidence and perseverance we saw from many of the students was also an important aspect of maintaining engagement that Cranmer (2006) and Tymon (2013) suggested was lacking in other initiatives concerned with the development of employability in the curriculum. This is particularly important as it feeds into the benefits of an active and constructivist learning approach as discussed in our research.

Contrary to the work of Tymon (2013) and others, this paper suggests that HE can and should help guide students toward this self-realisation through the curriculum. This is demonstrated via a collaborative approach. To accomplish this does require a re-organisation of the curriculum (as suggested by Burch et al. 2014), starting with a focus on the final aim (the articulation of competencies), and working backwards through design of multiple assessments to achieve this aim. Substantial teamwork—including the involvement of employers—was essential in guiding students to this final aim or threshold. This approach succeeded in engaging the great majority of students. It also enabled a mind-set change for some of the significant minority to become engaged, to realise the importance of employability and how it applies to them. Overall it was thus much more effective than relying solely on 'traditional' extra-curricular support.

14 Conclusions

Demonstrating employability has become a central component of UK government policy in regard to Higher Education, and HEIs have made employability a key component of their mission. However, the ability to articulate employability skills, more commonly now known by employers as competencies, is not equally distributed and is related to the social capital that is held (Villar and Albertin 2010). Students have or can nurture competencies, but may not appreciate how to do this or how to express the same. This is where Higher Education can provide interventions and, to some degree, light the fire. If well designed, HE can help students construct their own employability, and thus enhance their experience of education more broadly. This paper has argued for the importance of embedding employability in the

curriculum, guiding students to realise the threshold of employer expectations, and as a consequence construct their employability in more effective ways. The use of assessment and specifically, a Patchwork Approach (Winter 2003), is valuable in this process.

The paper explains the design and implementation of a module that has allowed students to recognise their competencies so widely cited as requirements by employers (Tomlinson 2012; Tymon 2013). This module has now been undertaken over a period of five years. Evidence of the efficacy of this approach is provided in excerpts from student reflections: further longitudinal and quantitative research would be necessary to gauge the long term impact.The single most important lesson to come ou tof the feedback from students involved is that confidence is fundamental to expressing competencies and demonstrating employability. Confidence is key to achieving the ThresholdofEmployability.Whilstthesignificanceofsocialcapitaltoemployability is widely accepted, we were not aware of the importance of emotional (Cousin 2006) and psychological capital (Luthens 2007) for students in navigating the liminal space between HE and employability. These issues are clearly presented by Rattray (2016) opening up a whole body of work in Positive Psychology (e.g. Ivtzan and Lomas 2016) which we haven't addressed in the paper.

Valuable further research can be conducted on employability initiatives in HE which take as a starting point the development of student confidence built within the curriculum.

References

AGR (2016) The Association of graduate recruiters annual survey at: http://justoncampus.co.uk/w p-content/uploads/2016-AGR-Annual-Survey-2.pdf. Accessed 20 June 2018

Alvesson M, Kärreman D (2000) Varieties of discourse: on the study of organizations through discourse analysis. Human Relations 53(19):1125–1149

Archer W, Davison J (2008) Graduate employability: the view of employers. Council for Industry and Higher Education, London

Artess J, Mellors-Bourne R, Hooley T (2017) Employability : a review of the literature 2012–2016. Available at https://www.heacademy.ac.uk/knowledge-hub/employability-review-literature-201
2-2016. Accessed 20 June 2018

Barr N (2014) Shaping higher education: 50 years after Robbins. In: Barr N (ed). LSE, London

BIS (2016a) Graduate market labour statistics 2015. Department for Business, Innovation and Skills, London

BIS (2016b) Success as a knowledge economy: teaching excellence, social mobility and student choice. Department for Business, Innovation and Skills, London

Boud D, Keogh R, Walker D (1985) Reflection: turning experience into learning. Routledge Farmer, Oxon

Boud D (1988) Developing student autonomy in learning, 2nd ed. Kogan Page, London

Brown P, Hesketh AJ (2004) The mismanagement of talent: employability and jobs in the knowledge-based economy. Oxford University Press, Oxford

Burch G, Burch J, Bradley T, Heller N (2014) Identifying and overcoming threshold concepts and conceptions. J Manage Educ 39(4):476–496
CBI (2015) Inspiring growth CBI/Pearson Education and skills survey 2015. London, UK
CIPD (2014) Industrial strategy and the future of skills policy. CIPD, London, UK
CIPD (2015) Policy report: over-qualification and skills mismatch in the graduate labour market. CIPD, London, UK
Cole D, Tibby M (2013) Defining and developing your approach to employability: a framework for higher education institutions Higher. Education Academy, available at: https://www.heacademy. ac.uk/system/files/resources/employability_framework.pdf. Accessed 20 June 2018
Cousin G (2006) Threshold concepts, troublesome knowledge and emotional capital: an exploration into learning about others. In: Meyer JHF, Land R (eds) Overcoming barriers to Student understanding: threshold concepts and troublesome knowledge. Routledge, London and New York
Cousin G (2010) Neither teacher-centred nor student-centred: threshold concepts and research partnerships. J Learn Dev Higher Educ (2)
Cranmer S (2006) Enhancing graduate employability: best intentions and mixed outcomes. Stud High Educ 31(2):169–184
Diamond A, et al (2011) Global Graduates into Global Leaders. AGCAS and others
Dubois D (ed) (1998) The competency casebook. International Society for Performance Improvement, Amherst, MA, HRD, & Silver Spring MD
Flanagan M (2017) Threshold concepts: undergraduate teaching, postgraduate training, professional development and school education. Available at: https://www.ee.ucl.ac.uk/~mflanaga/threshold s.html accessed 20 June 18
Fook CY, Sidu GK (2010) Authentic assessment and pedagogic strategies in higher education. J Soc Sci 6(2):153–161
Greenbank P (2015) Still focusing on the “essential 2: 1”: exploring student attitudes to extracurricular activities. Educ+Training 57(2):184–203
Guardian (2016) Editorial: The guardian view on graduates and employment: degrees but not destinations. https://www.theguardian.com/commentisfree/2016/may/03/the-guardian-view-ongraduates-and-employment-degrees-but-not-destinations. Accessed 30 Mar 2017 and 20 June 2018
Hawkins B, Edwards G (2013) Managing the monsters of doubt: liminality, threshold concepts and leadership learning. Manage Learn
HEA (2015) https://www.heacademy.ac.uk/knowledge-hub/graduate-attributes-framework. Accessed 29 Mar 2018 and 20 June 2018
HEFCE (2017) Computer science employability and accreditation. Review led by Nigel Shadbolt http://www.hefce.ac.uk/skills/gradstemreview/csreview/. Accessed 21 May 2018
HESA (2017a) Higher education student enrolments and qualifications obtained at higher education providers in the United Kingdom 2015/16. https://www.hesa.ac.uk/news/12–01-2017/sfr242-student-enrolments-and-qualifications. Accessed 15 Dec 2017
HESA (2017b) New DLHE: destinations and outcomes review. Accessed 27 June 2018
Independent (2015) Leading employers prefer value work experience among graduates over grades. http://www.independent.co.uk/news/education/education-news/leading-

employers-prefer-wor k-experience-over-grades-says-new-research-10286829.html. Accessed 31 May 2015
Ivtzan I, Lomas T (2016) Mindfulness in positive psychology. Routledge
Knowles, M. S., *et al.* (1984). *Andragogy in action: Applying modern principles of adult education*. San Francisco: Jossey-Bass.
Land R, Meyer JHF, Flanagan MT (2016) Threshold concepts in practice. Sense Publishers, Rotterdam, Taipei & Boston
Luthans F, Youssef C M, Avolio B J (2007) Psychological Capital. Oxford University Press, New York
Matthews S (2017) Tech City Talent and Computer Science Graduate Employability: an independent learning review for the Tech Partnership and the JPMorgan's Chase Foundation. https:// www.thetechpartnership.com/globalassets/pdfs/research-2017/techcitytalentandcomputerscienc egraduateemployability_report_may2017.pdf. Accessed 24 Apr 2018
Meyer JHF, Land R (2003) Threshold concepts and troublesome knowledge 1—Linkages to ways of thinking and practising in improving student learning—Ten years on. In: Rust C (ed). OCSLD, Oxford
Meyer JHF, Land R, Davies P (2006) Implications of threshold concepts for *course design and evaluation.* In Meyer JHF, Land R (eds) Overcoming barriers to student understanding: threshold concepts and troublesome knowledge. Routledge, London and New York
Moon J (1999) Reflection in learning and professional development: theory and practice. Routledge-Falmer, Abingdon
NCIHE (1997) Higher education in the learning society http://www.educationengland.org.uk/documents/dearing1997/dearing1997.html. Accessed 20 June 2018
O'Leary S (2017) Enhancing graduate attributes and employability through initiative with external partners. Pract Evid Sch Teach Learn High Educ 12(3)
Pegg A, Waldock J, Hendy-Isaac S, Lawton R (2012) Pedagogy for employability. Available at https://www.heacademy.ac.uk/system/files/pedagogy_for_employability_update_2012.pdf
Perkins D (1999) The many faces of constructivism. Educ Leadership 57(3)
Rattray J (2016) Affective dimensions of liminality. In: Land R, Meyer J, Flanagan M (eds) Threshold concepts in practice. In: Peters MA (Series Editor) Educational futures: rethinking theory and practice, vol 68. Sense Publishers, Rotterdam/Boston/Taipei
Sambell K, McDowell K, Montgomery C (2013) Assessment for Learning in Higher Education. Routledge, London
Times Higher (2015) Ernst and Young drops degree classification threshold for graduate recruitment. Available at https://www.timeshighereducation.co.uk/news/ernst-and-young-drops-degre e-classification-threshold-graduate-recruitment. Accessed 20 June 18
Tomlinson M (2012) Graduate employability: a review of conceptual and empirical themes. High Educ Policy 25:407–431
Tomlinson M, McCafferty H, Fuge H, Wood K (2017) Resources and readiness: the graduate capital perspective as a new approach to graduate employability. J Natl Inst Career Educ Counselling 38(1):28–35
Tymon A (2013) The student perspective on employability. Stud Higher Educ 38(6):841–856

University of Salford (2017) TEF 2 provider submission. University of Salford
Villar E, Albertin P (2010) ‘It is who knows you’. The positions of university students regarding intentional investments in social capital. Stud High Educ 35(2):137–154
Wiggins G, McTighe J (1998) Understanding by design. Association for Supervision and Curriculum Development, Alexandria, VA
Winter R (2003) Contextualizing the patchwork text: addressing problems of coursework assessment in higher education. Innovations Educ Teach Int 40(2):112–122
Woods A, Dennis C (2009) What do UK small and medium sized enterprises think about employing graduates? J Small Bus Enterp Dev 16(4):642–659

References for the main document

Agile Manifesto (2001). Retrieved from http://agilemanifesto.org/

Alvesson, M., & Sköldberg, K. (2018). *Reflexive methodology: new vistas for qualitative research*. 3rd ed., London: SAGE.

BBC (2018). https://www.bbc.co.uk/news/education-46604765 accessed 24/6/2019

Beck, K. (1999). *Extreme Programming Explained: Embrace Change* Addison Wesley

Beed, P., Hawkins, M., Roller, C. (1991). Moving learners towards independence: the power of scaffolded instruction. *The Reading Teacher*, 44(9), pp. 648–655.

Bem, D.J. (1995). Writing a review article for psychological bulletin *Psychological Bulletin* 118(2), pp. 172-177

Biggs, J. (1996). Enhancing teaching through constructive alignment *Higher Education* 32, pp. 347-364

Biggs, J. (1999). *Teaching for quality learning at university: what the student does*. Buckingham, UK: Open University Press.

Biggs, J., Harris, S.W., Rudolph, J. (2019). Teaching for Quality Learning at Changing Universities. A tour de force of modern education history – an interview with Professor John Biggs. *Journal of Applied Learning and Teaching* 2(1)

Boehm, B. (1988). A Spiral Model of Software Development and Enhancement *IEEE Computer* 21(5), pp.61-72

Boehm, B. (2002). Get Ready for Agile Methods, with Care *Computer* 35(1), pp. 64-69

Boud, D., Keogh, R., Walker, D. (1985). *Reflection: turning experience into learning* Oxon: Routledge Farmer

Boud, D. (1988). *Developing Student Autonomy in Learning* 2nd ed., London: Kogan Page

Bourdieu, P. (1986). *The Forms of Capital* in Richardson, J. *Handbook of Theory and Research for the Sociology of Education.* Westport, CT: Greenwood, pp. 241-258

Bourdieu, P. , & Wacquant L.J.D. (1992). *An Invitation to Reflexive Sociology*. The University of Chicago Press.

Bowden, J., & Marton F. (1998). *The University of Learning: beyond quality and competence in higher education*. London: Kogan Page.

Boyatzis, R.E. (2008). Competencies in the 21st century *Journal of Management Development* 27 (1), pp. 5-12

Boyle, T., Cook, J., Windle, R., Wharrad, H., Leeder, D., Alton, R., (2006). An Agile method for developing learning object *Proceedings of 23rd Ascilite conference*

Bringuier, J-C. (1980). *Conversations with Jean Piaget* University of Chicago Press

Burch, G., Burch, J., Bradley, T., & Heller, N. (2014). Identifying and Overcoming Threshold Concepts and Conceptions *Journal of Management Education* 39(4), pp. 476 – 496

Cole, M. (1996). *Cultural Psychology.* Cambridge, MA: Harvard Univ. Press

Collis, J., Hussey, R. (2014). *Business Research-a practical guide for undergraduate and postgraduate students* Palgrave Macmillan Higher Education

Conole, G., Dyke, M. (2004). What are the affordances of information and communication technologies? *ALT-J* 12(2), pp. 113-124

Cooper, G.S., Heinze, A. (2007). Centralisation of assessment: meeting the challenges of multi-year team projects in information systems education, *Journal of Information Systems Education*, 18 (3), pp. 345-356

Cousin, G. (2006). *Threshold concepts, troublesome knowledge and emotional capital: an exploration into learning about others,* in Meyer, J.H.F. and Land, R. (eds.), *Overcoming barriers to Student Understanding: threshold concepts and troublesome knowledge,* London and New York: Routledge.

Cousin, G. (2010). Neither teacher-centred nor student-centred: threshold concepts and research partnerships *Journal of Learning Development in Higher Education* Issue 2

Daily Mail (2018) Retrieved from https://www.dailymail.co.uk/news/article-6061345/Universities-try-lure-Level-students-dont-grades-Mickey-Mouse-courses.html

Dewey, J. (1897). *My Pedagogic Creed* Retrieved from https://en.wikisource.org/wiki/My_Pedagogic_Creed

Dewey, J. (1902). *The Child and the Curriculum* Retrieved from https://ia802700.us.archive.org/15/items/childandcurricu00dewegoog/childandcurricu00dewegoog.pdf

Dewey, J. (1916). *Democracy and Education: An Introduction to the Philosophy of Education*. New York: Macmillan

Donaldson, M. (1978*). Children's Minds*, London: Fontana.

Draper (2013). Notes on social constructivism. Retrieved from http://www.psy.gla.ac.uk/~steve/courses/archive/CERE12-13-safari-archive/topic3/webarchive-index.html

Duffy, T. M., Jonassen, D.H. (1991). New implications for instructional technology? *Educational Technology* 31(3), pp. 7-12

Ertmer, P. A., Newby, T.J. (1993). Behaviorism, Cognitivism, Constructivism: Comparing Critical Features from an Instructional Design Perspective *Performance Improvement Quarterly,* 6(4)

ESRC (2015). PhD submission rates. Retrieved from https://esrc.ukri.org/skills-and-careers/studentships/doctoral-training-centres/phd-submission-rates/

Fenton, A. (2018). The field behind the screen: social capital and the social media communications of a football club brand. Retrieved from http://usir.salford.ac.uk/46691/

Fenton, A., Procter, C. (2018). *Studying Social Media communities: Blending methods with netnography* SAGE business cases 2018. Retrieved from http://methods.sagepub.com/case/studying-social-media-communities-blending-methods-with-netnography

Fook, C.Y., Sidu, G. K. (2010). Authentic Assessment and Pedagogic Strategies in Higher Education *Journal of Social Sciences* 6(2), pp. 153-161

Freire P., (2018). *Pedagogy of the oppressed*. Bloomsbury Publishing USA (i.e. recent reprint)

Goldschmid, B., Goldschmid, L. (1976). Peer Teaching in Higher Education: A Review *Higher Education* Volume 5, pp.9-33

Guardian (2018). Retrieved from https://www.theguardian.com/education/2018/oct/22/uk-universities-face-grade-inflation-crackdown

Guba, E. G., Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, pp.105-117.

Harré, R. (2000). Personalism in the Context of a Social Constructionist Psychology: Stern and Vygotsky. *Theory & Psychology* 10 pp.731-748

Harvey, V., Procter, C. (2019). *Listening to the student voice: consideration of capitals in employability teaching and learning in Higher Education* Advance HE National Conference, Northumbria University

Hawkins, B., Edwards, G. (2013). Managing the monsters of doubt: Liminality, threshold concepts and leadership learning *Management Learning.* 46(1): pp. 26-43

HEFCE (2013). Rates of qualification from postgraduate research degrees: Projected study outcomes of full-time students starting postgraduate research degrees in 2010-11. Retrieved from http://www.hefce.ac.uk/pubs/year/2013/201317/

Heinze, A., Procter, C. (2004). Reflections on the Use of Blended Learning. *2nd Education in a Changing Environment, Salford*. Retrieved from www.ece.salford.ac.uk

Heinze, A., Procter, C. (2006). Online Communication and Information Technology Education. *Journal of Information Technology Education (JITE)*, Vol 5, pp. 235-249

Heinze, A., Procter, C., Scott, B. (2007). *Use* of Conversation Theory to underpin Blended Learning. *International Journal of Teaching and Case Studies* Vol 1 (Issues 1&2)

Heinze, A., Procter, C. (2008). *Is Blended Learning a 'silver bullet' for part time mature student education?* 3rd International Blended Learning Conference, University of Hertfordshire

Heinze, A., Procter, C. (2010). *The significance of the reflective practitioner in blended learning* International Journal of Mobile and Blended Learning. 2(2), pp. 18-29

Honey, P., Mumford, A. (1992). *The manual of learning styles* 3rd ed. Maidenhead: Peter Honey pubs

Inhelder, B., Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence* London: Routledge and Kegan Paul

ISI (2018) Retrieved from https://www.informingscience.org/Publications/245?Search=Procter

Ivtzan, I., Lomas, T. (2016). *Mindfulness in positive psychology* Routledge 2016

Kierstead, J, (1980) Montessori and Dewey: A Comparison of Their Theory and Practice. Retrieved from https://eric.ed.gov/?id=ED198506

Klein, H. K., Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly* 23(1) pp. 67-93.

Kolb, D.A. (1984). *Experiential learning: Experience as the source of learning and development* Englewood Cliffs, N.J: Prentice-Hall

Kozak-Holland, M. Procter, C. (2019). *Kozak-Holland M and Procter C. (2019) Developing a Project Management Case Study from History: A Study using qualitative methodologies - case study research, historiography and interdisciplinarity SAGE research methods cases.* Retrieved from http://methods.sagepub.com/case/developing-project-management-study-from-history-qualitative-methodologies

Land, R., Meyer, J., Flanagan, M. (2016). Threshold Concepts in Practice in *Educational Futures: Rethinking Theory and Practice*, Michael A Peters (Series Editor), vol. 68 Sense Publishers, Rotterdam/Boston/Taipei

Laurillard, D. (2002) *Rethinking university teaching: A framework for the effective use of educational technology.* London: Routledge/Falmer.

Lave, J., Wenger, E., Wenger, E. (1991). *Situated learning: Legitimate peripheral participation* (Vol. 521423740). Cambridge: Cambridge university press.

Lebow, D. (1993). Constructivist values for systems design: five principles toward a new mindset. *Education Technology Research and Development,* 41, 4-16

Lourenco, O. (2012). Piaget and Vygotsky: Many resemblances, and a crucial difference *New Ideas in psychology* 30(3), pp. 281-295

Luthens, F., Youssef, C.M., Avolio, B. J. (2007). *Psychological Capital* New York: Oxford University Press

Mackenzie, N., Evans, M., Jones, A.C. (1976). *Teaching and Learning – an Introduction to New Methods and Resources in Higher Education* UNESCO International Association of Universities Paris 2nd Ed.

McPhail G. (2016). The fault lines of recontextualization: the limits of constructivism in education. *British Educational Research Journal* , 42(2) 294-313

Meyer, J.H.F., Land, R. (2003). *Threshold Concepts and Troublesome Knowledge (1) – Linkages to Ways of Thinking and Practising* in *Improving Student Learning – Ten Years On.* C. Rust (Ed), OCSLD, Oxford

Meyer, J.H.F., Land, R. (2005). Threshold Concepts and Troublesome Knowledge (2) – Epistemological considerations and a conceptual framework for teaching and learning *Higher Education* (49) pp. 373-388

Meyer, J.H.F., Land, R. (2006). *Overcoming Barriers to Student Understanding: threshold concepts and troublesome knowledge* Edited by Meyer, J.H.F., & Land, R. Routledge - Taylor & Francis Group, London and New York

Moon. J (1999). *Reflection in learning and professional development: theory and practice* Abingdon: Routledge-Falmer

Mor, Y., Cook, J., Santos, P., Treasure-Jones, T., Elferink, R., Holley, D., Griffin, J. (2015). *Patterns of practice and design: Towards an agile methodology for educational design research* ECTEL 2015, Toledo, Spain

Muller J. Z. (2018) The tyranny of metrics *Princeton University Press*

Myers, M. D. (2013). *Qualitative Research on Business and Management*. 2nd ed., London, UK: SAGE Publications.

NCIHE (1997). *Higher Education in the learning Society* Retrieved from http://www.educationengland.org.uk/documents/dearing1997/dearing1997.html

Neumann, D.L., Hood, M. (2009). The effects of using a wiki on student engagement and learning of report writing skills in a university statistics course *Australasian Journal of Educational Technology*, 25(3)

NewMR (2017). Retrieved from https://newmr.org/blog/what-is-agile-market-research/

Nicola-Richmond, K., Pépin, G., Larkin, H. (2018). 'Once You Get the Threshold Concepts the World Is Changed Forever': The Exploration of Threshold Concepts to Promote Work-ready Occupational Therapy Graduates *Australia International Journal of Practice-based Learning in Health and Social Care* 6(1), pp. 1-17

Nielsen, J. (1999). *Designing Web Usability: The Practice of Simplicity* New Riders Publishing, Ca USA

O'Leary, S. (2017). Enhancing graduate attributes and employability through initiative with external partners *Practice and Evidence of the Scholarship of Teaching and Learning in Higher Education* 12(3)

Oliver, M., Trigwell, K. (2005). Can 'Blended Learning' be Redeemed? *E-Learning* 2(1)

Orey, M. (2002). *One year of Online Blended Learning: Lessons Learned* Annual Meeting of the Eastern Educational research Association, Sarasota, FL.

Orlikowski, W. J, Baroudi, J. J. (1991). Studying information technology in organizations: Research approaches and assumptions *Information systems research*, *2*(1), pp. 1-28

Palincsar, A.S. (1986). The role of dialogue in Providing Scaffolded Instruction *Educational Psychology* 21, pp. 71-98

Palincsar, A.S. (1998). Social Constructivist Perspectives on Teaching and Learning *Annual Review of Psychology* 49, pp. 345-375

Pea, R.D. (2004). The Social and Technological Dimensions of Scaffolding and Related Theoretical Concepts for Learning, Education, and Human Activity. *The Journal of the Learning Sciences*, 13(3), pp. 423-451

Pegg, A., Waldock, J., Hendy-Isaac, S., Lawton, R. (2012). *Pedagogy for Employability* Retrieved from https://www.heacademy.ac.uk/system/files/pedagogy_for_employability_update_2012.pdf

Perkins, D. (1992). What constructivism demands of the learner. In Duffy, T.M. & Jonassen (Eds.) *Constructivism and the technology of instruction: a conversation,* pp. 161-165 Hillsdale NJ Erlbaum

Perkins, D. (1999). The Many Faces of Constructivism, *Educational Leadership*, Vol 57(3), pp. 6-11

Peterson, P., Walberg, H.J. (1979). *Research in Teaching* Berkeley CA; McCutchan

Phillips, D.C. (1995). The good, the bad and the ugly: The many faces of constructivism *Educational Researcher* 24(7), pp. 5-12

Piaget, J. (1936). *Origins of intelligence in the child* London: Routledge & Kegan Paul

Piaget, J. (1954). *Construction of reality in the child* London: Routledge & Kegan Paul

Plowden Report (1967). Children and their Primary Schools: A Report of the Central Advisory Council for Education (England) London: Her Majesty's Stationery Office. Retrieved from http://www.educationengland.org.uk/documents/plowden/

Plutarch (1927). On listening to lectures. Retrieved from http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Plutarch/Moralia/De_auditu*.html

Pocklington, T., Tupper, A. (2002). *No place to learn: why Universities aren't working* Vancouver: UBC Press

Procter, C. (1997). *Evaluation of the delivery of teaching material through use of the World Wide Web* published in the proceedings of the Computers in Teaching Initiative (CTI) conference in Dublin

Procter, C., Symonds, J. (2001). Designing for Web Site Usability *The Australian Journal of Information Systems* 9(1), pp. 92-101

Procter, C. (2001). *Improving placement management using a Virtual Learning Environment* Proceedings of Association of Sandwich Education and Training (ASET) national conference

Procter, C. (2002) *Proportion, pedagogy and processes: the three p's of e-learning* IAIM International Conference on Informatics Education and Research Barcelona. Retrieved from http://iaim.aisnet.org/ICIER2002/.%5C4c1.pdf

Procter, C. (2003). *Blended learning in practice. 1st Education in a Changing Environment conference* Salford. Retrieved from www.ece.salford.ac.uk

Procter, C., McIsaac, J., Spedding P. (2004). *A case study on developing the Graduate Teaching Assistant role in Higher Education: expectations and concerns* Society for Research into Higher Education National Conference, Belfast

Procter, C., Keegan, H. (2006). *Peer to peer communication between students to facilitate placements* ASET. Retrieved from http://www.asetonline.org/pubs.htm

Procter, C. (2009). *Work-based learning in the curriculum* PMI Symposium, University of International Business and Economics (UIBE) Beijing, China

Procter, C., & Whatley J. (2010). *Use of E-Portfolios to Facilitate and Assess Student Work Placements* in Buzzetto-More. (Eds.). Ch. 9 Informing, Educating Assessing, and Managing with E-Portfolios. Santa Rosa, California: Informing Science Press

Procter, C. (2010). *Student to student pre-placement peer mentoring project* Centre for Excellence in Professional Placement Learning (CEPPL) national conference, Plymouth Winner of prize for best paper

Procter, C. (2011). Employability and entrepreneurship embedded in professional placements in the business curriculum *Journal of Chinese Entrepreneurship* 3(1), pp. 49-57

Procter, C. (2012). Peer mentoring to secure student placements *Higher Education, Skills and Work-based Learning* 2(2), pp. 121-131

Procter, C. (2015). *Penne pomodoro? Shedding some light on Blended Learning* Invited speaker at Professional Lighting Design Convention Rome October 2015 (unpublished)

Procter, C., Mullin, M., Swain, L. (2015). *Matching student skills to SME requirements: The University as facilitator* Institute for Small Business and Entrepreneurship *(*ISBE) National Conference, Glasgow

Procter, C., Harvey, V. (2018). *Realising the threshold of employability* in Carter, J., O'Grady, M., & Rosen, C. (Eds.) Ch. 14 Higher Education Computer Science, Springer

Procter, C. (2019). *Agile Research* British Academy of Management (BAM) Management Knowledge and Education conference (under review)

QAA (2008). Institutional audit: University of Salford 2008. Retrieved from http://www.qaa.ac.uk/docs/qaa/reports/university-of-salford-ia-08.pdf?sfvrsn=2972f581_4

Rattray, J. (2016). *Affective Dimensions of Liminality* in Land, R., Meyer, J. & Flanagan, M. (2016). Threshold Concepts in Practice in *Educational Futures: Rethinking Theory and Practice*, Michael A Peters (Series Editor), vol. 68 Sense Publishers, Rotterdam/Boston/Taipei

Rittel, H. W. J., Webber, M. (1973). Dilemmas in a General Theory of Planning. *Policy Sciences*. 4, pp. 155–169

Rowland, S., (1991). The power of silence: an enquiry through fictional writing. *British Educational Research Journal*, *17*(2), pp.95-111.

Royce, W. W. (1970). Managing the Development of Large Software Systems *Technical Papers of Western Electronic Show and Convention* (WesCon)

Salford (2014). Framework and Guidance for the award of PhD by published works. Retrieved from http://pg.salford.ac.uk/cms/resources/uploads/files/Framework%20for%20%20PhD%20by%20Published%20Works%20Final.pdf accessed 15/1/19

Sambell, K., McDowell, K., Montgomery, C. (2013). *Assessment for Learning in Higher Education* London: Routledge

Schön, D. (1983). *The reflective practitioner* Basic Books, New York

Scholar.google (2019). Retrieved from https://scholar.google.co.uk/citations?user=_VCBYa0AAAAJ&hl=en accessed 12/2/19

Shuell, T.J. (1986). Cognitive conceptions of learning *Review of Educational Research* 56: pp. 411-436

Skinner, B. F. (1961). Why we need teaching machines *Harvard Educational Review* 31: pp. 377–398

Smithsonian (2019). Retrieved from http://americanhistory.si.edu/collections/search/object/nmah_690062

Spence C. (2019) 'Judgement' versus 'metrics' in higher education management Higher Education 761-775

Tam M. (2000) Constructivism, Instructional Design, and Technology: Implications for Transforming Distance Learning. Educational Technology and Society 3(2) 50-60

Tayraukham S. (2009) Academic ethics in research methodology. *The Social Sciences.* 4(6): 573–577

Tenner E. (2018) *The Efficiency Paradox: What Big Data Can't Do* Knopf Publishing

Thorndike, E.L. (1906). *The principles of Teaching, Based on Psychology* New York. Seiler

Timmermans, J. (2018). *Reconceptualizing the liminal space as a space of wellbeing* Presentation at the 7th Biennial Threshold Concepts Conference, Oxford, USA

Tomlinson, M. (2012). Graduate Employability: A Review of Conceptual and Empirical Themes *Higher Education Policy* 25, pp. 407–431

Toledano-O'Farrill, R. (2017). Professional application projects: work-based learning in the curriculum *Higher Education, Skills and Work-Based Learning* 7(1), pp. 21-34

Tomlinson, M., McCafferty, H., Fuge, H., Wood, K. (2017). Resources and Readiness: the graduate capital perspective as a new approach to graduate employability *Journal of the National Institute for Career Education and Counselling*, 38(1), pp. 28-35

Tymon, A. (2013). The student perspective on employability *Studies in Higher Education* 38(6), pp. 841-856

UNESCO (2019). Retrieved from http://www.ibe.unesco.org/en/ibe-staff/jean-piaget

USIR (2018) www.usir.salford.ac.uk (the open access repository of the University of Salford)

Villar, E., Albertin, P. (2010). 'It is who knows you'. The positions of university students regarding intentional investments in social capital *Studies in Higher Education* 35(2), pp. 137– 54

Voltaire (1764) *Philosophical Dictionary* Retrieved from https://fr.wikipedia.org/wiki/Sens_commun

Vygotsky, L.S. (1978). *Mind in Society* Cambridge, Harvard University Press

Vygotsky, L.S. (1989). *Thought and Language* Cambridge, MIT Press

Watson, J.B. (1925). *Behaviorism*. New York, NY: W.W. Norton & Company, pp. 180-190

Webster, J., Watson, R. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review *Guest editorial in MISQ* 26(2), pp. xiii-xxiii

Wiggins, G., McTighe, J. (1998). *Understanding by design* Alexandria, VA: Association for Supervision and Curriculum Development

Willis, J. (1995). A Recursive, Reflective Instructional Design Model Based on Constructivist-Interpretivist Theory *Educational Technology* 35(6) 5-23

Winter, R. (2003). Contextualizing the Patchwork Text: addressing problems of coursework assessment in higher education *Innovations in Education and Teaching International* 40(2), pp. 112-122

Witt, C. (2009). *Real Leaders Don't Do PowerPoint: How to speak so people listen: How to Sell Yourself and Your Ideas* London: Piatkus books

YouTube (2010) Film of placement mentors. Retrieved from https://www.youtube.com/watch?v=dSKhQp2RO2o