

**“ANYONE THERE?”  
ONLINE PROBLEM-BASED LEARNING  
WITHIN ACADEMIC DEVELOPMENT**

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Master of Science in Blended and Online Education**

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## Abstract

At the heart of this research project is Problem-Based Learning (PBL) in online settings within Academic Development (AD). A small scale trial was carried out over a period of 6 months with a group of academic developers and individuals who teach or support learning across UK HE institutions and are studying towards the Postgraduate Certificate in Teaching and Learning in HE/Academic Practice. The aim was to explore whether the online 5-step PBL model, adapted and applied during the trial, would maximise engagement and learning around assessment and feedback, taking into account prior knowledge and experience to shape and reshape existing and construct new knowledge collaboratively through PBL. The trial took the form of a 'naturalistic experiment', aimed at modelling online PBL and enthusing academic developers and lecturers to explore similar approaches within their own practice.

Phenomenography was used as the principal methodology for data collection and analysis, in order to capture the different ways in which a specific phenomenon, in this case the online PBL, was experienced by the participants and identify 'categories of description's (Marton, 1994) linked to specific research questions. In keeping with phenomenographic tradition, the main data collection tool was the individual interview. Additional data was collected through a series of questionnaires and reflective accounts.

Findings indicate that online PBL has the potential to enable and extend engagement as well as collaborative learning within AD in multi-disciplinary groups beyond institutional boundaries. Participants reported that they found the trial beneficial for their learning and especially enjoyed working with colleagues from different institutions, but also confirmed that there were a number of areas that should be improved, such as facilitation, communication, community formation and the use of technology as well as training provided to online facilitators, to make future online PBL activities more fruitful. Further investigation and adjustments to the model used are therefore needed before applying online PBL within mainstream AD provision.

### Keywords

Problem-based learning, Academic Development, PgCert, online learning, Web2.0, phenomenography, social media

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## CHAPTER 1

### INTRODUCTION

#### 1.1: Study Background

Problem based learning (PBL) has been used extensively and successfully since the 1960s in multiple disciplines (Savery, 2006; Hung, 2009) but only to a limited extent within social sciences according to Mills (2006). Savin-Baden (2000) calls on HE institutions to adopt PBL approaches in their curricula, and cites a wealth of evidence which suggests that PBL is a very effective student-centred learning and teaching approach.

This investigation revealed limited evidence about the use of PBL in general and online PBL in particular within current AD within the UK and internationally. (Barrett 2005, 2010; Donnelly 2002, 2010a).

The researcher who undertook the study reported here is an Academic Developer interested in exploring if PBL successes in other disciplines could be replicated within AD through the application of online PBL. Specifically, this study explores whether a PBL strategy could be used in AD to enhance critical and creative thinking and teaching skills in general; to embed them in practice and utilise the knowledge and skills academics already have to enrich their perspectives and increase productivity (Surowiecki, 2004) by collaborating with colleagues from other HE institutions and disciplines around the United Kingdom (UK).

Within this content, a particular interest lies in the development and application of an online PBL approach within AD for HEA-accredited programmes such as the PgCert in Teaching and Learning in HE (TLHE) or similar provisions offered to new academics which are mostly institutional focused and delivered in a variety of ways.

Web 2.0 technologies have the potential to effectively enhance PBL (Jawah, 2002; Ge et.al, 2010), and can be utilised for flexible online collaborative group work and enabling learners to co-construct knowledge .

The participants in this study were academics and academic developers from different HE institutions in the UK. They participated in an online PBL trial during the Academic Year 2010/11 from September 2010 to November 2010. Freely available Web2.0 technologies including blogs, wikis and synchronous online communication and collaboration tools were used to investigate and problem-solve creatively (Hmelo-Silver, 2004), and construct knowledge collaboratively (Vygotsky, 1978).

The voices of the participants were recorded and analysed in different ways throughout the trial, to provide an in-depth insight into the online PBL learning experience.

A recent paper by the researcher based on this research project has been accepted and will be included in the proceedings of the Celebrating the Past and Embracing the Future: Evolution and Innovation in Problem-Based Learning, Conference 30 & 31 March 2011 (see Appendix 13)

## **1.2: Study Area**

The study area is PBL in online settings within AD and in particular the application within HEA accredited postgraduate programmes such as the PgCert in Teaching and Learning in HE.

## **1.3: Dissertation Structure**

In the first part of this dissertation, an overview is presented together with aims and research questions. A literature review follows linked to PBL and AD through time. Relevant information and research around blended and online PBL within different disciplines is included.

The online PBL trial is then presented together with the rationale, structure, context and content, as well as the methodology applied, data collection strategies used and first observations.

Finally, the findings of the PBL trial are presented, and the project is evaluated. Conclusions and recommendations are made to engage in further exploration and research in the area of online PBL within AD.

## **1.4: Aims and objectives**

PBL within AD was chosen based on this researcher's personal interest in PBL, the lack of PBL in social sciences, the need to understand the potential of online PBL as a new area for research, and a desire to investigate and explore its use in online settings; particularly with academics studying towards the Postgraduate Certificate in Teaching and Learning in HE (PgCert) or similar programme.

The overall aim of this research project was to introduce and evaluate an online PBL approach within AD.

The research questions were as follows:

1. Could a contributor-driven online space of real-life educational problems/scenarios be used within AD (more specifically within the PgCert) to enable more rapid problem-solving skills development? If so, how?
2. Could the online inter-institutional space connecting academics studying towards the PgCert in different institutions create additional opportunities for collaborative learning?

3. Could this approach be developed further and become an integral part of the PgCert programme, and be linked to specific assessment activities?

The objectives were as follows:

- To create an online collaborative space to enable academics to develop problem solving skills, through online PBL, with the application of collaborative learning approaches and web2.0 technologies.
- To share experiences online and trial PBL using one scenario with 2 groups of academics studying towards the PgCert. Academic developers play facilitator roles during online group work tasks during the trial.
- To evaluate the usefulness and effectiveness of the online PBL model adapted and used for the development of problem-solving and skills development in general.
- To make specific recommendations for online PBL using Web2.0 technologies within AD.

In this chapter, an introduction to the research project has been provided. The literature review follows in the next chapter and aims to present some of the key features of PBL in general, noting important milestones of the PBL journey so far. Current practice within AD is presented, and online PBL approaches within HE settings are investigated with research linked to these themes.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1: Introduction

In this chapter, a literature review is compiled linked to the double theme of PBL and AD. Their online dimension, context and research are explored as well as current innovative practice and trends.

The review highlights what PBL is and how it has been used within HE over the last few decades with growing popularity since the 1960s (Savin-Baden, 2000) in medical education and other disciplines.

Finally, the journey of AD through recent years and the changes it is undergoing, as well as the potential use of online PBL approaches within this area are explored towards the end of this chapter.

#### 2.2: PBL, the journey

PBL is an active student-centred learning and teaching approach. Authentic, ill-structured problems are used as triggers, such as clinical scenarios in nursing (Niemer, 2010) or real stories with scientific problems in physics (Jian, 2004) and law cases (Bashiran & KADER, 2005) which are used to co-construct knowledge and develop new understanding and a variety of subject specific, as well as higher order thinking and transferable skills within structured small-group learning -supported and facilitated by a tutor.

Developed by Barrows in the 1960s at McMaster University in Canada, and refined in collaboration with Tamblyn (Barrows & Tamblyn, 1980), PBL develops problem-solving and higher order thinking skills, and enables knowledge construction by medical students based on complex and contextualised problem scenarios and a structured and systematic way within groups of students. Whilst it has proven to be an effective approach within Medical Education to enhance learning and maximise engagement as documented by Dochy et.al. (2003), there is strong evidence that suggests PBL can be used effectively within multiple disciplines, and has become increasingly popular (Gürsul et. al, 2009; Donnelly, 2010a) from medicine to chemistry, economics and teacher education. It engages students in “meaning-making over fact-collecting” (Torp & Sage, 2002, p. 1)

PBL is a student-centred learning and teaching approach (Hmelo-Silver et.al, 2009) which is used in different variations across different HE institutions at undergraduate and postgraduate level, nationally and internationally; in particular today within professional education (Savin-Baden, 2000). Baral et. al (2010) note that “there is no uniformity in implementing of PBL” (p. 141) and this evidences its flexibility and openness to be adapted in a variety of

learning contexts. Miller (2006) highlights that “it has been argued that [PBL] is easier to use in ‘applied’ disciplines.” (online) and that “very little has been carried out in the social sciences.” (online). Savin-Baden (2000) believes that there is still room for more PBL application to be embedded within HE programmes across all disciplines and especially the ones less involved with PBL up to today.

An institution-wide PBL approach has been adapted by the University of Maastricht (online) which claims to be the only one to offer all provision based on PBL. Can or should PBL replace all other learning and teaching approaches in HE? This is a question we could perhaps ask ourselves.

PBL might be a child of the 20<sup>th</sup> century, however it is based on the open argument or openness of the “amateur thinker” as captured by Wang et. al (2008), a concept also known as the Socratic Method developed by Socrates in the 5<sup>th</sup> century and recorded by Plato in which the teacher asked critical questions to trigger thinking, reflection and enable learning (Rowland, 2007) in small groups through active participation.

There are differences in the PBL approaches used across countries, institutions, faculties and schools, within undergraduate and postgraduate provisions as mentioned above. However, as Mills (2006) notes “the model adopted is less important than the intention” (online). What all approaches have in common is that they are goal-oriented, based on real-life problem scenarios, for example, (see Hung (2009) for the 3C3R model) facilitated by academics. Baral et. al (2010) note that the teacher in PBL is becoming “the promoter of learning” (p. 144), where students work in groups and are actively engaged in the learning process through which they gain knowledge, develop their higher order thinking skills (Oliver & Omari, 1999) and techniques linked to a specific subject, but also have the opportunity to develop and refine more generic and transferable skills and introduce participants to research (Mills, 2006).

The advantages of learning through real-life ill-structured, open-ended problems and authentic or realistic scenarios from the outset (Linge & Parsons, 2006), where knowledge is constructed (Gürsul et. al, 2009) and where there is not one correct and obvious solution (Baturay & Bay, 2010), have been noted by Hung (2009) and Wang et. al (2008) who view learning through PBL as “a kind of practice of life.” (p. S9) deeply embedded in what humans are and how they learn. Barrett (2010) also states that effectively designed problem scenarios stretch and challenge participants. Oliver & Omari (1999) note that within PBL there is “scope for a variety of solutions and responses” (p. 7) thanks to the openness of the problems.

Woods (2000) claims that “problem-based learning helps us to learn and comprehend new material far better than subject-based learning.” (p. 2-3) Woods (2000) also notes that in subject-based learning, the starting point is what needs to be learned, learn and apply. In PBL the start is the problem, also called a “trigger”, through which the needs for learning are identified. This should be as realistic as possible, as emphasised by Linge & Parsons (2006).

Learning in PBL happens through a structured explorative process. PBL has the power to create, enhance and sustain curiosity and openness (Wang et. al, 2008). Prior knowledge and experience are taken into account when shaping and reshaping new knowledge on one's own and collaboratively within small groups.

Working in groups, enables participants to explore a problem from different perspectives (Mills, 2006), co-creating knowledge collaboratively through learning scaffolding structures and being able to "see the bigger picture" (Eaton & Turner, 2003). PBL includes a number of structured tasks or stages that happen in chronological order and students are required to take different roles during the PBL process, including chairing and scribing. Learners rotate and take these different roles but also act as teacher, researcher, and learner; moving between individual participant to leader of the group task.

This changing of roles, enables participants to develop multiple perspectives on a problem (Wang et. al, 2008) and evidences that PBL is a social-constructivist (Vygotsky, 1978) approach during which learning with and from each other is practised in multiple-dimensions and knowledge is co-created. High-level active engagement in the learning process is required throughout the PBL process (Barrett, 2005).

Research has shown that learning with and from each other can be very fruitful. As McCombs & Vakili (2005) state "[...] learning is enhanced in contexts where learners have supportive relationships, have a sense of ownership and control over the learning process, and can learn with and from each other in safe and trusting learning environments" (p. 1586). Rovai (2002) also highlights the importance of a learning community by noting that "Once individuals are accepted as part of a nourishing learning community, they develop feelings of safety and trust. With safety and trust comes the willingness of community members to speak openly" (p. 322).

Mills (2006) states that within PBL "[participants] are not expected to reach the 'right' answer. There may not be right answers" (online). The problem is used as an apheteria, which according to Woods (2000), Busfield & Peijs (2003) and Baturay & Bay (2010) increases students' curiosity and motivation and works as an energiser (Mills, 2006). Hung (2009) and Donnelly (2005) also support the notion that PBL enhances motivation and empowers participants through providing increased ownership of the learning content and context.

PBL has the potential to transform learning and teaching into an active and highly student-centred stimulating experience in which personalisation is maximised through learner autonomy and ownership of content to be explored and learned based on negotiation with the group but also focused on one's own interests and motivation (Engel, 1991; Woods 1995; Barrows, 2003; Eaton & Turner, 2003). Prior knowledge, skills and experiences are used to construct, re- and co-construct knowledge from multiple perspectives and viewpoints within a group context and develop multidisciplinary and transferable skills (Busfield & Peijs: 2003) such as teamwork and negotiation,

as well as to improve performance when dealing with complexity (Savin-Baden, 2000). These are developed and fine tuned throughout and equip students with key skills for the world of work as well as enquiry and research (Gürsul et. al, 2009) by providing the opportunity to link theory with practice. This is particularly relevant for HE institutions today since they have become much more responsive to the market demand than ever before and links to industry are strengthened (Brew, 1995). As Wang et. al (2008) note “[...] goal (of PBL) is not merely to instill knowledge, but also includes enhancing the birth and creation of knowledge, cooperation among team members and the attitude of learning” (p. S9).

In addition, PBL is a valuable tool to develop more sophisticated learning strategies, discover oneself and learn how to learn; to become more self-directed, collaborate and problem-solve effectively when confronted with complexity and be able to critique and defend one’s viewpoint. PBL provides a platform for a rich and highly student-centred and student-controlled (Hmelo-Silver et.al, 2009) learning experience that prepares graduates for life and work in the 21<sup>st</sup> century and there is evidence (Holland, 1999; Barrows, 2003; Kolmos et.al, 2007) that PBL does equip students better when entering their profession.

PBL can be used successfully with large groups (Conn et.al 2006). Some of the barriers that might be present can be lifted through the use of technology, because a large part of PBL is carried out asynchronously which enables the development of more efficient support mechanisms (Hmelo-Silver et.al, 2009).

Facilitators play an important part in PBL (Savin-Baden 2003) and their role and support needs change depending on the group they are facilitating and their own experience, skill, knowledge and understanding of PBL. Students are guided to become self- and collaborative discovery learners. Participants and PBL facilitators new to their role and PBL might initially be confused (Butler, 2003) and feel challenged and require more support and guidance (Neville 1999; Savin-Baden 2003) to familiarise themselves with PBL until they become more experienced and confident using this approach.

While it is generally accepted that PBL enables collaborative learning and has a number of other benefits, there is also some criticism about possible disadvantages, such as covering less curriculum content through PBL (Albanese and Mitchell, 1993); that PBL is stressful for staff and students as well as time and resource intensive (Des Marchais, 1993) -technology might be able to help resolve some of these problems as highlighted in Finucane et al (1998). Also, ill-structured scenarios used in PBL may mislead students in their investigation and move them too far away from achieving the intended learning outcomes (McLoughlin & Oliver, online). PBL tutors who are unfamiliar with PBL might also hinder its effectiveness.

Different PBL models have a different number of stages, revealing less- and more highly structured versions (see Appendix 11). For example, Mills’ (2006) model has five, Busfield’s & Peijs’ (2003) has seven and Woods’ (2000) eight.

### 2.3: Online PBL

Technology and the arrival of new pedagogies are transforming the way we deliver and support learning (Oliver & Omari, 1999). Technology-enhanced learning is learning supported by technology. Through these technologies, today's students have more opportunities to participate and engage in dialogue and collaboration with each other and enjoy greater flexibility. They can engage in informal and formal learning opportunities using a wide variety of technologies, including web-based and mobile technologies.

However, it is not generally recommended to replicate face-to-face delivery models within online delivery since, as noted by Parker (1997) and Oliver & Omari (1999), this "tends to significantly underutilise (this) technology and limits many of the learning opportunities that are afforded." (p. 2). Rethinking strategies and approaches are imperative, and make blended and online provision available which is based on sound pedagogical models suitable and effective for technology enhanced learning and teaching.

As Jeong & Hmelo-Silver (2010) note "since the advent of information technology, the availability of resources and cognitive tools has exploded" (p. 84). Technology enhanced learning provides new opportunities for PBL to be used in blended and online programmes, but also in traditional face-to-face provision, to extend opportunities beyond the classroom and use with larger groups (Hmelo-Silver et.al, 2009), beyond time and place restrictions and limitations. Donnelly (2005) also recognises that PBL "provides a natural setting for infusing learning technology into the higher education classroom" (p. 157). Sendag & Odabasi (2009) also highlight that "online learning environments are flexible, attractive and interactive" (p. 134) and are therefore a valuable tool to use within PBL, especially since they are also much easier to create (Donnelly, 2005).

Not everybody agrees with the above and Taplin (2000) recommends that PBL should not be used in distance education courses because it increases the difficulties due to geographical isolation. However, enhanced critical and creative thinking skills developed as a result of blended and online PBL have been documented by Sendag & Odabasi (2009). Online PBL models have been developed and adapted from face-to-face models, such as the 7-stage model by Orril (2000): or the 4-stage model by Malopinsky et. al. (2000) (See Appendix 10).

Juwah (2002) notes that technology, especially shared online spaces, have the potential to effectively enhance PBL since they enable learning with and from each other as well as knowledge co-construction, a view also supported by Ge et.al (2010). Oliver & Omari (1999) documented and recognised the use of the internet as well as conferencing, and asynchronous communication tools such as discussion boards over a decade ago and the role they can play within PBL, when they carried out a study using online technologies within a face-to-face course.

McLoughlin & Lee (2008) suggest that



Tools like blogs, wikis, media-sharing applications and social networking sites are capable of supporting and encouraging informal conversation, dialogue, collaborative content generation and the sharing of knowledge, giving learners access to a wide raft of ideas and representations. (p. 641).

Kallinikos et. al (2010) also highlight that Web2.0 tools “generate new spaces in which people [...] form communities [...]” (online) -Virtual learning environments (VLE) for example. The use and benefits of using asynchronous features such as discussion forums (for deeper engagement and reflection) and synchronous features such as chat, as well as online classrooms (for making decisions) for PBL are explored and presented in various studies as documented by Donnelly (2009). According to Hammond et.al. (2002) VLEs provide a more student-led problem-based style of learning and enable networked learning, both of which are widely used within distance learning programmes (Jones & Steeples, 2002). More recently, Ortiz et. al (2009) explored co-authoring and convenience in collaborating online PBL settings within Teacher Education.

Online PBL could be seen as a form of ‘networked learning’, or “learning in which information and communication technology (C&IT) is used to promote connections: between learners, between learners and tutors; between a learning community and its learning resources” (Jones & Steeples, 2002, p. 2). This is what is practised during online PBL. Connections also feature in Siemens’ (2006) theory of connectivism, an amalgamation of networked and social learning.

The main characteristics of networked learning when applied to online programmes are that communication, socialisation and collaboration are enabled and learning activities, which would otherwise not be possible, can be designed and carried out (Hammond et.al, 2002). It is about linking individuals, ideas and experiences and co-creating knowledge in online environments, while lecturers step back and facilitate learning. Rovai (2002) also supports the importance of creating communities for enabling online collaborative learning. This notion was recently explored by Baturay & Bay (2010) in an online PBL context, confirming that social interaction and the formation of learning communities based on collaborative tasks had a positive effect on the learning experience and limited feelings such as isolation and loneliness among online students.

Online PBL presents a mode of networked and inquiry-based learning that has the potential to create larger ownership and deeper engagement in the learning process, enabling and cultivating learning partnerships within a community of practice (Wenger, 2006). Available technology can be used to bring resources, personal and shared spaces and most importantly interactions as described by Moor (1989) between the learner and content, the learner and the instructor, between the learner and other learners as well as the interaction described by Hillman et. al (1994) between the learner and the interface, effectively under one umbrella, and enable effective online PBL

collaborations and programmes (Yun, 2005) that would otherwise not be possible or more complicated to set-up.

Hmelo-Silver et. al (2006) developed the Socio-Technical Environment for Learning and Learning-Activity Research (STELLAR) which is an online platform for PBL that consists of resources, personal and collaborative learning spaces. A PBL study conducted by Hmelo-Silver et. al. (2009) with a pre-service teacher showed that this approach in a blended context had positive effects on participants' deep learning. Also Gürsul et. al. (2009) found during a recent comparative PBL study involving mathematics students that achievement was higher among students who participated in online PBL and that online groups collaborated better than the face-to-face ones.

Overall, according to Gürsul et. al (2009) and Donnelly (2010a) limited research has been carried out linked to the use of PBL in distance and blended learning programmes but the number has been growing steadily in recent years and we learn more about online PBL and its applications within HE. There are, however, fewer studies focusing on the learning experience in online PBL and the impact facilitation has on students (Savin-Baden, 2003), both areas which are explored within this study.

## **2.4: Developing Academics**

HE used to enjoy greater autonomy and was able to follow its own agenda (Brew, 1995). Today, this academic freedom seems to be somehow limited and HE activity is more clearly linked to industry and the economic world in general (Brew, 1995) and many programmes are designed jointly. HE has undergone a lot of changes in the last 20 years (Further and Higher Education Act, 1992; Dearing Report, 1997; Roberts Report, 2003; Leitch Report, 2006; Browne Report, 2010) and is embracing a larger and more diverse student body in recent years (Brew, 1995; Ramsden, 2008; Halstead, 2009). HE increasingly offers a wider range of flexible programmes at undergraduate and postgraduate level, including blended and fully online provision to home and international students. Non-traditional students and older students returning to education and participating on part-time programmes are increasing (Halstead, 2009). Rapid knowledge and technology advancement as well as influences by the economic situation are changing the learning and teaching landscape in HE (Ramsden, 2008).

These changes have triggered the need for a shift in focus towards teaching and pedagogic research to develop and enhance current academic practice and keep up-to-date with the latest developments in pedagogies. The Dearing Report (1997) and, more recently, the Browne Review (2010) recommend professionalization of teaching in HE.

New academics are increasingly required to complete teaching qualifications at postgraduate level when entering HE in the UK (Ramsden, 2009; Mahoney, 2010) and in many cases this forms part of their probationary requirements. Mahoney (2010) in a recent speech said when referring to teaching in HE

It is almost the only profession in which someone can operate without any qualification or licence to practice. Students go to university to learn, and good teaching is integral to effective learning. But there is as yet no requirement that academics who teach students in higher education should hold a teaching qualification or be qualified to teach. (p. 2)

A statement also echoed in the Brown Report (2010). Such programmes have been offered within HE over the last 10 years. PgCert programmes have become mandatory for new staff (Halstead, 2009; Gosling, 2010) and are recognised by the academics themselves and across the HE sector in the UK. Andresen (1995) supports the view that such programmes trigger real interest and engagement in learning and teaching, increasing self-confidence, and also highlights that

It seems that if a thing is worth working hard at, it is worth getting credit for, and, in the absence of credit, people are unlikely to work hard enough to make significant changes to themselves or the culture of their academic environment, nor will their colleagues respect the work they have done. (p. 44)

In addition, completion of such programmes has started to inform career progression opportunities (Thomas, 2009) and is included in other recognition schemes across institutions, which makes such programmes increasingly more attractive to academics.

The Higher Education Academy (HEA) has been founded to support and share good practice as well as contribute to the enhancement of learning and teaching in HE (HEA, 2010). The HEA is committed to raising the status and standards of teaching in HE and has developed a comprehensive development and recognition scheme in collaboration with the sector.

Today, AD Units play an increasingly vital role in providing continuing professional development to academics, and despite the fact that academic developers are, “criticized [...] for being unable to produce evidence of lasting impact of their work.” (Andresen, 1995, p. 46), they “establish habits and skills for lifelong critically reflective professional practice” (p. 36)

ADUs offer bespoke support, open workshops and accredited provision at postgraduate level, from Postgraduate Certificate up to Master’s qualification in Teaching and Learning in HE (Wareing, 2009) and in most cases, academics from different disciplines are brought together. There are many benefits to an interdisciplinary approach which is proven to encourage an open dialogue between academics across the institution and expose them to a variety of perspectives and issues; widening and deepening their understanding of learning and teaching.

Many PgCert programmes are accredited through the HEA (Thomas, 2009; Carkett, 2009) and this reflects the usefulness and recognition of the UK PSF

(online) across HE. At the heart of such provision are raising awareness and responsibility about student learning, to engage with underpinning learning theories and enable participants to develop general and subject-specific teaching strategies, as well as promote pedagogical research. PgCerts are usually institutionally focused and are delivered in a variety of ways, including more and less structured, block or weekly sessions, as well as face-to-face, blended and online provision. At the University of Salford, for example, we have moved away from fully face-to-face programme towards a blended approach which provides greater flexibility and choice through the introduction of optional modules.

Also, an increasing number of programmes, including CPD frameworks, are mapped against the UK Professional Standards Framework (UK PSF) (King, 2009; Thomas, 2009) introduced by the HEA in 2006, and participants can achieve associate member or fellowship status depending on the depth and breadth of their engagement with the 3 standards descriptors of the UK PSF, an important and flexible tool in staff development (Kell, 2009). The UK PSF is owned by the sector and has been informed through research and is underpinned by theory. Thomas (2009) recognises that the UK PSF

describe standards for good teaching in higher education and [...] (are) [...] supporting the enhancement of professionalization in teaching in UK higher education. (p. 20)

Lawson (2009) refers to learning through regular dialogue to improve teaching and ADs play a vital role in creating opportunities for dialogue with academics on a day-to-day basis. ADs are peer-consultants (Andresen, 1995) and support academics, individuals, groups and whole schools and departments on a day-to-day basis, to develop their academic practice, teaching and research in order to provide a richer student experience to their students and grow as individuals and professionals. They are passionate and can enthuse academics and stimulate change; assist academics in embedding and sustaining what they have learned in their practice; share good practice and celebrate success; are strategic agents for change and innovation at institutional level (Elton, 1995). They also engage in educational research and have the freedom to pursue their interests linked to learning and teaching that might not be linked to institutional priorities (Boud, 1995).

With reference to AD, Boud (1995) states that “not only has the overall magnitude of activity increased, but it has moved to centre stage in institutional priorities” (p. 203). AD has become more important and provisions have been established at all UK HE institutions to support academics. Open workshops are offered next to accredited provision within Teaching and Learning in HE at postgraduate level for academics, and recognition schemes leading to professional qualification and HEA fellowship status have been introduced to acknowledge the professionalism of HE lecturers. The role of the lecturer has become more diverse and excellence in teaching should be recognised and rewarded, along with subject-specific and pedagogical research. It should play a role in promotion (Reward and recognition of

teaching in higher education report, 2009) and also define clear career progression as highlighted by Thomas (2009).

Boud (1995) emphasises that “Staff development must be at the heart of the creative and responsive institutions which we need, in order to ensure the health and vitality of higher education” (p. 213). However, Barrett (2005) claims that there are “perceptions of staff development as lacking academic rigour” (p. 122), and suggests the use of PBL in Academic Staff Development as hard fun, to make learning more meaningful and enable participants to link teaching and research through active collaborative engagement in the learning process.

Extensive literature is available on PBL within nursing education where it has been shown to enhance students’ ability to critically apply knowledge and collaboratively resolve real-life clinical problems. The lessons learned from the application of PBL in nursing are also relevant for other disciplines. During this investigation, only limited evidence was found for the use of PBL in general and online PBL in particular within current AD and PgCerts specifically. This confirms Murray & Savin-Baden (2000) findings and appears to contradict Donnelly’s (2009) claim that PBL “is well established in higher education, AD and elsewhere” (p. 3). However, PBL might be more common for workshop activities than PBL driven approaches.

Donnelly later (2010a) notes that AD activities in general are in need of further development and goes on to say that there is limited evidence of exploration around technology enhanced learning and teaching approaches within AD, highlighting the need to engage academics in staff development activities linked to technology enhanced learning and teaching approaches that can transform the curriculum design and delivery as well as the student experience. In her earlier work, Donnelly (2005) uses technology to support the accredited postgraduate AD within her institution and recognises the potential technology has when it is based on pedagogy; as well as the challenges and barriers, especially for staff who are less familiar with using technology in their practice.

Barrett (2005, 2010) also carried out PBL research within AD. She explored the concept of hard fun using PBL (Barrett, 2005) to introduce a more creative, playful and academically rigorous approach in AD and in PgCerts. Her findings suggest that PBL is hard but also fun because it is hard and demanding and has, as a result, the power to transform us. In a newer study, Barrett (2010) investigated how participants talked about the PBL process. They were engaged during face-to-face PBL tutorials and constructed knowledge through collaboration, during a module of the Postgraduate Diploma in Learning and Teaching in HE which had a PBL content and process. Her findings confirm that PBL tutorials might be messy and chaotic at times but also creative and result in new knowledge generation within the PBL groups.

Donnelly (2010a) explored blended PBL in the context of AD within a blended PgDip module using WebCT with a focus on how technology can enable and

enhance interactions. Her findings suggest that interaction strategies, including strategies for community building, are important factors for the success of blended programmes and that these need to be designed in such a way that they enhance and not just replicate the face-to-face experience. Her findings are mirrored by Baturay & Bay's (2010) observations who also investigated PBL and the notion of community within online settings and found that students felt more connected online when they were involved in collaborative tasks. Palloff & Pratt (2005) highlight that collaborative tasks are vital ingredients for the formation of community forming, a view also supported by Rovai (2002); while Donnelly (2009) suggests that the combination of PBL and the use of technology can create opportunities for transformative learning, a re-evaluation and shift of perspective and beliefs (Mezirow, 1997).

All current research around blended and online PBL seems to engage participants from a single institution. However, online AD can offer HE institutions a more flexible provision for staff, the opportunity to engage with colleagues from different disciplines and institutions and model good use of technology-enhanced and online learning so that academics gain a better understand of online learning from a learner perspective and immerse in online PBL activities.

Within this chapter, a literature review was conducted. Findings confirm that PBL, and technology-enhanced and fully online PBL are widely used in a number of disciplines and professional areas, such as nursing where much research in this area has been carried out. Technologies are already used widely to enable and support a variety of PBL activities and provide new opportunities for exploration and discovery. The investigation also showed limited application of PBL and specifically online PBL within AD and PgCert provision which links participants from different institutions and a gap in related research activity. The current study and pilot carried out look to explore online PBL within AD, specifically application within PgCert provision to link participants from different institutions and to make discoveries that might lead to application and further research.

In the next chapter, the PBL trial conducted within AD is introduced, together with the rationale, the methods and data collection strategies used to evaluate the trial and measure impact.

## CHAPTER 3

### METHODS AND DATA

#### 3.1: Introduction

The research was carried out over a period of 9 months, from May 2010 until January 2011 including the literature review, the planning for the online PBL trial and the evaluation phase of this project. This investigation is a primarily qualitative, interpretivist research project, focused around a 'naturalistic experiment' involving authentic tasks and authentic learners with only a few imposed parameters to ensure the experience that has been set-up is as 'realistic' as possible. Supplementary methods of quantitative data collection have been used.

Within this chapter, the methods, techniques and data analysis tools used are presented.

#### 3.2: Methods and techniques

##### 3.2.1: *The trial*

**Participants:** Two academic developers and eight participants studying towards a PgCert in Teaching and Learning/Academic Practice took part in this trial. All were from different HE institutions across the UK, practising in a variety of disciplines. All participants were new academics with some or little teaching experience. Participants were from the University of Sussex, University of Birmingham, the London School of Economics, University of Wales Institute, University of Glasgow, University of Wales Institute, University of Salford and the University of Chester. Disciplines represented were Psychology, Modern Foreign Languages, Biology, Social Policy, Informatics, International Development, Biomedical Sciences, Economics.

**The trial:** The mode of communication was fully online, asynchronously and synchronously. A trial was conducted to explore if online PBL could be used effectively within AD, and in particular within the PgCert. The trial aimed to assess whether online PBL would enable individuals to participate actively and collaboratively in problem-solving tasks, to organise online group activities, and engage in a dialogue using synchronous and asynchronous communication and collaboration technologies (Hammond et. al 2002) and networked learning approaches (Steeple et.al, 2002) as well as reflect on their professional practice.

The trial concept is based on social-constructivism. The formation of a learning community, rich in interaction, which, as Donnelly (2010a) emphasised, are of high importance to enable any blended learning experience and programme to be effective.

Participants had opportunities to experiment with pedagogical ideas in small groups, engage with PBL and carry out self- and collective reflection as well as multidisciplinary conversations which are important (McLean, 2009) and have the potential to contribute to a rich exchange of ideas, collaborative learning and collective knowledge construction within a learning community.

From a pedagogical perspective, according to Woods (2000), small group PBL usually consists of groups of 3 to 9 participants (Woods, 2000) while Mills (2006) recommends eight to ten as the ideal group size for PBL, and Donnelly (2009) talks about five to seven in one of her studies. Oliver & Omari (1999) carried out a technology-enhanced PBL study with smaller groups of 4 to 5 students as did Linge & Parsons (2006). In online settings, it has been found that a smaller number of group members makes online communication and collaboration more effective and active (Novak, 1989), enables meaning-making (Donnelly, 2009) and transforms groups into teams more rapidly.

Also, from a methodological perspective, Mann (online) recommends that participants in phenomenographic studies be diverse. Participants in this study were from diverse backgrounds, different genders and from different countries of origin which added to the diversity of their previous experiences.

While Trigwell (2000) and Sandberg (1996) agree there is no optimum group size for general phenomenographic studies, both recommend 12-20 participants for formal phenomenographical research projects. Sin (2010) emphasises that the optimum group size depends on the nature of the project and what is to be achieved. This MSc project was an online PBL pilot in which 10 individuals participated. This is in line with Cousin (2009) who, while recognising that there are different views about the optimum group size for phenomenographic studies, recommends 10 as a good number of participants.

Virzi (1992) identified that the majority of usability problems in application development are identified by groups of 4-5 individuals. For the trial, two multi-disciplinary groups were formed of four participants each, taking into account the above pedagogical and methodological recommendations. This enabled the two groups to be studied, comparing and contrasting working practices and collaboration models, and getting a flavour of the collective experience. Each group was facilitated by an academic developer who acted as a PBL facilitator and provided a scaffold support system. Their role was to be helpers in the process of familiarisation with PBL and assisting participants in initial functioning as a team. Thereafter, they were generally available when needed.

Academic developers were given a draft PBL scenario (see Appendix 12), assessment criteria and a peer feedback template to be finalised. They also needed to set up wiki spaces for their teams. Their role during the trial was to facilitate online learning, team work, offer support and feedback to their PBL team after completion of the main PBL task.



Access was given to media-rich PBL resources. Familiarisation with the basics of PBL for participants and facilitators before immersion in the trial was enabled through a series of media-rich self-study resources. Holland (1999) documented that the lack of preparation for PBL can have a negative effect, while Jeong & Hmelo-Silver (2010) have noted that making resources and tools available enhances the student experience during PBL.

Web-based resources linked to these themes were made available to PBL participants. This strategy, according to Donnelly (2005) “can save a great deal of time and expense in the development of web-based learning materials.” (p. 164) and enables PBL participants to focus on the actual PBL task and on the co-creation of knowledge instead of the pure search for information (Jeong & Hmelo-Silver, 2010).

**Trial phases** The trial was based on Salmon’s (2004) 5 stage model:

- Familiarisation with technologies
- Socialisation with tutors and peers
- Exploring PBL and sharing
- Execution of collaborative PBL task
- Peer evaluation and tutor feedback

and structured as follows:

- Find suitable participants, two academic developers, and eight new academics who study towards a PgCert programme at a UK HE institution in the academic year 2010/2011. Academic developers had access to the online space from very early on to familiarise themselves with the structure and online PBL. Support was provided by the organiser. Time frame: May 2010 - September 2010 (5 months)
- Task 1 (a) All participants joined the online space and familiarised themselves with the technology. Time frame: 6 September 2010 – 12 September 2010 (1 week)
- Task 1 (b) All participants had the opportunity to get to know each other through an online socialisation process and familiarise themselves further with PBL. At the end of this phase, two groups of four were formed and PBL facilitators were assigned their groups. Time frame: 13 September 2010 - 26 September 2010 (2 weeks)
- PBL facilitator tasks: participants will be given a PBL scenario finalised by the PBL facilitators and asked to solve it collaboratively. This happened on the 27 September.
- Task 2: Group members have to work together to apply a PBL approach based on the 5-stage model (see below) and resolve the problem given. Resources are provided. Groups are encouraged to access and use

further reputable sources. Time frame: 27 September – 1 November (5 weeks)

#### 5-stage model

- Stage 1: explore the problem
- Stage 2: discover known and unknown, plan
- Stage 3: research and share
- Stage 4: apply
- Stage 5: share

- Task 3: Each group presents their solution to the other group online, synchronously or asynchronously and provides feedback to peers on Task 2. Also, PBL tutors/facilitators will have the opportunity to provide generic feedback to their own group at the end of the trial, time frame: 2 November 2010 – 14 November 2010 (2 weeks)

Throughout the trial, participants were asked to keep in touch via the online PBL space (see below) and report any concerns as soon as possible so that they could be resolved. Time frame: 6 September 2010 – 30 November 2011 (3 months)

#### 3.2.2: Research method

The researcher was not engaged during the trial and assumed the role of the trial organiser and observer. This provided the opportunity as Carr (1995) explains to “explore a particular range of problems in systematic and rigorous manner” (p. 32), gain a deeper understanding of participants’ behaviour, actions and perspectives and their lived experiences of being involved in online PBL, and conduct a qualitative study using phenomenography (Marton, 1981), an empirical qualitative interpretivist research methodology developed within educational research (Marton, 1986), as a methodology and data analysis tool.

Phenomenography was chosen because it “focuses on student perspectives” (Boustedt, 2008, p. 28) and enables one to “describe qualitative varieties in people’s experience of phenomena” (Dortins, 2002, p. 207). It also helped to identify patterns (Jones & Asensio, 2002) and define generalisable categories (Marton, 1981) to understand participants’ conceptions and reflections of their lived experiences of being immersed in online PBL. Meanings, characteristics and relationships of experiences brought variations of themes to the surface. These formed specific categories of description (Marton, 1994) through observations, analysis and interpretation and captured the limited ways in which online PBL was experienced during the trial, confirming Marton’s (1994) observations that there is “a limited number of qualitatively different and logically interrelated ways in which the phenomenon or the situation is experienced or understood” (p. 3). Credibility of phenomenographical analysis is achieved by evidencing the relationship between the empirical data and the defined categories of description (Sjöström & Dahlgren, 2002) and this approach is used here by including interview excerpts in the findings section.

Limitations were encountered in the short duration of the trial which make findings applicable only for this specific group. Participants volunteered to take part but were busy professionals and had limited time available. Some of the Web2.0 technologies used were new to some participants. Also, interviewing participants remotely was not always possible due to technical difficulties and alternative ways had to be found. Transcribing interviews, analysing, seeing patterns, linking and identifying categories emerging through the qualitative narrative data (Taylor-Powell & Renner, 2003) as well as evaluating data were complicated tasks and required discipline and a systematic approach.

### 3.2.3: *Technologies*

Freely available Web2.0 technologies were used to host the online PBL trial.

**Blog - Online PBL trial space:** A blog was created at [www.wordpress.com](http://www.wordpress.com) and became the online trial space that enabled participants from different HE institutions to meet online (Schroeder, 2004). It was the space through which PBL facilitators communicated, co-ordinated tasks and provided updates. It was an environment that gave participants a voice and provided the means for two-way active participation (Segesten, 2010). The learning process and reflections on the learning process could be captured in blog posts and shared with all participants. Downes (2004) recognises the potential of blogs by stating “The process of reading online, engaging a community, and reflecting it online is a process of bringing life into learning.” (online)

Each participant set up a Wordpress account. All accounts were then linked to the online trial space and author access was given to everybody to enable full participation and contribution.

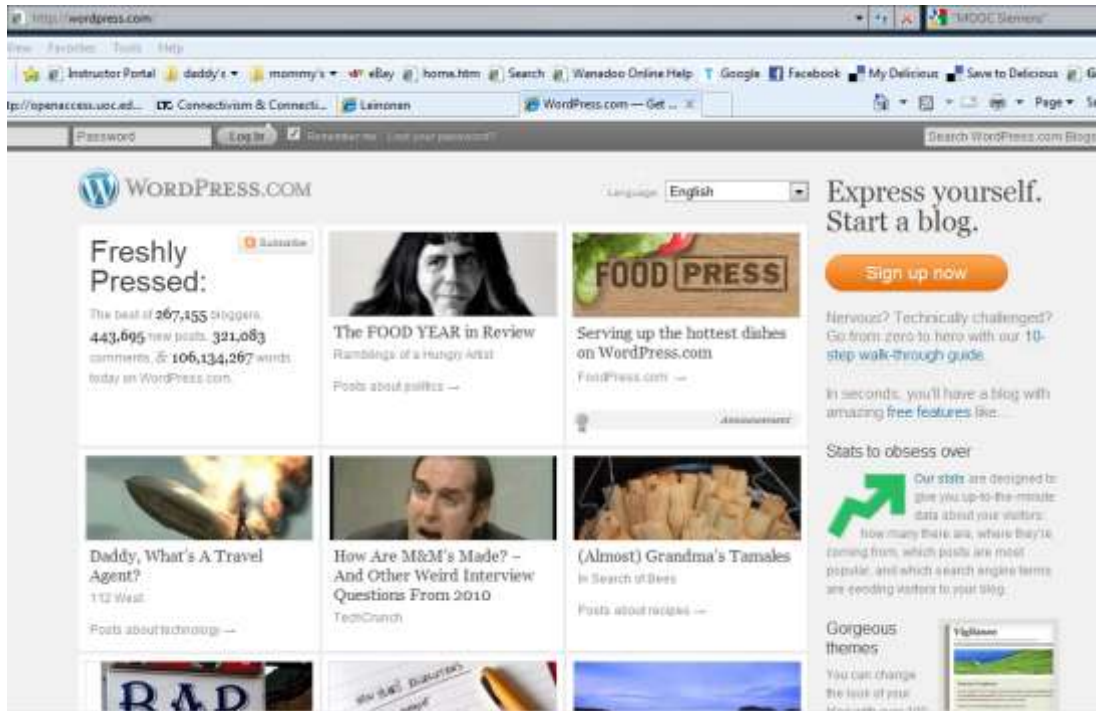


Figure 3.1 Starting page [www.wordpress.com](http://www.wordpress.com)

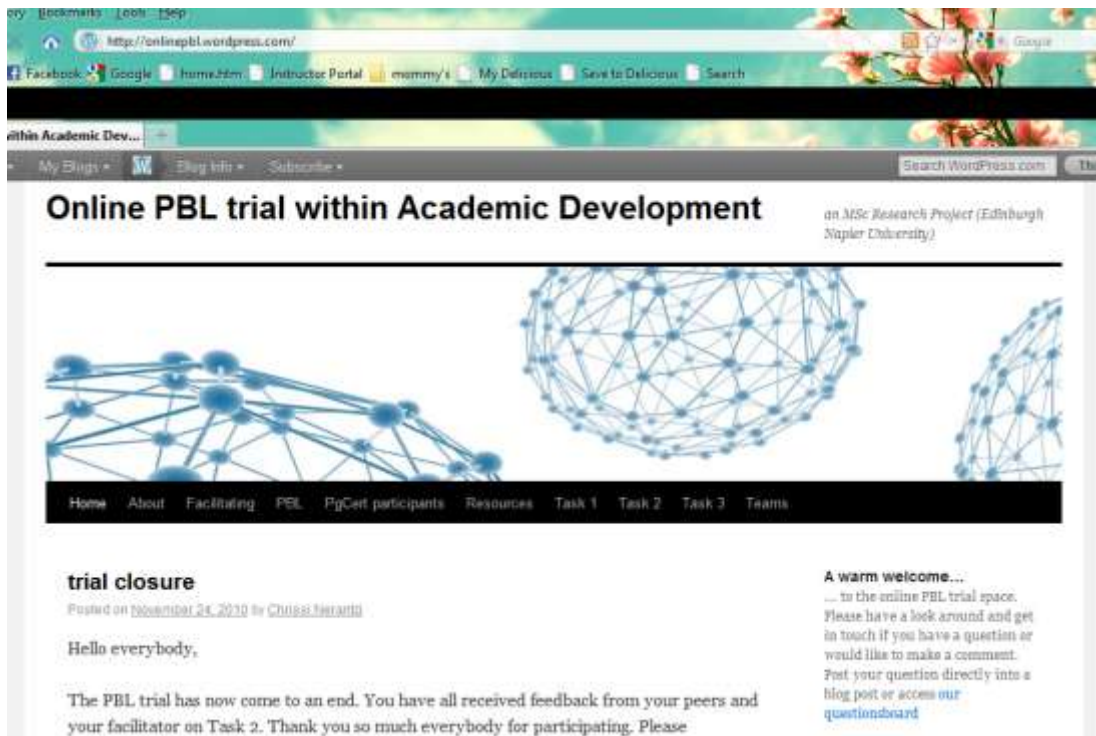


Figure 3.2 Online PBL trial space <http://onlinepbl.wordpress.com/>

The trial space (available at <http://onlinepbl.wordpress.com/>) was used throughout the trial as the main communication and collaboration channel. An interaction model based on Salmon's (2003) 5 stage model and Donnelly's (2010a) observations about the power of the social online dimension in online learning environments was used to encourage individuals to connect, and lay the foundations for a learning community before embarking on the collaborative PBL task.

It was intended to make the online trial space public to enable others to observe the trial as an experiment of a concept under development, which would benefit from input from the wider academic community (Weller, 2007b). Consent was therefore sought and secured from facilitators and participants.

**Wikis - Collaborative spaces:** In addition to the blog, wikis were used for each group as platforms to complete the collaborative PBL task. Research has shown that wikis are very useful flexible tools for online collaborative work (Wheeler & Wheeler, 2009), and provide a platform for individual and collaborative knowledge organisation and construction, transforming learners into co-creators of knowledge (Grant, 2006; Wheeler et al., 2008). Both facilitators choose to create wikis at [www.pbworks.com](http://www.pbworks.com) for their groups which were kept private until completion of the main PBL task around assessment and feedback.

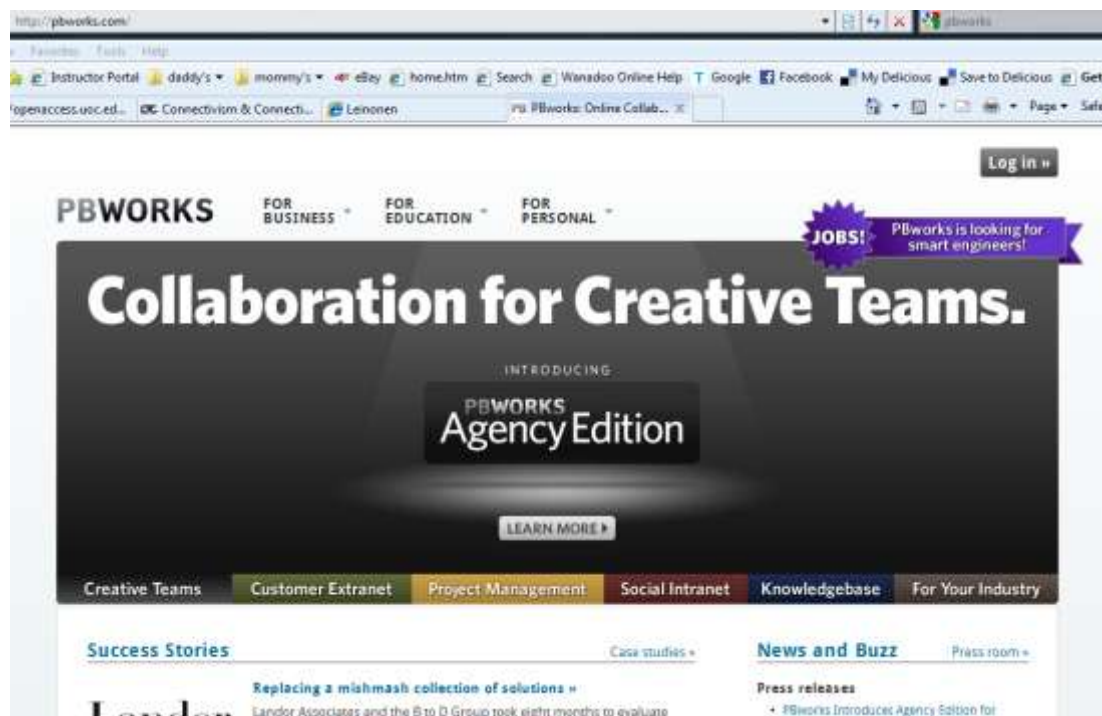


Figure 3.3 Starting page [www.pbworks.com](http://www.pbworks.com)

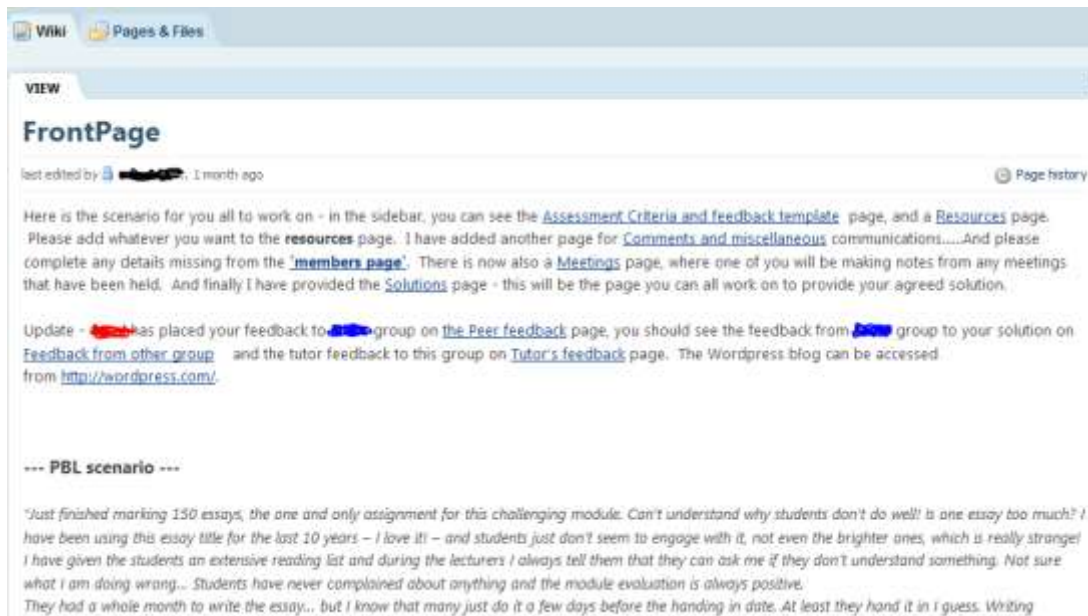


Figure 3.4 wiki of a PBL team (A)

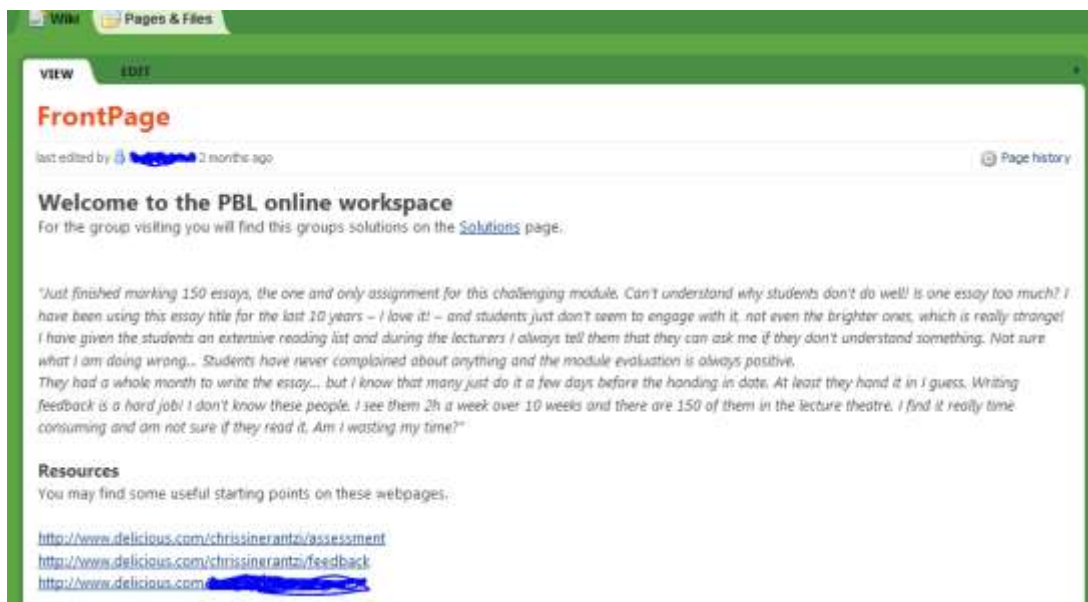


Figure 3.5 wiki of a PBL team (B)

**Webconferencing - synchronous communication tool:** Skype was used for synchronous online meetings mainly during the PBL task and to conduct the individual interviews after completion of the trial. Skype interviews were recorded with the free downloadable MP3 Skype Recorder software available at <http://voipcallrecording.com/>.



Figure 3.6 Skype download page [www.skype.com](http://www.skype.com)

## MP3 Skype Recorder v.1.9.0

Freeware Skype call recorder.



Figure 3.7 MP3 Skype Recorder

### 3.3: Data Collection

The main data collection method used was the individual phenomenographic interview. All participants were interviewed at the end of the trial and details of the process and procedure can be found in the next section.

Additional explorative and empirical data was collected throughout the online PBL trial that enabled evaluation and interpretation after completion of the trial. Special care was given to avoid “data overload” as described by Salmon (2002) which is a common characteristic in online settings due to the large amount of data available.

All responses have been anonymised and, for ethical reasons, authorisation has been secured from all participants to use anonymised quotes for this research project and future related articles.

### *3.3.1: Individual interview*

The interviews (see appendix 6), lasting about 1 hour and conducted remotely via Elluminate and Skype, were held shortly after completion of the trial. The approach used was based on the phenomenographic interview to capture reflections, raise awareness and deepen reflection through questions which were “deep and open-ended” (Dortins, 2002, p. 207); directly linked to the experiences of the individual. The interview took the form of a dialogue (Marton, 1994). A few only open questions were prepared for this purpose (see appendix 6). Further questions were formulated during the discussion to facilitate reflection on themes not previously reflected upon or shared and create an “object of focal awareness” (Marton, 1994, p.4). Interviews had a “loose structure” (Jones & Asensio, 2002) and the participants were assisted in reflecting through questioning. Interviews also followed Orgill’s (no date) suggestion: “The interview will follow a certain line of questioning until it is exhausted, until the participant has nothing else to say and until the researcher and participant have reached some kind of common understanding about the topics of discussion.” (p. 2)

All interviews were transcribed and used during the data analysis stage which enabled the researcher to immerse herself in the data as Orgill (no date) recommends. Extensive data was collected and the final corpus was, as Dortins (2002) describes “a group of texts, or even one large text, that could be read with or without reference to the original conversation, or to the speakers.” (p. 208). The analysis was made based on themes identified by participants during the interviews as a collective with no reference to researchers reflections, thoughts or feelings. Themes were arranged in groups and Microsoft Excel was used at this stage to enable more effective qualitative data filtering, analysis and synthesis (Meyer & Avery, 2009). Reflections between participants were compared, similarities and differences of the ways participants’ experienced a specific situation were recorded (Orgill, no date) and transcripts were used for interpretation, analysis and not pre-defined categorisation. These formed the categories of description (Marton, 1994) which provide valuable insight and show the different ways in which the online PBL trial was experienced by participants, as well as the main results of this phenomenographical research. On the subject of interviews in a phenomenographical study, Jones & Asensio (2002) mention that “most of the interviewees have written about their experiences prior to the interview and had previously reflected upon the issues that the interview raised. The accounts we heard were in some senses a performance of previously rehearsed ideas.” (p. 276)

In three cases, due to technical difficulties, remote interviews could not be arranged and data was collected through email communication.



### 3.3.2: *Additional data collection methods*

Reflections: The value of reflection during the learning process has also been noted by Hung (2009) and Holland (1999) who state that reflection is “central to learning” (p. 1). Participants were encouraged to use the online trial space to reflect on their experiences during the trial by posting blog entries and sharing these with the other participants from the beginning, thereby allowing individual reflections to become part of the collective. This would enable participants to capture and share their thoughts and the researcher to gain an insight into the experience as it was unfolding. Donnelly (2005) suggests that “blogging encourages students to reflect and reflection is often a key element in the learning process” (p. 169). Salmon (2002) used blogging for an online training programme to “encourage the trainees to stop and reflect in the middle of their action online and to record their thoughts, their progress and any critical incidents. Since all messages were then available to other participants, they could read the messages and respond to each other” (p. 205).

Initial survey (see appendix 3): This was completed by all participants, and facilitators at the beginning of the trial in order to gather key information: Their starting point, linked to their practice within HE; whether they were familiar with PBL; whether they had participated in online learning and in particular online PBL before; and if they had used technology for learning and teaching before in their practice. Some of the questions were therefore open-ended. In addition, participants were asked for their consent for making the trial space public. Segesten (2010) noted that making blogs public “increases the visibility of our programs on the web and has the effect of giving it a more clearly defined positive image, which in turn may result in higher commitment of the students to the program and a sense of pride in their work” (online). Weller (2007b) adds that “a blog is a good means of allowing others to observe some of the less well thought out ideas and ongoing projects of an academic.” (online) These two potential advantages, guided the intention for making the online trial space public.

Final survey (see appendix 7): This survey was distributed to all participants and facilitators immediately after the completion of the trial and before the final interviews were conducted. The main purpose of this survey was to collect data that would capture the exit point of the trial and make participants reflect on the trial and their experience in advance of the individual interviews.

Both surveys were created at [www.surveymonkey.com](http://www.surveymonkey.com) and made available for completion within the online trial space. Email notifications were also sent.



Figure 3.8 Starting page [www.surveymonkey.com](http://www.surveymonkey.com)

Whilst there were limitations to the design and layout of both surveys, care was taken to make them as user-friendly as possible using the available tools. Boxes to add responses to open questions were relatively large to encourage participants to elaborate on their answers. Links to the surveys were forwarded to all participants via email and through the online PBL trial space. This method was used because, according to Brace (2008), it enables participants to be more honest and also speeds-up completion time. All questions were presented on the same page since both the initial and final surveys were relatively short. This is in line with Dillman (2000) who noted that presenting all questions on the same page is more effective for short surveys. “Don’t know” responses were not included in the surveys as these tend to be problematic in self-completion questionnaires as documented by Brace (2008).

Data drawn from individual interviews, initial and final surveys as well as reflective accounts provided a rich corpus of data for analysis and evaluation.

In this chapter, the method, data collection and analysis tools as well as the technologies used were presented. Characteristics and key features of the online PBL trial have also been included. The results of this research are presented in the next chapter.

## CHAPTER 4

### FINDINGS AND DISCUSSIONS

#### 4.1: Introduction

In this chapter the results and outcomes of the online PBL trial are presented. The lessons learned, insights and findings from this small-scale investigation may be more widely relevant.

Interpretations are subjective. Participants have been asked to provide their subjective accounts of their experience, and the researcher reflected upon them. This is natural in a qualitative, interpretivist study where the researcher's challenge is to describe a recognisable reality of the experience for all those involved. The trial had a clear impact on participants and facilitators as documented within this chapter and anonymised quotes in italics have been included to illustrate this. Categories of description were identified from data collected through interviews, initial and final surveys and personal reflections. The findings provide a rich insight into the lived experience and the variation of this experience of the individuals who participated in this study.

The participating PBL facilitators were known to the researcher before the trial but not the participating academics studying towards PgCerts at different HE institutions who were sourced through the SEDA mailing list.

In total, ten individuals started the trial. Two facilitators and eight participants of which five have been interviewed remotely, three via email due to technical difficulties and limitations. Two individuals did not complete the trial due to personal and work commitments. Everybody who participated and completed the trial, provided data for analysis and evaluation.

#### 4.2: Reflections

Only three participants and one facilitator took the opportunity to reflect during the trial. It was observed that progressively less reflections were shared and in total eight reflective accounts were published. There is some evidence of conversation through reflections. Generally, however, participants seem to have been confused about what was required and this is evident in their blog entries, most entries echoing the following remark.

*How can I reflect when, as yet, I don't feel I know what I'm supposed to be reflecting upon. (anonymous participant)*

One of the facilitators engaged in the conversation to provide clarification and involve participants in reflection.

Some of the blog entries do have reflective elements, mainly of descriptive reflection:

*So far I felt like virtually walking in the darkness, going to a wrong direction, hitting a wall that suddenly coming up and when I need help, no one responded right away. (anonymous participant)*

One participant had the curiosity to investigate the reasons behind the limited engagement and posted a poll (see responses in figure 4.1). The responses provide an insight into why only a few reflected in the online trial space.



Figure 4.1 participant's poll "I haven't posted reflections to this post because..."

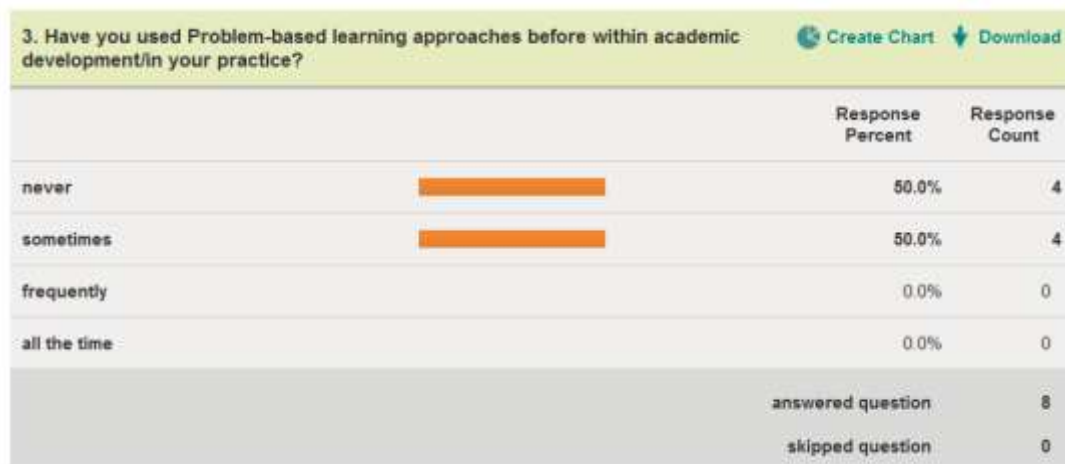
### 4.3: Initial survey results

Results confirm that participants and facilitators were overall less familiar with PBL and learning and teaching online.

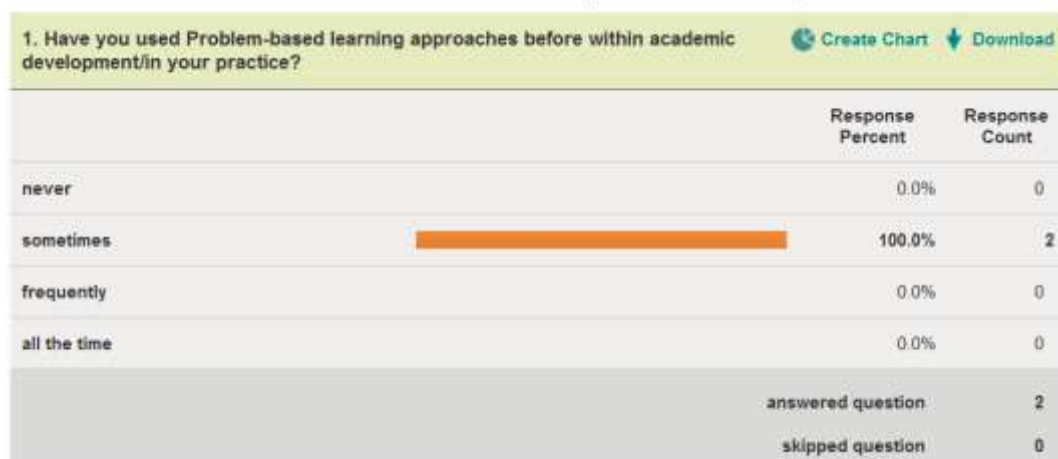


**Figure 4.2 Initial survey responses by participants linked to familiarity with PBL**

Facilitators had used PBL sometimes in their practice. While the majority of participants had limited experience of learning and teaching online.



**Figure 4.3 Initial survey extract completed by participants**



**Figure 4.4 Initial survey extract completed by facilitators**

4. Please answer the following questions.					<a href="#">Create Chart</a>	<a href="#">Download</a>
	never	once	occasionally	frequently	Response Count	
Have you participated in online collaborative learning before?	100.0% (8)	0.0% (0)	0.0% (0)	0.0% (0)	8	
Do you use online/blended modes of delivery with your students?	37.5% (3)	25.0% (2)	12.5% (1)	25.0% (2)	8	
Have you used/participated in online PBL before?	100.0% (8)	0.0% (0)	0.0% (0)	0.0% (0)	8	
answered question					8	
skipped question					0	

**Figure 4.5 Initial survey responses by participants linked to working online, including online PBL**

2. Please answer the following questions.					<a href="#">Create Chart</a>	<a href="#">Download</a>
	never	once	occasionally	frequently	Response Count	
Have you participated in online collaborative learning before?	50.0% (1)	0.0% (0)	50.0% (1)	0.0% (0)	2	
Do you use online/blended modes of delivery with your students?	0.0% (0)	0.0% (0)	50.0% (1)	50.0% (1)	2	
Have you used/participated in online PBL before?	100.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	2	
answered question					2	
skipped question					0	

**Figure 4.6 Initial survey extract completed by facilitators linked to working online, including online PBL**

Participants and facilitators were familiar with a variety of Web2.0 collaborative tools such as blogs and wikis. However, none of the participants had used pbworks before, which hosted the collaborative spaces used for the PBL task during this trial.

7. Are you familiar with <span style="float: right;">Create Chart Download</span>			
	yes	no	Response Count
blogs	87.5% (7)	12.5% (1)	8
wordpress	75.0% (6)	25.0% (2)	8
wikis	62.5% (5)	37.5% (3)	8
wikispaces	12.5% (1)	87.5% (7)	8
pbworks	0.0% (0)	100.0% (8)	8
skype	87.5% (7)	12.5% (1)	8
answered question			8
skipped question			0

**Figure 4.7** extract of initial survey on Web2.0 technologies completed by participants

3. Are you familiar with <span style="float: right;">Create Chart Download</span>			
	yes	no	Response Count
blogs	100.0% (2)	0.0% (0)	2
wordpress	100.0% (2)	0.0% (0)	2
wikis	100.0% (2)	0.0% (0)	2
wikispaces	100.0% (2)	0.0% (0)	2
pbworks	100.0% (2)	0.0% (0)	2
skype	100.0% (2)	0.0% (0)	2
answered question			2
skipped question			0

**Figure 4.8** extract of initial survey on Web2.0 technologies completed by facilitators

#### 4.4: Final survey results

Participants and facilitators enjoyed working with colleagues from other institutions and many stated that they decided to participate in this trial for this reason.

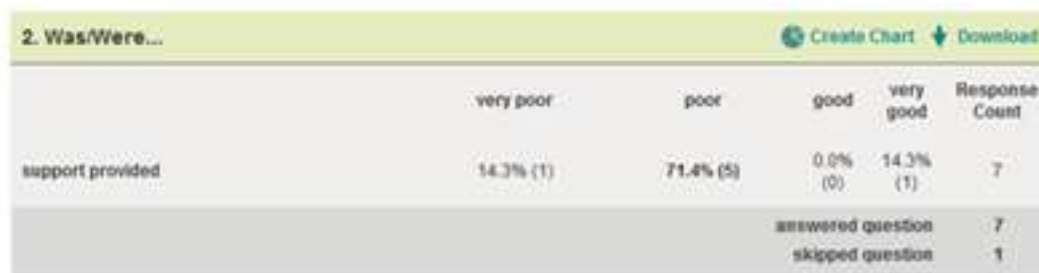




**Figure 4.9 extract of final survey (working with colleagues from other institutions) completed by participants and facilitators**

Participants and facilitators commented on the facilitation aspect. Generally, there was dissatisfaction with this aspect of the trial.

*The chief thing that the trial highlighted for me was the importance of the facilitator to the success of the project. It is a lot more work doing things this way, and the facilitator needs to be pretty 'hands on' in the absence of face-to-face meetings between group members. (anonymous participant)*



**Figure 4.10 extract of final survey (support) by participants and facilitators**

The survey results show overall that there was an expectation that facilitators would be more engaged in the trial and the PBL task to bring the group together and offer more guidance and support.

The technologies used provided problems to participants and facilitators. Some participants felt confused, frustrated, irritated and were unsure how and based on which criteria the collaborative tools were chosen and how they would be used. One anonymous participants notes "I think Wordpress is more complicated to use than it needs to be." While another one states "We need to get at least minimum instruction how to use the wiki."



**Figure 4.11 extract of final survey (tools) completed by participants and facilitators**

Advantages of synchronous communication tools were highlighted and participants stated that synchronous communication speeds up collaborative online work. One participant noted:

*Skype was a lifesaver for communicating and offered us a chance to let off steam/voice our frustrations in a way that people may have been reluctant to do on the blog. (anonymous participant)*

The majority of participants and facilitators stated that they now have a better understanding of online PBL.

3. Mark only one answer per statement. Please use 'unsure' only if you are genuinely unsure. <a href="#">Create Chart</a> <a href="#">Download</a>						
	strongly disagree	disagree	unsure	agree	strongly agree	Response Count
I now have a better understanding of online PBL.	0.0% (0)	0.0% (0)	25.0% (2)	62.5% (5)	12.5% (1)	8

**Figure 4.12 extract of final survey (online PBL) by participants and facilitators**

However, they felt that the time required to complete the tasks was more than initially anticipated (2-3 hours per week).

*I think there's also an issue with the amount of time required to fully participate in the trial - it was certainly a fair amount more than 2-3 hours once task 2 began. (anonymous participant)*

A more in depth-analysis of the experience was enabled through the individual interviews. The categories of description identified are

- Time
- Technology
- Facilitation
- Communication
- Group
- PBL task
- Assessment and feedback
- PBL
- PgCerts
- Reflection

which are presented below.

## 4.5: Categories of description

### 4.5.1: Time

Managing time: Participants and facilitators commented on the limited time they had available for this trial due to other commitments. One facilitator commented

*I think the challenges were me actually taking the time to treat this thing with the seriousness that it deserves, you know. It wasn't overly heavily on the time... but when you have a lot of demands especially from your paid job sometimes I used to feel guilty I really must do that but first I need to do this this and this. (participant 10)*

While initially everybody felt that the time would be there, soon they realised that this was not the case as stated in the interviews. This observation is reflected well by participant 12:

*I don't think anybody knew how much time the trial would take up, how much work I was going to have in addition to what I thought I was going to have. [...] I think people were a bit surprised how busy they were when the term started.*

Timing of the trial: A few participants felt that the timing of the trial did not help to boost engagement and participation especially because it was carried out during a semester during which everybody was busy teaching, participating in their own institutional PgCert provisions. They suggested running the trial outside semester time might have meant more free time and increased participation.

*You tend to forget over the summer how much time teaching takes up and lose sight perhaps that there are more things to do than hours in the day. And perhaps taking on additional work is not a good idea. (participant 12)*

### 4.5.2: Technology

Selection: It was noted during the interviews that some participants felt confused, frustrated, irritated and were unsure how and based on which criteria the collaborative tools were chosen and how they would be used. The frustration that online participants might feel because of the technology is echoed in Hara & Kling (1999).

Participant 11 commented

*I was curious about the choice of tools. Were they what facilitators felt comfortable with? I am happy online. I forget how daunting people find the technology. [...] Oh!, it is really complicated. [...] How to buy in? To give them the initial*

*knowledge-base. People are selective of which platforms they use.*

Facilitators also expressed frustration at using one of the tools:

*The online environment itself I think I struggled for about 4 weeks with getting Wordpress to do what I wanted to do, which kind of through me a bit as well, I think. (participant 20)*

Quantity: The fact that two different platforms were used “*rather than having an integrated environment*” (participant) for the trial added to the confusion as participant 11 notes, stating that “*navigating through the blog, using the wiki as well, it became more frustrating as it progressed*”, which is affirmed by participant 22, who mentions “*the irritating platforms I found the set-up very cumbersome*” and by facilitators’ comments. Similar experiences are documented by Leinonen et al (2009) who found it challenging to deliver an open course at the University of Art and Design Helsinki, and stated “The communication tools used in the course — blogs and wiki — were found by most participants rather confusing and sometime frustrating” (online). The complexity that multiple tools and environments used for online courses add to learning is also noted by Levy (2011).

#### 4.5.3: Facilitation

Facilitation was the theme participants talked about most extensively and passionately during the interviews.

Clarity of role: There was general confusion about the role the facilitators were playing and participants would have liked more clarity from the outset about their role and what they could expect from them during the trial. Participant 12 for example stated

*“I personally think I would have found at least clarification what the facilitator would do, and again, I might have missed it and it may be my lack of experience, but then again any student who is coming for the first time to do PBL, will have that lack of experience. If I had been told, that the facilitator is there basically to mop up any really serious issues, somebody who is really ill, completely unable to participate before the facilitator steps in, fair enough, I am not going to have kind of support and then I would have to step up to the plate and be a leader.”*

Lack of support: Participants expected that facilitators would be more engaged in the trial and the PBL task to bring the group together and offer more support. As participant 23 states “*at the beginning there was very little support from our facilitator.*” while participant 13 mentioned

*“I felt a bit like, I was not knowing which direction I was taking and a bit sort of in a doubtful sort of perspective, whether I’m actually reading the right material, whether I’m going to the right*

*things, whether I'm following all the right stuff that I'm needing. yeah a little bit in the dark. [...] I feel there was a bit of, not too much facilitation going on. [...] I would have encouraged people to, to read the scenario together. Because I think that the initial, do the scenario, read the scenario together and then once you read it, maybe for a very brief time, read it together and, so say "ok, go and think about this, and maybe pay attention to these points a little bit more and maybe come back and we'll discuss a bit more and then". Something along those lines"*

Facilitators reflected on their role and performance and came to the conclusion that facilitation needed to be improved to be able to offer the support and guidance needed to participants during the online PBL tasks and other online programmes in general to enhance engagement, learning and the student experience. One facilitator stated that

*"There is a lot I learnt from the whole process even I was disappointed with myself how I facilitated. I don't think I did a good job. I don't like doing a bad job. I don't like doing things half hearted. I don't like doing things that are not going well. I have to admit, it didn't go as well as I wanted it to."* (participant 20)

More structure: Participants and facilitators felt that more structure was needed. This wish is expressed well by participant 11.

*"Potentially Creating more of a structure, where it would be expected to interact on a more regular basis"* (participant 11)

And one of the facilitators:

*"I really should have had perhaps more structure in arranging meetings with the group although they actually worked together very well, and they divided the jobs and wrote the report, so that was really really good in some ways I felt detached from them perhaps because I didn't meet them. I don't know."* (participant 10)

The facilitator continues by suggesting a "Timetable for group meetings to be defined at the start." These findings are also echoed by Leinonen et al (2009) who believe that weekly tasks have the potential to transform open online courses. While Levy (2011) recognises that "Learning needs a Daily Reminder" (p.7) reflecting on this experience as a participant in the recent MOOC PLENK2010 .

In addition, participant 11 refers to how it could be used in their own practice, stating that

*“In terms of how I want to use PBL it does make me aware wanting to scaffold things a bit more and keep it slightly more under control as it were making sure that you have to be more in control on how things might turn out.”*

Better preparation: Participants recognised that *“PBL depends on very thorough planning”* (participant 11)

Facilitators stated that they did not do enough preparation for their involvement in the trial and this did not give them the confidence to carry out their role more effectively. One mentioned

*“I think because it is an online trial, I didn’t realise how I wasn’t prepared, if you see what I mean. Had I known, perhaps I would have had more preparation [...] had I done sort of more research myself it would have helped”*.

Facilitators suggested that it would have been helpful to engage in pre-trial activities so that they fully understand what the trial is about and what is expected of them. It was suggested that this could happen face-to-face or synchronously online because

*“I think you can get so much more from a face-to-face meeting, even with a Skype meeting, but there is something about face-to-face meetings you seem to be able to cover a lot more and perhaps a lot more in depth.”* (participants 10)

While the other facilitator suggested

*“a dry run for facilitators. Just to get the idea of the mechanics of it all. [...] It is hard to imagine how it would look like if you haven’t done it before and I struggled to see the big picture.”* (participant 20)

Facilitators came to the realisation that they have learned a lot through the trial and have a better understanding now of what works and what doesn’t.

#### 4.5.4: Communication

Asynchronously communication is slow: Participants found asynchronous online communication generally too slow. A study of online learning conducted by Petrides (2002) also confirmed that delay in response from the tutor and other peers was a factor which students considered a weakness of other online environments. Ortiz et.al (2009) note that students who sign up for online delivery expect to be able to work more flexibly, and engaging in synchronous communication might not be possible or desirable, which in this case contradicts the findings of this trial.

One facilitator commented that

*"There was a hesitancy from everyone, they (participants) didn't say anything but you wanted to give everybody a chance to say something and this ended up delaying everything because you got to the stage where you had somebody who couldn't wait any longer so here is what we are going to do' not having that opportunity for that synchronous dialogue. I think asynchronous communication really slows down group formation and communication."* (participant 20)

Synchronously communication is better: Participants stated that they would prefer more opportunities for synchronous communication online such as using Skype. Leinonen et al (2009) found that their participants in an open course experiment also suggested that "live events with video or audio conferencing" (online) would enhance the trial. They stated that synchronous communication speeds up collaborative online work. Participant 13, for example, noted *"we only got together two times over Skype and the times when we got together we got lots of things done"*.

Lack of communication: Participants felt that there was a general lack of communication and their observations confirm that it became worse as time progressed. Participant 22 stated:

*"In my group, there was really a lack of communication and I am as guilty of it as anybody else. My enthusiasm quickly faded with the task."*

#### 4.5.5: Group

Johnson et. al (2000) has noted that cooperative learning has a positive effect on students' learning.

Yes to multi-institutional collaboration: Participants and facilitators found that working with colleagues from other institutions was a positive experience for them and many stated that they decided to participate in this trial for this reason. As participant 21 confirms

*"Communicating with people from other institutions through this means was novel and exciting – this aspect kept me going on the trial really!"*

Yes to multi-disciplinary groups: Participants were generally positive about working in multi-disciplinary groups.

*"It was very positive. Especially because we all came from different backgrounds. Enriching my experience a lot. Because, I was a scientist and I looked at the problem in a very scientific way. Divided it in my head and categorised it. And they were more global and social and personal. I didn't think very much on*

*the personal aspect, aspect, as I told you, first of all, I was very sort of puzzled by the scenario and I felt, because I didn't see the problem to solve. And they saw the problem more globally and they had that insight that I didn't perhaps have.”* (participant 13)

However, one participant said that

*“it was really frustrating dealing with people who came from different disciplines. [One participant] came from such a natural science background and there was a lot misunderstanding there in terms of how things are done because of the different culture of disciplines and I know that this is a problem on the PgCert course that we got here generally, in term of introducing natural sciences to educational research is not always a happy experience and particularly get people understand what reflection is and how to articulate it.”* (participant 11)

Lack of community: Participants commented on the lack of human contact, missing the *“real human contact–eye-to-eye, smile, feeling the other’s real presence”* as one participant wrote in a blog post, having *“the sense of writing into a black hole”* (participant 22), and missing the feeling of being part of a community. These feelings are echoed by other participants. Among the findings of Leinonen’s et al (2009) was also this lack of community which participants felt, and it was suggested that group work might help community building. Donnelly (2010a) notes that online interaction appears to be more successful when interaction has an interpersonal and social dimension which can lead to enhanced participation, motivation and learning in an online environment which is in line with the findings of this PBL trial. Oliver & Omar (1999) also noted that peer support was seen as positive, valuable and useful by students participating in a PBL study.

Participant 11 notes that *“I would have liked to come away feeling it was more of a community being created”*, echoing Rovai’s (2002) claim that *“once individuals are accepted as part of a nourishing learning community, they develop feelings of safety and trust. With safety and trust comes the willingness of community members to speak openly.”* (p. 322) The challenges of creating such communities online came up in the interviews. However, participants expressed the view that it is possible and that in this case *“it may not be the online aspect so much as the ad hoc and unsystematic nature of the meetings because we were all so busy”* (participant 12). The reason why it didn’t work and the suggested socialisation activities at the start of any online programme which would provide participants and facilitators the opportunity to get to know each other, were not fully explored.

Group size: Participants commented on the group size



*“Actually we lost one person and that might have been a blessing actually. Just in terms 3 people are easier to organise than 4.” (participant 11)*

This agrees with Linger & Parson’s (2006) findings of a study during which students mentioned that it would be more beneficial to work in smaller groups. Novak (1989) and Donnelly (2009) also agree that smaller groups make online communication and collaboration more effective and active. However, participant 23 stated that

*“We had only three of us, and this small number may have limited the scope of my learning experience.”*

Rules: Participants highlighted the importance of establishing ground rules when working with others online. It was stated that

*“The basic manners and etiquette must be clearly communicated at the beginning; For instance at the beginning I was apologising to cut other’s writing, but I later found out that it was taken for granted. I wished that we had a discussion on those very basic ethics and manners working online within our team.” (participant 23)*

Also, there was reluctance to proceed while waiting for responses from other group members as also observed by a facilitators and participant 12 stated

*“I think we also lacked leadership. I think to be fair, all three of us, are used to be leaders in our own setting, we were very keen, I think, initially, not to tread on each other’s toes too much.”*

#### 4.5.6: PBL task

Participants and facilitators commented on the actual PBL task, the scenario and the assessment and feedback after task completion.

Scenario suitable: Facilitators and participants felt that the scenario gave them scope to explore and investigate specific problems and *“generated the sort of things you needed”* (participant 20)

Questioning suitability of scenario: Participants were unsure and felt that the scenario was more of a discussion topic and couldn’t identify opportunities for exploration. In particular, participant 22 mentioned during the interview

*“I found the actual task quite irritating, as it did little to invite research and was more conducive as a discussion topic, which I felt missed the point of the exercise.”*

Also participant 13 stated

*“I didn’t see much of a problem! [...] I didn’t see how that was a problem. And I didn’t understand what were, what were the things we needed to bring into the picture, it came clear as, as we went along and, and having said that, my overall experience was very positive. My experience from the PBL before, was that you have a scenario of a patient coming into the room and you have to find out what’s wrong with him. And that was a very clear sort of end point and here the end points were not as clear...”*

#### 4.5.7: Assessment and feedback

Concerns: Facilitators were concerned about assessment and feedback especially since as it was stated that participation in this trial was voluntary. Is there a conflict between formal or informal learning or are the boundaries blurring? With reference to a MOOC, during which participants had the choice to complete activities, Levy (2011) states that “learning without being assessed will probably not work for any learner, at any environment, or for achieving all learning goals” (p. 7) .

One facilitator stated

*“I would have changed the assessment criteria. It depends on the context. And in this trial were everybody was volunteering and there is not being assessed for any particular purpose [...] “I felt very uncomfortable about the feedback my group got from the other group and that made me think maybe we should do something about the criteria and that is why I didn’t give much feedback and felt uncomfortable. Because of the nature of everybody doing it voluntarily, I think I would have scrapped having it. Feedback yes, but no judgement.” (participant 20)*

Feedback was welcome: Participants appreciated the opportunity to provide feedback to the other group and were also able to use some of the work completed within the trial for their PgCert. Participant 23 commented that *“I appreciated comments from the other team.”* Also, participant 13 found providing and receiving feedback a very positive experience and a very useful one too:

*“I really enjoyed the PBL (task) because, especially doing the feedback for the other group, I think I learned lots then as well. It (the feedback) really, it makes you to look at the problem again in a more global way, because before we had divided tasks [...]. And then I really liked as well, once we had done the feedback, the feedback on our feedback, and the feedback on our work, you know, really positive those two elements, I really liked it.”*

This participant continues

*“I definitely think that’s more positive than just going to seminars and listening to someone, then hear about how the process of feedback, because that’s what I had done before, and like nothing had sat on my head. Doing the PBL online, although it was, lots of issues came up and I’d gone subsequently to some more coursework on feedback it has been very positive, it was all fitting in my head, picking quite a lot of stuff up.”*

The above echoes findings in a study within a Master’s module by Linge & Parsons (2006) where participants requested constructive feedback from facilitators and the opportunity to provide feedback to peers. Oliver & Omar (1999) also noted in their PBL study using online technologies during an undergraduate face-to-face programme that peer assessment increased motivation and encouraged participation and contribution.

Facilitators also recognised that online activities were an opportunity to receive feedback from peers and facilitators.

#### 4.5.8: PBL

Yes to online PBL: Participants and facilitators felt that this trial has given them the opportunity to explore the concept of online PBL and confirmed through the final survey that they now have a better understanding of online PBL. They noted that thanks to the trial, they gained an insight into the challenges of participating, designing and facilitating online PBL activities and some of them also consider how it could be used in their own practice, after applying specific modifications to the approach used during the trial to enhance structure, support, collaborative working environment and technology used. Participant 12 highlighted that it would be more effective within postgraduate provision where learners are already self-directed and would be able to cope with a more hands-off approach and take responsibility of their learning. Participants 21 stated

*“I would be inclined to use it, but in a much more structured way to ensure that all participants understand what is going on and know how to use the facilities available.”*

while participant 22 for example mentioned that

*“I would be keen to try it with a more elegant platform in which collaborative working is possible and tackle a task that lends itself more to teamwork.”*

Yes to blended PBL: Participants felt strongly that fully online PBL is extremely challenging and lacks the human contact and therefore suggested that a blended approach would be more effective. Participant 12 stated

*“I presume you can adapt PBL for it to be a face-to-face activity and well, I know from reading the resources you provided that you can use them for a classroom scenario. I wouldn’t use*

*online working as sole method of instruction but I would be quite happy to accompany it with face-to-face instruction.”*

**No PBL:** Participants felt that PBL as a learning and teaching method is too complicated and perhaps unsuitable for undergraduate provision, especially for first-year students as participant 12 stated

*“I find that the challenges they (the students) are facing mainly centred around independent learning.”*

Participant 12 also stated

*“I think the chief problem with PBL full stop is that it takes a vast amount of planning time. In terms of getting set up everything correctly and giving maximum chances of success and there is always the issues getting your intended learning outcomes and dealing with any un-intended learning outcomes as well. So, I am cautious. I am cautious as a student and cautious as a lecturer as well, probably more as a lecturer actually [...] there doesn't seem to be a full consideration of the limitations of that and what it actually means in terms of curriculum design, how we manage students expectations. It creates a lot of work and I am not sure if there is a pay-off at the moment.”*

#### 4.5.9: PgCerts

**Facilitators say yes:** Facilitators stated that there is a place for PBL within PgCert programmes. PBL “*expands ones teaching and assessment methodology*” (participant 10) and both facilitators agree with that. Participant 20 notes

*“If you don't assess it, if it is only voluntarily it is a huge challenge to get it to work. It becomes lower on people's priorities when it is voluntarily and it drops on people's priorities. Just like it decreased mine. I think in a formal course, with formal assessment people would give it more time and it would work, it would work better. And I think it would be an effective approach.”*

Participants also agreed that PBL can be a more effective approach than lecturing and would transform learning into a more active experience.

**Participants are sceptical:** Participants appeared sceptical about using PBL in PgCerts because of the amount of work involved and the openness PBL seems to have, while others are unsure about online PBL within PgCerts

*“because people doing a PgCert sometimes are a bit sort of, are a bit sort of there because they have to be, and I think it requires*

*a bit of motivation and wanting to, to get something out of it and maybe the PgCert people are not perhaps ideal to do it online. I definitely think that for a non-online scenario it definitely would have a lot of potential there” (participant 13).*

Participant 11 noted

*“I think the concept of using it for a PgCert is an interesting one, I am very very weary about it since of the time demands of the PgCert anyway when you are working full time are pretty horrific. In terms yes, you suppose to get time relief, I suppose to get 75h hours time allowance to do my project there is no way I am getting that but you end up doing it in your own time.”*

#### 4.5.10: Reflection

Purpose: Participants were confused and not clear what the purpose was and on what to reflect during the trial.

Attempts were made by facilitators to encourage discussion around reflection during the initial stages of the trial. It was suggested during the trial to share the purpose of these reflections at the beginning and provide more specific guidelines on the content of their reflections. Participants indicated that this would help them focus and carry out this task on a regular basis.

Participant 22 commented on the

*“unstructured reflection, the rather stream-of-consciousness reflection approach” and suggested that “reflections could be more structured--both to write and to read--if they follow a question, maybe? Or if we sort them into some sort of categories, to avoid the long sinking scrolling feeling. More focussed questions always seem to me to be better than a general invitation to ‘write anything”*

While facilitators stated that reflecting on the experience could be linked to assessment by stating

*“they (participants) didn’t really reflect that much on the process, I wonder, if we are going to do assessment, a bit of reflection would not come a miss.” (participant 10).*

Sharing: Participants had indeed shared their reflections online but discontinued because they felt that this activity didn’t appear to develop into a two-way process and exchange of reflections, thoughts and ideas. For example, participant 11 stated:

*“I started writing extensive reflections on the blog. I was very much being pro-active and making an effort to engage as much as possible and the utter lack of feedback and engagement from*

*other people that was very disheartening. You can only go that far if nobody else's ideas are coming in."*

**Time:** Facilitators felt that it was perhaps more important to use the time available to engage the group in the actual PBL task. One facilitator notes "*I can't blame my group focusing my group on reflection instead of getting on with the task.*" (participant 20)

**Privacy:** Initially, participants agreed the online trial space should be public. However, participants soon became reluctant to share their reflections when they realised that their thoughts were broadcast to the wider internet audience and became increasingly uncomfortable about this. Donnelly (2009) in one of her studies suggested that participants keep their reflections private and gave them the option as the study progressed to share their reflections with tutor and peers.

One participant posted the following:

*"One of the things that has occurred to me this week has been whether the blog format, and in particular decision to have everything public, is likely to impact on the depth of reflection people are willing to share. [...] I feel more cautious when writing up reflections, especially when including details of previous experiences and how they felt – after all, I don't "know" anyone reading this blog yet, and other people, including students and colleagues, are potential readers. In light of this, I wonder if allowing people to password-protect posts with a password known to all those involved might help create a "safe-space" in which to share our reflections?"* (participant)

After the above post was made public, the online trial space where reflections were recorded was made private.

Wikis, in which the groups completed the PBL task were private throughout until groups exchanged their resolution to the PBL scenario for peer evaluation.

#### **4.6: Overall results**

Both PBL groups successfully completed the main PBL task by working collaboratively and constructing a solution to the PBL scenario despite the confusion over how online PBL would work –also documented by Chernobilsky et. al (2005). The trial concluded with peer-to-peer and tutor evaluation.

Overall, the results indicated that participants decided to take part in the trial because they:

- Found the trial interesting

- Were interested in participating in a fully online programme (as a student/facilitator)
- Wanted to learn more about PBL and online PBL
- Saw it as an opportunity to work with colleagues from other institutions
- Could use work completed during the trial for assessment purposes for their institutional PgCerts.

The categories of description that illustrate the variation of the experience during this trial have been presented in this section alongside findings from the initial and final surveys. The results are discussed in the next section.

#### 4.7: Discussion of results

Findings from the online PBL trial will be discussed below and results presented with the aim of answering the research questions.

The findings of the trial suggest that it has been a useful learning experience for participants and facilitators and enabled them to experience online learning and teaching and engage in PBL activities with colleagues from different disciplines and institutions which they found beneficial. There were a number of issues that needed to be resolved, modified and refined.

##### 1. Could, and how, a contributor driven online space of real-life educational problems/scenarios be used within AD and more specifically within the PgCert to enable more rapid problem-solving skills development?

The results of the PBL task are encouraging and indicate that real-life scenarios as triggers for discussion, exploration and research can be effective tools for collaborative online learning within PgCert provision beyond institutional boundaries.

The trial has shown that making self-study resources available to these participants is not sufficient. This finding is in line with Jeong's & Hmelo-Silver's (2010) observation that "*Despite easy availability and accessibility of a rich variety of resources, students are often unwilling or disinclined to access them*" (p. 85). It is therefore suggested to adopt a more directive facilitation approach, especially at the initial stages of online PBL activities. Resources should be made available but participants need to be reminded of their existence by their facilitator who could also engage participants in a discussion and/or activities about these to trigger further engagement and help participants learn how to use the resources for their learning.

One of the weaknesses of this trial was that the two groups did not seem to strictly follow the structured PBL approach and model suggested for the PBL tutorials, and adopted a more organic approach which left many feel disorientated and frustrated. Following the more structured PBL process suggested combined with a more directive facilitation approach would provide the scaffold needed for online collaborative PBL.

Despite the above issues, collaborative problem finding and solving was enabled and practised during this trial and new knowledge acquired. Participants also had the opportunity to develop new skills through the PBL activity. Further research is required to establish if problem-solving skills are developed more rapidly through online PBL than other active learning approaches.

##### 2. Could the online inter-institutional space connect academics studying towards the PgCert in different institutions create additional opportunities for collaborative learning?



The findings of this trial strongly suggest that participants enrolled on institutional PgCerts valued the opportunity to work with colleagues from other institutions. Many of them participated in the trial for this reason, and found it beneficial for their learning. Participants recognised the value and the potential of online collaborative learning from the outset and after completion of this trial. Many PgCert programmes already bring together individuals from different disciplines in their own institutions which helps the communication and collaboration beyond one's own discipline.

There is an opportunity, and perhaps a need, to create more open online collaborative learning opportunities for PgCert participants beyond institutional boundaries to encourage openness, a culture of sharing and exchange which would be beneficial for the individuals and the institutions and enable wider social and collaborative learning. Põldoja (2010) highlights that "learning is a social process and open content is not the only way to change the educational system towards openness. In addition to open content we need open learning environments and teaching practices" (p.2). In the last few years such environments and courses have been created (Põldoja, 2010) as well as Massive Open Online Courses (MOOCs) a name given by the participants of the Connectivism and Connective Knowledge Course 2008 (Siemens, 2008) who were around 2,200 (Downes, 2010).

### 3. Could this approach be developed further and become an integral part of the PgCert programme and be linked to specific assessment activities?

Responses by facilitators indicated that there is a place for PBL within PgCerts, especially if linked to assessment within specific modules which should enable participants to build new knowledge and develop their contextualised problem analysis and problem solving skills through collaborative learning (Birenbaum and Dochy, 1996). Using PBL for delivery and assessment constructively aligned with the intended learning outcomes (Biggs, 1999) has the potential to make PBL more effective because students "will learn what they think they will be assessed on" (Biggs, no date, p. 3) .

PBL is an intense learning process according to Hammond et. al. (2002) and there is evidence that some students 'complain' that they are the ones doing all the work. Some participants of this trial appeared sceptical because of the amount of work required, the time needed and the issues experienced which were demotivating and frustrating.

In order to make online PBL work more effectively, it will be important to design and plan such activities thoroughly before implementation, choose the right technologies and provide a collaborative platform and framework that will be well supported and facilitated, has a clear focus, will be well structured and in which activities are scaffold (Juwah, 2002) in such a way that they enable familiarisation with the technology and PBL, socialisation, and lay the foundations of a learning community in which collaboration and learning can take place and act as a motivator for more learning and lead to more self-directed learning.

PgCert programmes are offered in a variety of delivery modes, face-to-face, practice-based, blended or fully-online. The findings of this trial suggest, that PBL could be integrated into PgCerts and provide an alternative delivery and assessment approach. A blended PBL model was generally in favour of a fully online approach as indicated by facilitators and participants.

Within this chapter, the findings of the trial were presented. While all participants agreed that they found the trial useful for their learning and found it beneficial working with others from different institutions, they confirmed that there were a number of areas that should be improved, mainly linked to facilitation, communication and community, to make future online PBL activities more fruitful and enjoyable.

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

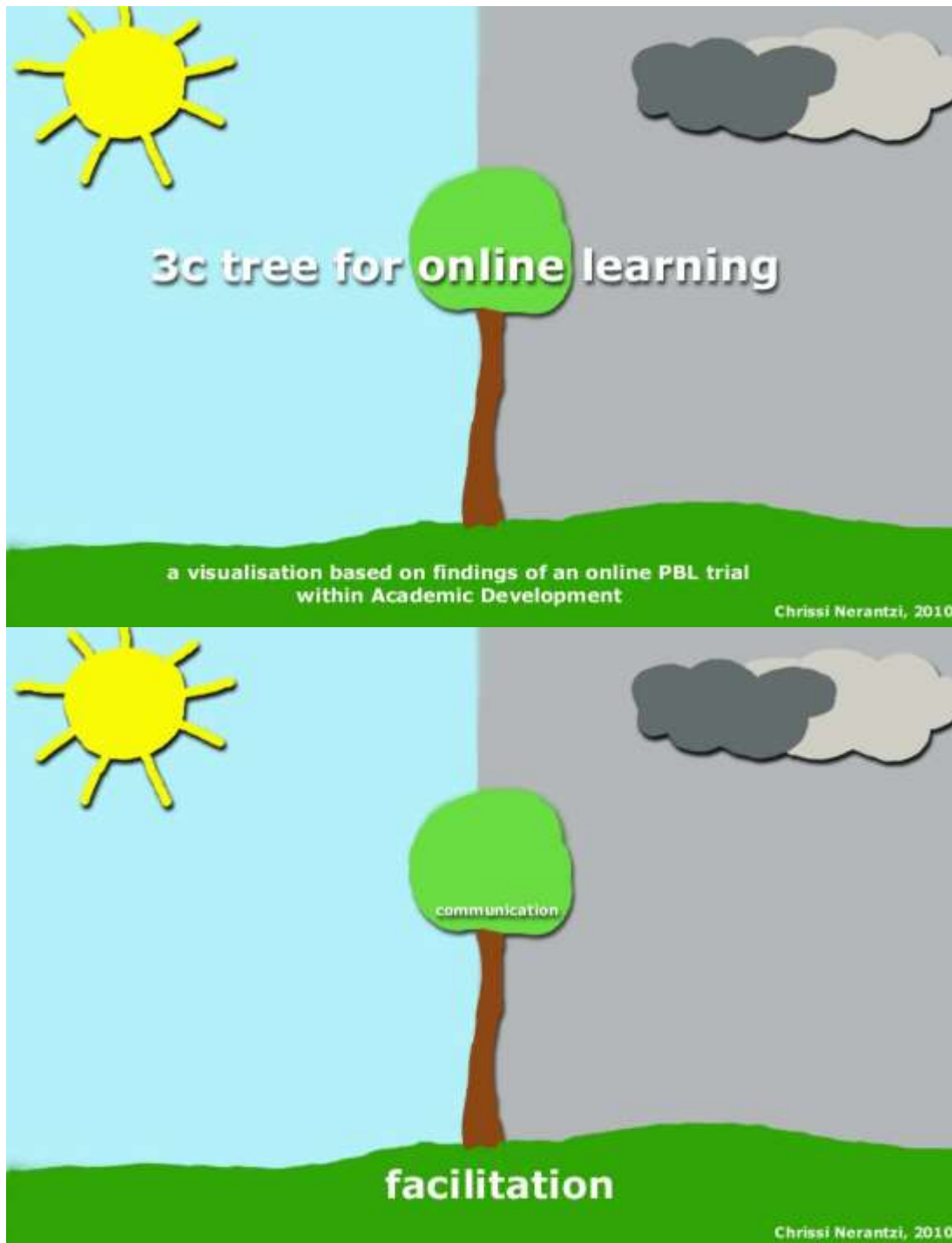
The overall aim of this research project was to introduce and evaluate an online PBL approach within AD. During this study, the PBL landscape was presented with a focus on online PBL within HE and AD, and a small-scale trial online PBL trial conducted.

Findings highlighted issues around communication, collaboration and facilitation. The less structured PBL approach and process used by the PBL groups together with the lack of a more social aspect of learning made this pilot extremely challenging for participants and facilitators. Also engagement with the resources provided was limited and the technologies used were frustrating for some. The following are therefore recommended as having the potential to transform future online PBL activities into more fruitful and enjoyable learning experiences.

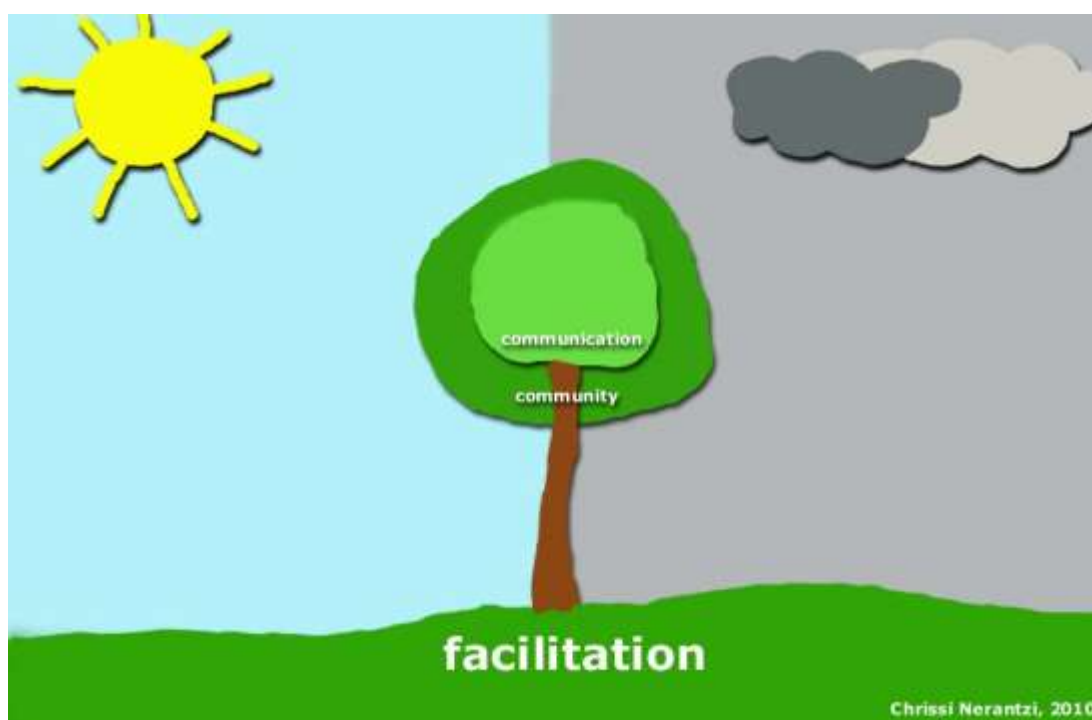
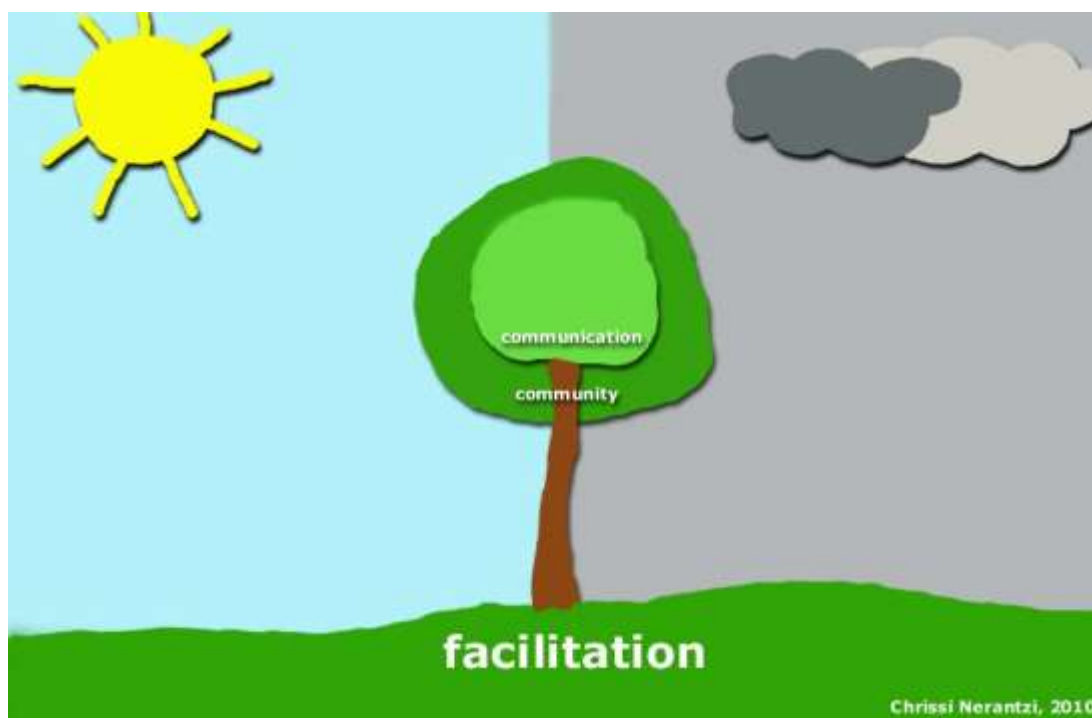
Learning to facilitate online: This trial has shown the importance of online training programmes for online PBL facilitators –giving facilitators the opportunity to experience online education as a student, helping them to become familiar with online pedagogies and the practicalities of online facilitation, as well as how PBL can work effectively online. An ongoing peer-to-peer and mentor support system should also be provided.

Online PBL facilitation: Communication is at the heart of online learning through which a learning community can be created where collaboration can flourish. Facilitators play a vital role in this process and in online PBL in general (Savin-Baden 2003). They will engage participants actively in the online collaborative PBL activities and help them become self-directed and empowered online learners (Smyth, 2007). A more directive approach is initially needed until participants are more familiar and confident with learning online and PBL (Nerantzi, accepted).

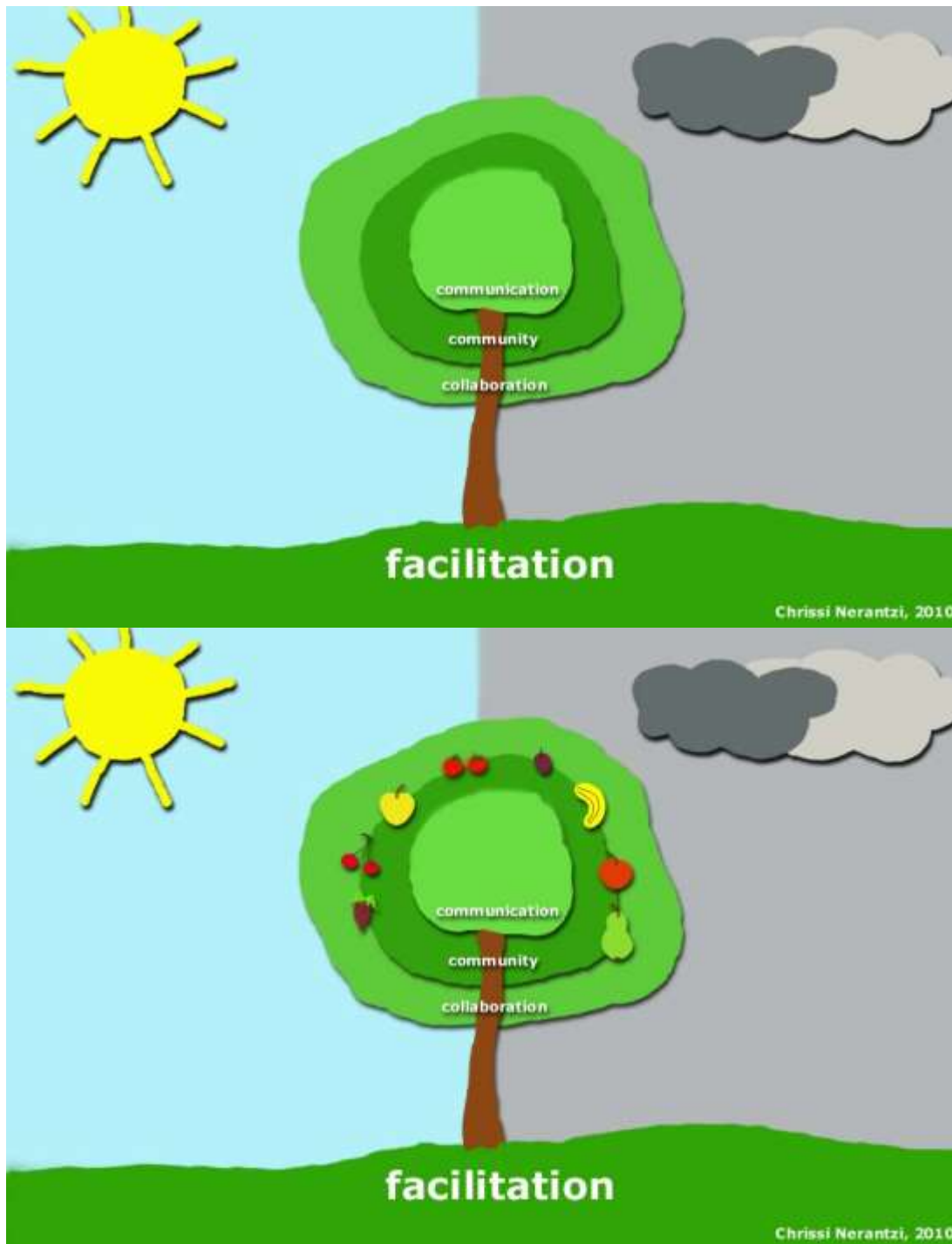
The images below are a visualisation of how online PBL can be enhanced through effective facilitation.



Effective facilitation from the outset enables two-way continuous communication in online learning situations and is especially important in online PBL as this research project has shown. At the initial stages more facilitator involvement is recommended.



Establishing and cultivating two-way communication will enable online learners to get to know each other and start forming a learning community in which everybody feels safe and willing to be a part. Facilitation plays a vital role in this process and special attention should be paid by facilitators to enable community formation.



When a learning community has been established, learning in collaboration and specifically online PBL activities can be practised effectively with the support of the PBL facilitator who progressively becomes less-directive as the groups learn to work more effectively together and develop peer-learning and –support strategies that work for them as well as become more autonomous.

**Figure 5.1 series showing development of 3c tree for online learning (communication, community, collaboration)**

Activities: Clear instructions about the open-endedness of PBL should be provided from the outset. Taster PBL activities would also help familiarisation

before embarking on online PBL activities directly linked to the curriculum. PBL activities used for delivery and assessment should be aligned constructively with the learning outcomes (Biggs, 1999). Online PBL provides opportunities for peer- and self-evaluation and it would be useful to explore these for formative as well as summative assessment strategies.

Resources: Providing resources in a variety of media accompanied by facilitated activities to promote engagement and learning is recommended. Also, participants should be encouraged to contribute their own resources and share these with the community.

Technologies: A facilitated online orientation tour should be offered to all participants. Facilitated activities during the familiarisation with technologies phase should be built-in, providing participants with the opportunity to trial these. Ongoing support is also vital.

Findings indicate that there is a place for online, blended and face-to-face PBL in AD within institutional PgCert programmes to model such approaches to new academics and other professionals who support learning in HE and also enable PgCert participants to connect with colleagues from other institutions through enabling multi-institutional collaboration. Further formal research is recommended in this area in order to better understand the challenges, issues and benefits identified in this study and to explore how online PBL could be adapted within PgCert provisions in different institutions using a recommended optimum group size of 12-20 (Trigwell 2000; Sandberg 1996), refine the approach used here to enhance the online learning experience and provide a framework in which online PBL can work more effectively.

## APPENDICES

### Appendices

#### Appendix 1: The search for 6 academics to participate in the trial

Hello,

My name is Chrissi Nerantzi and I am an academic developer at the University of Salford. I am in the process of carrying out research linked to online Problem-based learning (PBL) within AD and am currently looking to recruit 6 academics who would like to volunteer to participate in a trial that will be carried out fully online from September 2010 and up to November 2010.

What will it involve? Engaging and participating actively from September until November 2010 in online PBL activities linked to learning and teaching with a small group of academics from other HE institutions in the UK with the use of freely available Web2.0 tools such as [www.wordpress.com](http://www.wordpress.com) and other online collaboration platforms. Also, reflecting on the experience and providing feedback at specific milestones of the project will be required.

Why should I do it? You will have the opportunity to meet and collaborate online with other academics who are studying towards a PgCert like you at other institutions and be supported by experienced academic developers. During the trial you will familiarise yourself and engage with PBL and also explore how you could use similar approaches in your own practice. Perhaps you could even use your engagement and all the hard work you will have done on this project as evidence for one of your assessments on your PgCert programme. Please check with your programme leader if that would be possible.

How much time will I have to put in per week? I estimate that engagement should require 2-3 hours max per week from September until November 2010.

Warning! This is a non-funded small-scale qualitative research project as part of an MSc in Blended and Online Education. Full access to the final report will be given to all participants.

If you are studying toward or are about to start a PgCert in Teaching and Learning in HE/Academic Practice and would like to participate in the above, please email me at [c.nerantzi@salford.ac.uk](mailto:c.nerantzi@salford.ac.uk) **by the end of August 10**. If you have any questions before saying yes or no, please get in touch too. Only 6 places available.

Thank you very much for reading the above.

I am looking forward to hearing from you ;o).

Best wishes,



Chrissi (Nerantzi)  
[c.nerantzi@salford.ac.uk](mailto:c.nerantzi@salford.ac.uk)

## Appendix 2: Welcome message to all participants

Hello and welcome to the Online PBL trial,

Thank you very much for volunteering to participate. I hope that the trial will be a valuable experience for you and enable you to explore how online PBL could be used within your own practice.

The following tasks are for all participants.

Please access the link provided below to complete a short initial survey as soon as possible.

<http://www.surveymonkey.com/s/3XVLJG2>

At the beginning of next week, you will all be invited to join the Online PBL trial space which is within [www.wordpress.com](http://www.wordpress.com) If you don't have a wordpress account, please set one up as soon as possible and forward me the email address you used. There is no need to create a wordpress blog for this trial, just an account. Thank you very much.

If anything is unclear, please get in touch.

I am looking forward to meeting you all online.

Best wishes,

Chrissi

## Appendix 3: Initial online PBL questionnaire

**initial PBL survey**

Exit this survey

**1. Online PBL within Academic Development Project (initial survey)**

Hello,

Thank you very much for participating in the online PBL project. We are at the very beginning and I would like to ask you a few questions so that I can establish your starting point. A further questionnaire will be forward to you after completion of the trial.

Also, please share your thoughts about the project throughout the trial by adding posts within the trial space. I hope this is ok.

Thank you very much for participating. I hope you find the journey exciting and useful.

Chrissi

email: [c.nerantzi@salford.ac.uk](mailto:c.nerantzi@salford.ac.uk)the online PBL trial is available at <http://onlinepbl.wordpress.com>

1. Are you...

- Are you... an academic developer or
- a student on a PgCert programme?

2. Do you know what problem-based learning is?

- Do you know what problem-based learning is? yes
- no
- not sure

3. Have you used Problem-based learning approaches before within academic development/in your practice?

- Have you used Problem-based learning approaches before within academic development/in your practice? never
- sometimes
- frequently
- all the time

4. Please answer the following questions.

		never	once	occasionally	frequently
<b>Have</b>	<b>you</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>participated</b>	<b>in</b>				

	never	once	occasionally	frequently
<b>online collaborative learning before?</b>				
<b>Do you use online/blended modes of delivery with your students?</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Have you used/participated in online PBL before?</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. If you are an academic developer, please share with me how teaching and learning looks on your PgCert programme. What approaches do you use? What do students like? What could be enhanced further, why and how.

6. If you are a student starting a PgCert programme, please share with me how teaching and learning should look like on your programme. What are your expectations? What would you like to experience and why?

Also please let me know if you are new to teaching in HE.

7. Are you familiar with...

	yes	no
<b>blogs</b>	<input type="radio"/>	<input type="radio"/>
<b>wordpress</b>	<input type="radio"/>	<input type="radio"/>
<b>wikis</b>	<input type="radio"/>	<input type="radio"/>
<b>wikispaces</b>	<input type="radio"/>	<input type="radio"/>

<b>pbworks</b>				
<b>skype</b>				

8. Please read the following question carefully.

*We will be using wordpress.com and other freely available web2.0 tools. Do you have any objection in making content public, including your contributions? This would mean that your contributions would be accessible to the wider internet community. Do you object?*

yes

no

9. Please share with me your name, institution and discipline and how long you have been teaching/supporting learning in HE.

Done

#### Appendix 4: working together, instructions for participating lecturers

##### Team A/B

Hello everybody,

You will be assigned to a group. Each group consists of four individuals.

You will be working together over the next month to complete task 2 and 3 of the trial. Please remember that you have support from an academic developer, who is going to act as a facilitator and provide help if needed. Please include your facilitator in all communication throughout the project.

Remember that, for each PBL tutorial you decide to hold online on a regular basis, you will need a chairperson and a scribe. Ideally, a different for each tutorial so that you all have a go. Decide within your group about other roles and responsibilities soon after group formation and capture these in your group space. Have an agenda for each tutorial and keep minutes. Also, please make sure that everybody participates and is assigned tasks to complete and reports back to the team.

##### How to start?

Arrange weekly online PBL tutorials when everybody is available. It might be easier to arrange them in the evening or at weekends. Remember to notify your facilitator too.

Also, I would suggest to get to know each other a bit better and discuss your strengths so that you can utilise these when you start working together.

Further details about the tasks can be found in the online trial space and instructions on the 5-step PBL model used are under Task 2.

Access the PBL trial space regularly and share your reflections with all of us. Feel free to comment on each other's reflections.

Remember that you should be working together, this is very important. Your facilitator is there to help you if needed.

Appendix 5: 5-stage PBL model

Stage 1: explore the problem

Stage 2: discover known and unknown, plan

Stage 3: research and share

Stage 4: apply

Stage 5: present

#### Appendix 6: Facilitator role, facilitator tasks

Thank you very much for participating in this trial. In September 10 you will be assigned a small group of lecturers (4 each) who will work together on a PBL scenario which will have a focus on assessment and feedback.

You will work with the other academic developer(s) on this pilot to **finalise the PBL scenario** which has been given to you (please see below). Both groups will be asked to work with the same scenario. Please study first what PBL is (useful resources have been included in the 'Resources' tab at <http://onlinepbl.wordpress.com> and then work together to finalise the scenario and forward it to me by the end of July 10 the latest. The **draft feedback template** to be used for peer evaluation can also be found below. Feel free to make any changes needed.

Also, please choose and **set-up an online space for your group** by the end of August 10 and forward me the direct link. Please keep the space private until completion of the PBL task. A few tools for the above have been included at <http://onlinepbl.wordpress.com/resources/>

During the PBL trial, your role is to facilitate your team, make sure that the PBL procedure is followed, monitor team work, stimulate thinking and discussion and offer clarification about the task and the process if needed.

During the online tutorial you take the back-seat and observe what is happening. Avoid intervening and providing suggestions.

Please reflect on your role and share your observations within the blog area. Feel free to use any format you like such as audio, video, still images, text or a combination of the above.

We also have an academic developer who is not actively participating but who has offered to observe the whole process and provide his comments in the project blog space. This is Dr. Peter Gossman is also be a valuable resource for discussing and shaping the final PBL scenario and engaging in any pre-trial activity.

Thank you very much.

Chrissi

Aim

To introduce an online PBL approach for developing teaching skills among participants on PgCert programmes.

Intended learning outcomes

At the end of task 2 and 3 and after active participation and contribution participants will have had the opportunity

- to participate and collaborate in fully-online in small group PBL
- to identify and critically analyse issues linked to the given PBL scenario



- to present findings to the other team

#### Draft PBL scenario

*“Just finished marking 150 essays, the one and only assignment for this challenging module. Can’t understand why students don’t do well! Is one essay too much? I have been using this essay title for the last 10 years – I love it! – and students just don’t seem to engage with it, not even the brighter ones, which is really strange!*

*I have given the students an extensive reading list and during the lectures I always tell them that they can ask me if they don’t understand something. Not sure what I am doing wrong... Students have never complained about anything and the module evaluation is always positive.*

*They had a whole month to write the essay... but I know that many just do it a few days before the handing in date. At least they hand it in I guess. Writing feedback is a hard job! I don’t know these people. I see them 2h a week over 10 weeks and there are 150 of them in the lecture theatre. I find it really time consuming and am not sure if they read it. Am I wasting my time?”*

#### Draft feedback template

Based on Woods, D R (1994) How to Gain the Most from PBL, Hamilton: McMaster University.

#### Feedback for team A/B

##### Issues identified

None – a few – a good amount – most of them

##### Quality of knowledge

Poor – a few but major omissions – good – excellent

##### Quality of presentation

Poor – a few but major omissions – good – excellent

##### Follow-up

Learned nothing – major self-study needed – some self-study of the basics – no self-study of basics, I want to reflect ideas

##### Strengths

##### Areas for development

##### Further comments?

Appendix 7: pool of interview questions (at the end of the trial)  
(confirm confidentiality and anonymity)

**Open-ended question to be used during interviews with participants**

- *What attracted you to take part in the trial?*
- *What was your previous knowledge of PBL?*
- *What was your previous knowledge and experience of working online?*
  
- *How do you feel about the trial now that it is finished?*
- *What did you enjoy the most? Explain.*
- *What did you enjoy the least? Explain.*
- *Did you encounter any problems? Explain.*
- *How do you feel about online PBL now?*
- *How did you feel working with individuals from other institutions?*
- *Can you tell me about something you have learned?*
- *What do you mean by...*
- *How did you feel about the support provided by the facilitators? Is there anything that could be improved and how? Any particular aspect that worked well and why?*

**Open-ended questions to be used during interview with facilitators**

- *What attracted you to take part in the trial?*
- *How well prepared were you for the trial?*
- *What was your previous knowledge of PBL?*
- *What was your previous knowledge and experience of working online?*
  
- *How well supported did you feel?*
- *How do you feel about the trial now that it is finished?*
- *What were the challenges for you as a PBL facilitator?*
- *What did you like? Explain.*
- *Did you encounter any problems? Explain.*
- *What is your understanding of PBL now as a result of the trial? How did it change?*
- *Can you tell me about something you have learned?*
- *Do you feel that there is a place for online PBL within a PgCert? Explain.*
- *What do you mean by...*
- *How did you use the draft scenario, draft assessment criteria and draft feedback template provided? Please explain briefly what you did and why.*

Appendix 8: Final questionnaire  
final PBL survey

**1. Online PBL within Academic Development Project (final questionnaire)**

Hello,

Thank you very much for participating in this project and all your valuable contributions. This project would not have been possible without you.

We are now at the end of our journey and I would like to use this opportunity to ask you a few questions about the PBL trial. I will also be contacting you shortly to arrange interviews with you.

All the best for the future and thanks again for participating!

Chrissi

online PBL trial available at <http://onlinepbl.wordpress.com>

1. Are you...

- Are you... an academic developer  
 a student on a PgCert programme

2. Was/Were...

	very poor	poor	good	very good
the online environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
getting around the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the instructions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the tools used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
support provided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
available resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Mark only one answer per statement. Please use 'unsure' only if you are genuinely unsure.

	strongly disagree	disagree	unsure	agree	strongly agree
I am now better at problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	strongly disagree	disagree	unsure	agree	strongly agree
<b>solving.</b>					
<b>I feel now more confident in using technology for my teaching and learning.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>I now have a better understanding of online PBL.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>I plan to explore online PBL further and see how I could implement it within my practice.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>I think PBL could play a greater role within a PgCert programme.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>I enjoyed working with colleagues from other institutions.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>I used the resources provided and found them useful.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. *Anything else you would like to share with me? Perhaps you have some suggestions for future enhancement.*

Anything else you would like to share with me? Perhaps you have some suggestions for future enhancement.

5. *Please read the following question carefully. I would like to use anonymised quotes provided by participants in my report*

*and possible future publications linked to this trial. Do I have your authorisation to do so?*

yes

no

*6. Would you like to tell me your name, institution and discipline.*

## Appendix 9: Profiling

### **Team A:**

PBL Facilitator/Academic developer: Carol Beattie, University of Chester

participants

1. Sarah Robins-Hobden, Psychology Department, University of Sussex
2. Dr. Juan Hidalgo de Quintana, Genome Damage and Stability Centre, University of Sussex
3. Dr. Cai Wilkinson, Centre for Russian and East European Studies, University of Birmingham
4. Eleanor Barham, Department of Social Policy, London School of Economics

### **Team B:**

PBL Facilitator/Academic developer: Neil Carrant, University of Salford

participants

1. Matthew Barr, Humanities Advanced Technology and Information Institute, University of Glasgow
2. Dr. Kayoko Tatsumi, Department of International Development, London School of Economics
3. Sarah Maddocks, Biomedical Sciences, University of Wales Institute, Cardiff
4. Mareike Schomerus, Department of International Development, London School of Economics

## Appendix 10: Online PBL models

Orril (2000)	Malopinsky et. al. (2000)
<ul style="list-style-type: none"><li>• identify problem</li><li>• determine task</li><li>• collect data</li><li>• develop hypothesis</li><li>• discuss solutions</li><li>• feedback</li><li>• finalise and present solution and provide feedback</li></ul>	<ul style="list-style-type: none"><li>• presentation</li><li>• exploration</li><li>• integration</li><li>• solution and reflection</li></ul>



## Appendix 11: Sample PBL Models

Mills (2006)	Busfield & Peijs (2003)	Woods (2000)
<ul style="list-style-type: none"> <li>• definition</li> <li>• analysis</li> <li>• research aims</li> <li>• research</li> <li>• synthesis</li> </ul>	<ul style="list-style-type: none"> <li>• Explain unknown wording, statements, concepts</li> <li>• Define the problem</li> <li>• Brainstorm – analyse/try to explain the problem(s)</li> <li>• Make a systematic inventory of explanations</li> <li>• Formulate self-study assignments</li> <li>• Perform self-study assignments</li> <li>• Report and evaluate on self-study</li> </ul>	<ul style="list-style-type: none"> <li>• Explore: exploring problem, identify issues, create an hypotheses</li> <li>• Attempt: attempt solving problem from what you know</li> <li>• Identify: identify what you do not know</li> <li>• Plan: make a plan with a timeframe, define needs and group member tasks, learning outcomes, resources</li> <li>• Study: self-study</li> <li>• Share: sharing new information with whole group</li> <li>• Apply and solve: applying knowledge to solve the problem</li> <li>• Reflect and evaluate: reflecting and evaluating process, new knowledge</li> </ul>

Appendix 12: Scenario used during the online PBL trial

*“Just finished marking 150 essays, the one and only assignment for this challenging module. Can’t understand why students don’t do well! Is one essay too much? I have been using this essay title for the last 10 years – I love it! – and students just don’t seem to engage with it, not even the brighter ones, which is really strange!*

*I have given the students an extensive reading list and during the lectures I always tell them that they can ask me if they don’t understand something. Not sure what I am doing wrong... Students have never complained about anything and the module evaluation is always positive. They had a whole month to write the essay... but I know that many just do it a few days before the handing in date. At least they hand it in I guess. Writing feedback is a hard job! I don’t know these people. I see them 2h a week over 10 weeks and there are 150 of them in the lecture theatre. I find it really time consuming and am not sure if they read it. Am I wasting my time?”*

Appendix 13: paper accepted

## **'Not too much facilitation going on' - Issues in Facilitating Online Problem-Based Learning in Academic Development**

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### **Abstract**

This research examines online Problem-Based Learning (PBL) in Academic Development (AD). Research shows limited application of PBL within AD, with no evidence of online PBL in accredited provision aimed at connecting participants, and enabling collaborations from different PgCert programmes across the UK. This study investigates whether collaborative learning in AD can be enabled and practised beyond institutional, geographical and temporal boundaries, through the application of a structured PBL approach with the use of Web 2.0 technologies.

A small scale trial was carried out with academic developers and individuals who teach or support learning across UK HE institutions. During the trial, participants were asked to complete an online PBL task in groups supported by PBL facilitators.

Phenomenography was adopted as a methodology and approach for data collection and analysis to capture the different ways in which participants experienced the online PBL trial on a PgCert programme.

Findings indicate that online PBL has the potential to connect PgCert participants using Web2.0 technologies for online collaboration. This paper focused on the findings linked to facilitation. Further research is required to create a more robust framework to enhance facilitation and participants' online experience, motivation and engagement.

### **Keywords**

PBL, online PBL, Academic Development, online facilitation, facilitating online PBL

### **Background**

Problem-Based Learning (PBL) has been successfully used, since the 1960s, initially in Medical Education (Barrows and Tamblyn 1980). More widespread use has followed in multiple disciplines (Savery 2006; Hung 2009) at undergraduate and postgraduate level, and PBL has become increasingly popular nationally and internationally (Gürsul et al 2009; Donnelly 2010). Limited evidence has been revealed within current AD around the use of and research on PBL in general, and in blended and online PBL (Barrett 2005, 2010; Donnelly 2002, 2010).

PBL is an active and student-centred teaching and learning approach (Hmelo-Silver et al 2009) in which collaborative learning is the main feature (Savin-Baden 2003). Authentic, real-life ill-structured problems (Baturay and Bay 2010) are used as triggers to engage students in 'meaning-making over fact-collecting' (Torp and Sage

2002, 1). Baral et al (2010, 141) confirm that 'there is no uniformity in implementing of PBL' and this investigation has revealed a plethora of models (Mills 2006; Busfield and Peijs 2003; Woods 2000; McLoughlin and Darvill 2007). What all approaches have in common is that they are goal-oriented, based on real-life problem scenarios, facilitated by academics - or 'the promoter of learning' (Baral et al 2010, 144), in which students work in groups and are actively engaged in the learning process through which they gain and co-construct knowledge. They also develop their higher order thinking skills (Oliver and Omari 1999) and techniques linked to a specific subject and have the opportunity to develop, refine more generic and transferable skills and are also introduced to research (Mills 2006).

Facilitators play an important part in PBL (Savin-Baden 2003) and their role changes depending on the group they are facilitating but also their experience, skills and understanding of online PBL. Hmelo-Silver (2002, 10) defines the facilitator role as somebody who helps 'students construct causal explanations that connect theories, data and proposed solutions.'. Students are guided to become self- and collaborative discovery learners. Despite its importance, limited research has been carried out linked to the impact facilitation has on students who engage with PBL (Savin-Baden 2003).

Web2.0 technologies and the arrival of new pedagogies such as connectivism (Siemens online) are transforming the way we learn, deliver and support learning (Oliver and Omari 1999; Kear 2011), and are already used in different disciplines, but to date less so within AD (Donnelly 2010).

McLoughlin and Lee (2008, 641) suggest that

'tools like blogs, wikis, media-sharing applications and social networking sites are capable of supporting and encouraging informal conversation, dialogue, collaborative content generation and the sharing of knowledge, giving learners access to a wide raft of ideas and representations.'

While these tools are key, according to Chernobilsky et al (2005, 61) facilitation 'seems to be extremely important in an online learning activity' particularly because of the special role it plays in supporting online collaborative learning (Thorpe 2002).

Technologies are equally beneficial for PBL (Juwah 2002; Ge et al 2010; Donnelly 2005) and are used in blended and online programmes, but also in traditional face-to-face settings, to extend engagement outside the classroom and with larger groups (Hmelo-Silver et al 2009).

Donnelly (2002) implemented an online PBL module within a PgCert programme based on the model of Computer-Mediated Collaborative Problem-Based Learning (CMCPBL) (Savin-Baden 2003) itself based on CSILE (Scardamalia and Bereiter 1994) in which small groups worked together synchronously and asynchronously to co-construct new knowledge through the application of online PBL.

Research was carried out into whether Web2.0 technologies could be used effectively for online PBL within AD and specifically within PgCert provisions by carrying out a small-scale trial.

### **Method and data collection**

A UK-wide online PBL trial was conducted from September 2010 to November 2010 with the aim of exploring if PBL successes in other identified subjects could be

replicated within AD, and specifically within the Postgraduate Certificate (PgCert) in Academic Practice or similar programmes. It was based on the model of Computer-mediated collaborative problem-based learning (CMCPBL) (Savin-Baden 2003).

In total, eight new academics and two academic developers participated. Two multi-disciplinary, multi-institutional groups were formed each with four participants. An academic developer was assigned to each group to act as the PBL facilitator.

Freely available Web2.0 technologies, such as a Wordpress group blog, Pbworx collaborative wikis and the Skype web-based conference tool were utilised during the trial. The fully-online trial was based on Salmon's (2004) 5 stage model:

- Familiarisation with technologies
- Socialisation with tutors and peers
- Exploring PBL and sharing
- Execution of collaborative PBL task
- Peer evaluation and tutor feedback

The two PBL facilitators were given the opportunity to finalise the PBL scenario, assessment criteria and the peer evaluation template to increase ownership of the trial itself and the PBL task. Also, a variety of media-rich self-study materials were made available to help participants familiarise themselves with the technology used and with the concepts of PBL and had the opportunity to engage a discussion around these. Participants were also given access to resources specifically linked to the PBL task to enable them to focus on the collaborative activity instead of spending valuable time on information searches (Donnelly 2005; Jeong and Hmelo-Silver 2010).

Phenomenography (Marton, 1994) was chosen as a methodology and tool for data collection and analysis to 'describe qualitative variations in people's experience of phenomena' (Dortins 2002, 207). The main data collection method used was the individual interview, carried out remotely over the internet. Some interviews were replaced by email discussions due to technical difficulties. Additional data was collected through online initial and final surveys as well as a selection of reflective commentaries. All data was transcribed manually and Microsoft Excel was used for filtering, analysis and synthesis (Meyer and Avery 2009) through which the categories of descriptions emerged.

## Results

The PBL task itself was carried out over a period of 5 weeks and was successfully completed by both groups. The same scenario with a theme around assessment was given to both groups who worked together online to identify the problems and come up with a series of effective solutions. The overall results linked to facilitation provide a rich insight into the variation of the lived experience. They indicate that facilitation had a strong impact on participants and facilitators themselves as presented in this section. Anonymised authentic quotes have been included below to demonstrate impact.

Facilitation was the theme participants commented most extensively and passionately on during the interviews, reflections, and in the final survey. One participant stated in the anonymous final survey that

The chief thing that the trial highlighted for me was the importance of the facilitator to the success of the project. It is a lot more work doing things this

way, and the facilitator needs to be pretty "hands on" in the absence of face-to-face meetings between group members.' (participant)

Both facilitators reflected on their role and performance and came to the conclusion that there is an imperative need to improve facilitation to offer the support and guidance required to participants during online PBL activities with the intent to enhance engagement, learning and the student experience. Both facilitators agreed that they have learnt a lot and now have a better understanding of what works and what doesn't in online collaborative PBL. One of them stated for example that

'There is a lot I learnt from the whole process even I was disappointed with myself how I facilitated. I don't think I did a good job. [...] I have to admit, it didn't go as well as I wanted it to.' (participant 20)

Below follow the categories of description identified linked to facilitation.

### **Clarity of role**

Generally there was confusion, even among the facilitators themselves, about the role the facilitators were playing and participants would have liked more clarity from the outset, and what they could expect from the facilitators during the trial. This is illustrated well in participant 12's words:

'I personally think I would have found it useful at least to have clarification what the facilitator would do. [...] If I had been told, that the facilitator is there basically to mop up any really serious issues, somebody who is really ill, completely unable to participate before the facilitator steps in, fair enough, I am not going to have kind of support and then I would have to step up to the plate and be a leader. And it may well be, that the facilitator did do that and I just missed it, I have to admit. So, I guess in future, it would have been nice for the facilitator to be a bit more hands-on, or is this something that is not done, then the facilitator should tell us that he/she is really going to be hands-off here. If you really, really need me then you can find me here, but to be honest, just get on with it. That would have been quite helpful.'

The confusion some participants felt about the facilitators' role in combination with the limited time they had available, led some to blame themselves which was documented through many participants' responses.

### **Engagement and support**

Overall, participants agreed that they expected facilitators to be more engaged in the trial and the PBL task, and that they would bring the group together and offer guidance and support. This result was confirmed through the interviews and the final survey. Participant 23 states

'at the beginning there was very little support from our facilitator. Very little communication between the instructor and the team members',

while participant 13 mentioned

'I felt a bit like, I was not knowing which direction I was taking and a bit sort of always in a doubtful sort of perspective, whether I'm actually reading the right material, whether I'm going to the right things, whether I'm following all the right stuff that I'm needing. a little bit in the dark [...] [The facilitator] was very, very insightful and knew lots of little things which was very reassuring and knew the

scenario very well, and helped us a lot at the end. But in between it was a bit sort of lacking.'

The above observation is echoed in a number of participants' responses who also felt disorientated and unsure about what they were supposed to be doing and were looking for informed support.

Also, many participants commented that they missed 'the human contact' (participant 13) and 'would have liked to come away feeling it was more of a community being created.' (participant 11).

### **Structure and scaffolding**

Participants and facilitators felt that more structure and scaffolding was needed. Facilitators also realised the need to set a timetable for specific activities and meetings from the very beginning to organise online collaborative tasks more effectively. One facilitator stated:

'I really should have had perhaps more structure in arranging meetings with the group although they actually worked together very well, and they divided the jobs and wrote the report, so that was really, really good.' (participant 10)

Looking back, facilitators recognised that structuring and scaffolding the online tasks with their PBL groups was their responsibility and participants agreed that more structure would have been beneficial during the online PBL task itself, and their online learning experience in general.

### **Preparation**

Facilitators stated that they didn't feel prepared enough for their involvement in the trial and this made them feel less confident to carry out their role effectively.

None of the facilitators had previously engaged in any fully online activities as a learner or facilitators, nor did they have extensive experience or knowledge of PBL in general.

Resources and support were both available before and during the trial, as confirmed by participant 10 'Everytime, I had a question it was responded to very very quickly, [...] I could just email you and you responded really quickly. I felt very supported.'

However, since the facilitators made limited use of these, they subsequently recognised that more preparation was required from their side than they had initially anticipated. One of them mentioned

'I think because it is an online trial, I didn't realise how I wasn't prepared, if you see what I mean. Had I known, perhaps I would have had more preparation [...] had I done sort of more research myself it would have helped'. (participant 10)

Both facilitators suggested that it would have been helpful to engage in pre-trial activities so that they fully understood what the trial was about and what was expected of them. One of them suggested this might have been conducted face-to-face or online using synchronous communication tools, while the other facilitator shared their idea of a

'dry run for facilitators. Just to get the idea of the mechanics of it all. [...] It is hard to imagine how it would look like if you haven't done it before and I struggled to see the big picture. To see the end and where we were going because I hadn't done both bits (delivering a programme online and online PBL) together before.' (participant 20)

## Discussion

Communication is at the heart of online learning and it is more challenging to make it work online than it is face-to-face (Savin-Baden 2003). It should be continuous (Levy 2011), facilitated and enable dialogue between the facilitator and the participants (Laurillard 2002). Task setting, timelines and the application of the PBL model and process provide structure for online collaborative learning. These were not fully utilised during this trial, which led to feelings of disorientation and frustration. Both participants and PBL facilitators new to their role need more support to get started, especially if they are new to the environment and the process of PBL. This applies to face-to-face and online settings.

The findings of this study indicate that both facilitators who were relatively new to PBL and completely new to teaching and learning online as well as online PBL adopted a rather hands-off approach. This is in line with Savin-Baden's (2003, 50) observations that 'facilitators new to problem-based learning often feel that it is better to say less – or even nothing – so that the students feel that they are taking the lead in the learning.' Participants in the trial, who were all new to online PBL and most of them to PBL in general, expressed that they would prefer a more directed approach which also corresponds with Savin-Baden's (2003) findings.

A more directive facilitation approach in the context of this trial is suggested to maximise active participation in the online PBL activities. This can be achieved if facilitators' engagement, especially at the initial stages, focuses more on:

- opening up the dialogue between facilitator and participants
- learning about learning online
- familiarising with the structured PBL process and model used
- establishing a learning community
- modelling good practice for online collaborative learning and online PBL.

This would result in a more structured and systematic facilitation 'guiding students on the learning process, pushing them to think deeply and modelling the kinds of questions that students need to be asking themselves.' (Hmelo-Silver 2002, 1). Facilitators should also help participants with more practical aspects, such as setting tasks (Leinonen et al 2009) and organising synchronous meetings, moving the asynchronous conversations forward and boosting their confidence so that they engage actively in the online collaborative activities to become self-directed and empowered online learners (Smyth 2007). The more experienced students become in online PBL, the less facilitation is required (Neville 1999; Savin-Baden 2003).

The TESEP 3E (Enhance, Extend, Empower) approach therefore presents a useful online learning framework to consider for PBL to enable progressively active, extended participation leading to learner autonomy (Smyth 2007) through the use of suitable technologies. Heron's (1989, 1993) facilitation modes, if used progressively, have the potential to become the enabler of the TESEP 3E model. The initial facilitation mode would be hierarchical (a more directive approach during familiarisation with the process to enable engagement), becoming co-operative (transforming learning into a partnership to enable and enhance collaborative learning) and finally autonomous



(leading to learner and group autonomy) corresponding in harmony with the 3 stages of the TESEP approach to transform the student online experience.

It is recommended to model online PBL facilitation. This would provide the opportunity to new PBL facilitators to experience online learning as a learner first, understand how online communication can work effectively and develop strategies to overcome limitations and extend opportunities for online synchronous and asynchronous communication and collaboration. Ongoing support (Savin-Baden 2003), peer-to-peer and mentor will also be vital to discuss on-the-job issues and resolve these collaboratively.

### **Conclusions**

The trial proved that the application of online PBL is challenging (Savin-Baden 2003) due to the nature of online learning in combination with PBL. The trial enabled facilitators and participants to engage with PBL through online collaborative learning in multidisciplinary and multi-institutional teams, which was found by all to be beneficial. It helped them to experience first-hand, benefits and challenges in working fully online.

Findings indicate that online collaborative PBL activities could have a place within PgCert programmes, and can connect PgCert participants from different institutions. There is, however, an imperative need to refine the facilitation approach used to enhance the online learning experience and provide a robust online PBL framework based on supportive facilitation. Online PBL may then become a more fruitful and enjoyable experience for everybody involved and lead progressively to more autonomy.

Further exploration and analysis of findings of this trial are required, as well as a larger scale collaborative study to establish possible wider impact and options for application within AD.

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