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INTRODUCTION

On behalf of the editorial team and the editorial board we are happy to introduce the very first issue of *Journal of Problem Based Learning in Higher Education*. Establishing a new interdisciplinary and international journal is an exciting experience that requires many people's cooperation and work. We are therefore grateful to the editorial board for their work on shaping the scope and aims of the journal, disseminating the call, contribute with papers and suggesting reviewers. To the reviewers who have taken time to read, scrutinize and provide critical commentary for the papers. And of course to the authors who have contributed with a wealth of interesting papers on Problem Based Learning in Higher Education. We are very happy with the breadth and depth of the papers, and we are truly amazed with the international spread of the authors with contributors from Australia, Asia, North America and Europe.

The Journal of Problem Based Learning in Higher Education is an Open Access journal meaning that all papers published are freely available to researchers and the general public. There is no subscription fee, no publication fee and no pay-wall. We believe this is particularly important because Problem Based Learning as a pedagogical philosophy and educational method is attracting attention in parts of the world where economic difficulties can hinder access to recent research. Although peer-reviewing, authoring and editorial work is considered part of academic practice running a journal is not free of costs. We would therefore also like to thank the Aalborg University board of Executive Directors for providing some basic funding for running the journal; Aalborg University Library for hosting and supporting the JPBLHE website and submission system (which is built on the open source system Open Journal Systems (http://pkp.sfu.ca/?q=ojs)) and Aalborg University press for being the official publisher of the journal.

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BACKGROUND OF THE JOURNAL

The idea and foundation for creating JPBLHE emerged as an outcome of the establishment of the PBL academy at Aalborg University (www.pbl.aau.dk). The PBL Academy at Aalborg University (AAU) is a-cross faculty initiative to ensure the continuous development of the Aalborg University Model of Problem Based Learning (PBL). However, to ensure a vibrant development of PBL it is of the utmost importance to keep up with international research, and to contribute to ongoing development of PBL as an area of research. Therefore, one of the goals of the academy was to initiate an international, interdisciplinary open access journal with a specific focus on PBL in Higher Education. The journal has thus emerged as a collaboration between a number of research environments in Aalborg University e.g. "The UNESCO chair in Problem Based Learning", "e-Learning Lab – center for user driven innovation, learning and design", and "the Department of Learning and Philosophy" to name a few. Although the journal has grounding in these environments the ambition is to create and sustain a truly international and interdisciplinary journal. In relation to this, it is also important to emphasise that the journal does not foreground or favour particular approaches or PBL models. Rather, the aim is to explore, discuss and render visible the many different ways in which PBL is practiced within Higher Education. Therefore, we have aimed to establish a broad, internationally oriented Editorial Board composed of prominent and esteemed researchers within PBL; and we hope to be able to continuously expand the Editorial Board, the Editorial team, and the number of reviewers and authors. With this first issue, we feel that we have managed to attract both an international and interdisciplinary set of papers and authors, and we hope the readers will find the discussions and findings as interesting as we do.

INTRODUCTION TO THE FIRST ISSUE

The issue is composed of fifteen research papers that, from our reading, fall within four thematic areas:

- Theories, principles and philosophy of PBL in Higher Education
- Case studies of PBL and reflections on PBL in practice
- Implementing PBL or principles of PBL
- PBL and networked learning

Although we have not made explicit special sections for different themes, the sequence of the papers in this issue reflect these thematic areas.

Within the first thematic set of papers various theoretical constructs are explored, and the authors query into the theoretical and philosophical underpinnings of various implementations of PBL. *Andrew Armitage* discusses Paulo Freire's concept of *"Conscientization"* as central

to a problem-posing pedagogy, and illustrates with tales from the field, how dialogue groups can be used to explore a problem and understanding its constraints, options and multi-voiced nature. *Thomas Szulevicz & Mogens Jensen* discuss whether PBL is prone to a content-form dualism leading to a focus on form (the problem) over the content of learning. Also, they ask whether PBL might potentially lead to an individualisation of the learning process, as they argue much PBL-literature tends to understand learning as acquisition of knowledge, thus ignoring identity-related processes in learning. *William Vickery* introduces the concept of "scrounging", which is adopted from studies of animal behaviour. Scroungers are animals that exploit resources found by other group members, rather than finding resources themselves. While scrounging can be a necessary and productive part of social learning, there is a danger if some are mainly "free-riding". The author explores how to encourage scrounging as a cooperative tactic, while minimising its negative impacts on group performance (free-riding). Finally, *Verner Larsen* explores the notion of "transversality" or "transversal knowledge formations" as an alternative to inter-, cross-, or trans-disciplinarity. He does so through studying, comparing and contrasting two institutional arrangements in order to demonstrate how their practices reflect different understandings of "transversal knowledge".

Within the second thematic set of papers the authors explore a number of cases and literature on PBL to study the limitations, potentials and aspects of different PBL practices. *XiangYun Du, Jeppe Emmersen, Egon Toft, and Baozhi Sun* explore the relationship of problem-based learning and the development of critical thinking disposition and academic achievement in Chinese medical students by using a cross-sectional randomized design comparing PBL students with non-PBL students. The authors conclude that the PBL teaching was related to a higher disposition of critical thinking, but did not lead to improved academic skills compared to the non-PBL students. *Forough L. Nowrouzian and Anne Farewell* conduct a survey of the current literature to explore the development of team-work skills in Biomedical Science students when using PBL. They argue that in research practice team-work in laboratory is becoming the dominant form of practice and that this development requires students gain experience of team-work before they start their professional career. *Noreen O'Shea, Caroline Verzat, Benoit Raucent, Delphine Ducarme, Thérèse Bouvy, and Benoit Herman* investigate how PBL student teams develop specific leadership configurations when implementing interdisciplinary projects, and whether or not tutors help dealing with the group interactions that are subsequently generated. While the authors found that tutors positively perceive their role in facilitating production outcomes they are more uncomfortable when it comes to regulating the interpersonal problems that arise in self-managed teams of students. *Rosalind Murray-Harvey, Tahereh Pourshafie, and Wilma Santos Reyes* report experiences from a study of 122 Australian teacher education students working collaboratively in a PBL setting. The students provided written reflections on PBL that enabled representations of their group work experiences to be mapped using an Attitude, Skills, and Knowledge (ASK) framework to understand what they valued about the collaborative learning process (both as students and as future teachers). For example, the attitudes identified as necessary for collaborative

learning were valuing others' perspectives, interdependence, and learning about self. *Manuel Cabral Reis, Emanuel Peres, Raul Morais, and Joaquim Escola* present and discuss a set of pilot courses (non-mandatory) proposed to the students at the Engineering Department of the University of Trás-os-Montes e Alto Douro (Portugal). The authors discuss design and implementation issues, and how problem-based learning and experimental lab learning classes were supported. Further, they analyse the final assessment results, as well as the opinions of the students.

In the third thematic set of papers the authors explore, analyse and discuss various implementations of PBL or PBL principles. *Nikolaj Stegeager, Anja Overgaard Thomassen, and Erik Laursen* present the PBL model applied at Aalborg University to discuss the educational effectiveness of this model in securing an efficient transfer of learning from university driven continuing education to the context of the workplace. Drawing on research from two qualitative studies they discuss why the Aalborg PBL model, in spite of intentions of closing the gap between education and working life, seems to have some important challenges. They conclude by suggesting some pedagogical guidelines for the design of future PBL-organised academic activities within continuing education. *Huichun Li* argues that a large numbers of higher education institutions are currently transforming their traditional educational approaches to PBL. The author studies a particular university in the process of transforming its traditional educational paradigm to PBL. He shows how there is a lack of unified understanding of what PBL is within the university, how several different PBL interpretations emerge, and how some of them are quite inconsistent with, or even contradictory to each other. This, the author argues, poses significant challenges to a university when implementing PBL. *Prarthana Coffin* argues that staff development is a crucial element for educational intervention when transitioning from a traditional teaching paradigm towards PBL. Her study aims to pin-point suitable methodologies in developing a Problem-Based Learning (PBL) academic staff development program for a higher education institute. She asks how academic staff can be assisted in acquiring pedagogical competences for an implementation of a PBL curriculum, and what kinds of support academic staff need in order to maintain a PBL implementation. Based in literature, interviews with PBL experts, and document analysis of reflection notes from 18 trainees from a PBL workshop she suggests some guidelines for developing an academic staff development program for an institution working to implement and retain PBL as an educational strategy.

In the final thematic set of papers the authors discuss the role of ICT, online collaboration and networked learning in relation to PBL. *Lars Birch Andreasen and Jørgen Lerche Nielsen* discuss PBL and project work based on and reflecting the experiences of the authors. A specific focus is how the problem- and project-based learning approach has developed in Denmark historically and theoretically, and how it unfolds today. They discuss this based in the Danish Master programme in ICT and Learning (MIL), and focusing on changes in the roles of teachers as supervisors, and the involvement of students in course and project

activities. They emphasise four aspects as central to a contemporary approach to problem- and project-based learning: the exploration of problems, projects as a method, online collaboration, and the dialogic aspect of students' project work. *Catherine Hack* argues that web 2.0 technologies, such as social networks, wikis, blogs, and virtual worlds provide a platform for collaborative working, sharing of resources and joint document production, and can act as a stimulus to promote active learning and an engaging, interactive environment for students. As such they align well with the philosophy of Problem-based Learning. Despite the recognition that technology has an important role in enhancing PBL, the author argues that academic staff can be reluctant to use it. Her paper therefore provides some illustrative examples of how technologies have been used to enhance, scaffold and assess PBL, and she discusses the benefits and limitations of using technology for both staff and students. In the final paper *Joseph Williams, Rich Rice, Ben Lauren, Steve Morrison, Kevin Van Winkle, and Tim Elliott* discuss theories of PBL and Universal Design for Learning (UDL) within the context of an online doctoral program with two weeks mandatory residency. They explore how New Media and Rhetoric students learned how to learn from each other, to develop key skills, and to negotiate the production of deliverables via a radically restructured PBL course in a media lab. They argue that without a distinct and specific audience, course content often remains theoretical and abstract, and students struggle to generate meaningful and effective communication. In the paper the authors show how technology rich learning settings, UDL, and PBL can be used to meaningfully strengthen students' opportunities for learning through scaffolded instruction and a flexible, hybrid course design.

From reading the papers comprising this first issue it is difficult to draw out one or two key points that would guide us in our common future research. As noted by Barrows (1986) and Kolmos & de Graaff (2003) the label 'PBL' covers an amazing diversity of educational practices:

"The term problem-based learning must be considered a genus for which there are many species and subspecies. Each addresses different objectives to varying degrees. All description and evaluation of any PBL method must be analysed in terms of the type of problem used, the teaching learning sequences, the responsibility given to students for learning and the student assessment method used." (Barrows, 1986, p. 485)

"As even superficial inspection of a few of the available sources can reveal, the label 'PBL' is used to cover an amazing diversity of educational practices, ranging from problem-oriented lectures to completely open experiential learning environments aimed at improving interpersonal relations." (Kolmos & Graaff, 2003, p. 657)

From an editors' perspective we have therefore sought to make the authors' explicate their theoretical understanding of PBL, as well as their actual course designs or methods. As clear from the citations PBL covers a diversity of practices and span from being applied in

individual courses to being the foundational pedagogy in entire institutions. We feel that this issue of JPBLHE reflects this diversity, and is also a means for the research community to start exploring these multiple practices and learn from each other.

Therefore, we hope you as reader will enjoy, disseminate, criticize and discuss this issue of JPBLHE; and we hope you will feel welcome and inclined to publish your research in one of the hopefully many future issues.

Thomas Ryberg and Bente Nørgaard

On behalf of the Editorial team and the Editorial board:

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