A Comparative Assessment of e-Learning Platforms

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ABSTRACT

This paper presents a comparative analysis among e-learning platforms. Some of the most widespread open-source and proprietary platforms are presented and evaluated. The results, obtained by comparing 28 e-learning platforms, highlight the most significant gaps between open-source and commercial platforms, with particular reference to the tools and services supporting social networking and web 2.0 functionalities.

KEYWORDS

collaborative learning; e-learning 2.0; distance e-learning; e-learning tools; social networks; functional evaluation.

1 INTRODUCTION

In the last years, the employment of e-learning technologies is increased considerably, making it possible the development of new approaches for distance learning, based on customizable courseware and activities. In this scenario, the role of e-learning platforms is crucial [31]. The tools and services supported by e-learning platforms determine the possibility to implement alternative learning processes, according to personalized and adaptive strategies [8,21]. In particular, some of the most innovative technologies of web 2.0, define the typical features of the new e-learning 2.0, which specifically concern with the intrinsically social nature of the network [5,13,20]. From the use of simple courseware it has passed to a multitude of services in which e-learners dynamically interact each other using technologically enhanced tools and services, according to the collaborative learning [13,18,31,40]. In this direction, much has been made so far in consideration that most modern theories consider the priority and increasingly pervasive aspects of informal learning, at the expense of the old conceptions [3,23,47]. In particular [20], e-learning 2.0 should be able to integrate all the new techniques of learning built around the web 2.0 tools to allow users to build an effective “conversation” on the network [15,33,46]. The technologies of the web 2.0 should allow the development of customized and flexible tools and services, able to support the realization of true virtual learning environments [7,9,23]. With these new services is therefore possible for both teachers and students to share the available contents through blog, podcast, media sharing and social bookmarking [31]. The latter, in particular, with the aim to share bookmarks between different users, even with the ability to add a brief description and keywords with links, so that they are immediately accessible and to create an effective tagging [4,22,43,44,45]. In this scenario it is very difficult to achieve efficient and shared evaluation of e-learning platforms. In fact, although numerous attempts have already been described in the literature, difficulty in the evaluation of e-learning platforms derives from the fact that they have undergone a extraordinary evolution in the last years and specifically in concomitance with the development of web 2.0. Furthermore, another problem is that different application domains, in which platforms must be used, have multiple and often conflicting requirements. It is thus quite clear as the analysis in the literature can only partially obtain an objective assessment of the platforms and how these support the learning process, considering the characteristics, needs and issues with particular reference to the use of typical instruments of web
This paper presents an analysis of e-learning platform addressing the specific functionality related to the use of typical web 2.0 tools and services for collaborative learning [11,14,42]. Particular attention has been focused on the analysis of the two categories: “open-source” and commercial platforms [31,38,39]. Section 2 presents a description of the main features characterizing the two categories of platforms. A detailed analysis of the platforms, which takes in consideration 28 of the most popular e-learning platforms (10 open-source and 18 commercial), is given in section 3. A short discussion of the results obtained and the conclusion is reported in the section 4.

2 PLATFORMS E-LEARNING: A COMPARATIVE EVALUATION

This section provides a comparative evaluation of the main platforms for e-learning, with particular reference to their capacity to support services well known and widespread, typical of web 2.0, and then the “social network” such as facebook, feedback, chat, blog, forum, youtube, podcasting, skype and wiki [5,10,19,20,24,32,37].

The tools are:

- **facebook**: it is a social utility that connects people with friends and others who work, study and live around them.
- **youtube**: tools share common among users of social web in interpersonal as well as community.
- **skype**: freeware proprietary tools for instant messaging and VOIP, even in a peer to peer.

The services are:

- **feedback**: service used in inter-communication and sharing of knowledge (questionnaires, interviews, focus groups).
- **chat**: synchronous service used to promote individual and group communication in the form of intra-community.
- **blog**: tool intercommunication online learning, content sharing within the community.

- **forum**: instrument used in virtual intercommunity chat is that unlike the asynchronous.
- **podcasting**: direct service to the production, network sharing and use of audio and/or video through the use of multiple technologies, partly online and partly online.
- **wiki**: service that allows you to share collaboratively creating new knowledge.

Figure 1 and 2 show in particular the analysis of ten between the main open-source platforms: ada, atutor, claroline, docebo, eiffe-L, freelearn, ilias, moodle2,.LRN, sakai. Is evident that some services such as feedback, blog, forum, podcasting and wiki are supported by all platforms, whereas no open-source platform supports skype and youtube (Fig. 1). Concerning facebook, it is only supported by the platforms docebo, moodle2 and .LRN, whereas the platform .LRN is the only one not supporting the chat (Fig. 2).

![Figure 1. Open-Source Platforms: Tools](image1)

![Figure 2. Open-Source Platforms: Services](image2)
and well known: adobe connect, centra, elluminate live, e/pop, groove, hotconference, megameeting, netlearning, oracle ilearning, picturetalk, raindance, saba learning enterprise, same time, t-learn, voxware, webct, wave three, webconferencing. They show in particular that all proprietary platforms considered support the services such as feedback, chat, blog, forum, podcasting and wiki (Figure 4), but none of them supports the tools facebook, youtube and skype (Fig. 3).

The results show that, in less than a few products, there is no substantial difference between the platforms, as the market tends to make them comparable. An important consideration that must be stressed is that widely distributed tools, like youtube and skype, are not integrated into any of the tested platforms, neither open-source nor commercial [15,17,41]. Anyway, in open source platforms is visible an effort toward the integration of tools for the development of social networks [11,35,36,40]. The results also clarify that most of the platforms allows the use of an off-line tool for creating courses, and modify and update contents.

3 SUMMARY EVALUATION PLATFORMS

The results of the previous section explain some aspects of the current phenomenon of migration from static to dynamic learning approaches. In other words, the advancements of e-learning platforms show that static approaches, which are in general considered by commercial platforms, are now evolving towards personal learning spaces, in which the learning procedures are not limited to the duration of a course, but they accompany the student also after the formal and circumscribed phase of learning, according to the lifelong learning principles [6,11,18,42]. This phenomenon also suggests the reasons for which multimedia content delivery, high storage requirements and computational power, along with strong constraints in the budget, frequently leads companies and institutions to find e-learning solutions in outsourcing [6,12,37]. In order to analyze the critical factor of success of e-learning initiatives, researchers focus on supporting the collaborative factors that are identified as follows [14,28,31]:

° use of Open Source (OS) technologies;
° use peer-to-Peer (P2P) strategies for finding contents;
° use Virtual Learning Community (VLC) for learning.

OS technologies are considered as “the world that creates value” in a collaborative manner. Thanks to free access to source code, individuals work together to customize the online learning systems. Similarly, P2P systems, prime example of collaboration between computers, allow you to easily expand the network of participants by offering greater availability of resources. Finally, the VLC, the new models that represent intra and
inter-organizational support online learning, enabling individual participants to be fully interactive [2,26,29,30]. These three elements, with their mutual interrelations, generate the paradigm of “Learning Collaborative” that combines aspects of learning, organizational and technological learning process [12,25,27].

In light of this latest research platforms can be divided into three different categories:

[1] platforms designed mainly to provide content and learning units (courses, classes, module) by enjoy exclusively over the Internet. This category includes almost all the trading platforms. This type of platform have the ability to support very high loads of users;

[2] platforms whose primary function is to be a virtual bridge between the teacher and the student. In these systems, which represent the majority of open-source platforms, usability is of paramount importance in order to encourage the proper use of diverse resources according to the specific user needs (such as modules for chat, video delivery, questionnaires and collaborative activities). The use of these platforms is generally in mixed mode: on-line and off-line. The great advantages of these platforms is the possibility of being customizable and free of charge;

[3] platforms for collaborative learning, in which the difference between student and teacher tends to disappear and that is even more emphasized the use of forums and chat.

4 DISCUSSION AND CONCLUSIONS

Following the increasing demand from new categories of users, the availability of e-learning platforms is continuously increasing in terms of both commercial systems and open-source solutions. In this scenario, platform evaluation is often difficult since their assessment strongly depends on the specific requirements of the application domain. Notwithstanding, platform evaluation is very important since they often represent a factor of paramount importance for the success of the e-learning activities. This paper has the aim to provide a useful contribution towards platform assessment. In particular the evaluation concerns specific aspects related to the development 2.0 tools and services. The results show that, given the large number of solutions available, only very few platforms support typical instruments of social networks. In addition, some cases are exists in which platforms are flexible enough to set the content in a way suitable for the specific educational needs, for example through the use of additional modules or plug-in. In most cases however, an analysis of the peculiarities of the platforms, both proprietary and open-source, shows that the lack of flexibility is a characteristic common to many platforms. This is particularly true in the case of proprietary platforms. In this case although several products on the market exists, their difference is actually rather limited since all the solutions are very similar. In conclusion, it can be argued that the analysis highlights the rigidity of e-learning platforms currently available. In general, platforms are still far from having the characteristics of web 2.0 and social networking. This is specifically true for proprietary platforms and for many open-source solutions. Conversely, there are only some open source platforms that can show advanced characteristics, since they are supported by a large community that update and enhance their capabilities in the direction of the requirements of web 2.0. Therefore, the progress of research in this area is still necessary, in order to improve state of art platforms to meet emerging learning requirements, such as the collaborative creation and editing of educational resources through advanced social tagging strategies and unstructured educational resources exploitation.

REFERENCES


