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Different Thinking Hats: The Continuously-Evolving Role Of The Instructor in E-Problem Based Learning (E-PBL)

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Abstract
A hugely important area in any form of PBL delivery is the role of the instructor; in an e-learning environment, it is even more crucial. Hughes and Daykin (2002) have suggested that a move to online delivery needs a greater attention to design and development of facilitator skills than has been previously recognised. An e-learning module for lecturers, delivered using a problem-based learning approach, is the setting for continuing research into the many hats that an instructor has to don during the learning process. Coppola, Hiltz and Rotter (2001) identify a number of roles played by instructors in e-learning, but focus on three particularly crucial ones: the cognitive, managerial and affective roles. This research explores these in the light of E-PBL.

Introduction
The group process was the setting for exploring the evolving role of the instructor in an online PBL environment within a Postgraduate Diploma in Third Level Learning and Teaching; these lecturers were from a range of higher education institutions in the Republic of Ireland. The online delivery and support of the module was in WebCT, using a problem-based learning (PBL) approach.

What takes place in this real learning situation entails interpersonal complexities and subjective depths of meaning that challenged the instructor's own assumptions about how PBL would happen online. What resulted from an analysis and interpretation of the evaluations of this module was a better understanding of the PBL group process in an online environment.

There are a variety of issues from the instructor's perspective, particularly a need to have a more explicit idea of the PBL group process online. The instructor's role needs to be defined early in an e-learning setting and made explicit to the learners. Different thinking hats include encouraging participation from the learners, showing interest in their progression, responding positively to their enquiries, providing helpful feedback on module work, and making the learners feel that their contribution to module activities was valued.

The instructor's role in this E-PBL module was to facilitate interdependence amongst the learners by building a cohesive and supportive class. The premise for the research was that an instructor who values a cohesive, supportive and productive PBL class will accentuate exchanges of positive affect; they will encourage collective and achievement orientations toward learning; they will show appreciation for the uniqueness of each particular learner; they will facilitate open and diffuse discussions about the problem.

Module Evaluation Process
Past evaluations of the e-learning module on the Postgraduate Diploma in Third Level Learning and Teaching, located in a Higher Education Institution in Ireland, indicated that the instructor's level of participation was hindered due to the E-PBL approach; learners indicated that what was needed was a more "authoritarian" instructor, which they acknowledged is against the grain of 'traditional' PBL.

The research surrounding this module was based on the hypothesis that interaction between participants in the PBL group was the key element to a successful online learning experience for all involved. The hypothesis was based on a sociological understanding of one of the five dimensions of interaction for describing groups (Parsons, 1951). Universalism-Particularism describes how consistently persons in similar roles are defined by one another in the interaction. This involves the role of the instructor, whether to treat all students alike, supporting an expectation for uniform performances and behaviours, or to emphasise individual differences, supporting an expectation for diversity.

There were two stages to the evaluation of the learning experience on this module. The evaluation form which was presented to the participants for completion in the final week of the module, was divided into three main components: the module structure, the role of the instructor and the module problems and content, consisting of a number of closed and open questions in each. From the evaluations, it was clear that the participants on this module had found that their perceptions about the role of the tutor had shifted, so a focus group was held to explore what is was that had an impact on their developing understanding of the role of the E-PBL tutor. This focus group was held with the participants one week after the module ended.

Focus groups are a form of evaluation in which groups of people are assembled to discuss potential changes or shared impressions (Rubin and Rubin, 1995). As a general rule, focus groups are an appropriate research vehicle when the goal of the investigation is to gain an understanding of the "why" behind an attitude or behaviour. The focus group discussion was structured on the area of the combined role of the online tutor and that of the PBL tutor in a face-to-face learning environment.

Interpretation

One of the main past challenges presented by doing PBL online was when the group process broke down, as it did early on in the module, how the difficulties within the group can be resolved effectively and quickly by both group members and the instructor. A sense of community was not formed amongst the group, despite having group dynamic bonding activities as part of the face-to-face induction. There was a breakdown in trust amongst the participants which was very difficult to restore online. The self and peer assessment with skilled, instructor feedback needed to be not only at the end of the module but perhaps after each problem, as an informal verbal evaluation of the situation could not deal with all of the issues causing problems within the online group. Even with stricter adherence to the ground rules which the PBL group formed themselves, the instructor's role in helping to resolve difficulties in group cohesion is vital.

As part of the E-PBL process, the participants were aware that they would be learning from each other; however, this benefit was not maximised due to problems within the group where some members were not so inclined to share their experience or receptive to aiding and mentoring the weaker members. It was suggested that the factors that determine an individual participant's interaction online must be very explicit from the

outset: their prior knowledge of online collaboration, their motivation, and the extent of the instructor involvement with them.

It was felt that PBL requires complex social interaction, and an instructor attempting to facilitate this fully online is difficult. The participants would have required more experience in online collaborative working than was available in a ten week block. They wanted more organisation and instructor input than was present from 'traditional' PBL instructor facilitation. The dimensions of interaction was used to reveal if this was the case, and if not, what the instructor might in the future do to achieve it.

Adult learners, such as those on this module, are characterised by taking control of their learning process and objectives. As a result, when the groupwork of E-PBL collaborative learning was required on this module, the instructor experienced difficulty in taking into account individual learning objectives, preferences and capabilities; it only worked when the individual objectives overlapped with each other.

The unique nature of adult learners and their educational needs emphasises the need for a facilitative rather than a didactic approach in technology-supported courses. This has been the case over the past three years of the module. Mentoring and instruction need to be infused, if the PBL group process is going to work online. All these issues were taken into account for the module re-design for this academic year.

Relationship between the Collaborating PBL Group and the Instructor

Currently, a lack of research exists that describes the role of the online leader, particularly in academic programs that utilise mentors as well (Boyer, 2003). This research identified three levels of leaders involved in their program of collaboration, networking and mentoring relationships: student (participant) leaders, process leaders and instructor leaders that struggled to define identity roles within the virtual group. A clear need for purpose, identification and role clarity to scaffold the virtual experience and fortify the mentoring process surfaced from their experience.

Mentoring is most often associated with direct personal contact between individuals. The use of the communication features of WebCT on this module will now be used to pave the way for personal interactions between the instructor and the participants and amongst themselves in their PBL group. From the instructor's perspective on this current module, keeping an online reflective journal assisted the mentorship role with learning to weave ideas online with the participants, and empowering them to do likewise.

The e-problem-based learning approach in the module is used to explore online teaching and the development of online learning materials. The key is giving the participants the opportunity to experience online learning as a participant, firstly as an individual, then in pairs, with one in a mentor role, and finally moving them towards a series of online group and reflective activities. Therefore, the engagement begins with content-centred academic interaction between individual participants and online resources, and moves towards collaborative interaction among the participants, complemented by social interaction

between the participants and the instructor, the latter taking the form of interpersonal encouragement and assistance (Jung *et al*, 2002).

The collaborative problem-based learning in this module involves heuristic tasks, conceptual understanding and cognitive strategies. The Online/PBL problem for this module involved the steps of analysing the need for online learning in the context of any of the PBL group's subject disciplines, finding and investigating useful information for producing a design of an online learning module in this subject discipline, finding and understanding appropriate theories, and synthesising a plan of action for the development of such a module.

The instructor facilitated a small group of six participants and encouraged an inquisitive and detailed look at all the learning issues, concepts, facts and principles inherent in the problem. By adopting a role, such as 'Chair', 'Time-Keeper', each participant has the opportunity to be actively involved in the group process. The time spent outside of the PBL group facilitates the development of skills such as literature retrieval, critical appraisal of information, seeking the opinions of peers and experts, all of which the instructor examines as they form part of the summative assessment criteria for the module.

From a constructivist viewpoint, studies on web-based learning environments have shown that there a critical component to interaction online is an interpersonal/social component; this occurs when learners receive feedback from the instructor or peers and colleagues in the form of personal encouragement and motivational assistance. Social interaction can contribute to learner satisfaction and frequency of interaction in an online learning environment. Without the opportunity actively to interact and exchange ideas with each other and the instructor, learners' social as well as cognitive involvement in the learning environment is diminished (Grabinger and Dunlap, 2000).

Recommendations for the E-PBL Tutor

This study sought to address the role of the tutor in an online, problem-based learning module. This is a particular challenge for the tutor, who is positioned in a context of educational discourse that has many threads, some of which are authoritarian and oppressive. At what point does taking the position of constructivist guide on the side become abdication of a responsibility to intervene more assertively?

The preparation of online tutors is an area which is still emerging and which is likely to be of increasing importance over the coming years, it is useful to the teaching and learning community as a whole to be able to share and learn from each other's experiences of online working. This research would recommend that preparation for one's role as an online tutor is paramount to being in a position to deliver a course online.

The literature is quite prolific about the various functions that an online moderator can perform (Salmon, 2000). This research has identified a number of common areas, which have been categorized under cognitive, managerial and affective roles.

Affective
Welcoming learners to the learning environment and continuing to encourage, support and motivate them is an important beginning for the role. As the nature of online discussion differs in several key ways from face-to-face, certain factors can detract from an online course if the tutor does not tackle them from both a design and a moderating perspective: the lack of body language and instant feedback that can sometimes leave one feeling in a communicative void – tired and rather mute. Converse to this, sometimes learners can find the asynchronous nature of discussions a problem, with having to wait for a reply from another learner.

It helps if the tutor has a broad base of life experiences in addition to academic credentials. Feeling comfortable communicating in writing is important, as well as accepting the value of online learning as equal to the traditional model.

Overall, the E-PBL tutor should demonstrate the characteristics of openness, concern, flexibility and sincerity.

Cognitive
Clear and appropriately-applied e-moderating is key for a number of reasons. Being alert to the possibilities within each online group of learners; generally, the literature would suggest that tutors find it difficult to engage students in online discussions. The most valuable aspect about a course can be the activities: one can learn so much more by doing something. Participation is an area that practitioners need to know more about. Common complaints of experienced online tutors are that participation levels are poor and/or the level of discussion is superficial. The tutor very quickly needs to discover what motivates each group of learners to participate or what is making it more difficult for them to participate.

The tutor needs to be in tune with level of engagement and discussion that the activities are generating. The topics for discussions need to be relevant to learners' different stages of online socialisation and professional development. It helps if there is a gap in the learner's professional knowledge and experience that they very much want to fill. The level of engagement can be influenced by the diversity of the group and the timetables of the different participants. At times, as a newcomer to online tutor talk, with minimum time to spend on the reading, one can feel slightly daunted by the far more sophisticated and informed postings of some of peers.

Usually as a tutor in face-to-face learning environments, I only see the products of group work e.g. a presentation, a report. In online discussions I can see how students have arrived at the product, how they have decided what is important, how they have organised themselves, who is struggling with the work. The process is much more apparent.

A proactive approach is essential in specific instances. The tutor needs to give guidance by monitoring and steering discussions – at times, keeping them on track and to the point, if the student 'Chair' of the group is not doing so. Part of this also entails contacting those with problems – is it access problems or to suggest to the learner something specific for

them to do online. Seeding discussions can be important; starting off new discussions if it appears a current one is flagging. Asking questions, being provocative – questions can be a useful means to encourage response – provocative questions may elicit reaction but needs to be used with care. Assigning tasks – suggesting roles and duties gives learners direct and precise responsibilities and can be an effective means to encourage involvement and group cohesion. Linking ideas – in large discussion spaces, tutors can create synthesis between ideas presented in different messages to create coherence. Summarising a discussion can be a useful task, to clean up online space before launching a new discussion, and archiving previous discussions.

Over time, these tutor roles should be adopted or passed over to the learners, giving them increased control over their PBL learning environment.

Managerial

Being aware of the tutor's responsibilities at various junctures is important. From this study, there is no doubt that there are areas where f2f engagement is vital but the learners could appreciate how some tasks are better online. Some examples of this are student's online reflections on the module, and using the web as more than a static repository of information e.g., making course notes, powerpoint demonstrations available.

Conclusion

Networked computers can provide vehicles for learning materials and interaction but participants still need the 'champions' who make the learning come alive – the e-moderators (Salmon, 2000). The cognitive, managerial and affective roles of the instructor all play a vital role in E-PBL.

The instructor aims at creating a learning environment that utilise life, work, and educational experiences as key elements in the learning process in order to make it meaningful. It is seen by the instructor that the curriculum should be presented in a manner that will allow the participant to easily translate theories into applications and that they should be given the proper tools to transcribe theory into practice. It is also the instructor's responsibility to help the group probe deeper. By raising questions that need to be explored to point out conflicting evidence, to ask questions that would extend the inquiry into key directions.

Every individual needs to be given the opportunity to improve until the learning experiences come to an end and reasonable accommodations for the participants' needs and desires are made. The instructor solicits feedback from the individual participants and listens throughout the entire learning process and is concerned about the participants' success.

Some further issues to be considered by the instructor include providing an effective induction, encouraging participation online, knowing when and how to make the resources available, how to make the PBL online group process visible both to the instructor and to the external examiner, and juggling the e-tutoring role with that of a face to face PBL facilitator. For this latter point PBL typically requires intensive contact

between instructor and students, and this proves to be more difficult to implement online, particularly when problems of group dynamics arise. A major challenge for the instructor is to help ensure that each individual participant learns while also gaining the experience of working collaboratively.

With regards to the PBL group, the instructor keeps participants aware of where they stand with respect to the module assessment process on a regular basis. The instructor gives the participant timely and quality feedback on their contributions to discussion, as part of the group process, along with their contribution towards the end product.

The self-directed learning focus of E-PBL turns out learners who are motivated, know what they want to learn, set their objectives, find resources and evaluate their learning progress to meet their goals. This can only be achieved by an instructor who knows when to change hats from being peremptory to moderate in their facilitation. Many technologies can meet varied individual needs and each technology has its own particular instructional strengths. The role of technology in this instance is the same as the instructor's: to be a facilitator in online learning (Huang, 2002).

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