JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS

VOLUME 04, ISSUE 11
MOPNTHLY JOURNALS

ISSN NUMBER: 2751-4390
IMPACT FACTOR: 9,08

THE CAPABILITIES OF COMPUTER-BASED SOFTWARE USED FOR DESIGNING PEDAGOGICAL SOFTWARE TOOLS

Shamsutdinov Fazliddin Akhmadovich

Lecturer, Department of Digital Technologies,

Navoi State University

fazliddinshamsutdinov07@gmail.com

Abstract. This article examines the role of students in the educational process when designing pedagogical software tools and highlights innovative ideas applied in higher education institutions. Modern approaches to teaching pedagogical software development are described. Particular attention is paid to the advantages of multimedia technologies and graphic software supported by computer-installed programs, as well as to the conditions for their effective use in the educational process.

Keywords: pedagogical software tools, computer technologies, education, pedagogical software, multimedia, interactive technologies, educational programs.

Introduction

Today, the development of education represents a dynamic system that requires the introduction of new software tools to improve lesson quality through the design of modern pedagogical software. In this environment, the design of software tools plays a central role, as computer-installed programs enable more interactive and personalized learning experiences and provide access to a wide range of subject-specific resources.

Computer-based pedagogical software tools not only expand the possibilities for delivering knowledge but also support the development of students' independent learning skills, critical thinking, and creativity, while assisting them in completing practical tasks. This is particularly important in the context of global digitalization, which is rapidly transforming all sectors of society, including education.

The application of information technologies in teaching various disciplines, assessing knowledge, and motivating students based on their performance makes the design of pedagogical software tools especially significant. Such tools can be integrated into computer memory and offer diverse functionalities, ranging from the presentation of educational materials to the execution of complex tasks.

Literature Review and Methodology

Computer-installed software offers several advantages, including the ability to operate without an internet connection. In this regard, scholars such as T. Anderson, J. Dron, N. V. Kuzmina, V. A. Guruzhapov, T. S. Berdiyevich, B. F. Skinner, Norman, V. Azizyan, and N. Juravlenko have conducted extensive research. According to their findings, computer software designed for developing pedagogical tools has the following advantages:

- strong visual and computational capabilities;
- convenience when working with large volumes of data;
- independence from internet connectivity.

At the same time, these researchers note that such software is not without limitations [1]. In particular, it operates only on computers, lacks portability, and may require more complex installation and updating procedures.

Discussion

Computer-installed software refers to applications that are installed on personal computers or laptops and can function without continuous internet access. Such software is widely used in education, design, programming, multimedia production, engineering, and pedagogical practice. In addition, office software is commonly utilized to develop lesson plans, tests, and methodological materials.

Examples of computer-installed software used in pedagogical software design include:

Programming tools: Visual Studio, PyCharm, Scratch Desktop, Delphi, and others.

Graphic and design software: Adobe Photoshop, Adobe Illustrator, CorelDRAW, AutoCAD, Figma Desktop, as well as educational graphic and diagramming tools used for designing interfaces of pedagogical software [6].

Multimedia software: Adobe Premiere Pro, Camtasia Studio, Audacity, After Effects, and similar programs. These applications are installed on computers and are used to create various audio and video materials, animations, and interactive resources for pedagogical software development.

Analysis and Results

Based on a systematic analysis of existing scientific perspectives, national and international experiences demonstrate that the use of computer-installed software significantly enhances the effectiveness of developing pedagogical software tools by students. Such tools contribute to improving pedagogical and methodological training during the design process.

The aforementioned software is primarily intended for use on desktop computers and laptops. During the development of computer-installed pedagogical software, it is essential to consider specific principles and requirements. According to N. N. Gorushkin, these principles can be classified into three main groups:

technical capabilities of the computer;

pedagogical recommendations related to design;

a systematic approach to the development of pedagogical software.

I. Robert identifies the following key requirements for developing competence in designing pedagogical software tools:

- pedagogical requirements;

- project design requirements;

- technical requirements;

ergonomic and aesthetic requirements.

Currently, higher education institutions have access to a wide range of software tools for designing pedagogical software. The use of modern computers and software significantly increases the effectiveness of teaching and learning processes for students.

Conclusion. The integration of modern information technologies into the educational process has led to significant achievements in training students to design pedagogical software tools. The development of such tools requires consideration of numerous requirements, including design, methodological, pedagogical, psychological, technical, aesthetic, ergonomic, and specialized criteria. Pedagogical software tools created by students play an important role in enhancing both education and upbringing, contributing meaningfully to the overall quality of the learning process.

References

1.Anderson, T., & Dron, J. (2010). Three generations of distance education pedagogy. The International Review of Research in Open and Distance Learning, 12(3), 80–97.

2.Kuzmina, N. V. (1984). Pedagogical mastery of the teacher as a factor in the development of students' abilities. Issues of Psychology, 1, 20–26.

3.Aniskin, V. N., & Zamara, E. V. (2013). Organizational and pedagogical conditions for the formation of information competence of tourism service managers in the system of secondary vocational education. Samara Scientific Bulletin, 1(2).

4.Nomozov, J. (2025). The formation of primary school students' skills in the subject "Informatics and Information Technologies" as a pedagogical problem. Journal of Science-Innovative Research in Uzbekistan, 3(4), 413–421.

5.Berdiyevich, T. S., et al. (2025). Application of human–computer interaction in science and education. Journal of Scientific Research and Their Solutions, 4(02), 63–71.

6.Yusupboyeva, S. (2025). Software tools in computer graphics and design. Economics and Society, 2(129-1). Retrieved from www.iupr.ru