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Identifying Differences in Understandings of PBL, Theory and Interactional Interdependencies

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Abstract

In this paper we discuss networked Problem Based Learning (PBL) and relate this to ideas on web 2.0 learning. Some of the core concepts associated with web 2.0 technologies and practices, such as collaboration, active participation, creation and sharing are well aligned with common interpretations of PBL as a more student-centred pedagogy focusing on students' active (collaborative) production of knowledge through engaging with problems. While there are some obvious connections between PBL and web 2.0 technologies, many of the thoughts and ideas that have arisen in relation to web 2.0, such as Personal Learning Environments (PLEs), also challenge notions of PBL, but equally hold opportunities to expand our understandings of this pedagogical approach. Likewise, we discuss how certain interpretations of networked learning (Jones & Dirckinck-Holmfeld, 2009; Jones, Ferreday, & Hodgson, 2008) and ideas articulated around the notion of connectivism (Siemens, 2005) might challenge and expand our understandings of PBL. While these discussions are more theoretically oriented our aims in this symposium are to translate these more complex discussions and subtle differences between various theories and pedagogies into more concrete models or concepts that are relevant for practitioners in designing for networked learning. However, the more intimate relations between models and concepts and practical design, will be discussed in Buus et al. (2010).

Keywords:

Problem Based Learning, Web 2.0, Networked Learning, Interactional Dependencies, Collaboration

Introduction

With the popularisation of web 2.0 practices and technologies, we have also witnessed a re-vitalisation or renaissance of terms such as collaboration, sharing, dialogue, student centred learning, active learning, and the need to position students as producers, rather than consumers of knowledge. These are, however, pedagogical ideals which have been prominent within research areas such as Networked Learning, CSCL and CMC-research well before the emergence of web 2.0. They even pre-date the Internet and World Wide Web (Jones & Dirckinck-Holmfeld, 2009; Ryberg, 2008), as we shall also return to when discussing PBL-practices. This dialogical, collaborative perspective, which Weller (2007) characterises as the 'discussion view', has existed and thrived, but it also seems fair to say that the mainstream and institutional uptake of learning technologies (fuelled in particular by the popularisation of VLEs/LMSs) have been primarily oriented towards the 'broadcast view' (delivering content or resources globally, flexibly and on demand to the individual users) (Weller, 2007).

While many of the pedagogical ideals often associated with web 2.0 may not be entirely new, the mainstream adoption of services such as Facebook, Flickr, YouTube and the popularisation of ideas such as collaboration, sharing and 'user generated content' seem to have created a stronger platform for these ideals. Possibly, also because the ideas of creation and production resonate well with political discourses on the knowledge society, and the competitiveness (or survival) of nations being dependent on their ability to continuously creating new knowledge, ideas, products and services. Thus, it seems that ideas around web 2.0, learning 2.0 (Redecker, 2009) or e-learning 2.0 (Downes, 2005) have had a broad(er) educational impact and stimulated more debate and greater interest than earlier discourses on educational technology. Even though the actual uptake and concrete experiments (and successes) might be relatively few it seems that there is a general educational interest in adopting web 2.0 technologies in schools from both teachers and students. In addition, a number of pioneers are profoundly interested in changing the orientation of educational practices from a broadcast-centered to a discussion-centered view (or from a more teacher-centered to a more learner centered and collaborative perspective) (Crook & Harrison, 2008). Recently, there has been an increased interest in ideas of Personal

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Learning Environments (PLEs) which have been argued to embody a more learner-centered perspective (Attwell, 2007; Dalsgaard, 2006). Conversely, the VLE has become synonymous with or a symbol of the 'broadcast' or 'teacher-centred' view, and many online learning pioneers therefore view the VLE as a retrograde step (Jones & Dirckinck-Holmfeld, 2009); although evidently VLEs can be used to design dialogical, collaborative or 'discussion oriented' courses or programmes. In relation to this, and also the apparently broad interest in adopting web 2.0 technologies, we should like to raise the point that we must be careful in ascribing too much power to perceived inert affordances of particular technologies, and focus equally on how the technologies are enacted or taken into use by practitioners. As argued by Dohn (2009) and in (Glud, Buus, Ryberg, Georgsen, & Davidsen, 2010) we should distinguish between web 2.0 'technologies' and 'practices/activities', meaning that particular web 2.0 technologies e.g. wikis, blogs, podcasts do not automatically entail a web 2.0 learning practices, such as a more collaborative or learner centred pedagogy.

Currently, and very broadly speaking, ideas of web 2.0 learning seem to cluster around general concepts such as collaboration, learner-centered pedagogies and personal learning environments, but we argue there are significantly different interpretations of these terms, and the pedagogies and practices emerging from these diverse understandings. This becomes particularly visible when investigating different conceptual frameworks, such as networked learning, connectivism or problem based learning. From a theoretical point of view the subtle differences and varied interpretations are important to identify and discuss further. However, our aim is also to make these differences and interpretations available to practitioners who might not have a deeper interest in learning theories or find discussions of subtle variations between different PBL-models exhilarating. Therefore, our broader goal is to identify ways in which we can help practitioners and designers navigate this complex field, which is accomplished through workshops and the development of mediating design artefacts, as described in Buus et al. (2010). The fundamental tensions which underpin the practically oriented design artefacts and workshops are the focus of the present paper. In this paper we therefore discuss and analyse concepts such as PBL, Networked Learning, connectivism and ideas on Personal Learning Environments to identify some pertinent questions and important characteristics which can be used by practitioners to navigate this complex landscape.

Characterising PBL – Differences and Similarities

The aim of this article is to identify some defining characteristics of PBL, which can help practitioners situate themselves within the landscape of PBL-practices, which is quite complex:

> "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)
> "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)

Barrows (1986) proposes three variables that can be used to differ between various PBL-practices. The first is about the design and format of the problem: is the problem given to the students or self-chosen, and how open is the problem. Are students given detailed description of the problem along with references to how to solve the problem, or is the problem more ill-defined and entail free enquiry. Secondly, he differs between whether the learning process is teacher directed or learner directed e.g. whether the *teacher determines the amount of information and the sequence of information to be learned in the domain of a course* (Barrows, 1986, p. 482) or whether this responsibility is delegated to students and tutors. The third variable concerns, the sequence in which problems are given and information acquired e.g. are cases/problems provided before or after further information is presented. Based on these dimensions, Barrows (1986) identifies different PBL-practices such as, lecture-based cases, case-based lectures, problem based and closed-loop problem based approaches and discuss their ability to support: 1. The structuring of knowledge in relation to actual practices (learning in the context of a practice) 2. Development of effective reasoning skills 3. Development of effective self-directed learning skills 4. Increased motivation for learning (in relation to which Barrows argue that higher degrees of freedom and self-control also entail higher motivation). In this sense the intended learning outcomes of PBL and the ideas of students as more active, productive and engaged in real practices seem to correspond well with the ideas and ideals often associated with web 2.0. For example those identified by Crook & Harrison (2008) where students

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gain more control and engage in enquiry, collaboration and publication, which support more diverse literacies (Crook & Harrison, 2008, p. 11)

While Barrows is particularly interested in discussing different PBL approaches within clinical, medical practice the variables and the four outcomes or learning objectives of PBL are more broadly applicable, and are also highlighted by others. Although there are differences and various interpretation of PBL, one can also find some general traits, for example several authors argue that problems are the starting point for the learning process (Dirckinck-Holmfeld, 2002; Kolmos & Graaff, 2003; Savery, 2006; Savin-Baden, 2007). In line with Barrows these authors argue that important aspects are: The design of the problem, who formulates the problem and who is responsible for the major decisions in relation to the problem solving process (teacher or participant directed). Also they highlight the importance of experience learning, where students build on their own experiences, and the notion of learning through active engagement in actual practices or real-world problems involving research activities, decision-making and writing. In addition, some stress the principle of inter-disciplinarity, which is related to the principles of problem orientation, and participant directed processes, as the solution of problems can exceed traditional subject-related methods and boundaries. They equally argue that group work and collaboration is an important principle (though some argue that PBL can be more individualised), but they also point to differences in the understanding of collaboration, and the way in which students are mutually interdependent. At Aalborg University the students work closely together for an extended period of time, within which they have to formulate and identify the problem, and write a project report. At Maastricht University students follow a model where they are less dependent on each other. They work individually on the case they have chosen (which are open ended but suggested and formulated by the teachers) and meet in larger study groups (8-12 people) they can use as an inspiration and backdrop for their own work. In this sense one could say that the Maastricht model is more of a *cooperative* organisation of the work whereas the Aalborg model is a *collaborative* organisation. McConnell (2002) distinguishes between distributed *collaborative* and distributed *cooperative* learning. Roughly, the distinction here is whether the work on the problem itself and the outcome is shared (collaborative) or whether individuals engage in discussions and reflection on their own, individual assignments with others (cooperation). We do not mean to limit ourselves to discussing particular instances or interpretations such as either the Aalborg or Maastricht model of PBL, but we do find that the distinction between cooperative and collaborative modes of group work/collaboration is important as a more generalised trait of PBL. Moreover, distinctions similar to those of collaboration and cooperation are also demarcation lines along which we can discuss variations between particular theories or perspectives on learning.

On basis of this brief discussion of PBL and building on Ryberg et al. (2006) we can extract three important characteristics of PBL, which we can use to distinguish between various theoretical and practical constructions of PBL –in the first place regardless of whether it is collaborative or cooperative. We propose that we can distinguish between: *The problem, the work process, and the solution*. "The problem" opens questions about who controls or owns the formulation and design of the problem: teacher, student or others? "The work process" is concerned with how working processes are organized and who controls them. Who chooses in which way to investigate the problem (theories, methods, empirical investigations etc.) and is the sequencing of task controlled and designed by a teacher, or do the students organise the work? Finally, one can query into who owns "the solution", meaning to which degree the students are expected to come up with a pre-defined solution or to which degree this is a process of exploration and knowledge production. The three dimensions can then be thought of as stretched out between two ends of continua between teacher and participant control (Ryberg, Koottatep, Pengchai, & Dirckinck-Holmfeld, 2006):

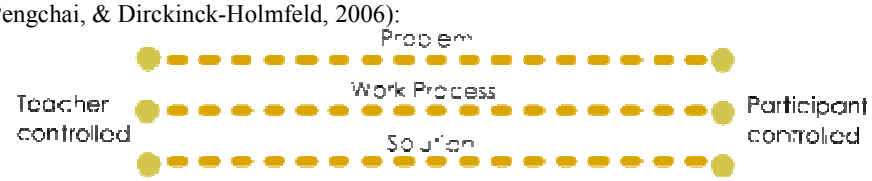

Figure 1: Central dimensions of problem based learning

As further explored in Glud et al. (2010) these fundamental questions of ownership and control seem also to be more generally applicable in relation to wider debates about web 2.0 and learning. For example, as highlighted by Glud et al. (2010) & Dalsgaard (2006) questions of ownership refer to discussions of who controls and chooses the tools of production, and who directs and orchestrate the learning processes; but also whether the learning processes are directed towards *acquiring* particular predefined institutional learning outcomes and competences, or whether the processes are directed towards addressing open-ended, real-life problems by

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participating in identifying and 'solving' such problems, thus making the very process of participation and enquiry the curriculum. As pointed out by Dohn (2009), who draws on the distinction between the acquisition and participation metaphor (Sfard, 1998), this fundamentally concerns whether web 2.0 tools and practices should be 'tamed' to meet existing educational goals, or whether they should be adopted as a means to change existing educational models towards a more *participationist* approach (which also aligns well with a common distinction of whether PBL is adopted as a 'teaching method' or as 'the curriculum' (Savin-Baden, 2007)). As Dohn (2009) points out educational change has been the aim of many theorist and practitioners working with educational technologies. Once again it is important to stress that we do not argue for one or the other approach, but merely want to point out that being aware of and reflecting on the overarching motives for adopting PBL or web 2.0 practices is an important and very fundamental question for practitioners to address. In essence, this concerns whether the tools, practices and methodologies are seen as (potentially) more motivating or effective ways of 'doing the same', or whether these are vehicles for more or less radical ways of changing existing practices, if we should place them at two ends of a spectrum.

Networked learning, social learning and different understandings of collaboration

Web 2.0 seems to have popularised ideas of sharing, collaboration and social learning, but as indicated by the distinctions between cooperation and collaboration there are different ideas about how 'learning interactions' can and should be organised. This concerns different modes of interaction, but also, as we shall return to, interactions at different levels of scale. These complexities are captured in one of the definitions that have become central within networked learning:

> Networked learning is learning in which information and communications (ICT) is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources (Goodyear, Banks, Hodgson, & McConnell, 2004)

Firstly, this definition of networked learning goes beyond merely denoting ‘online learning’ or ‘e-learning’, as it encompasses theoretical assumptions about learning and how to design for learning. The definition stresses the connections *between* people and *between* people and resources, but also points to a certain level of social organisation between learners, tutors and resources i.e. a learning community. However, the notion of a learning community and the strength of the ties or connections between people can differ in various interpretations. Some have criticised notions such as Communities of Practice (CoP) (Lave & Wenger, 1991; Wenger, 1998) and the strong focus on ‘collaborative learning’ within the area of CSCL. They have voiced a concern that these perspective focus too much on networks composed of strong ties, thus overlooking the value of weak ties between learners (Jones et al., 2008; Jones & Esnault, 2004; Ryberg & Larsen, 2008). Simultaneously, proponents of networked learning also argue for learning and collaborative knowledge construction processes organised around focused and intensive negotiations of problems (McConnell, 2002; Zenios & Goodyear, 2008). As argued by Jones et al. (2008) networked learning theory does not privilege a particular pedagogical model or ideal; at least not in terms of uniformly favouring collaboration or unity of purpose in a community of learners. However, the ideas of relations and connections also suggest that learning is not confined to the individual mind or the individual learner. Rather, learning and knowledge construction is located in the connections and interactions between learners, teachers and resources, and seen as emerging from critical dialogues and enquiries. As such, networked learning theory seems to encompass an understanding of learning as a social, relational phenomenon, and a view of knowledge and identity as constructed through interaction and dialogue. Furthermore, as argued by Jones (2008) this aligns well with social practice, socio-cultural or social learning theories who also situate and analyse learning as located in social practice and interaction, rather than a phenomenon of the individual mind (Jones, 2008). Returning to the discussions of types of connections (weak or strong) and modes of interaction, such as collaboration or cooperation (which can be said to be strongly tied or more weakly tied respectively) we believe there are some important aspects in these distinctions, which can be important for practitioners to reflect upon. In a recently published book on networked learning (Dirckinck-Holmfeld, Jones, & Lindström, 2009) Jones & Dirckinck-Holmfeld (2009) discuss the ideas and tensions between strongly-tied collaborations vs. more loosely tied cooperative modes of learning asking whether the internet and broader sociological trends have resulted in a social shift from more cohesive, communal towards more dispersed, personalized relations. This they relate to the notion of networked individualism coined by Wellman and explored by Castells and they pose the questions:

> Networked individualism might suggest that we need to take a more critical approach to the theories of education and learning that are based on community and collaboration. The term also suggests that we can do this without ruling out the central place of communication and dialogue in

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> education and learning. […] We argue that a key question for research is whether the Internet will help foster more densely knit communities or alternatively whether it will encourage more sparse, loose knit formations. [...] a significant question is whether designs for networked learning environments should reflect the trend towards networked individualism or serve as a counter balance to this trend, offering opportunities for the development of collaborative dependencies. (Jones & Dirckinck-Holmfeld, 2009, pp. 6-7)

Clearly, these ideas challenge (some) of the models of PBL formerly introduced (in particular the Aalborg model for PBL), but also as we shall return to, hold developmental potential and can act as a window of opportunity. Another perspective that seems to align well with networked learning theory and also seem to challenge ideas around collaboration and tightly knitted communities is the notion of connectivism (Siemens, 2005) which has attracted some attention in the recent years. Connectivism has been presented as a learning theory for the 21st century, and has been closely aligned with recent technological changes – in particular the pervasiveness of various 'networked technologies' such as email, the web and more recently social networking, blogs, RSS and various mechanisms for aggregating and filtering information:

> "Over the last twenty years, technology has reorganized how we live, how we communicate, and how we learn. Learning needs and theories that describe learning principles and processes, should be reflective of underlying social environments" (Siemens, 2005, Introduction section, para 1)

The argument proposed by Siemens (2005) is that existing theories or paradigms of learning (behaviourism, cognitivism and constructivism) cannot sufficiently explain or account for the fundamentally changed conditions for learning brought about by the changes in the technological landscape e.g. abundance of information, the increasingly shorter half-life of knowledge, the need to continuously stay updated with the newest information and resources, and that many information processing tasks can be delegated to technology (or social filtering through networks at different levels of scale). Siemens (2005) argue that learning rests in the capabilities of forming connections to other people, networks and sources of information and that the capacity to recognize or create useful information patterns are crucial:

> "The starting point of connectivism is the individual. Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide learning to individual. This cycle of knowledge development (personal to network to organization) allows learners to remain current in their field through the connections they have formed. (Siemens, 2005, Connectivism section, para 7)

Although, this seems to be very similar to some of the ideas expressed in networked learning theory, it also seems to have a much stronger focus on the individual, and the individual's capacity to sift through, filter, find and utilize various networks to retrieve resources and ideas which can enhance the individuals' capacity (and thus the whole network). In this sense other persons (who are in themselves personal networks) and networks at different levels of scale seem to become instruments or hubs through which the individual can retrieve these. In our interpretation, it seems that the most fundamental relations are those between an individual and a resource or idea, possibly acquired and filtered through a complex socio-technical network. Although, Siemens argue that knowledge and thinking reside outside the head, it does seem to be a very different perspective when compared to social or socio-cultural theories of learning (also because Siemens relate patterns in external networks with neural networks, thus making a reference to neuroscience). Even though the filtering mechanisms are moved outside the individual's head, it is not entirely clear to us, whether this represents a re-location of a basic 'cognitivist information processing' metaphor dispersed into a socio-technical network, or whether concepts such as 'communities', 'networks' and 'collaboration' have a more significant role. We believe that these differences can be fruitfully discussed by highlighting distinctions made between a socio-cultural and socio-constructivist perspective (Dillenbourg, Baker, Blaye, & O'Malley, 1996). Whereas the socio-constructivist approach understand groups (or collaboration) as consisting of individual and relatively independent cognitive systems, which exchange messages, the socio-cultural perspective suggests that groups or collaboration can be understood as a single cognitive system with its own properties. Thus, in a socio-constructivist view (primarily inspired by Piaget) individual cognition is strengthened, matured or catalysed by social interaction, but the cognitive development remains tied to the mental operations of the individual, and has its own logic relative to the existing mental apparatus of the individual. In a socio-cultural view (inspired by Vygotsky) the focus is on social practice, artefacts and how individual cognition and cognitive structures are seen as formed by/forming the social, cultural world.

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In our interpretation of Siemens' ideas it seems that the individual nodes in the network grow by their 'own logic' (aka their unique social network or constellation of connections), thus acting as relatively independent nodes, who however affect others and the network as a whole. Although, Siemens highlight communities and connections between people it is not clear to us, what is the role of dialogues, collaboration or mutual construction of knowledge or how well connectivism can account for (or is interested in) such patterns of learning. It seems to be a more individualized or personalized perspective on learning than e.g. networked learning theory, and although there are many authors who challenge notions of strongly tied communities, communication, dialogue and mutual construction of knowledge seem to play a more central role. This difference is also reflected in online postings where Siemens expresses a discomfort with the term 'collective intelligence', and argues instead for the term 'connective intelligence':

> "For reasons of motivation, self-confidence, and satisfaction, it is critical that we can retain ourselves and our ideas in our collaboration with others. Connective intelligences permits this. Collective intelligence results in an over-writing of individual identity" (Siemens, 2008, Collective Intelligence? Nah. Connective Intelligence section, para 3)

This highlights critical questions, which have also been raised by others in relation to socio-cultural theories of learning; namely whether individuals are 'puppets and marionettes of the culturally given' and become mere reflections of socio-cultural forces where cognition is uniformly structured or *determined* by the social. However, socio-cultural theorists strongly emphasise how individuals and collectives continuously produce new, surprising behaviour, knowledge and artifacts (Engeström, 1987, 1999). Our purpose, however, is not to argue for one of these theoretical perspectives, but rather to point out the underlying differences between more individualized and more social views of learning and cognition, as these may have an impact in terms of designing for learning, in relation to modes of interaction, roles, tools and types of activities preferred. Related to these debates on tensions between individuals, the social and more networked views on social interaction and learning, we find the ideas and distinctions proposed by Dron & Anderson (2007) valuable. They suggest that we can distinguish between three levels of social aggregations which they term: the *group*, the *network* and the *collective* (Dron & Anderson, 2007). *Groups* are more tightly knit social constellations often mutually engaged in working with a common problem, project or task, whereas *networks* entails more fleeting membership structures and boundaries, are emergent rather than designed, and do not necessarily revolve around a particular task. Finally, the *collective* has an even looser and more emergent structure with no sense of conscious membership or belonging. Collectives are aggregations of individuals' uncoordinated actions from which e.g. tag-clouds, recommendation systems or page-ranking systems emerge. In particular, web 2.0 technologies have amplified and rendered the latter two levels of social aggregation visible, and these are also interesting challenges to tightly knitted constellations such as group work in PBL. The main idea is that the learner should be placed squarely in the middle of these overlapping aggregations and be able to draw on all three in their self-directed or more collaborative learning processes. Following from this, PLEs (or VLEs) can thus be designed and shaped in different ways depending on the underlying view of cognition, learning and the types of interactional dependencies preferred. They can be designed as constellations of technologies where the individual freely forms and controls their own learning processes by connecting to others for inspiration or resources across the various levels of aggregation. However, they can equally be designed as platforms for strongly tied collaborative work and dependencies, where there is a greater level of transparency between the groups and between the groups and external resources and materials (Dalsgaard & Paulsen, 2009). In the latter sense, groups and not only the individuals, become the social filtering mechanism or 'interpretative communities'. As suggested by Dalsgaard & Paulsen (2009), we can differ between *individual*, *cooperative* and *collaborative* strategies for learning and interaction, and relate these to the different levels of social aggregation (groups (collaborative), networks (cooperative) and collectives – although they do not discuss collectives in detail). Furthermore, as previously discussed, various PBL-strategies can also be mapped along the lines of more individualised, cooperative or collaborative approaches, as e.g. reflected in the differences between the Aalborg and Maastricht models of PBL. Consequently, the approach chosen by practitioners in terms of interactional dependencies and the variety of PBL models also impacts how the learning environment should be designed and what tools and practices should be made available or encouraged (for further discussions of this issue see Buus et al. 2010).

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Concluding remarks

The intention of this paper is not to argue for particular interpretations or models of PBL, or to promote certain interactional dependencies. Our aim has been to discuss and distil some pertinent characteristics and differences between different ways of designing for networked PBL and adopting web 2.0 tools and practices. While the mainstream interpretations of web 2.0, highlighting more social, student centred, collaborative and production oriented pedagogical strategies, align well with most interpretations of PBL, our purpose has been to identify and make visible the subtle differences glossed over by generic terms such as 'social' and 'collaborative'. While the theoretical differences might be difficult for practitioners to make immediate sense of, they make quite a difference when it comes to practical design of networked PBL courses, but also in deciding which web 2.0 technologies and practices to incorporate for a particular course. In terms of PBL approaches we have argued that these constitute a very diverse and complex landscape, but also that some of the pertinent characteristics which one can use to conceptually differ between diverse PBL strategies, relate to the distribution of power between teachers and students along three axis which we have termed: the problem, the process and the solution. It is our hope that practitioners can use these distinctions and questions as practical guidelines and support in creating institutionally and locally sound responses to implementing PBL in particular courses (see Buus et al. 2010). Furthermore, we have argued that there are some underlying theoretical differences in how various perspectives perceive relations between the individual and the social, and how they view cognition and learning. This can lead to different preferences in terms of interactional dependencies (e.g. collaborative, cooperative or more individualised learning strategies), but also in terms of how various levels of social aggregation (groups, networks and collectives) might be promoted, valued or enacted in particular course designs. While for instance many designs for networked PBL seem to have favoured more tightly knit types of interaction (collaboration and dialogues in groups or more cohesive networks) (McConnell, 2002; Dirckinck-Holmfeld, 2002), the emergence of more dispersed networked technologies and 'collective' patterns of aggregating individual uncoordinated action hold interesting opportunities for expanding existing designs for PBL and collaborative learning (without excluding the value of more tightly knitted interactional dependencies). Finally, we have pointed to a crucial question in adopting PBL and web 2.0 practices concerning the motivation for doing so; namely whether the they are seen as (potentially) more motivating or effective ways of 'doing the same', or whether they are envisioned as vehicles for changing existing practices. Though, this might seem an odd question, we believe, as also suggested by Dohn (2009), that a 'full package subscription' to web 2.0 practices and PBL (or a participationist perspective) might encompass more radical changes and tensions (e.g. in terms of responsibilities and power delegated to students), which are important to reflect upon. The questions, models and concepts identified in this paper will be more intimately connected to issues of practical design in Buus et al. (2010)

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