

PEDAGOGICAL AND PSYCHOLOGICAL FOUNDATIONS OF FORMING DIGITAL COMPETENCE

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Abstract. This article is dedicated to highlighting the theoretical and methodological foundations of forming digital competence in the modern educational paradigm. The article analyzes the components of digital competence, its role in personal development, and the pedagogical conditions for its integration into the educational system. Additionally, the psychological mechanisms of information reception in the digital environment, cognitive load theory, and neuro-pedagogical approaches are thoroughly examined. At the end of the article, practical recommendations and scientific conclusions are provided to enhance the digital performance of teachers and students.

Keywords: Digital competence, information society, cognitive psychology, connectivism, pedagogical technologies, cyberculture, meta-cognition, digital didactics, artificial intelligence, educational psychology.

Annotatsiya. Ushbu maqola zamonaviy ta'lim paradigmasida raqamli kompetensiyani shakllantirishning nazariy va uslubiy asoslarini yoritishga bag'ishlangan. Maqolada raqamli kompetensiyaning tarkibiy qismlari, uning shaxs rivojlanishidagi o'rni va ta'lim tizimiga integratsiyalashuvining pedagogik shart-sharoitlari tahlil qilingan. Shuningdek, raqamli muhitda ma'lumotlarni qabul qilishning psixologik mexanizmlari, kognitiv yuklama nazariyasi va nepropedagogik yondashuvlar atroflicha o'rganilgan. Maqola so'ngida o'qituvchi va talabalarning raqamli faoliyat samaradorligini oshirish bo'yicha amaliy tavsiyalar va ilmiy xulosalar berilgan.

Kalit so'zlar: Raqamli kompetensiya, axborot jamiyati, kognitiv psixologiya, konnektivizm, pedagogik texnologiyalar, kiber-madaniyat, meta-kognitsiya, raqamli didaktika, sun'iy intellekt, ta'lim psixologiyasi.

Аннотация. Данная статья посвящена освещению теоретических и методологических основ формирования цифровой компетенции в современной образовательной парадигме. В статье анализируются компоненты цифровой компетенции, ее роль в развитии личности и педагогические условия её интеграции в систему образования. Кроме того, всесторонне изучены психологические механизмы восприятия информации в цифровой среде, теория когнитивной нагрузки и нейропедагогические подходы. В завершении статьи представлены практические рекомендации и научные выводы по повышению эффективности цифровой деятельности преподавателей и студентов.

Ключевые слова: Цифровая компетенция, информационное общество, когнитивная психология, коннективизм, педагогические технологии, киберкультура, метакогниция, цифровая дидактика, искусственный интеллект, педагогическая психология..

Introduction. The 21st century, as the era of information and high technologies, has brought rapid changes to all spheres of human activity. The global digitization process

imposes new demands on the education system. Now, it is not only required for students to acquire knowledge in a specific subject area but also to be able to navigate freely in the digital world, to filter information, and to use it creatively — that is, digital competence is demanded.

Digital competence is not just computer literacy. It is a complex socio-psychological phenomenon that reflects a person's readiness to use digital technologies safely, critically, and effectively. To form this competence, we must rely on not only pedagogical, but also psychological foundations of education.

1.1 Connected and Networked Learning

The main pedagogical theory of the digital feature is connectivism. According to this theory, knowledge is distributed not only in the human brain and reason, but also across digital networks, databases, and interpersonal communications systems. The pedagogical process should teach the learner to establish connections among these "nodes." Here, the teacher is no longer the main source of knowledge but acts as a "navigator" and "facilitator" guiding the learner through the ocean of information.

1.2. Principles of Digital Didactics

The following pedagogical principles apply to forming digital competence:

- Interactivity: Two-way communication between the student and the learning materials related to topic.
- Individualization: An educational trajectory adapted to each learner's pace, performance and interests.
- Multimedia: Presentation of information in various forms as well as text, video, audio, 3D simulation
- Mobility: The opportunity to learn regardless of time and place.

1.3. Project-Based and Problem-Based Learning (PBL)

Digital skills are best developed not in theoretical lessons but through solving practical problems during teaching process. Students reach a high level of competence by finding solutions to real-life problems using digital tools (for example, creating a summary, mobile app or analyzing data).

II. Psychological Foundations of Cognitive and Emotional Aspects

The digital environment affects the human psyche differ from traditional environments and approaches. Understanding this process requires analyzing and summarizing psychological laws.

2.1. Cognitive Load Theory

As psychologist John Sweller emphasized, human working memory is limited. Digital educational resources (for example, websites overloaded with animations or advertisements) distract the learner's attention. The psychological basis for forming competence is that we must teach the learner to systematize information and avoid "cognitive overload."

2.2. Attention and Perception in the Digital Environment

Currently, among young people, the phenomenon of "clip thinking" is observed. They receive information quickly but superficially. The task of pedagogical psychology is to develop the skill of "deep attention" in students using digital tools. This is achieved through tasks that require analyzing texts, constructing logical chains, summarizes main points and maintaining long-term concentration.

2.3. Motivation and Gamification

The strongest psychological action for developing digital competence is motivation. When game elements (points, levels, rewards) are introduced into the educational process,

dopamine is released in the brain, which increases the desire to learn and acquire. However, here the game should only be a tool, and the main goal must remain knowledge.

2.4. Cyber-Psychological Adaptation

There are specific rules for communication in the digital world. A person's behavior in the digital environment, immunity to cyberbullying, and online communication culture are linked to their psychological norm. Digital competence ensures that a person does not lose their identity in the virtual world.

III. Structural Components of Digital Competence

Research shows that comprehensive digital competence covers five main components:

1. Information Literacy: Searching for information, verifying its reliability like fact-checking, storing, analyzing and managing it.
2. Digital Communication: Communicating on various platforms, collaborating on documents, digital citizenship responsibility.
3. Digital Content Creation: Creating text, images, videos, and even simple software codes. Understanding intellectual property and licenses.
4. Cybersecurity: Protecting devices and personal data, understanding the impact of digital technologies on health (physical and mental).
5. Systematic Problem Solving: Troubleshooting technical problems, selecting the right technology according to needs, and innovative approaches, methods and techniques.

IV. Methodology and Practical Application

The process of developing digital competence should be carried out in three stages:

Stage 1: Preparatory. Developing students' interest and basic knowledge in digital devices and teaching basic technical skills for improve their digital performance.

Stage 2: Functional. Using digital tools within academic subjects. For example, using Excel in mathematics, virtual museums in history.

Stage 3: Creative. The student independently creates a digital product (project, research, blog, quizzes or mobile app).

V. Problems and Solutions: Critical Analysis

There are several challenges to developing digital competence:

- Digital Divide: Unequal access to the internet and devices across regions all around the world.

- Pedagogical Conservatism: Some teachers' inability to abandon traditional methods.

- Information Attacks: Students being subjected to manipulations.

Solutions: Continuing state-level digitalization programs in education, organizing continuous professional development (upskilling) courses for teachers, and including "Media Literacy" as a separate block in educational programs.

Conclusion. Developing digital competence is not just a technical necessity but a guarantee of personal freedom and progress. Pedagogically, this process gives the learner independence and creativity; psychologically, it opens new cognitive opportunities.

In summary, a person with developed digital competence:

- Can filter and logically analyze information.
- Adheres to ethical norms in the virtual environment.
- Continuously works on self-improvement (Life-long learning).

The primary task of the modern teacher is to protect the student from becoming a "slave to technology" and to teach them to use this powerful tool effectively for their own noble goals.

References:

1. Siemens, G. (2005). Connectivism: A Learning Theory for the Digital Age. *International Journal of Instructional Technology and Distance Learning*.
2. Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*.
3. Carretero, S., Vuorikari, R., & Punie, Y. (2017). DigComp 2.1: The Digital Competence Framework for Citizens. European Commission.
4. Prensky, M. (2001). *Digital Natives, Digital Immigrants*. MCB University Press.
5. Mirziyoyev, Sh. (2020). Decree on the Strategy "Digital Uzbekistan – 2030".
6. Kozma, R. B. (2003). *Technology, Economic Development, and Education Reform*. Educational Technology Publications.
7. Zuboff, S. (2019). *The Age of Surveillance Capitalism*. PublicAffairs.
8. Yuldashev, J. G. (2015). *Modern Pedagogical Technologies*. Tashkent.
9. Selwyn, N. (2016). *Education and Technology: Key Issues and Debates*. Bloomsbury Academic.
10. Livingstone, S. (2008). *Digital Learning and Children's Everyday Lives*. Sage Publications.