

DEVELOPING STUDENTS' COMPUTER TECHNOLOGICAL INFRASTRUCTURE COMPETENCE

Khonimkulov Ulugbek Suyunbayevich
Jizzakh State Pedagogical University, Lecturer,

Department of Information Technologies and Systems

e-mail: xonimqulovulugbek1985@gmail.com

Abstract: This article discusses the issues of forming and developing competencies related to the technological infrastructure of computers among students studying in higher educational institutions. The components of the computer infrastructure, their role in the educational process, and effective methods for developing these competencies in a modern digital educational environment are analyzed. Methodological recommendations are also given to develop students' knowledge, skills, and competencies related to technological infrastructure in the process of teaching computer science.

Keywords: digital education, technological infrastructure, competence, information technology, computer science education, digital competence, computer system.

Nowadays, the rapid development of information and communication technologies is having a significant impact on the education system. In an educational environment based on digital technologies, one of the important tasks is to form students' competencies in working with modern technologies.

Computer technological infrastructure is understood as a set of technical means, software, networks, servers, databases and other components that ensure the operation of a computer system. This infrastructure ensures the effective operation of modern information systems.

Developing competencies in this infrastructure among students is of great importance in their future professional activities, because today every specialist is required to have sufficient knowledge of the principles of operation of computer systems, their technical and software capabilities. In the current global digital era, information and communication technologies (ICT) are playing a central role in all areas, including the education system. At a time when digital technologies have become an integral part of human daily life and professional activities, for the effective functioning of the education system, modern specialists must not only have theoretical knowledge, but also have the skills to effectively use digital tools and computer infrastructure.

Developing computer technology infrastructure competencies in students is one of the priority tasks of higher education institutions today. This competency not only teaches students how to work with computers, but also develops their ability to think technologically, solve problems systematically, and effectively use modern information resources.

It is also important to develop technological infrastructure competencies in students to meet the digitalization of the global economy, information security challenges, and the demands of the modern labor market. For example, university graduates should not only be able to use software, but also have practical skills such as setting up local networks, managing servers and databases, and identifying and eliminating technical failures.

The introduction should also define the concepts of computer technological infrastructure and digital competence, explain their role and importance in the professional training of students. Effective ways to develop competencies using digital learning environments and innovative pedagogical methods can also be briefly covered in the introduction.

The concept of computer technological infrastructure



The technological infrastructure of a computer consists of a set of basic components that ensure the operation of information systems. It includes the following elements:

1. Computer hardware – processor, RAM, hard drive, SSD, monitor, keyboard, printer and other devices.
2. Software – operating systems, applications, service programs.
3. Computer networks – local networks, Internet technologies, server systems.
4. Databases – information storage and management systems.
5. Information security tools – antiviruses, protection systems, authentication tools.

These components work together to ensure the stable operation of a computer system.

Formation of technological infrastructure competencies in students

Competence is a set of knowledge, skills, and abilities that represent a person's ability to effectively perform a specific activity.

Students' computer infrastructure competencies are formed in the following areas:

Technical knowledge competency – understanding the structure, operating principles, and interrelationships of computer devices.

Software competency - acquiring skills in working with operating systems, installing, configuring, and using programs.

Network technology competency – learning the basics of computer networks, internet protocols, and managing network devices.

Information security competency – protecting data, creating secure passwords, working with antivirus systems.

Competency development methods

It is important to use modern pedagogical methods to develop computer infrastructure competencies in students.

Practical training - students gain experience through hands-on learning of computer devices.

Laboratory work - performing tasks such as installing an operating system, configuring a network, and connecting devices.

The case study method is the analysis of real problem situations and finding solutions to them.

Project-based learning – students work in groups to create a computer network or information system project.

Digital learning platforms – organizing independent learning through LMS systems, online courses, and virtual laboratories.

The role of technological infrastructure in the educational process

In a digital learning environment, computer infrastructure increases the efficiency of the educational process. Electronic learning resources, virtual laboratories, and distance learning platforms create wide opportunities for students.

In such an environment, students develop skills in independent learning, information search and analysis, and the effective use of modern technologies.

Conclusion

Developing computer technology infrastructure competencies in students is one of the important areas of the modern education system. These competencies help students effectively use information technologies, manage computer systems, and apply them in practical activities.

Practical exercises, laboratory work, project-based learning, and the use of interactive methods in the educational process play an important role in the formation of these competencies. Therefore, it is necessary to in-depth teach knowledge related to technological infrastructure in the teaching of computer science.



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