IMPROVING THE TEACHING OF THE DIGESTIVE SYSTEM MODULE USING DIGITAL EDUCATIONAL TECHNOLOGIES

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Abstract:*The article examines the didactic and methodological foundations of using digital educational technologies in teaching the "Digestive System" module, which is one of the essential sections of biology. The study explored the integration of digital platforms, interactive multimedia tools, virtual laboratories, and electronic educational resources into the learning process. Analysis of scientific sources and results of experimental studies confirm that education organized using digital technologies positively influences students' knowledge acquisition and the development of their practical competencies.*

Keywords: *digital educational technologies, biology education, digestive system, module-based learning, interactive methods.*

INTRODUCTION

In the modern education system, the use of digital technologies is considered one of the key factors for improving the quality of education. According to researchers, digital educational technologies facilitate the individualization of the learning process, promote the development of students' independent learning skills, and contribute to a deeper understanding of knowledge [2].

In teaching biology, particularly the "Digestive System" module, traditional methods may not be sufficient to explain complex physiological processes. Therefore, the use of visual, interactive, and digital tools is necessary to enhance students' understanding [1].

Research Aim and Objectives The main aim of this study is to develop an effective methodology for teaching the "Digestive System" module based on the use of digital educational technologies.

To achieve this aim, the following objectives were set:

To analyze the significance of digital educational technologies in teaching biology [3];

To identify opportunities for enhancing the module content through digital tools;

To develop mechanisms for using interactive methods and virtual laboratories;

To evaluate the effectiveness of the methodology through experimental studies.# Research Methods The study employed analysis of scientific and pedagogical literature, observation, interviews, experimental work, diagnostic tests, as well as comparison and generalization methods. These methods are essential for assessing the effectiveness of innovative approaches in biology education [4].

Significance of Digital Educational Technologies in Teaching the "Digestive System" Module The use of digital educational technologies in teaching the "Digestive System" module allows biological processes to be explained through animations, 3D models, and video lessons. Studies show that visual materials significantly enhance students' understanding of the topic [5].Virtual laboratories provide opportunities to model digestive

processes, conduct experiments in a safe environment, and analyze the results. This approach develops students' practical skills [1].

Digital technologies enhance the efficiency of teaching biology, particularly the "Digestive System" module. Since this module involves complex anatomical and physiological processes of the human body, traditional teaching methods may not provide students with a sufficient understanding. Therefore, digital technologies allow for deeper comprehension of biological concepts. One of the main advantages of digital tools is their ability to visually demonstrate biological processes.

The structure of digestive system organs, their functional interconnections, and the stages of digestion can be presented sequentially using digital models. This helps students grasp the topic concretely rather than abstractly. Research shows that lessons using visual materials result in higher knowledge acquisition and retention compared to traditional methods [5;6]. Additionally, digital technologies promote interactivity. Interactive presentations, electronic textbooks, and online quizzes encourage students to participate actively, developing their logical thinking and analytical skills. In the "Digestive System" module, studying the digestive process step by step—from the oral cavity to the intestines—interactively increases students' interest.

Virtual laboratories are a crucial component of digital educational technologies. They allow modeling of digestive processes, safe execution of biological experiments, and analysis of results. In this environment, students develop skills in conducting practical activities independently, analyzing errors, and drawing conclusions, which is vital for developing practical competencies [1]. Moreover, digital educational technologies support an individualized approach. Each student can learn the material at their own pace, use additional electronic resources, and engage in independent study. This ensures a learner-centered educational process.

Experimental Results and Discussion During the experimental study, the results of the experimental group taught using digital technologies were compared with those of the control group taught using traditional methods. The findings indicated that the experimental group achieved a higher level of knowledge acquisition and greater interest in the subject. This confirms the effectiveness of innovative educational technologies [2], [3].

The results demonstrate that digital tools—animations, 3D models, video lessons, virtual laboratories, and interactive electronic resources—ensure that students learn the topic both visually and practically. Digital technologies also contribute to the development of independent thinking, analytical skills, and practical competencies.

Furthermore, digital platforms and interactive methods allow for individualization of instruction, encourage active participation, and facilitate systematic consolidation of knowledge.

Conclusion In conclusion, the developed methodology effectively organizes the learning process according to modern pedagogical standards, facilitates the understanding of complex biological concepts, and promotes the development of students' theoretical and practical competencies. Therefore, the integration of digital educational technologies represents a modern and effective approach to teaching the "Digestive System" module.

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