



TEACHING AND LEARNING USING INFORMATION AND COMMUNICATION TECHNOLOGIES

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Article history:	Abstract:
<p>Received: 20th March 2022 Accepted: 24th April 2022 Published: 30th May 2022</p>	<p>This article reflects significant changes in teaching and learning, reinforced by the constantly emerging new information and communication technologies (ICT), which have changed the general approaches to teaching and learning. The purpose of the article is to explore three striking phenomena, such as student orientation, interactivity and mobility, which underlie modern non-traditional teaching and learning, which is becoming the norm. In addition, mixed learning is considered as a new methodology that uses all these phenomena</p>

Keywords: Information technologies, innovative education, educational process, interactive methods

INTRODUCTION

Over the past 20 years, any field of education has changed dramatically thanks to the constantly emerging information and communication technologies (ICT). They have changed the general approaches to teaching and learning. As the Bank put it: now anyone can learn anything from anyone at any time. In addition, he states that the Internet is becoming our preferred platform for learning, and non-traditional learning is suddenly becoming the norm [1]. Siemens adds: We can no longer personally experience everything. There are too many of them. We create networks to learn more than we can learn as individuals [2]. Changes in teaching and learning, enhanced by ICT Teaching and learning are becoming more:

1. Student-centered;
2. interactive;
3. mobile;

The teacher is no longer an authority in the classroom. The teacher is a kind of mediator, adviser or mentor. Moreover, the role of the teacher is to activate and develop creative abilities [3]. Technology should not lead; the teacher should teach/guide his students how to process and shape scientific knowledge and research. This reflects the so-called concept of the Community of Researchers [4], in which the teacher should encourage students to think about the world when teachers show that knowledge is ambiguous, ambiguous and mysterious.

The structure of the Research Community has been developed to identify, describe and measure elements that support the development of online learning communities. The three main elements defined by the Research Community model are social presence, cognitive presence, and teaching presence. Social presence is defined as the degree to which participants in computer-mediated communication feel an effective connection with each other; cognitive presence is conceptualized as the degree to which students are able to create and validate meaning through sustained reflection and discourse; and teaching presence is defined as designing, facilitating, and directing cognitive and social processes to support learning. See also Figure 1 for its demonstration

Implementation models blended learning in educational process:

- Face-to-Face Driver ("Driver – full-time education"). The teacher personally gives the bulk of the educational plan, interspersing online learning as an auxiliary as necessary. This model often includes classroom and laboratory work on computers;

- Rotation Model ("Rotation model"). There is a rotation of the schedule of traditional full-time education in the classroom and independent online learning in a personal mode (for example, via the Internet according to the reference plan compiled by the teacher; in the school-blended program; on a special website);

- Flex Model ("Flexible model"). For the most part, an online platform is used, the teacher supports students as needed, from time to time works with small groups or with one student;

- Online Lab ("Online Laboratory"). The online platform is used to transmit the entire course in the classroom. Such training takes place under the supervision of a teacher. Such a program can be combined with a classical one within the framework of a regular school schedule;

- Self-Blend Model ("Model "Mix it yourself"). The student decides which of the Brick and Mortar courses he needs to supplement with remote online classes;

- Online Driver Model ("Driver – online training"). This model involves learning online – through a platform and remote contact with a teacher. However, optional or on demand, face-to-face testing sessions and meetings with a teacher or mentor can be added.

So far, four basic principles of the methodology of blended learning have been identified:

- thoughtful integration of personal and fully online learning components;
- innovative use of technology;
- rethinking the learning paradigm;
- continuous assessment and evaluation of blended learning.

1. The first principle aims to enrich the benefits of both environments and successfully meet the diverse needs and preferences of students. 2. The second principle means that any technology should be applied pedagogically appropriately and used to create and maintain socially oriented and highly interactive learning. 3. The third principle attempts to incorporate new emerging pedagogical and learning theories, such as constructivism or activity theory, together with new complex roles of students and teachers in the process of acquiring knowledge and understanding it, such as the concept of a Research Community. 4. The fourth principle of the methodology of blended learning should ensure the quality and effectiveness of education. The main reasons why blended learning should be used in teaching are as follows:

- it promotes pedagogy because it supports more interactive strategies, not just individual learning;
- thus, it encourages collaborative learning; students or teachers can work together on some projects from anywhere and at any time ;
- It deepens cross-cultural awareness as it brings together researchers, teachers and students from anywhere in the world; it reduces teaching and learning costs as students do not have to spend so much frequent travel to complete their education
- It can match the student's learning style, although there is no clear consensus on this issue.

However, there are disadvantages of blended learning. Blended learning is time-consuming and costly in terms of materials creation, preparation and evaluation. In addition, both students and teachers sometimes have limited knowledge about the use of technology, and technical failures can occur at any time. It is necessary to carefully study electronic resources. The courses of the online platform should be constantly updated. In addition to the text format, it is important to present materials of other categories: video and audio recordings, presentations, games, emulators, movies. Finally, students' learning skills are often not sufficiently developed so that they can benefit the most from blended learning. Another problem is insufficient IT literacy, dependence on technology, broadband Internet, stability of the online mode and without limit tariffs. Often, a low level of technology proficiency becomes an obstacle to the implementation of this approach, so teachers and students need a technological educational program, as well as training to work with the LMS platform.

Conclusion

Thus, teachers inevitably have to adapt their teaching to these new complex computer-based learning environments and clearly instruct their students how to make their learning most effective with the help of ICT. Therefore, teachers should provide their students with a textbook that would explain to them how to continue their studies. In addition, teachers should show their students that they are responsible for their studies in this new computer environment and can benefit greatly from communication with their peers and their teacher/mentor. In the future, blended learning will be able to develop through the introduction of new forms of e learning and the development of models of interaction between subjects of the educational process.

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