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International Collaboration in Blended Problem-Based Learning

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International Collaboration in Blended Problem-based Learning ...

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Abstract:

> *European education today is characterized by two dominant trends. First, e-learning has made impressive advances in the past five years. Second, European higher education has become increasingly internationalized. Within this, there has been an obvious shift towards more social, collaborative and communal perspectives of learning reported in recent educational research. Various forms of collaborative and inquiry-based learning include the idea that learning should be understood as a combination of participation, knowledge creation and internal processes. This paper discusses the blending of e-learning and problem-based learning (PBL), based on these observations and as a comprehensive approach encompassing the learning environment, curriculum, learning, studying and teaching.*

1   Introduction

The concept of blending face-to-face and online problem-based learning is introduced in this paper through an outline of recent case study research on a Postgraduate Diploma Module in Third Level Learning and Teaching entitled 'Designing E-Learning' for academic staff in Higher Education in the Republic of Ireland. This module is part of an accredited professional development programme for academic staff. A specific approach was taken to the design and delivery of this module by using problem-based learning (PBL) as the dominant pedagogical model. An international dimension was integrated into the design of the problem, by introducing collaboration with peers in Finland and Australia over the ten weeks of the module's duration. The paper explores some of the common issues encountered by academic staff as participants in this module. Problem-based learning and especially the tutorial groups can be examined as communities of learning and construction sites of shared knowledge. However, collaboration in a distributed group presumes social presence, shared understanding and versatile communication among the participants. Transforming group activities to online environments requires selecting suitable media for each situation and task

2   Background

2.1   Context

The module participants are drawn from very diverse fields, and have spent varying lengths of time as lecturers, from newly appointed staff to the institution, to those that have been teaching for anywhere between 5-25 years. There is present also a wide range of knowledge and experience about both e-learning and PBL, ranging from novice to intermediate or even

expert. All participants are self-selecting and choose to come on the module. A specific approach was taken to the design and delivery of the module by using problem-based learning as the dominant pedagogical model, and key components of the PBL process are delivered online. In terms of their subject disciplines, there is an eclectic mix, with many subject disciplines being represented in the fields of apprentice education, undergraduate and postgraduate education. Participants also include librarians, IT trainers, graduate students, administrators, educational consultants and other academic support staff who have a teaching role.

3   Blended PBL Model

Saven-baden and Howell-Major (2004) suggest that the term computer-mediated PBL has been used initially to define any form of PBL that utilizes computers in some way. However, this is seen as problematic since it offers little indication about the ways in which computers are being used, the areas of student interaction, the quality of the learning materials or the extent to which any of these integrate with PBL. This is a ten week (10 ECTS study credits) module which is delivered using a blend of face-to-face and online problem-based learning. The online delivery component and support of the module is in the Online Learning Environment, WebCT. The aim of the module 'Designing E-Learning' is to enable the participants (lecturers, librarians and educational technologists) to become aware of the practicalities of designing, delivering, supporting and evaluating an online module in their own subject disciplines. Using problem-based learning as a means of delivery of professional development for academic staff in higher education may not be a novel approach, but complementing this with e-learning can offer benefits. There are a five key phases to the blended delivery of the module; see Figure 1 overleaf for a visual schema of the module.
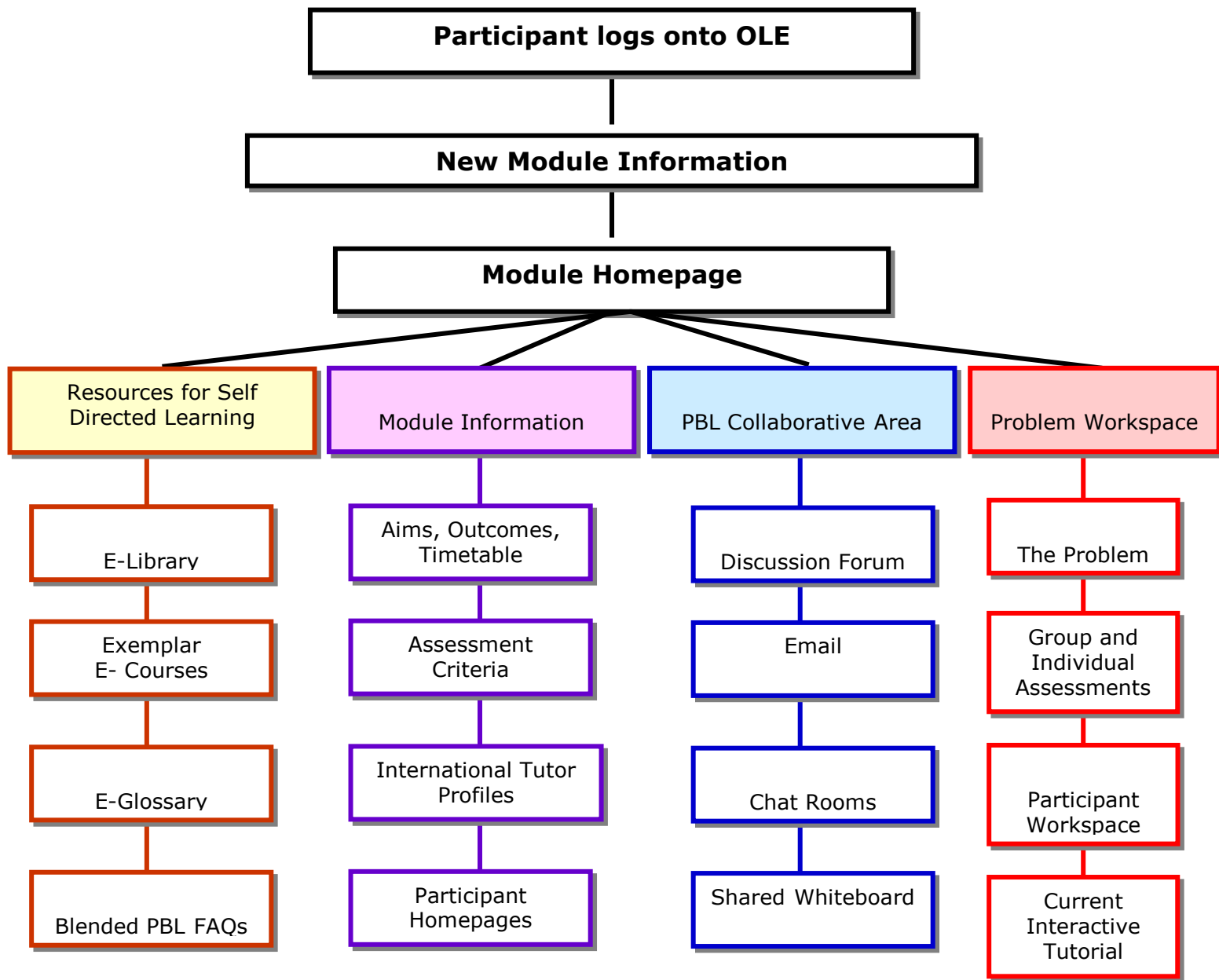
Participant logs onto OLE

New Module Information

Module Homepage

Resources for Self Directed Learning	Module Information	PBL Collaborative Area	Problem Workspace
E-Library	Aims, Outcomes, Timetable	Discussion Forum	The Problem
Exemplar E- Courses	Assessment Criteria	Email	Group and Individual Assessments
E-Glossary	International Tutor Profiles	Chat Rooms	Participant Workspace
Blended PBL FAQs	Participant Homepages	Shared Whiteboard	Current Interactive Tutorial

Figure 1 Schema of the Blended Problem-based Learning Module

Induction Phase: This induction phase is not assessed. It offers the participants an opportunity to start bonding as a collaborative problem-based learning group in a face-to-face setting. It also extends to participants the possibility to access and test the online learning environment and to solve any technical problems which may occur. Participants are required to give information on themselves and their academic interests in a section of the online learning environment, WebCT.

Literature and Research Phase: Participants are expected to familiarize themselves with relevant knowledge necessary for dealing with eLearning, and retrieve additional relevant literature in order to fulfill the requirements of collaborative problem-based learning for the module.

Exploration Phase: This phase is dedicated to getting familiar with online learning through working in the interdisciplinary group.

Conception Phase: This involves collaborative problem-based learning work on the design and implementation of an area using all that has been learned about online pedagogy and technology.

Evaluation Phase: The participants will be asked to give a written evaluation of their input, that of their peers, the collaborative problem-based learning group process, and the module itself.

In the context of this module, the term 'Blended Learning' refers to a merging of classroom and online activities that must be integrated by the tutor in ways that allows them to deliver learning (both content and tasks) as a coherent and effective whole; they may be individual, group based, or a combination of both. Blended PBL has evolved as a delivery and facilitation approach in the module whereby an online environment has been created to complement a series of face-to-face PBL tutorials with a puzzlement that engages the group of learners in inquiry activities consistent with the learning outcomes of the module. The blend is grounded in experiential, collaborative, contextual and constructive theories of learning, and it has clear point of convergence with everyday learning and action processes. Donnelly (2004) has argued that students working collaboratively on an authentic problem benefit from face-to-face interaction as well as being supported online. This can help eradicate communication problems amongst group members.

From a design perspective, it was decided to strip the module down to reflect the reality of the context in which it was being delivered. These lecturers in third level education in Ireland were not in the position of having to present courses entirely online. A blended approach with appropriate face-to-face encounters was deemed much more relevant for their and their students' needs. Online delivery took the form of using a range of electronic resources and online asynchronous and synchronous discussion, to solve a problem-based learning scenario. There are a small number of face-to-face sessions strategically placed at the start, middle and end of the module to facilitate cohesiveness, good dialogue, quality tutorial input and individualised support.

4   The International Collaborative Approach

Networking with other academics and academic developers internationally is a strong feature of this module and practice in designing e-learning is enhanced by the multiple perspectives

this collaboration brings. In recent years, through this module, communities of practice have been developed with colleagues in Scotland, Finland and Australia. The essence of the module involves participants being brought together by joining in common activities and by what they have learned through their mutual engagement in these activities. After participants gained experience with the flow of activities face-to-face in the PBL tutorials and were thinking deeply about the problem, their online collaborative work begins. The group meet online with the asynchronous feature of the Online Learning Environment, WebCT, that is designed to scaffold participants as they organise their group task, then synthesise, post and critique the results of their deliberations.

Real time online events feature in this model through desk top video conferencing to the Eduta Institute in the University of Tampere, Finland. The Synchronous Chatroom feature of WebCT is used for problem-solving areas of the curriculum so that the tutor can help students on a one-to-one, or one-to-small group basis. Participants interact with each other through posting email and Discussion Board questions. A video conference link to a guest tutor in the University of Tampere in Finland occurs at the half-way point in the module; this also involves use of the electronic shared whiteboard. Janes (2000) as far back as 1997 has reported the benefits of linking with international guest tutors in an online environment. The strength is the online collaborative discussions, presentations between participants and the interaction between online tutors, participants and international guest tutors.

The purpose of an asynchronous link via a discussion board was to rejuvenate the group work in its later stages by introducing two guest tutors from the University of Queensland. Through such expansion of physical classroom boundaries, an MP3 audio adds live interaction to asynchronous distance learning. Such guest "lecturers" can be invited in to join the conference, so students can interact directly with experts in their fields (Cotlar and Shimabukuro, 1995).

Interacting with peers from higher education institutions internationally was regarded as important for providing multiple perspectives to learning collaboratively. Higgins and O'Keeffe (2004) speak of '*effective e-learning*' and '*good content*' and express a belief that '*most, if not all learners learn best through blended learning*'. Blended learning, as the name suggests, consists of a blend of at least two pedagogical approaches: within the context of this research, blended learning is the integration of the PBL face-to-face learning in a classroom with e-learning. For example, the classroom is used by the PBL group to discuss critical concepts, and the discussion boards and synchronous chat room in the online environment WebCT and Marratech, is used to encourage the international dimension to participant dialogue around the concept.

The rationale for such a module is clear within the Republic of Ireland higher education context. Many teachers and lecturers will admit that they are running an online module when the truth is they are simply uploading lecture notes. If the same notes were distributed in a traditional lecture they would be backed up by verbal explanations, so it is not surprising that students often reject this 'so-called' e-learning approach when all they get is screen text with little or no clarification from the tutor. This argument is reinforced by McPherson and Nunes (2004) who state that '*it has not been unusual for lecturers within Further and Higher Education to have no formal training in teaching and learning*' (p. 4), yet, students in higher education are expected to develop high-level cognitive skills such as reflective analysis, meta-cognition and problem solving.

There are a number of issues which need to be taken into account by any lecturer wishing to combine PBL and e-learning: developing tutor's online facilitation capabilities, designing and producing synchronous events to support students, encouraging collaborative interactive participation and finding ways of engaging students who seldom participate in the online PBL group.

Blended PBL needs to be focused on a group-oriented, knowledge-building discourse and students should work collaboratively in real-time or asynchronously to manage the problem. Although using e-learning in conjunction with PBL has a number of advantages, (such as students having access to wider resources and often innovative problems, new and different forms of dialogue and immediacy in communication and learning), there are also a number of difficulties to be overcome. Students can very easily be overloaded with information. Problem scenarios may be pitched in terms of complexity of information management rather than of the development of criticality. Communication problems can arise both within the group locally and internationally and between the group and the tutor(s), particularly if there are language barriers to overcome; essentially this is because of the difficulties of understanding text-based dialogue rather than live dialogue. PBL is an approach that relies strongly on communication and learning through dialogue, and if the text-based communication (chat or email) is misunderstood or tutor feedback is received as negative when it was trying to be developmental, this can lead to discontentment and disjunction.

Physical space is not a connective element in an online environment as it is in face-to-face setting. Instead it becomes an element of separation. This emphasises the importance of the communicative tools and shared virtual spaces that are available for the group. Distributed communication and collaboration can be considered from the viewpoints of social presence, media richness, shared understanding and media synchronicity.

In many ways, it could be argued that designing blended PBL is no different from other forms of PBL, in that it needs to be designed with sound pedagogical foundations and not as merely providing an innovative approach to learning.

5   Recommendations

A number of recommendations emerged from the international collaborative element of the case study.

The most important adage of technology and organization is, keep it simple! Technical problems grow when crossing country borders. It is concluded, however, that what is now considered complex will change over time. Until quite recently, video conferencing was an expensive, labour-intensive, and unreliable technology. Over the past five years this has dramatically changed—video over IP is cheap and simple, and it works.

Timetables can prove another obstacle. Many different course-calendar arrangements exist in our international academic world, making joint timetabling quite a hassle.

Staff who engage in international education with e-learning need a wide array of professional competencies, often new to them. To engage successfully with foreign students, a teacher needs cultural sensitivity and an understanding of educational practices in other countries. In online educational settings, this seems even truer.

6   Conclusion

The impact of any international academic or e-learning collaboration is immense and the possibilities endless for all involved. The success of such collaboration rests solely on the shoulders of the partners involved. Continuous evaluation of such international collaboration contributes to its success. E-learning in international education is a challenging and promising field, one in which education should come first, internationalization second, and technology third.

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