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INTERACTION AND TRANSFORMATION IN VIRTUAL PROBLEM-BASED LEARNING COMMUNITIES

Reflection Paper

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KEYWORDS

Academic development; Blended learning; Computer mediated conferencing; Interaction; Problem-based learning; Transformation

ABSTRACT

This brief paper will discuss the harmonizing role of technology and interaction in a qualitative study on blended problem-based learning (PBL) within the context of academic development in higher education. Within academic development, and as both designers and tutors in blended PBL, it is important to seek best practices for how to combine instructional strategies in face-to-face and computer-mediated environments that take advantage of the strengths of each and avoid their weaknesses. A qualitative study of the lived experiences of 17 academic staff participants in a blended problem-based learning module was considered likely to provide a much-needed analysis of current thinking and practice on the potential of interaction in this form of professional academic development in higher education. Specific aspects of interaction (technical, peer, content and the learning experience) within blended problem-based learning tutorials are analysed to provide research-based information about the realities of delivering a PBL programme using technology. The study will argue that the intersection of PBL and learning technologies can offer different ways of teaching and learning that require exploration and reflection of pedagogy and technology as an integrated approach that must work effectively together. The synergy from the collaborative blended PBL approach in this module could result in the coherent and comprehensive provision of training, support and research work throughout higher education institutions.

1. INTRODUCTION

The concept and practice of transformative pedagogy lies at the heart of this study. The research agenda on transformative pedagogies is wide-ranging, referring not only to strategies or styles of instruction but also to the facilitation and management of sustainable transformations, whether individual, social, structural or institutional. The intentions of transformative educators have not changed much in the last decades but the context of their action is no longer the same. In the context of today's knowledge-driven, technology-oriented society, it is important to take advantage of the possibilities offered by learning technologies to support innovative conceptualizations of problem-based learning (PBL). Calvert (2006), amongst others, has argued that such technologies have been recently presented as the panacea to democratise education, improve the quality of learning, advocating peer-to-peer collaboration and giving learners a greater sense of autonomy and responsibility for learning. Indeed in higher education institutions in Ireland, as elsewhere, the use of online technologies has long since become an increasingly important challenge in academic staff development. Blended learning has remained a constant source of research in recent years. As a field, blended learning has impacted on HE in local, national and global contexts and is fast-changing, highly fragmented, but still rapidly growing. However there has been a sense of disappointment that the transformatory potential of technology is being missed or resisted. Transformative learning theory (Mezirow, 1991) is being proposed in this study as a means to understand the complexities of education in an age where technologies are constantly reshaping and redefining our accepted notions of what it means to teach and learn in a higher education environment.

Recent research on blended PBL appears to support its use in teacher education and professional development. Carr (2008) has discussed initial attempts to integrate wiki technologies into a pre-service teacher education course as a way of fostering collaborative knowledge building networks within the classroom and to model an authentic way of integrating technology into curriculum. Pre-service teaching students were situated in a rich, problem-based learning scenario, delivered in a blended model of face-to-face (F2F) and online modes, including wikis. Pardo & Kloos (2009) have reported on the successful deployment of web 2.0 tools in a course based on PBL, where students used the tools to extend the interaction between the F2F meetings and a rich set of documents were collectively created. Similarly, Gale et al. (2008) reported positive benefits from their study on changes in professional identity and practice style in an online PBL environment.

This study recognises that there is still confusion about the models, media and environments used to support PBL that use technology in some way, and is particularly concerned with illuminating current knowledge on PBL group-oriented interaction. Central to this aim is the need for a better system for delivering education and training for academic staff which Hameed *et al.* (2006) have recommended is paramount in the context of the move to a knowledge economy. The objective for this study is to establish, in a PBL tutorial setting, the factors that govern the success of blended PBL. In the module design, all aspects of blended learning including required

online communication, participation and activity completion need to be considered equally as important as attending any of the live, F2F PBL tutorials. Otherwise, there may be a possibility of participants waiting for the live events to obtain “the important stuff”. This blended PBL module was designed based on a model originally developed by Oliver (1999) (illustrated in Table 1).

Table 1. The learning design elements of the blended PBL module

Learning Design Elements	Description	Blend of Web 2.0 Technologies
Learning tasks	The activities, problems and interactions used to engage the learners, on which learning is based	Wikis Blogs Concept maps
Learning resources	The content, information, and resources with which the learners interact, upon which learning is based	Discussion Boards Podcasts Social Bookmarking
Learning supports	The scaffolds, structures, encouragements, motivations, assistances and connections used to support learning	Live Classroom Micro-blogging on Twitter

The main findings of the analysis of the data indicated that there was a preference for live tools in the blending of PBL and e-learning, specifically the face-to-face PBL tutorial. Of the online tools utilized in the module, the online reflective journals were the most favoured. For all three groups, at the close of the ten week module, the cognitive postings were significantly higher than the community postings. However, the technology also acted as an activating event for transformation in that the online discussion forums provided the participants with an opportunity to enhance community building in their PBL group and extend the collaborative dialogue from the face-to-face PBL tutorials. It was revealed that it was what the medium was used for that made the biggest single impact on the module: the opportunity to dialogue with a range of international experts, evidenced by the fact that the most prolonged online interactions over all three PBL groups were with the international guest tutor discussions.

REFERENCES

- Calvert, J. (2006). Achieving Development Goals - Open and Distance Learning, Lessons and Issues, <http://pcf4.dec.uwi.edu/overview.php> (last accessed 14 March 2007).
- Carr, N. (2008). Wikis, knowledge building communities and authentic pedagogies in preservice teacher education. Paper presented at the ASCILATE Conference, Melbourne.
- Gale K., Wheeler, S., & Kelly, P. (2008). Learning in cyberspace: An examination of changes in professional identity and practice style in an online problem based learning environment. *Quarterly Review of Distance Education*. 8 (4), 297-307.
- Hameed, C., Hameed, K., & Clements, M. (2006). 'E'learning: Through the Looking Glass. Paper presented at *The Higher Education Academy Information and Computer Sciences 7th Annual Conference*, Trinity College Dublin, 29-31 August.
- Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass.
- Oliver, R. (1999). Exploring Strategies for Online Teaching and Learning. *Distance Education*, 20(2), 240-254.
- Pardo, A., & Kloos, C. (2009). Combining Web 2.0 technology and problem-based learning in a blended learning environment. *International Journal of Continuing Engineering Education and Life-Long Learning*, 19(2/3), 222 – 231.

