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Personalized learning Ecologies in Problem and Project Based Learning Environments

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This paper reports the experiences of Aalborg University students engaging with a variety of tools for learning and everyday life. Some of these they have come in contact with through the problem and project based learning context practiced in Aalborg University. We analyse students' experiences through analysing more than 100 blog posts from first semester students where they report on their use of technologies for life and for learning. The analysis takes its departure in Grounded Theory.

Nowadays, we are surrounded by different kinds of technologies. Some are used in our daily life. In higher education, institutions leverage learning by providing courses, learning spaces and also different ICT systems as tools to support students' learning (Virtual learning environments). However, courses, physical learning environments, and Virtual Learning Environments are just temporary learning scaffoldings. Students may lose hold of them after finishing the course or the study. It takes time to build a new learning construct. Furthermore, it is becoming increasingly clear that university students inhabit complex online spaces. Apart from the institutionally provided tools, students also use different web 2.0 tools in their academic life. As such students' engagements with technology are composed of formal administrative systems, virtual learning environments, various other learning technologies and also a range of 'life'-technologies, such as Facebook, Youtube and many other services which form important parts of students everyday lives. It is important to investigate how students construct their knowledge with support from these tools.

Pedagogy is a key factor that influences learning experiences because it is the main framework that allows students to interact with teachers. The way they interact, the roles of the learners and the teachers are shaped by the pedagogy and its underlying learning theory.

Aalborg University has employed a social constructivist pedagogy, the so-called Aalborg PBL model, which is also called project-oriented problem based pedagogy-(POPP), or Problem and project based learning. In Aalborg University students have to work in groups each semester to understand and address a self-defined and complex problem and provide a solution to the problem which is evaluated in a report format (called the project). Students work with a real life problem in their project which is in contrast to an artificial learning setting often found in traditional education. As many other higher education institutions, Aalborg University aims at providing learning environments that support the underlying pedagogical approach employed, and which can lead to different online and offline learning activities. Aalborg University has chosen Moodle, as its primary Learning Management System (or VLE) for supporting online or blended provision of courses. However, Moodle is not a groupware system aimed specifically at supporting complex collaboration processes where there is a need for supporting e.g. coordination, communication, negotiation, document sharing, calendars, meetings and version control. Furthermore, the pedagogical fabric of LMSs/VLEs have recently been called into question and critiqued by proponents of Personal Learning Environments (PLEs)(Ryberg, Buus, & Georgsen, 2011) . In sum the critique is that

VLEs have become content silos enforcing a traditional, teacher-centred transmission pedagogy, and that there is a need to re-instate a more learner centred agenda and pedagogy. One of the proposed solutions is a move towards student-owned and controlled Personal Learning Environments (PLEs). Some argue that PLEs can be seen as loosely-coupled collections of personally owned and shared tools for students' self-directed or collaborative learning. Some suggest that these sit next to the more administrative systems (Dalsgaard, 2006), whereas others have embraced PLE-portals (e.g. Elgg) as the primary learning environment, and yet some see them as somewhat subversive places for students' 'real' learning and outreach to a wider network of peers not necessarily in the same institution (or within higher education). The latter seems, in many ways, to reflect the current landscape of students who do adopt and use a variety of tools. However, these may not necessarily be adopted for learning or academic purposes, as our own data, and those of others suggest. Thus, students may be stretched between administrative tools, learning management systems, everyday technologies, tools for learning etc. making it important to understand and conceptualise students' use of technology.

Ecology is the study of relationship between organisms in an environment which is the set of circumstances surrounding that organism. Learning ecologies are the study of the relationship of a learner or a group of learners who may interact with any communities or tools which have common interest to create learning experience (Siemens, 2003). We choose to use the concept of Personalized Learning Ecologies instead of Personal Learning Environments to represent the study. Firstly, because there is still confusion about the definition and the scope of Personal Learning Environments. In addition, the term-Personal Learning Environment trends to focus on the availability of tools which learners have chosen themselves. The term - Personal Learning Network (PLN) tends to take a bigger scope which covers all possibility networks that a learner can connect to. Therefore, we argue that Personalized Learning Ecology is a better way of conceptualising the study of how learners use different kind of tools to support their learning processes and how they stitch together or navigate in an ecology of partly self-chosen, partly provided tools and technologies.

This study demonstrates how students interact with tools, networks, and communities within learning ecologies in problem and project based learning environments by using an analysis of students' blog posts on 'how they use technologies to support their PBL project collaboration within their group'. Students mentioned about tools that they use and also their attitude on the tools. When conceptualizing the coded data, the authors also experiment with the concept of Personalized Learning Ecologies, transcending the term Personal Learning environments.

The data analysis is inspired by Grounded theory (Corbin & Strauss, 1998). The paper will also discuss tools that were used by rejected or domesticated by students. The physical environment will be taken into account of the analysis.

Keywords: Personalized Learning Ecologies, Problem Based Learning, Problem and Project Based Learning

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