



Teaching Toolkit

Blackboard: Using PBL in Blackboard

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PBL in Blackboard

This section contains a description of a PBL learning exercise conducted through Blackboard. The text is an extract from an article by Jennings (2006)¹. For further information please contact david.jennings@ucd.ie

Overview

The cohort was invited to partake in a problem-based scenario within the online environment of Blackboard. This problem-based session was based over a two-week duration and required in the region of 4 – 8 hours work. Two identified sessions were synchronous and therefore compulsory i.e. two 60 minute online tutorials. The first of which was to: Discuss and identify the problem, the second tutorial was - To report back on stated learning outcomes (learning outcomes). The remainder of the time was to be self-directed and required posting to discussion threads asynchronously and accessing phase-released data and acquiring external resources.

The research model in practice was that of the ‘Time Series Design’, whereby a number of observations (pre-tests) were used to establish an existing pattern amongst the participants (LoBiondo-Wood and Haber 1994). The participants were then exposed to the curriculum i.e. the online problem-based scenario, this being designed to encourage and promote the use of collaboration. Finally further observations and interviews were conducted after the online task was completed. Empirical studies (Harvey 1998) have validated this experimental approach, and results prove indicative of the differences between individual and collaborative learning.

Problem Based Learning

Educational technology is often seen as the solution to many curriculum issues, the area of communication and collaboration is a particular case in point. However, just because technology provides us with a means to collaborate does not necessarily imply that it will actually occur (Roschelle & Pea 1999).

Problem based learning is a relatively new phenomenon within this writer’s University. And he has had the opportunity to partake in a number of workshops and to facilitate part of a problem-based module in the ‘Theories of Teaching and Learning’. During this process it was evident that the majority of participants found it not only a worthwhile and stimulating experience, but the level of communication and interaction achieved was outstanding, it was deemed that this would provide an ideal methodology and framework within which to set the online study for collaborative learning.

Problem-based pedagogy may be defined as a process of learning which focuses on problem solving by enquiry, decision making, identifying learning outcomes and devising solutions, this

¹ Jennings, D. (2006). *A Problem and an Opportunity: E-Learning a case for collaboration*. In M. Savin-Badin & K. Wilke (Eds). *Using Problem-based Learning Online*. Open University Press, London.

may occur within a structured or unstructured learning situation and be under the guidance of a tutor or amongst peers. The entire process is perhaps reminiscent if not a re-invigoration of Dewey's concept of independent learning (Schmidt 1993) and firmly rooted in the premise of cognitive psychology, within which we may see the dual concepts of prior knowledge activation and group elaboration, both of which are crucial to any collaborative endeavour.

The method of problem-based learning was chosen for this study to further add to the potential for interaction and increase the need for conflict resolution, debate and discussion (Avouris et al 2003). A variation of the Maastricht model was chosen, whereby a 7-point task list is presented to aid in the problem resolution. The group were invited to review the presented 'problem' (see below) prior to the live tutorial, and asked to familiarise themselves with the following process so that they may be able to better structure their ensuing discussions.

Online PBL Guidelines:

1. *Clarify terms* (collected resources and a glossary were provided as a mutual starting point)
Participants were invited to ask for or be given explanations as required.
2. *Define the problem* (presentation of the problem and its context were provided online)
Participants are required to define the major issues captured by the problem
3. *Analyse the problem* (facilitated by the online group tutorial)
Participants expected to brainstorm associative connections to the problem, activating any previous knowledge within the group. Participants then invited to list any relevant aspects, questions/queries etc.
4. *Systematic clarification* (facilitated during online group discussion and asynchronous discussion threads)
Participants begin by classifying themes that emerged at the brainstorming session into higher order groupings. Further refinement may present itself in discussion threads.
5. *Formulating learning objectives* (facilitated by online group discussion)
On the basis of knowledge that is lacking, participants formulate learning goals in unambiguous, well-defined and concrete terms.
6. *Self and Group study* (facilitated by discussion threads, shared resources and group presentation/paper)
Participants having established keywords and terms, seek out appropriate resources, systematically checking sources and working towards synthesizing all relevant material to the identified learning outcomes.
7. *Reporting via a joint presentation/discussion* (facilitated by second online group tutorial)
Participants share collectively with other group members the results of one's inquiries, and decide on an appropriate action plan to resolve the initial problem.
(Based on the work of Tseïlon E 2002. <http://www.ucd.ie/sociolog/PBL/index.html>)

The Online Structure

UCD has as its chosen virtual learning environment (VLE) Blackboard (see <http://www.blackboard.com>). It was therefore decided that the online session would be undertaken within this system. Blackboard is extremely functional in terms of a course management system, however it lacks certain intuitive and flexible approaches that may be more apparent in a socially derived learning management systems such as Moodle (see <http://moodle.org/>) or one designed specifically around collaboration and research such as Sakai (see <http://www.sakaiproject.org/>).

Participants were invited to login in to the online problem-based session on the Blackboard server by contacting the facilitator for an access password. Once this had been obtained they were directed to the 'Start Here' section, where they were guided through a series of initial induction steps.

The online session was designed in such a way so that participants were able to explore the key structures and components from the outset. After each synchronous tutorial (all of which were immediately archived for reference and reflection), discussion threads were established to act as guides to learning outcome completion and further enquiry. Simultaneously relevant literature and resources were released to accompany the identified learning outcomes.

In line with good practice related to online facilitation and mediated support (Salmon, 2003, Palloff & Pratt 1999) a number of constructs were provided for the participants, these included an introductory and localisation task to familiarise themselves with both one another and the imminent course work. Although the actual structure of the session was mapped hierarchically (as pre-determined by the design features of Blackboard), participants were invited (and encouraged to explore) all available elements as time and needs dictated (see App 1).

Blackboard has a series of 'collaborative tools' built into its academic system; two in particular were chosen to facilitate the live tutorials and discussions. The synchronous (live) tutorials were run using the 'virtual classroom' and 'chat' tools. The virtual classroom allowed participants to post queries and questions whilst viewing a generic whiteboard and/or slide show. This enabled an agenda for each session to be posted in the whiteboard area and act as a guide to the following discussions. The chat tool, as implied, was more informal device to facilitate discussion; this was used for the final feedback session.

The 'discussion board' was used to house the numerous asynchronous threads that were established throughout the session, from the initial icebreaker ('identify your favourite piece of chocolate and explain what it says about you!') to the series of identified problem-based learning outcomes decided upon from the first synchronous tutorial. Participants were thus enabled to post on reflection of questions/problems and at a time suitable to themselves.

Other collaborative tools in use were the 'digital drop box' (a file sharing process), the 'electric blackboard' (for taking 'live' notes) and email.

Having completed the preliminary questionnaires related to the research study (see below) a time was arranged to hold the first synchronous tutorial to discuss the problem. The participants were presented with a recognisable problem that was applicable across the multitude of disciplines

represented amongst the cohort - "How to engage students in online activities". Background was provided to set the scene: the participants were invited to reflect on their current work in their chosen VLE and how it was being used in conjunction with their face to face teaching. Context was provided, by introducing a new member of staff with experience in distance learning. This recent arrival has offered to share their expertise and participants must now consider how they may integrate such methodologies into their current practices. Concepts such as networked learning and virtual field-trips were given as possible scenarios to explore. And a number of concerns and issues were presented that would need to be addressed e.g. student computer access, assessing online contributions, using online collaborative tools etc.

This was presented in textual form from the point of view of a module evaluation and also a graphical representation was used to highlight the nature of possible collaborative situations within the given environment. Further to the actual problem an 'information teaser' was offered to give further insight prior to the online session, acting as a guide to the imminent discussion. This posed a number of questions relating to the problem and offered a suggested guide to identifying possible learning outcomes.

The first tutorial was held in the 'virtual classroom'. An agenda was posted to facilitate the discussion, this included: Discussion of problem, Identifying valid concerns and issues and Establishing a plan of action (i.e. defining the learning outcomes).

Individual discussion threads were then established for each learning outcome and participants invited to post reflections and findings prior to the next synchronous tutorial. Specific resources related to the learning outcomes were released in the resources section to further aid discussion and cogitation. The second tutorial provided a forum within which to discuss the learning outcomes and possible solutions to the key issues identified within the problem. One final live 'chat' session was convened to garner feedback on the process and to organise a face to face session for a group fora.

Usability, Navigation & Layout

The very nature of Blackboard means that one is required to lay down data in a sequential manner, and that the folder hierarchy pre-determines how content is accessed. In this regard all data concerning the online problem; resources, questionnaires and the actual research details were on constant display. Though clearly demarked by their respective folder structures, it did give the impression of 'information overload'. The alternatives: to bury information deep within folders, thereby moving beyond the '3-click golden rule' (Nielsen, 2002); or to 'turn off', make invisible content after a set duration, was not seen as a viable solution.

Some participants remarked on the suitability of the chosen VLE to carry out its functions, noting that it was sometimes difficult to navigate through the content structure. In a genuine course based situation any extraneous materials to the actual problem-based scenario itself would not be housed in the same environment but provided at a separate induction session and its accompanying online presence.

The synchronous ('live') tutorials proved, for some, difficult to follow and engage with "...need for quick responses make reflection difficult". The multitude of ideas, comments and debate that

occurred proved overwhelming and yet at the same time provided the stimuli for the most productive discussions. This anomaly can only be overcome with exposure to this process, and the most fruitful situations are those that are set in a given 'session or module' context, thus no number of induction sessions will provide the right setting. It is thus envisioned that a sliding scale of interactions needs to be designed throughout the lifespan of a course, enabling learners to engage with one another and with the process in a meaningful and deep manner.