



Digitalization Process: Application of Distance Education Technologies in Architecture and Construction

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Abstract

In this article, scientific perspectives on the challenges of developing thinking skills based on design methods are reflected, along with the integration of information technologies in the educational practice of future architects, builders, and engineers, as well as the use of distance education and mixed education methods in problem solving and the development of imaginative thinking.

Keywords: Distance education, mixed education, online open source platforms, mobile education, design method.

INTRODUCTION

The technique of structuring an educational process solely around online courses that are accessed over the Internet (including mobile applications) is known as distance education. All "teacher-student" and "student-student" relationships that are part of the framework for implementing educational programs—or portions of them—in the process of remote education are carried out indirectly over the Internet.

Students can access instructional materials through distance learning, which does not need their actual involvement.

➤ Regardless of the location of the educational process's subjects, especially in cases when the student is temporarily relocated or falls ill;

➤ at a time that is convenient for these subjects, such as when there are no interruptions from job or the primary location of study.

Public open online courses (OOOK), video lectures, online conferences (for video demonstrations, learning scenarios, and discussion of various materials), live webinars and private virtual lessons, online homework, online tests, video recording of a remote mock exam, and more are some of the digital tools that can be used for distance learning. The interaction between the instructor and students is a crucial component of remote learning as it generates feedback that improves the pedagogical efficacy of instruction.

The distance learning process is specifically designed to function in the online learning environment. It builds and updates online courses, along with the assignments and learning resources they require, using network technologies to disperse knowledge indirectly among students, wherever they may be at any given time or place. Teachers with specialized training carry out communication.

A certificate or other official educational document will be sent to you after the distance education course is finished and the final attestation is successfully completed. The best way to



execute various professional education programs and further professional education is through the use of technology for distant education.

Online education systems that offer personalized adjustment are known as adaptive systems. They adjust the educational process to a specific student's characteristics, such as their personal learning strategy, leading channels of information perception, the logic of building the program, the sequence of developing skills and competences, optimal mastery of the course speed, required number of repetitions and reinforcement of training sessions, student self-management, self-monitoring, etc. Artificial intelligence and digital technology are used to enable analysis and replication of various learning models.

One of the primary techniques for setting up distant learning is complex case technology, sometimes known as the case method. The foundation of case technology is giving students access to specific educational and methodological sets, or cases, that are intended for independent study via a variety of information carriers. Any authorized method is used to deliver content to pupils in order to maintain the structure of the educational process. Students can communicate with their teachers using network communications technologies, and they can also access supplementary information sources. Utilizing case technology in conjunction with traditional classroom activities (display of solutions, consultations, and debates) is beneficial when it comes to blended learning or remote learning.

A pedagogical technology known as "blended learning" combines face-to-face or offline instruction with network (online) education.

A collection of fundamental ideas (personalization, complete assimilation, high achievement environment, and personal accountability) form the foundation of mixed educational technology. While using "mixed education" eliminates some of the organizational and technological benefits of remote learning, it does away with its most significant pedagogical drawbacks:

- Absence of real-time contact between students and teachers, as well as between students during group projects;
- Students with lower levels of educational freedom see a decline in motivation.
- Having trouble guaranteeing the complete development of several professional and practical skills and credentials.

According to standard methodological recommendations, a student should devote up to 40% of his time to distant learning, around 40% to full-time education, and the remaining 20% to independent study when it comes to the arrangement of mixed education.

"Reverse education" refers to a type of "blended education" that follows the formula "independent learning of new material (including online) + reinforcement during practice-oriented classroom work." Currently, a variety of "reverse teaching" techniques have been developed, including standard, discussion-oriented, demonstration-oriented, group, virtual, "repetitive," etc. Their application includes various training programs and various ways to produce an efficient process of mastering the student population.

Mobile learning is a kind of "blended learning" in which students utilize educational mobile devices and applications to help them study the course material.

"Project method" refers to the technology used to organize students' activities for their projects. It includes a variety of projects that are implementation-based educational technology, such as social, production, business, and educational projects; research, creative, and practice-



oriented; individual and collective; interdisciplinary, meta-thematic, and sub-projects, etc. Working with nearly any information, this technique is built on defining a socially meaningful aim and achieving it practically. In addition, all instructional projects—no matter how straightforward—have an integrated quality.

The "project method"'s educational value stems from the fact that the logic of students' project-related activities fully or partially aligns with the logic of today's production processes, which are increasingly taking on project-like characteristics (identifying a need or problem, searching for an idea, assigning a task, designing a product, testing and making adjustments, delivering the finished product, and managing it). Students obtain experience through project completion, which forms the basis for a set of universal competences needed by the digital economy. The most thorough and objective assessment of the degree to which students engaged in the project activities have formed universal skills is made possible by the evaluation of the project's progress and outcomes.

Special attention should be paid to collective projects that can be implemented in various forms. For example:

- Putting in place a complex of many business or production projects in a same workspace (workshop) to guarantee project teams' reciprocal learning and interaction (synergistic impact);
- arranging for projects to be carried out inside certain open network communities and acquainting students with teams that have already been formed and are engaged in specific initiatives;
- execution of "free topic" initiatives, in which the project team finds customers, generates ideas, and addresses socially relevant issues;
- Including one or more coaches or mentors—people with prior experience working on related projects, including senior students—in the project team's work.

A network project is a unique kind of project that is carried out by a geographically dispersed team that makes use of networked telecommunications as well as other resources found in the digital learning environment. In addition to helping to develop universal competencies related to working in a distributed team (planning, coordination, communication, interaction, communication and organization of joint activities effective use of digital tools, etc.), the educational network project mimics the modern format of production activities.

Network projects carried out by multinational teams are the best way to develop skills like tolerance, intercultural communication, foreign language proficiency, etc. Furthermore, higher education and students enrolled in these programs can engage in projects in one way or another and build a genuine (social, industrial, or economic) network based on their educational background, unique information, skills, and competencies.

To put it briefly, our study indicates that the pedagogical technologies mentioned above serve as the primary means of facilitating the shift from the present educational process to the earlier digital system. This does not negate the potential for and importance of using a variety of other well-known instructional strategies and pedagogical technology appropriately, starting with the case method, in the context of digital education.



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