

BLENDED LEARNING – A VIABLE SOLUTION FOR THE ROMANIAN ACADEMIC EDUCATION

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Abstract: The apparition and development of the Internet has brought about radical changes in all fields of activity and created new ones. Education is one of the major fields in which the integration of the Internet has made possible the shift from the traditional instructor-led classroom-based educational approach to new forms based on lifelong learning, self-paced and self-directed learning, and permanent updating of technology-based learning methods. The Internet has made education available to everybody everywhere. Against this background, our article will start with the presentation of the concept of ‘blended learning’ as a viable solution for some of the issues relating to distance learning in Romania. Next, we will introduce an blended learning platform prototype designed and built to meet the needs of the Romanian academic education. In addition to this, the necessary web services will be presented. The article ends with conclusions and the authors’ research proposals related to this domain.

Keywords: Internet, blended learning, web courses, web service, Apache,PHP,MySQL, arhitecture platform

1.Introduction

The Internet was introduced in Romanian virtual space in the 1990s and ever since, it has affected substantially all domains, including education. The Internet network and mobile phones have engendered educational models known as eLearning and mLearning, which actually transposed traditional learning into virtual reality. The new concept of blended learning has developed as a combination of traditional classroom-based and e-learning approaches. Blended learning is considered a viable solution for Romanian distance learning and company staff training because e-learning technologies are not familiar enough to Romanian learners and institutions do not have yet the necessary facilities. We shall briefly introduce a few considerations on the notion of blended learning.

2.Blended Learning. A Few Considerations

Blended learning is a relatively new concept in Romanian education. However, it has been in use for decades in worldwide educational systems. There are several arguments [10][1][3][4] to support this statement.

Blended learning [10] [13] is a combination of traditional learning approach and a distance learning method using radio, TV, the Internet, voice mails and mobile phone conferencing. It is, consequently, a teaching management system that mixes traditional and latest technological advances, especially Internet-based.

According to Wikipedia, blended learning is “the combination of multiple approaches to learning.” It can be realised using “blended virtual and physical resources. A typical example [12] of this would be a combination of technology-based materials and face-to-face sessions used together to deliver instruction. In the strictest sense [12], blended learning is when an instructor combines two methods of delivery of instruction. In the largest sense, this term most often applies to the use of technology on instruction. A good example of blended learning would be to give a well-structured introductory lesson in the classroom, and then to provide follow-up materials online.

An advantage of blended learning is its versatility in terms of teaching methods, which meet students’ various needs and learning styles. Therefore, courses stand greater chances to be successful. Blended learning [13][14] addresses students in academic and business environments. The latter use it to upgrade their education and keep it up-to-date so that it can become a lifelong learning device. This approach is based on teaching approaches that allow more efficient course management and provide more time for self-paced learning.

Blended learning can be used successfully in:

1. academic teaching;
2. hiring/ training and upgrading of company staff.

According to its purpose and target groups, the following combinations [6] [9] of online and offline tools are possible:

1. Workplace learning
2. Face-to-face tutoring, coaching or mentoring
3. Classroom-based
4. Distributable print media
5. Distributable electronic media
6. Broadcast media
7. Online learning content
8. E-tutoring, e-coaching or e-mentoring
9. Online collaborative learning
10. Online knowledge management
11. The web
12. Mobile learning

There are three major categories of blended learning [6][1] [9] :

1. Skill-driven learning, which combines self-paced learning with instructor or facilitator support to develop specific knowledge and skills. This category is offline (face-to-face & work-based)[6][1][9]and will include the following types of methods: lectures/presentations; tutorials; workshops; seminars; role play; simulations; conferences; tutoring; coaching; mentoring; 360 degree feedback; manager as developer; learning on the job; projects; apprenticeships; shadowing placements, email, chat, forum, virtual community, web site visits.
2. Attitude-driven learning, which mixes various events and delivery media to develop specific behaviours. This category is offline (individual work) [6][1] [9] will include the following types of methods: books, magazines, newspapers, workbooks, keeping a journal, review/learning logs, audio cassettes, audio CD, videotape, DVD, TV, radio.
3. Competency-driven learning, which blends performance support tools with knowledge management resources and mentoring to develop workplace competencies. This category is called online & interactive media [6][1][9]and will include the following types of methods (delivered either online or via CD ROMs or non web-based CBT approaches): simple learning, resources, interactive generic content, interactive customised content, performance support, simulations, e-tutoring, e-coaching, e-mentoring, 360° feedback, email, bulletin boards, text chat, application sharing, audio conferencing, video conferencing, virtual classrooms, searching knowledge bases, data mining, document and file retrieval, ask an expert, search engines, websites, user groups, e-commerce sites, PDAs, mobile phones.

3. A Blended Learning Script

In specialist literature[13][14][1][9], blended learning may represent a transition to online learning, which is based entirely on an e-platform. The latter is not yet feasible in present day Romania on two major grounds. On the one hand, it eliminates face-to-face interaction (including body language) and on the other, it is more expensive and overburdens the teacher. On top of that, teachers need more time to gain experience in online teaching and course design and students have to develop autonomous study skills. Therefore, blended learning is a solution valid for a wide array of fields. In the following, we shall present a course script based on blended learning approach.

The first face-to-face meeting consists of the following steps:

1. Introduce course objectives, structure, development, and each participant's role (teacher's included) and assessment methods.
2. Give schedule for face-to-face and online meetings.
3. The importance of the course contents as well as the career prospects for the participants is emphasised. For instance, there is a high demand for PHP language scripting language programmers on the Romanian labour market.¹ Consequently, a course on theoretical and practical aspects of PHP taught by using blended learning is likely to be attended by persons who wish to get more knowledge on PHP. One advantage is to get a PHP programmer position.
4. Present the e-learning platform and simulate in real time ways in which students can access it.
5. Virtual communities of maximum 20 students are created. Each group will get a tutor who will guide them throughout the practical tasks and communicate with the students by e-mail.
6. Rules of virtual communities are presented and explained. Most importantly, students can communicate synchronously (on chat, forums) and a-synchronously (e-mail) with peers,

¹ See job demands advertised on www.ejob.ro.

their teacher and tutor only on course topics. Similarly, the online e-learning platform can be used only for educational purposes. Each student will mock-use it and shall be explained all necessary details.

7. Resources and tasks are set for the next meeting.

Blended learning online course development includes the following elements:

1. The content is divided into 4 modules, each comprising the equivalent of 3 traditional courses.

2. All course materials are posted on the platform: text, practical examples and multimedia elements appropriate to the topic. Each course assigns some homework, which is going to be e-mailed to the tutor on a weekly basis. The tasks are designed to give the students the opportunity to apply what they have learned.

3. Students benefit from online tutoring sessions scheduled in advance at the first face-to-face meeting, on the forum or on chat.

The following classroom-based meetings will take place at the set times. They allow the teacher to advise and counsel students on the use of the e-platform and web technologies, answer their questions, mediate discussions among them, and offer solutions for the problems encountered. Thus, each face-to-face meeting solves aspects of the course that have remained unexplained. An online assessment will take place at the end of the course and grading will be posted to students, accompanied by teacher's comments and suggestions.

An end-of-the-course survey will be conducted to collect suggestions, complaints and appreciations in order to improve course quality.

We shall elaborate a blended learning architecture based on the previous teaching script.

4. The architecture of a blended learning platform

A platform for blended learning can be developed on the classic client-server model. On the server side, there will be the data basis and an administration application accessible only by the platform administrator. This application is used to manage teachers, students, courses, time schedules and secretarial tasks.

On the client side, there will be a teacher's application and a students' application. The former allows teachers to do the following: course design, updating, self-evaluation, synchronous (chat, wiki) and a-synchronous communication with students, and feedback analysis. The latter allows students to do the following: read course materials, solve tasks and self-evaluation tests, synchronous (chat, wiki) and a-synchronous communication with teachers and peers, fill in a survey questionnaire on teaching quality, access schedule for activities.

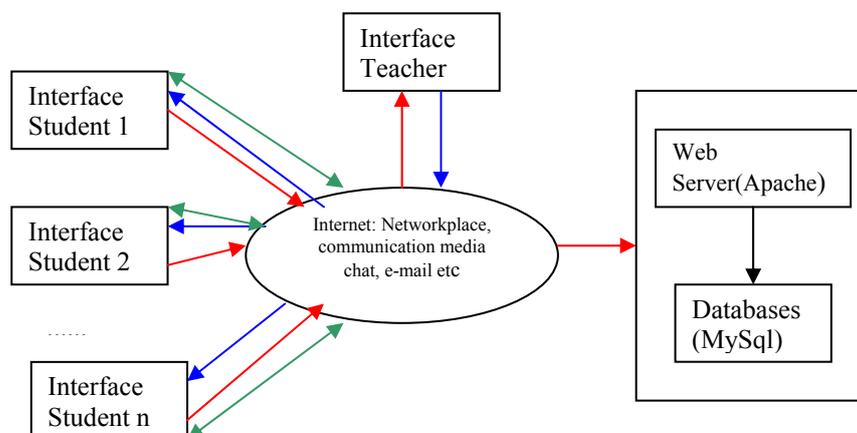


Figure 1. The arhitecture of blended learning platform[adapted [15]]

The platform prototype described will be implemented with the help of the triad Apache-PHP-MySQL as the most appropriate approach taking in view Romanian software and because it is free and open source.

5. Web services for blended learning

A Web service is a collection of remote procedure calls (RPCs) hosted on a Web site and exposed via SOAP over HTTP and can be made securely accessible over the public Internet.[5][7]

Web services are application components, which communicate using open protocols, are self-contained and self-describing, can be discovered using UDDI, can be used by other applications, XML representing the basis for Web services.[5]

Web services platform [7] elements are:[5]

1. SOAP (Simple Object Access Protocol) which is a communication protocol, used for communication between applications, a format for sending messages, designed to communicate via Internet, platform and language independent, based on XML, allows you to get around firewalls
2. UDDI (Universal Description, Discovery and Integration) is a directory service where businesses can register and search for Web services.
3. WSDL (Web Services Description Language) is used to describe Web services, are written in XML, is an XML document and is also used to locate Web services.

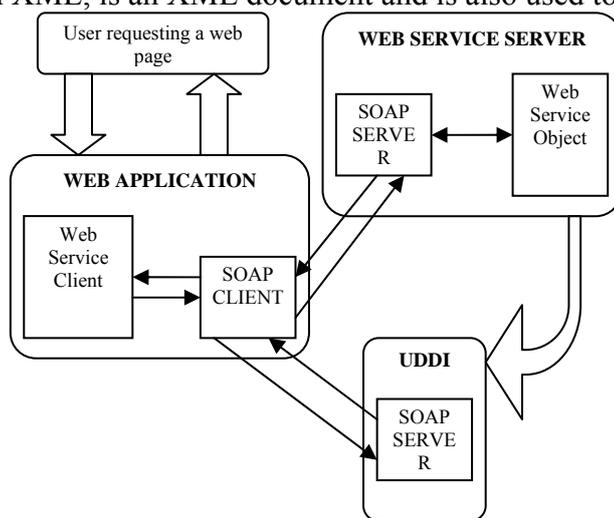


Figure2 Web Services for Blended-Learning[5]

It is important to know that PHP language is built on a scalable architecture, with support for Web services and interoperability standards including XML and Simple Object Access Protocol (SOAP).

6. Conclusion

Over the past few years, researchers have learned that during the traditional teaching process most of the students do not work between meetings because they assume that the amount of knowledge they get by interaction and discussion is enough. Consequently, at the end of the course, many of them cannot apply what they have learned. One solution for this situation is to implement a blended learning approach. The extending of the traditional model into the virtual environment brings about a permanent teacher-student and student-student interaction, which also facilitates observation and tutoring. Consequently, such a learning approach allows a continuous coherent learning process during which students are actively involved both in face-to-face and in online environments.

In our opinion, blended learning is a viable solution for the improvement of distance learning. We have presented a few guidelines as to the characteristics of this approach and presented a script and a theoretical prototype. We intend to design and implement a practical prototype of blended learning for distance education. We consider such a prototype necessary in order to meet the needs of Romanian higher education, especially the distance learning. It is against the current background that we consider that blended learning would represent a transition stage from traditional to online teaching. This stage will be a good opportunity for all the persons involved to learn all the necessary skills to be able to work in a virtual environment.

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