On The Effectiveness Of Blended Learning Technologies In Higher Education

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Abstract

The paper highlights the advantages of using blended learning models as one of the trends in higher education system of today. The focal points of the article are the theoretical aspects of the "blended learning" concept, the advantages and disadvantages of full-time offline learning and e-learning, the various types of digital educational resources and online services implemented in blended learning models. The key aspects of the paper are the most widely-spread blended learning models used in foreign universities. The main findings of the paper indicate that with the understanding of proper and adequate application, blended learning effectively forms valuable personal qualities.

Keywords: blended learning, higher education system, educational process, digital educational resources, learning models, innovations, e-learning.

Sobre la efectividad de las tecnologías de aprendizaje combinado en la educación superior

Resumen

El documento destaca las ventajas de usar modelos de aprendizaje combinado como una de las tendencias en el sistema de educación superior de hoy. Los puntos focales del artículo son los aspectos teóricos del concepto de "aprendizaje combinado", las ventajas y desventajas del aprendizaje a tiempo completo fuera de línea y el aprendizaje electrónico, los diversos tipos de recursos educativos digitales y servicios en línea implementados en modelos de aprendizaje combinado.

Los aspectos clave del documento son los modelos de aprendizaje combinado más difundidos utilizados en universidades extranjeras. Los principales hallazgos del documento indican que, con la comprensión de una aplicación adecuada y adecuada, el aprendizaje combinado efectivamente forma valiosas cualidades personales.

Palabras clave: aprendizaje combinado, sistema de educación superior, proceso educativo, recursos educativos digitales, modelos de aprendizaje, innovaciones, e-learning.

1.   Introduction

The focal points of the paper are innovative methods and technologies. In the modern system of higher professional education, the problem of choosing the most effective breakthrough methods and technologies remains significant and relevant.

There is a growing body of literature which indicates that, recently, along with standard types of education in universities, other innovative forms of education are being actively used. There is much evidence that the blended learning method is becoming increasingly popular (Dziuban et al., 2018).

The concept of blended learning appeared in the early 2000s in American business circles. The concept was introduced as the method of staff training and retraining. Later, it emerged as a significant notion after the release of the first books by such authors as Bonk and Graham. Their most notable works are "the Handbook of Blended Learning" (2006). Later Garrison and Vaughan in "Blended Learning in Higher Education: Framework, Principles, and Guidelines" (2008) successfully introduced this phenomenon to the system of higher education (Friesen, n.d.).

Chris Reed and Harvey Singh have described blended learning as a training program that uses more than one way of presenting the material to optimize the learning outcomes and the costs of implementing the program (Singh, Reed, 2001).

A more detailed description of blended learning stems from the works by P. Valiathan, who specifies the ways of introducing the material in blended learning classes. The material presentation can include classroom lessons (face-to-face (F2F) classrooms), learning

with electronic media (e-learning) and self-study (self-paced learning) (Valiathan, 2002).

Consequently, blended learning is one of the trends in modern education and, according to experts, will remain so in the next decade. The advantages of this learning mode are the low cost, flexibility, availability, as well as the possibility of using complex technologies in the learning process. All these factors make this alternative extremely attractive.

2.   Methods

A mixture of research methods was used to allow a deeper insight into the problem under analysis, i.e., the study and analysis of psychological, pedagogical, scientific, methodological special literature, as well as periodicals dedicated to the issues of distance learning and the use of information and communication technologies in an educational process. The qualitative approach of generalization and analysis of pedagogical experience was employed since we conducted an exploratory study. We also chose the study of various information and communication technologies and the analysis of experimental research results to gain a detailed understanding of the phenomenon under discussion.

3.   Results

There is much evidence that the technology of blended learning emerges as a synergistic technology, which allows you to more effectively use the advantages of both full-time and e-learning. Another benefit of this technology is the opportunity to level or mutually compensate for the shortcomings of each of full-time or e-learning modes (Kurkan, 2015).

Full-time is different from e-learning in several respects. Areas, where significant differences have been found, are given in Table 1.

Table 1. The advantages and disadvantages of full-time and e-learning.

Full-time offline education	E-learning
(-) the time for receiving feedback from the teacher is limited, the impossibility of interactive application of educational materials;	(+) the possibility of continuous interaction, the potential of receiving feedback anywhere at any time;
(+) the spontaneity of reaction, everything that happens, happens here and now, the possibility of more flexible and instantaneous reaction of the teacher to students' actions;	(-) certain predetermined options for the automated emotional response to the actions of the student. The predetermination results in delaying the teacher's response during online interaction;
(-) the low degree of individualization, the same educational trajectory for all students;	(+) the high degree of individualization due to the diversity of redundancy, flexibility, as well as adaptability of electronic resources;
(-) a limited communication field, i.e., interaction with a small group of students, similar in age and social status;	(+) a wider communication field (interaction through communication systems, social networks, as well as their analogs);
(+) the possibility of forming direct personal human relationships, which presuppose deep emotional interaction.	(-) indirect formation of personal connections which are mediated through computer communication. A limited emotional interaction.

Central to the entire discipline is the fact that the use of digital educational resources is an integral and very important component of blended learning. They have several features arising from the general properties of electronic media. These features distinguish them from printed communications and give them a few significant advantages (Matukhin, 2015).

New key didactic properties of digital resources include the aspects which are as follows:

☐   the variety of presentation forms of educational information and multimedia;

☐   the redundancy and diversity which result in variability;

☐   interactivity;

☐   flexibility and adaptability (Alexander et al., 2014).

This paper attempts to show that such properties of digital educational resources as redundancy, the collection of tasks and presentation forms, as well as different levels of content make it possible

to implement the principle of content variability. Digital resources ensure flexibility and adaptability of the educational process, which, in turn, creates conditions for the personalization of learning. This principle assumes the variety of educational materials, tasks, forms of educational process organization. The described advantages ensure self-realization of each student through the possibility of choosing the type, mode and form of activity in accordance with one's personal preferences (Lukhmanova et al., 2018).

4.   Discussion

The current study has found that blended learning models make it possible to use various types of digital educational resources and online services. These resources are as follows:

☐   Learning Management Systems, such as Moodle, Edmodo, etc.;

☐   the Unified Collection of Educational Resources;

☐   online training courses;

☐   tools for creating and publishing content and learning objects, i.e. for example, the test designer 1C;

☐   tools for communication and feedback, including Mirapolis, Vebinar.ru, Skype, Google-chat, etc.);

☐   tools for collaboration, such as Google Docs, Word Online, etc.;

☐   tools for creating communities, i.e., social networks;

☐   educational activity planning tools, including electronic journals, organizers (Meskill, 2005).

There is much evidence that during blended learning teachers have a chance to use both ready-made digital resources and the resources designed by teachers themselves. Simultaneously, teachers must select complex electronic resources that combine educational content. The reason is that such resources meet the requirements of redundancy. Of equal importance are tools for the organization of educational activities (Asarta, Schmidt, 2015).

The variety of blended learning models is evident from the study undertaken by the University of British Columbia (Canada). The study highlights 6 models of blended learning based on the experience of

implementing e-learning in Europe, the USA, Canada. The models are as follows:

1) the model in which electronic network education is supplementary to full-time training and provides access to electronic materials in a computer lab, laboratory, or from home (Model 1: Face-to-face driver);

2) the model in which traditional and online types of training rotate in accordance with the timetable and are controlled by teachers (Model 2: Rotation);

3) the model in which most of the training is carried out within an electronic educational environment, while the trainees are provided with the necessary internal support of the teacher (Model 3: Flex);

4) the model in which training is conducted in an online laboratory accessible to students in a special class. The trainees are supported by technical staff at the location of the equipment and the teacher online (Model 4: Online lab);

5) the model in which students choose online courses as a supplement to the study of academic disciplines in an internal mode (Model 5: Self-blend);

6) the model in which distant learners study in the electronic environment online, and certification is held internally (Model 6: Online driver) (O'Byrne, Pytash, 2015).

There are many indications that blended learning is undoubtedly an advanced educational technology with broad prospects for use and further development.

First, this is because when used correctly and fully, blended learning works to form valuable personal qualities, such as:

☐ the ability to comprehensively solve problems, considering all the aspects of the problem under discussion;

☐ critical thinking, the ability to select reliable data sources and the selection of information that is really needed to solve a problem;

☐ creativity, the ability to creatively rethink existing information, synthesize new ideas and solutions;

☐ teamwork, the ability to productively interact with other people, look for like-minded people and create teams;

☐   the ability and desire to learn throughout life;
☐   the ability to make decisions and take responsibility for them.
☐

5.   Conclusion

This study has identified that although the introduction of blended learning requires a teacher to spend much more time and effort, in comparison with the everlasting frontal mode of work, it has many advantages. Another significant finding to emerge from the study is that blended learning is also unequivocally hampered by the lack of teachers' psychological readiness to change their role in the learning process. A teacher is no longer a mentor but a facilitator (Broadbent, 2015). The introduction of blended learning as an innovation leads to several changes in self-determination and the way the student and the teacher interact.

The current findings support the idea that blended learning has many advantages. It is safe to highlight the following benefits associated with the special aspects of digital educational resources' implementation:

1) unlimited access to educational and other types of information located in electronic media and within the online space, including online courses;

2) in blended learning, the teacher ceases to be the only source of information, and the redundancy of information received by students allows him to develop various skills while working with it;

3) the ability to "fine-tune" the content, as well as, the modes and methods of training. This option allows to satisfy the training needs of almost every student;

4) the transparency and understandability of the assessment system, especially in the part where the mark is based on electronic tasks with automatic verification, and the teacher's subjective opinion does not affect the mark.

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