Problems of the formation of digital competence in the modern educational space

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Abstract. The article examines the problems of digital competence as a phenomenon of modern life, especially aggravated in connection with the COVID-19 pandemic. Digital competence as the latest concept, skills necessary for the modern, connected with the scientific and technical implementation of new technologies in education, economy, politics and production. The development of digital literacy concepts relies on both traditional and diverse media. However, the main difficulty in its development is associated with the digital divide, overcoming which depends on many factors. In the educational environment, digital competence should take into account the age-related physiological, mental and psychological characteristics of schoolchildren, and in preparation for professional activity - support for professional digital competence. The work also provides the author's version of the definition of the concept of "digital competence".

1. Introduction

The development of scientific and technological progress forms new knowledge and means of its transfer. [1]. The perfection of information and communication technologies has affected all spheres of human life. With the advent of technologies for storing any information in bits, the concept of a digital format appeared. Consequently, this concept as the digital economy and digital education. It entailed the need for theoretical and practical possession of such virtual platforms that would not only social communication but also educational. Social activity, educational, presupposes that subjects/individuals have the necessary knowledge, skills, and abilities to realize and self-actualize their potential in the chosen subject area. The well-known quote of Socrates «I know that I know nothing» is also relevant in the context of the development of digital education. People with low qualifications today deny and are critical of the introduction of digital technologies in education. It indicates the viability of the Dunning-Kruger effect. Once again emphasizes the need and relevance of studying the problems of digital competence. The unavoidably lies in the fact that a person will have to master new volumes of knowledge with the technical improvement of various spheres of human activity [2].
This problem is widely discussed in society since it concerns all spheres of human activity from politics, economics to education. It reflects the beliefs and wishes of the future needs of society based on economic competition. New technologies look at the opportunity to solve many socio-economic problems [3-8]. This concept still rarely used in research. More often synonyms and related concepts considered to capture the essence of digital competence, because technologies are changing rapidly, and they are changing practices and required competencies.

Digital competence look is a modern term describing technology-related skills. In recent years, several conditions used to describe skill and competencies in digital technologies:

- skills in the field of information and communication technologies (ICT);
- technological skills;
- information technology skills;
- 21st-century skills;
- information literacy;
- digital literacy;
- digital skills [9-11].

These terms are also often used interchangeably; for example, digital competence and digital literacy. Sometimes narrow terms such as Internet skills refer only to a limited area of digital technology.

Some of these extend content to media and literacy; these include media literacy or digital literacy skills [12]. The digital skills required must be part of contemporary human culture and literacy in the 21st century. In this case, the emphasis is on the formation of social skills in a person, instead of individual ones.

Changes in society and culture based on new technologies affect living conditions. Their content, the scale will still be dynamically and regularly reviewed, change in connection with the development of new technologies and their use in society [7, 13].

2. Materials and method

There is still no mutual definition of digital competence among scholars. Therefore, the term has various interpretations, such as Internet skills and digital skills and abilities [14-15].

We analyzed the literature and proposed a definition of the concept of "digital competence", developed such a concept as "professional digital competence", and proponent "digital competence" [16].

There is still no consensus on the definition of digital competence. It creates some difficulties in the theoretical and practical formation of knowledge, experience in various areas of social activity. The team of authors believes that it is advisable to use meta-analysis in studying this problem. Viewing various sources made it possible to select the most attractive and topical works in the field of the problem under study. The list of references contains authors whose opinion coincides with the understanding problem of the authors of the article.

3. Results and discussion

The European Union (2010) has created a framework for the core competencies of lifelong learning in public knowledge, which defines eight core competencies:

- communication in the native language;
- communication in foreign languages;
- mathematical competence and basic knowledge in the field of science and technology;
- digital competence;
- learn to know;
- social and civic competences;
• sense of initiative and enterprise;
• cultural awareness and self-expression [6-7].

It assumed that all key competencies would be now also absorbed by one - digital because all the rest will be its structural components. In the literature, there are several examples of definitions of the concept of "digital competence":

• digital competence is the confident use of electronic media for work, leisure, communication, associated with logical and critical thinking, information management and high-level communication skills;
• digital competence is the confident use of electronic media for work, leisure, communication, associated with logical and critical thinking, information management and high-level communication skills;
• digital competence is a set of basic skills in the field of information and communication technologies (information and communication devices - ICD);
• providing knowledge and skills to use digital devices in new and complex contexts;
• digital competence is a set of knowledge, skills and awareness required when using ICD;
• digital competence is the knowledge and skills that are required to use ICD for personal and professional purposes;
• the digital combination is the confident and critical use of electronic media for work, play and communication;
• the digital combination is the use of computers for searching, storing, producing, presenting and exchanging information, as well as for communicating and participating in joint virtual networks;
• the digital mix is a set of knowledge, strategies and skills that help a person to work in the digital world, solving digital problems with digital support;
• the digital combination is the effective and critical use of information technology for employment, learning, self-development and participation in public life;
• the digital combination is a civil law and a vital need for intellectual learning, personal, professional development of all citizens in society using modern information and communication technologies;
• the digital mix is the knowledge, skills and confidence to use digital technology effectively in real life.

Digital competence related to the concept of "literacy" [17-18]. An example of such a definition is digital literacy, proposed by B. Jones-Kavalier and S. Flannigan (2008), which, according to the authors, represents the ability of a person to work in a digital environment effectively. Some studies describe digital literacy as the relationship between cognitive, emotional and technical skills of Internet resource use [19].

Other studies use this concept to describe the interaction of an operator with digital technologies since they mediate many social interactions [8]. However, the literacy associated with engaging in digital practices and cultures is complex [20].

Y Eshet-Alkalia (2004; 2009) gave a broad definition to the term digital literacy: they proposed that digital literacy should consist of five basic digital skills:

• visual (reading graphic instructions);
• their use in creating new materials;
• hypertext navigation;
• assessing the quality and reliability of information;
• understanding the rules that exist in cyberspace [19].
O Erstad (2010) expands digital literacy to media literacy and suggests using them in school teaching as:

- basic skills;
- media as an object of analysis;
- accumulation of knowledge in subject areas;
- learning strategies;
- digital art;
- cultural competence [21].

Unfortunately, bridging the digital divide in a short time is not possible. The countries and residents of these countries are at different levels of technical, economic and social development. Providing education with new technical and technological developments will take some time. Groups of different ages have different levels of preparation for the use of new educational concepts. Intellectual occupations require a higher level of digital knowledge than others do [22].

We need to understand that the COVID-19 pandemic has divided the world into two parts before and after. Before - traditional teaching dominated in education. During the pandemic, the search for access to digital services has intensified. Young people and those who understand that a new time has come - digital, were able to adapt to the new conditions of education and work. Therefore, the question arose about developing a unified concept for understanding digital competencies.

4. Conclusion

Thus, an analysis of the literature has shown that at present there is no consensus on the actively introduced new conceptual apparatus that most fully reveals the content of digital competence. From our point of view, a general definition of the concept of "digital competence" formed and clarifications related to the profession (professional digital competence) and education (digital competence). Let us formulate the following definition: digital competence is the confident use of electronic media necessary to gain knowledge and skills in personal and professional development, due to a high level of logical and critical thinking aimed at managing the information and communication received. In the educational environment, digital competence should take into account the age-related physiological, mental and psychological characteristics of schoolchildren, in preparation for professional activity - support for professional digital competence.

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