A Web-Based Platform for Competence Development in PBL Supervision

Hans Hüttel, Department of Computer Science, Aalborg University, Aalborg, Denmark
Dorina Gnaur, Department of Learning and Philosophy, Aalborg University, Aalborg, Denmark

ABSTRACT

In this article, the authors describe the development of, and ongoing experiences with, PBL Exchange, a web-platform whose goal is to facilitate the transfer and development of knowledge and skills within the field of PBL project supervision by means of a web-based crowdsourcing approach that makes it easy to exchange and discuss one’s specific problems and experience with project supervision. PBL Exchange is a closed expert crowdsourcing forum where experts are guiding other experts towards solving the problems that they have: The users of the system are project supervisors at Aalborg University. A major conclusion is the community building has been a challenge, and this article describes ongoing efforts to address this.

KEYWORDS

Design-Based Research, Django Framework, Problem-Based Learning, Web-Based Platform

1. INTRODUCTION

A major challenge in providing high-quality learning at universities is that of developing professional competence for the teaching staff involved. It is essential to be able to capture and maintain the expertise that evolves through teaching practice.

At Aalborg University, problem-based learning (PBL) is central to all degree programmes offered. However, the teaching competences needed in the PBL model differ from those used at many other institutions of higher education and are not widely known. This means that members of the teaching staff that have their background from other academic institutions are likely not to have any experience with supervising PBL projects. While there are now formal programmes at Aalborg University that are intended to provide qualifications in supervising PBL projects, there appears to be a chasm between the formal competence development carried out and the informal communities of practice that also exist. Moreover, these informal communities can be highly divergent in their interpretations of PBL and the informal, collective understanding of what constitutes good PBL practice does not get written down.

Crowdsourcing is now advocated as a powerful strategy for mobilizing creative knowledge development and problem solving (Howe, 2006), and as an approach to peer learning (Stonebraker & Zhang, 2015). So far there has been little research on how to apply this approach in the area of
competence development. Albors et al. (2008) have built a taxonomy of networking platforms that considers the interplay of social and informational connectivity based on work by Bernard (2006). In this taxonomy, crowdsourced platforms appear at the high end of social connectivity and at a medium-high level with regard to the potential for creating knowledge as compared to merely sharing information. On one hand, crowdsourcing has a stronger emphasis on knowledge creation than that of other social networking platforms. On the other hand, crowdsourcing has a stronger emphasis on the social negotiation aspect as compared to other social platforms for creating knowledge. Moreover, knowledge occurs most effectively among people with a common frame of reference and common field of practices (Contu & Willmott, 2003). This combination makes crowdsourcing interesting in the context of informal competence development within a knowledge-oriented social community set-up in an academic professional context.

In this paper the authors describe the development of, and ongoing experiences with PBL Exchange, a web-platform whose goal is to facilitate the transfer and development of knowledge and skills within the field of PBL project supervision by means of a web-based crowdsourcing approach that makes it easy to exchange and discuss one’s specific problems and experience with project supervision.

Following the social knowledge creation argument, PBL Exchange has been conceived as a closed expert crowdsourcing forum in the sense of (Stonebraker & Zhang, 2016), where practitioners guide colleagues within the same field of reference towards solving problems that arise in their daily practice: the users of the system are project supervisors at Aalborg University.

The development of PBL Exchange is an example of design-based research (DBR); this is an approach that has attracted both researchers and various layman groups, mostly within the area of technological interventions to improve learning outcomes (Anderson & Shattuck 2012). DBR is driven by a double aim, to conduct an intervention addressing a problem in practice accompanied by empirical examination that can further theoretical conceptualization in the domain and inform future actions. DBR commits to mixed methods that are used widely in educational research (McKenney & Reeves 2012), and leans onto learning design principles (Gravemeijer & Cobb, 2006) with the purpose of furthering both research and practice. The framework adopted is often practitioner and researcher partnerships, similar to action research (Ørngreen, 2015). DBR claims its raison d’être from its dual aim, to advance both theory and practice in novel areas of potential interest to both parties, e.g. technology and learning.

There are however inherent limitations in DBR when it comes to carrying out the design interventions, as these are often developed in lab-like environments, detached from the messiness of real learning ecologies. This may impair the transfer process (McKenney & Reeves 2013; Ørngreen, 2015). Similarly, it can be difficult to assess the real value of the theoretical outcomes, partly due to the ongoing, iterative pattern of design interventions that makes it difficult to report on the impact on practice; and the relative limited amounts of studies reporting actual theoretical deliberations as a result of design based interventions. The value of DBR rests perhaps not with concluding, but with opening up the field by means of novel interventions and initiating theoretical discussions based on preliminary findings and ongoing analysis. In this vein, this paper presents preliminary theoretical reflections on the basis of an ongoing intervention in its third iteration.

In Section 2 we give an overview of problem-based learning as it is intended to be practiced at Aalborg University and of the challenges associated with teaching within this format and with developing the teaching competences of PBL supervision. Next, in Section 3 we describe the design of the PBL Exchange platform. Section 4 gives an account of the experiences that users had with the first version of the platform. In Section 5, we analyze our experience with PBL Exchange, and in Section 6 we describe how our reflections shape a new version of PBL Exchange.
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