

# Pedagogical Analysis Of The Phenomenon Of Digital Competence

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## Summary

The article analyzes and concretizes the understanding of the differences between the concepts of competence / competence according to the criterion general - personal. Based on the identified characteristics of competence (completed personal quality, activity character, educational result, successful implementation of professional and educational activities), the concept of competence as an integrative dynamic quality of a person, manifested in effective activity in a specific area, is defined. The structure of the IC has been substantiated, including motivational and value; information technology; communicative and reflective components. The content of the named IC components is disclosed.

The article analyzes the essence of the characteristics of basic concepts (competence / competence), consideration of information competence in the research of famous scientists in order to concretize the studied phenomenon; concretization of the identified pedagogical conditions in educational process.

### Key words:

*information technology, IC components, education system, competence.*

## 1. Introduction

Currently, due to worldwide trends in the improvement of technologies and methods of obtaining, processing and transferring information, open up qualitatively new opportunities in the field of education. The development of information technologies, the use of the Internet, network interaction of educational organizations, e-learning necessitate the study of issues of training students, taking into account the priority areas of informatization of society. One of the main requirements of employers is the high-quality preparation of students for solving professional problems using information technologies for the successful performance of labor functions [1].

In the global educational space, the possibilities of using electronic means, technologies and resources using the

Internet and various innovative technologies are expanding. The dynamic development of information technologies and, as a consequence, the change in requirements for educational activities is discordant with the level of development of students' information competence. New forms of organization of the educational process are emerging, the nomenclature and occupation of professions is changing, the range of educational tools, technologies and educational services is increasing, which makes new demands on the training of modern specialists in an electronic information and educational environment.

It should be noted that the educational standards of higher Competence-based education pays great attention to the training of competent personnel. Information competence as a professional characteristic includes the student's competencies necessary in the modern world, and is also a personal quality and a criterion for the development of education.

The implementation of e-learning is considered in the works of foreign authors such as D. Akaslan, K. Corbett, W. Richardson, A.I. Skoulikari, E. Sheninger, T. Whitby, M. Laanpere et al.

The analysis of the research showed that by now there have been theoretical prerequisites for the informatization of education and the development of information competence using various pedagogical conditions, however, there is a lack of research in which the use of didactic means of the environment for the development of information competence is considered. There is a demand in the development of scientifically grounded theoretical and methodological provisions to ensure the effectiveness of the development of information competence of students using the didactic means of the electronic information and educational environment.

Thus, the problem of the development of students' information competence, as well as its individual aspects related to the use of the means of the electronic information

and educational environment, has not been sufficiently studied and is relevant today.

The purpose of the article is to provide a theoretical basis for pedagogical conditions under which information tools contribute to the development of information competence of students.

## 2. Theoretical Consideration

Considering the concept of "competence" from a historical point of view, according to most pedagogical studies in the field of competence-based approach, the philosopher Aristotle is considered its founder, who studied the "way of becoming learners" *arete* "(translated from Greek - the power of development) to character thorny personality traits", based on this, the result of education can be considered the personal development of trainees.

Systematizing and summarizing the research of scientists regarding the concepts of competence / competence, the following concepts and interpretations can be distinguished:

- competence / competence are used as synonyms related to the characteristics of the productive activity of the subject;
- competence is broader than competence and includes a cluster of competencies;
- competence is presented as general, regardless of the personality, requirements for a certain activity, and competence is a personal quality, assigned competencies that ensure success.

In the explanatory dictionary, the differences between the terms "competence" and "competence" are not sufficiently visible:

"Competence is a range of phenomena, issues, where a given person is endowed with experience, knowledge, authority, terms of reference; competence - authority, awareness".

Analyzing the definitions of the above authors, regarding the essence and analysis of the concepts of competence / competence, we will consider them in this study according to the criterion of general - personal. Thus, competencies are general requirements for the subject of activity, which make it possible to ensure its productivity and are based on the requirements for professional activity. Competence is a personal quality that has an integrative effect and readiness to carry out the necessary professional actions.

Having defined the generic concept of "competence", let's move on to the consideration of information competence. The field of activity, as the basis for characterizing the characteristics of competence, determines the content of specific competence, in this case - informational.

Information competence (IC) is studied by researchers in two senses, both broad and narrow. In a broad sense, it is the ability to carry out analytical processing of information, apply information technologies, solve search and information problems, using library resources as an information retrieval system - to interact with information using information technologies. In the narrow sense - the ability to use technical and methodological means of information technology for the search, processing, presentation, transmission of information.

Issues related to information competence are researched in the works of modern foreign scientists (Elaine Allen, Jeff Seaman, Betty Collis, Hirumi, Palloff and Pratt, Claire McDonnell, Roisin Donnelly), who believe that information competence is designed to enable students to cope with an increasing amount of information, critically evaluating the information received. Scientists pay special attention to the technological component (web 2.0, e-learning platforms, content delivery, etc.) [2, 4] and forms of organization of the educational process: e-learning (e-learning) [5], blended-learning (blended learning technology) [6], case study [7]. The main trend is the transition from local learning to global education, which is based on make up massive open online courses. Special attention of researchers is paid to the problems arising from interaction with students and ways to solve them, the preparation of teaching materials for teachers in the field of using information technologies in educational activities.

The multidimensionality of IC is associated with the fact that during its implementation, intellectual abilities are used, including abstract thinking, critical thinking, reflexive processes. The above allows us to classify IC as a key competence for a person in a digital society.

The definition of its structure contributes to the disclosure of the essence of IC. The analysis of scientific research showed differences in the opinions of scientists regarding the number and content of components included in the structure of competence. The strategy of modernization of general education in the structure of competence highlights the integrative nature of knowledge and skills, the focus of the content of education on the result, intellectual and skill components.

Indeed, any competence is an activity characteristic, and in the structure of any activity there is a motivational-value aspect. The success of the activity is facilitated by knowledge of general normative strategies and some experience of its implementation, which determines the cognitive and activity components.

Systematizing the experience of renowned researchers, the following "elements in the structure of information competence can be distinguished:

- cognitive, which combines the skills of working with information and knowledge of the goals of information work, as well as the principles of activity, limitations and possibilities of hardware and software methods of information processing;

- need-motivational, which is responsible for the presence of interest and motivation to explore ways of working with information and ICT tools;

promotes awareness of the need to work with information to extract knowledge, including using information technology;

- value-semantic, actualizes in the awareness of the social and personal significance of information and the use of ICT tools, system-forming;

- emotional-strong-willed, reflected in such personality traits as perseverance, decisiveness, endurance, organization;

- practical-activity, combines skills and application skills

ICT tools with experience of creative activity” [5].

The interaction of these two components in the context of the development of modern information technologies is permissible. At the same time, special attention is paid to the communicative component of the information competence, "who is responsible for the critical assessment of the results of activities with information, self-control and communication in the course of information work."

In this regard, based on the analysis of the considered components of information competence, which are highlighted by the considered scientists, within the framework of this study, the structure of information competence of students was determined, including the components:

- motivational value;

- information technology;

- communicative;

- reflective.

The highlighted components of information competence are complementary and determine the integration of personal qualities and an activity component [14].

The motivational-value component assumes the interconnection of motives, values and problems associated with the development of modern information technologies. The motives include interest in mastering information technologies for personal and professional purposes, awareness of the importance of informatization in the

modern world, where the social significance of information as a resource and information technology means, as tools for interaction with her. Values include awareness of the role of information competence in the educational process of a university, adherence to ethical rules and regulations for the use of ICT, understanding the importance of information competence in professional activities, readiness to use information resources as a source of knowledge. In addition, there are certain problems of the readiness of students to master new technologies, which are associated with an emerging new environment in which there is a system of rules that requires a certain amount of time to adapt [9].

The development of a positive attitude towards information technology is associated with overcoming the psychological barrier when working in a new learning environment. The implementation of this criterion is achieved by including students into an electronic information and educational environment, the active use of various types of information in educational activities, the effectiveness of which can be achieved through the organization of blended learning.

The information technology component includes cognitive and activity components and is aimed at mastering modern technologies that a student needs in their professional activities. This component is aimed at gaining knowledge on working with IC, and the ability to update and apply it in practice, based on the use of e-learning and distance learning technologies [8] in the educational process. Within the framework of this component, the development and practical application of the means and tools necessary for the implementation of an effective search for information on the network, work with programs processing of textual and audiovisual information.

The communicative component includes interaction with people based on the observance of the rules of communication within the IC, the ability and willingness to use various methods, forms and means of communication in local and global networks, including the practical implementation of presentations with multimedia support, the desire to develop communication capabilities [4, 14].

The reflexive component as a means of "feedback", which allows students to carry out self-analysis of their activities, which is necessary to work with the means of IC. Reflection is based on the analysis of one's own activities within the IC, which undoubtedly contributes to the development of information competence.

## Conclusions

Thus, consideration of information competence as a subject of pedagogical analysis allowed us to come to the following conclusions:

1. For this study, the understanding of the differences between the concepts of competence / competence by the criterion general - personal is specified.
2. Based on the identified characteristics of competence (completed personal quality, activity character, educational result, successful implementation of professional and educational activities), the concept of competence as an integrative dynamic quality of a person, manifested in effective activity in a specific area, is defined.
3. The generic concept of information competence of a student has been synthesized as an integrative dynamic characteristic of a personality, which includes a complex of motivational-value orientations and reflexive activities, the possession of skills in working with information (analysis, transformation, search, etc.) and information technologies, as well as special knowledge and the skills necessary for an informed choice and their optimal use in solving professional and educational tasks in the context of total informatization and the requirements of a digital society.
4. The structure of the IC has been substantiated, including the motivational-value one; information technology; communicative and reflective components.

The content of the named IC components is disclosed.

5. It has been substantiated that IC meets the requirements of multifunctionality, supra-discipline, interdisciplinarity, which allows this competence to be attributed to the key competencies of a modern person and emphasizes its special significance for students.

## References

- [1] Corrall, S. (1998). Key skills for students in higher education. *SCONUL Newsletter*, 15, 25-29.
- [2] Donnelly, R. *Applied E-Learning and E-Teaching in Higher Education*. Hershey, New York, 2009. 415.
- [3] Meera N. S. Quality education for all? A case study of a New Delhi government school, *Policy futures in education*, 2015, № 13 (3), pp. 360-374.
- [4] Mykhailo Sherman, Yaroslav Martynyshyn, Olena Khlystun, Liubov Chukhrai, Yuliia Kliuchko, Uliana Savkiv. Optimization of the Educational Environment Using Information Technologies. *IJCSNS International Journal of Computer Science and Network Security*, VOL.21 No.4, April 2021. pp. 80-83.
- [5] Alfred P. Rovai, Linda D. Grooms The relationship of personalitybased learning style preferences and learning among online graduate students. *Journal of Computing in Higher Education*. - 2004. - №16, Issue 1. - pp 30- 47.
- [6] Andrea Santo-Sabato, Marta Vernaleone From the First Generation of Distance Learning to Personal Learning Environments: An Overall Look. *E-Learning, E-Education, and Online Training*. - 2014. - №138. - C. 155-158.
- [7] Magen-Nagar, N. The impact of an online collaborative learning program on students' attitude towards technology. *Interactive Learning Environments*, №26(5), 2018, 621-637.
- [8] McMillan R. Man Builds Twitter Bot That Humans Actually Like. *Wired*.
- [9] Mason, R. *Globalising Education: Trends and Applications*. London: Routledge, 1998. P. 37.
- [10] West, R. E. «Picturing them right in front of me»: Guidelines for implementing video communication in online and blended. *TechTrends*, №61(5), 2017, 461-469.
- [11] Rampton S., Stauber J. *Trust us! We're experts: How industry manipulates science and gambles with your future*. Tarcher. 2002.
- [12] Dordick H.S., Wang G. *The Information Society: A Retrospective View*. Newbury Park — L., — 1993.
- [13] Knowledge management e e-learning in ambito sanitario. M. Masoni, M. R. Guelfi, A. Conti, G. F. Gensini, - Milan: Springer, 2011. - pp 65-72.
- [14] *Global E-Learning Market to Reach US\$107 Billion by 2015*, According to New Report by Global Industry Analysts, Inc.