
EFFECTIVENESS OF VIRTUAL LABORATORIES IN TECHNOLOGY CLASSROOMS PRACTICAL SIGNIFICANCE OF USE

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ABSTRACT: This article talks about the use of virtual laboratories in technology education classes, its unique and effective aspects, conveniences in the process of applying the methodology of developing technological competencies in students.

KEYWORDS: Technology, virtual laboratory, digital education, career guidance, material and technical support.

INTRODUCTION

In the 2022-2026 Development Strategy of the Republic of Uzbekistan, a National Program for School Development was introduced, aimed at expanding educational infrastructure and advancing extracurricular education. This includes setting up free, well-equipped circles for youth to develop skills in the arts and IT, revising curricula and textbooks based on advanced international experience, and creating new educational resources such as digital textbooks and mobile applications.

Given the current demand for highly qualified, competitive specialists, it has become essential for educational institutions to adopt advanced teaching methodologies. This includes nurturing creativity and independent thinking in students through innovative technology-based teaching approaches. Virtual laboratories, for instance, present an effective alternative to traditional lab setups by allowing students to engage in practical and experimental learning even when physical equipment is unavailable. These virtual environments provide students with multimedia content, such as graphics, audio, and video, enriching the learning experience.

Advantages of Virtual Laboratories in Education:

1. **Real-Life Simulations:** Virtual labs simulate real laboratory conditions, helping students gain practical skills and knowledge in a safe environment.
2. **Flexibility and Accessibility:** Virtual labs can be accessed anytime, supporting distance learning and self-directed study.
3. **Enhanced Learning Experience:** They foster engagement by offering interactive exercises, like matching logical relationships in tables and solving complex tasks through trial and error, which reinforces learning.

CONCLUSION

The integration of virtual laboratories and other digital resources into educational practices aligns with modern scientific and technological standards. Virtual labs created for subjects like physics

can deepen students' understanding of information processing, coding, and operations on data, ultimately enhancing educational quality. This technological approach is a valuable step forward in preparing students for the demands of a rapidly evolving global landscape.

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