

METHODOLOGY OF USING ICT (INFORMATION AND COMMUNICATION TECHNOLOGIES) IN EDUCATION

Khamdamova Shakhnoza Yusupaliyevna

Fergana Medical Institute of Public Health

Department of Uzbek and Foreign Languages

Teacher of English

Introduction. Information and Communication Technologies (ICT) have become an integral part of all spheres of human life today, especially in the field of education. As technological advancement accelerates, educational processes are being modernized, enriched with content, and made increasingly interactive. This thesis provides an in-depth analysis of the concept of ICT, its main characteristics, and its classification.

ICT refers to a set of technologies that enable the collection, storage, processing, transmission, and use of information. With the help of these technologies, individuals can automate their activities, make efficient use of time and resources, and deliver knowledge rapidly.

In the education system, ICT is not only a tool but also an essential component of the teaching and learning process. ICT plays a crucial role in developing students' independent thinking, self-control, creativity, and analytical skills.

ICT is a broad field that can be categorized into several main types:

- **Computer Technologies:** Processing information using personal computers, laptops, tablets, and applying software tools such as Word, Excel, PowerPoint, Paint, Photoshop, etc.
- **Internet Technologies:** Teaching via websites and online platforms (Google Classroom, Moodle, Coursera), using search engines (Google, Bing, Wikipedia).
- **Mobile Technologies:** Applications for smartphones and tablets such as Duolingo, Quizlet, Kahoot, Zoom, Telegram bots, allowing students to study on the move.
- **Multimedia Technologies:** Enriching lessons with audio, video, animations, and graphics; utilizing electronic textbooks, video lectures, and interactive presentations.
- **Communication Technologies:** Real-time communication through email, messengers (Telegram, WhatsApp), and video conferencing tools (Zoom, Google Meet).

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• Virtual and Augmented Reality Technologies (VR/AR): Demonstrating complex processes using virtual laboratories and 3D models, bringing new motivational and visual approaches to the learning process.

ICT is the foundation of modern societal progress and holds a significant role at every level of education. Although ICT tools vary in type, they all serve to simplify, optimize, and enhance the efficiency of the teaching process. Every teacher should have a deep understanding of ICT types and apply them appropriately according to didactic goals.

In the 21st century, radical changes in education are driven by technological advancement, increased information flow, and the emergence of global competition. Especially, the integration of ICT into the education system allows the organization of educational processes in modern, interactive, and effective forms. Today, educational methodology is unimaginable without ICT. This thesis analyzes the role of ICT tools in the educational process, their methodological applications, and the adaptation of modern educators to these technologies.

ICT tools include computers, the internet, digital educational resources, interactive whiteboards, mobile applications, and educational platforms (Moodle, Google Classroom, Zoom, Teams, etc.). These tools perform the following core functions:

- Information Delivery: Providing students with quick and comprehensive information through electronic textbooks, presentations, and video lectures;
- Ensuring Interactivity: Encouraging active learning through tests, forums, discussions, and educational games;
- Personalized Learning: Allowing the creation of assignments tailored to each student's level;
- Distance Learning: Enabling learning at any time and from any location;
- Automated Monitoring and Assessment: Allowing real-time tracking of test results and increasing transparency in the evaluation system.

Methodologically correct use of ICT is based on the following principles:

1. Didactic Appropriateness: ICT should not just be a technological novelty but serve educational goals;
2. Pedagogical Integration: Technologies must be fully integrated into the teacher's core methodological activities;
3. Learner-Centered Approach: ICT should engage learners in independent research, creative thinking, and problem-solving;
4. Combination with Interactive Methods: Techniques like “brainstorming,” “cluster,” “blitz survey,” and “video analysis” yield better results when used in conjunction with ICT;

5. Reflection and Analysis: Post-lesson analysis using ICT tools is essential to identify results, issues, and improvements.

To use ICT tools effectively in the classroom, teachers can apply the following methodological approaches:

- Presentation-Based Lessons: Preparing visual materials using PowerPoint, Canva, or Prezi for clearer and more engaging topic explanations;
- Test-Based Assessment: Organizing rapid assessment through platforms like Google Forms, Quizizz, or Kahoot;
- Virtual Laboratories (for biology, physics, chemistry): Conducting safe and cost-effective experiments using simulations;
- Video Lessons: Creating self-study video materials using platforms like YouTube or Loom;
- Distance Learning: Conducting live lessons via Zoom or Google Meet, sharing screens, and leading discussions;
- Electronic Gradebook and Assessment Systems: Establishing analytical control over student participation, homework, and grades.

One of the essential professional skills of a modern educator is digital literacy and ICT competence. A teacher should possess:

- Proficiency in using ICT tools;
- The ability to create electronic content, edit videos, and design tests;
- Skills in organizing and managing online lessons;
- Understanding of digital ethics (copyright, information security).

An educator who adapts to ICT can equip learners with up-to-date knowledge and skills.

Conclusion. The use of ICT in education not only eases the teacher's workload but also increases student interest, participation, and learning efficiency. Therefore, applying ICT tools methodologically and in line with didactic objectives is one of the key requirements of modern education. Every teacher must enrich their teaching methodology with ICT and raise their pedagogical mastery to a new level.

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