

Evaluating Agile PLE Enablers

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Abstract

This position paper discusses the evaluation of personal learning environment (PLE) enablers along four main axes including the delivery of personalized and contextualized recommendation services and the flexible representation of interaction and learning contexts.

Keywords:

Personal Learning Environment, Social Media, Interaction, Adoption, Usability, Utility, Recommender Systems, Context, Informal Learning, School Boundaries.

1. Introduction

In the Web 2.0 realm, mashups of educational or knowledge management widgets are considered by some to be instances of personal learning environments (PLEs). Due to PLE's erratic nature and the fact that individuals craft them at a given time for a given purpose, their evaluation is challenging. Additionally, PLEs are mainly exploited in informal learning settings, making the assessment of learning outcomes with respect to implicit or even unconscious objectives unfeasible. On the other hand, the fact that learners exploit PLEs is an indirect indicator of their usefulness.

As a result, any generalized evaluation of PLEs is necessarily centered on online PLE assembling and hosting platforms rather than PLEs themselves. We define hereafter such platforms as PLE enablers. The aim is to assess how a specific online PLE enabler facilitates the construction and exploitation of PLEs in a given context and for a given purpose, and study their impact on the learning process.

In this paper, we first describe in Section 2 the changing educational framework spreading across traditional boundaries and in which the PLEs and the PLE enablers defined in Section 3 are proliferating. In Section 4 we discuss how these entities can be evaluated in a meaningful and feasible way.

2. Structures, tool and ways of learning

Our future wellbeing lies in our ability to respond to the challenges of an extremely complex and fast-changing world by developing knowledge, tools and new ways of working guided by broader ethical and ecological values. This situation sets learning at the heart of all our activities. Future learning needs to foster innovation, creativity, flexibility, openness, expressive ability, collaboration, a broader sense of value, the ability to handle complexity, etc. The advent of certain tools makes learning ubiquitous, offers a greater individual choice and fosters new practices. Emerging practices of exchange and collaboration (mobile learning, seamless learning, personal learning environments, social networking, systems of recommendation, ...) open the way to more flexible, personalized, less formal ways of learning. These changes challenge the functioning of existing learning institutions.

One could argue that, despite its dedication to learning, the boundaries that make up schooling define it far more than any learning that goes on there. Just look at schooling in terms of the units that structure it: the class, the year, the stream, the level, the teacher, the classroom, the school, the district, the local authority, the period, the school day, the school year, the subject or discipline, the curriculum, the examining authority, the marking system, ... Such divisions appear self-evident with time and habit, and hindsight provides all manner of arguments to justify their existence. However, they are necessarily arbitrary and could quite readily have been otherwise. This fact does not imply that it would be easy to change them.

With the advent of the Internet and related technologies, a number of hitherto clear-cut boundaries are being challenged and some are becoming more permeable. The massive uptake of mobile technologies, for example, has challenged the physical boundaries of schools greatly enabling the access to outside knowledge and areas of learning from within schools and potentially facilitating access to school from beyond its walls. In the field of learning, emphasis put on the need to encourage lifelong learning has led to the recognition in some circles of informal learning as contributing valuable knowledge and experience alongside formal, book-based schooling. In a number of fields, massive use of social media for sharing recommendations and the exchange of experience has reinforced the growing challenge to expert knowledge.

Rather than the accumulation of formal knowledge, our situation requires us to concentrate on learning as a means to develop innovative structures, tools and ways of working such that there is a constant interplay between the three. Any discussion about the future of learning necessarily raises a number of key questions: To what extent do the boundaries that define schooling as an institution hinder learning? Is it possible to conceive of suitable structures that enable open, seamless learning in a constant interplay between tools, ways of working and the structures themselves? To what extent do the tools and our perception of concepts like personal learning environments contribute to the kind of learning complex society requires, or do they reinforce existing institutional structures to the detriment of learning as defined above?

3. Agile PLE enablers

In the framework described above, sustaining learning across boundaries and throughout life is about enabling agile selection, aggregation and repurposing of resources and people in new contexts replacing or complementing the traditional institutional settings. Such contexts have been recognized as personal learning environments (PLEs). They are composed or populated by real or virtual knowledge and interaction artifacts, as well as social and professional networks. As pointed out by Siemens (2007), PLEs “are comprised of two elements – the tools and the conceptual notions that drive how and why we select individual parts. PLEs are a concept-entity”. In the Web 2.0 realm, the PLE concept-entity has been mapped into a mashup of small Web applications called W3C widgets or OpenSocial gadgets (referred hereafter as widgets or apps). The mashup is theoretically constructed by the learners, but is often prepared by educators. Such ephemeral constructs which depend on students’ current mood and immediate needs cannot be created and exist without online assembling and hosting platforms, i.e. without PLE enablers. Obviously, considering a mashup of widgets as a PLE is too restrictive. In advanced

PLE enablers such as Graaasp¹, a PLE instance is mapped into an activity space defining a learning context and integrating people, assets (content) and apps.

Social media platforms are starting to gain popularity as PLE enablers, as they increasingly combine their social networking and recommendation features with some capabilities for resource and tool aggregation. Their main drawback is their poor handling of privacy and context, as well as the fact that they are primarily seen as platforms for everything but learning. We however claim that the best way to support informal learning is to bring learning resources and tools to the platforms the people are using every day. As a consequence, and if privacy and context are better handled, safe social media platforms will become the most important PLE enablers in the future.

4. Evaluation of PLE enablers

In a previous paper, the following four factors were identified as the main characteristics of online PLE enablers (El Helou and Gillet, 2010): delivering personalized and contextualized recommendation to assist learners in constructing their online PLE, adopting social media paradigms to engage learners and encourage active participation and feedback, offering a flexible representation of learning and interaction contexts, and last but not least, providing flexible content and community management features.

Embedding social media features that encourage participation and indirect feedback is crucial. Feedback can take the form of ratings, liking/disliking, tagging, and adding comments; it allows to easily trace how and how often a platform is being used. Additionally, these features bring to the surface the bundles of learning content and apps that best satisfy specific learning interests based on indirect feedback provided by users and success stories.

This brings us to another more important factor of PLE that requires evaluation: recommendations. As mentioned earlier, the main PLE underlying principle is giving learners the opportunity to self-construct their learning environment, bringing together Web applications and online resources serving their learning interests. We argue that aiding learners in connecting the dots, finding and choosing what to bring into their PLEs is an essential feature in PLE enablers. How best to do this if not through offering personalized and contextualized recommendation services. Evaluating such services can be done via traditional evaluation metrics, e.g. tracking the “clickthroughs” and the time spent on the top N recommended resources or bundle of resources, and computing precision and recall (Herlocker, Terveen and Riedl, 2004).

Last but not least, the success and adoption of PLE enablers is highly dependent on the flexibility in representing interaction and learning contexts, as well as the elasticity of the content and community management features provided. More specifically, the following usability questions are to be addressed when it comes to PLE enablers:

- The way information is represented in the PLE;
- The space (context) and content organization features;
- The means provided to add, reuse, and group resources;
- The means provided to share one’s PLE or parts of it;
- The sense of control and the awareness of who has access to what.

¹ <http://graaasp.epfl.ch>

As an example, SymbalooEdu² borrows the metaphor of Webmixes where users combine tiles (consisting of online learning resources and learning gadgets such as agendas or to do lists). Each tile is put inside a square box. Within a Webmix, users can reorder tiles by moving them from one box to the other. To create a tile, the user clicks on add a new tile, and enters metadata related to the tile along with its corresponding URL. On the other hand, Graaasp uses the concept of spaces where resources, widgets, and people can be connected. So, while in Symbaloo a PLE is mapped into a Webmix, in Graaasp a PLE consists of a space kept private or shared with other people. With respect to populating one's PLE, Graaasp borrows the metaphor of "dragging" items from their desktop or other spaces and "dropping" them into one's own a private or shared spaces. Learners can also add new resources into their Graaasp PLE by bookmarking online videos or static Web pages. The convenience and success of the concept of Webmixes or spaces connecting people with content to form one's PLE can be assessed via comparative usability studies involving questionnaires, think-aloud methods and other UX methods (Hassenzahl and Tractinsky, 2006), and is mainly determined through adoption and success stories.

5. Concluding Remarks

In this paper, we argue that the evaluation of PLEs as such is not possible. Assessing implicitly their adoption by learners for a given purpose in a given context is sufficient. To reach or increase adoption, the key factor is to provide PLE enablers. The latter can be evaluated in terms of usability and usefulness by considering four dimensions: Recommendation, participation, flexibility in PLE content management, and flexibility in context representation. Relevant usability questions are proposed.

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² <http://www.symbalooedu.com>