From Personal Environment to Personal Learning Environment

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Abstract. In the scientific literature, the Personal Environment has been described as a "new" resource to the learning process and named Personal Learning Environment. However, it has not yet been demonstrated in what way and to what extent Personal Environments contribute significantly and efficiently to the learning processes and outcomes framed by Higher Education programs. Our position paper aims firstly at defining Personal Environment. Secondly, it will suggest conditions under which Personal Environment can develop so as to contribute to learning. Thirdly, it will suggest research questions and approach to investigate these hypotheses.

Keywords: Personal Learning Environments; PLE; Educational theories for PLE; Social Requirement Analysis; Mashup; Evaluation methods.

1 Introduction

In the scientific literature, the Personal Environment (PE) has been described as a "new" resource to the learning process and named Personal Learning Environment (PLE). However, it has not yet been demonstrated in what way and to what extent PEs contribute significantly and efficiently to the learning processes and outcomes framed by Higher Education (HE) programs. Our position paper aims firstly at defining PE. Secondly, it will suggest conditions under which such environments can develop so as to contribute to learning. Thirdly, it will suggest research questions and approach to investigate these hypotheses.

2 Personal Environment, Personal Learning Environment and Virtual Learning Environment

Researchers in the Technology Enhanced Learning (TEL) field have recently focused their interest on virtual environments, as differentiated from architecture, to take into account the users and their specific uses of technological tools and services. Previously, an environment was considered as a place housing one or several systems, for example, Virtual Learning Environment (VLE). From this perspective, an environment was seen as predefined and institutionalized system composed of a set of interrelated elements whose actions are oriented toward a common pedagogical/educational objective and guided by a specific pedagogical approach. In comparison, the PE may be considered to be an individually composed system connecting various face-to-face and/or virtual spaces and connecting the personal space with the space of others.

The notion of PLE as conceptualized by Attwell [1] refers to a set of different applications, services and various other types of learning resources gathered from different contexts. It is constructed by an individual and used in everyday life for learning. It is not an application or a system but a personal assemblage supporting new learning modalities induced by ubiquitous technologies and social software. To put it in a nutshell, the main dimensions differentiating PE, PLE and VLE are: the user's role (ordinary user, learner or teacher), the openness to other institutional or non-institutional resources and people, as well as the flexibility.

From a pedagogical perspective, there is a strong philosophy underlying the PLE concept: the autonomy of the learner and what Bandura [2] calls self-directed learning. The PLE is not something that is imposed on an individual but something that one builds autonomously to suit one's own needs and fulfill the type of learning one wants to pursue. This pedagogical perspective challenges the usual one applied in VLE developed or hosted by HE (Moodle, Claroline,). PLE allows changes of ownership, far greater flexibility and closer fit with user's needs. Learning could be controlled by learners, and not teachers or developers. It opens access to content whereas VLEs often discourage the open sharing of content [3]. It extends the scope of the learning experience beyond the institution instead of limiting the scope of an institution using the same platform and remaining isolated from the others.

3 Learning as a Meaningful Activity

If we compare PE and PLE, the main distinction resides in the intention, the conscious recognition of learning, and the meaning and value given to learning activity within the environment. The intention behind the PE is multiple; it is polyvalent environment that can be used to carry on various types of activities targeting different goals or objectives. The PLE on the other hand supports intentional and deliberate learning activities generating formal or non-formal learning depending on whether these learning activities are situated in an institutionalized or structured context (school, higher education, continuing education, training in the workplace, community of practice, networked learning, etc.) or outside a structured context at

work, in private life, leisure, etc. Consequently, a PE may become a PLE as the learner decides to use it to support his/her own learning or when the learner recognizes its activities in this environment as learning activities. This means that the essence in the PLE doesn't lie in its technological configuration but in its intentionality or in the meaning the learner gives to its activity.

4 Directions Taken by Developers

According to Sclater [4], proponents of PLEs agree that there is a need to harness the power of the range of tools, services, and content available as learning resources, outside of educational institutions. However, when it comes to the implementation of a PLE, the author notes three distinct directions.

The first approach puts forward the idea that client software can be developed to mediate between the learner and the many resources on the Internet. Such an approach is based on the premise that if learners are to take ownership of their learning, they must own the software that manages it. The second approach aims at providing sophisticated Web platforms like iGoogle that can be populated and shaped by learners. This type of facility gives access to multiple systems (blogs, wikis, podcasts, instant messaging, e-mail, photo sharing, etc.) through a Web browser. The third direction presented by Sclater [4] claims that PLEs are already in existence. He argues that learners already have laptop computers that are networked, and connect wirelessly to the Internet. Existing systems like Google Desktop allowing them to search and retrieve data on their machine. They have office software, Web browsers to access a large variety of remote learning resources, and services. In this direction, he also stresses that effective online learners know how to make the most of the services available and may resist further client software to mediate on their behalf.

From our point of view, there is no doubt that developers' intervention is needed to conceive flexible technological solutions to support learners in designing their PLE the way they want. What is expected from developers is not the development of a predefined "Personal Learning Environment" as the semantics of the PLE acronym confusedly suggests. What learners required is a "design tool" for the creation, maintenance and evolution of their own personal learning environment. The main feature of such design tool is the ability to aggregated recommended learning resources, learning services, as well as peers and communities in a personalized space to fulfill personal learning objectives. From a pedagogical perspective, metacognitive and methodological tools and assistance should be embedded in the design tool to support learners in defining their objectives (intention), selecting the right resources and services, and recognizing the meaning of their activities as learning activities.

5 From PE to PLE

One of our core hypotheses is that there is no clear separation between PE and PLE. A PE can transform into a PLE as soon as the intentionality or a conscious and meaningful experience of learning emerges. As a consequence, the transition from PE

to PLE is more in the repurposing process and the usage of the environments than in the environments themselves. In other words, any PE can potentially be partially of fully dedicated to supporting specific learning activities and considered as PLE while the activities are carried on. A second hypothesis is that the intention of the user cannot be understood as the origin of the development of a PLE, but as emerging from the activity. Thus it is important to understand how and under which conditions PE could support learning whether it is formal, non-formal or even informal.

6 Research perspectives: when and how are PE resources used to create a PLE?

How does a PE transform and evolve over time? How can these processes of creation and transformation become intentional and strategic for the learner? In order to tackle theses issues, a solid theoretical framework and rigorous method are needed to describe PEs and analyze what constitutes a PLE. Our theoretical framework is inspired by Rabardel's [5] instrumental approach with the concepts of instrument, systems of instruments and instrumental genesis. It uses the Activity Theory [6] as an interpretation framework. Our methodology leads to the description of the instrumental genesis process and the evaluation of the appropriateness of the instrument as well as the analysis of the learners' experience. The results of our research will allow the formulation of proposals to learners themselves to improve their PE. It will also propose orientations and guidelines to educational institutions on how to support the learner in creating appropriate, efficient and significant PE to reach their learning objectives. Finally, it will provide information to developers on the types of tools and services learners need to integrate in their PE.

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