

Key competences: the definition of the main categories

*Mykhailo Savchak*¹

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Annotation. The article is dedicated to the definition of the main categories of key competences. The analysis of research literature proves, that the problem of key competences development is studied by scientists in different countries. The application of the competence approach in education, which is characteristic of the international educational space, is substantiated. It was found that competence is interpreted as an integrative concept that encompasses knowledge, skills and abilities, values and attitudes. The interpretation of such concepts as "key competences" (competencies that include knowledge, abilities and skills necessary for further development and functioning in society), "knowledge" (a set of concepts, facts, ideas, theories that are developed and known by civilization and contribute to awareness and understanding of a certain sphere of human activity), "skills" (the ability to perform processes and actions, which is based on knowledge that allows achieving a defined goal), "values" (beliefs and attitudes of a person that reflect the way of thinking and acting, behavior of a person, his|her attitude towards others). The main components of key competences (literacy, multilingualism, mathematical competence and competence in natural sciences, technologies and engineering, digital competence, personal, social competence and competence, for learning, civic competence, entrepreneurial competence, cultural awareness and competence of self-expression) have been analysed and characterised.

Keywords: key competencies, knowledge, skills, literacy, multilingualism, mathematical competence and competence in natural sciences, technologies and engineering, digital competence, personal, social competence and competence for learning, civic competence, entrepreneurial competence, cultural awareness and competence of self-expression.

Ключові компетентності: визначення основних категорій

Анотація. Стаття присвячена визначенню основних категорій ключових компетентностей. Аналіз наукової літератури свідчить, що проблема розвитку ключових компетентностей досліджується вченими різних країн. Зокрема студіюють державні ініціативи щодо розвитку ключових компетентностей; теорія і практика розвитку ключових компетентностей; педагогічні підходи та їх використання в процесі формування ключових компетентностей; метод навчання та його використання в процесі формування ключових компетентностей; взаємозв'язок між розвитком ключових компетентностей і професійним розвитком спеціалістів тощо. Обґрунтовано застосування компетентнісного підходу в освіті, що властивий для міжнародного освітнього простору, якому притаманні глобалізаційні тенденції, тенденції

¹ Mykhailo Savchak, the post-graduate student of the Department of Pedagogy and Innovative Education, Lviv Polytechnic National University, ORCID: <https://orcid.org/0009-0005-2499-9095>.

швидкоплинності ринкових змін, змін технологічного характеру тощо. З'ясовано, що компетентність трактують як інтегративне поняття, що охоплює знання, уміння і навички, цінності та ставлення. Представлено трактування таких понять як «ключові компетентності» (компетентності, що охоплюють знання, уміння і навички, необхідні для подальшого розвитку та функціонування у соціумі), «знання» (сукупність понять, фактів, ідей, теорій, що розроблені та відомі цивілізації та сприяють усвідомленню і розумінню певної сфери життєдіяльності людини), «уміння» (здатність до виконання процесів і дій, в основу якої покладено знання, що дозволяють досягнути визначену мету), «цінності» (переконання та установки людини, що відображають спосіб мислення і дій, поведінку людини, її ставлення до інших). Представлено результати аналізу та характеристику компонентів ключових компетентностей, до яких віднесено грамотність, багатомовність, цифрову компетентність, математичну компетентність і компетентність у природничих науках, технологіях та інженерії, особистісну, соціальну компетентність та компетентність для навчання, громадянську компетентність, підприємницьку компетентність, розуміння культурного розмаїття та компетентність самовираження, що виокремлені у документах Європейського Союзу.

Ключові слова: ключові компетентності, знання, навички, грамотність, багатомовність, математична компетентність та компетентність у природничих науках, технологіях та інженерії, цифрова компетентність, особистісна, соціальна компетентність та компетентність для навчання, громадянська компетентність, підприємницька компетентність, культурна свідомість та компетентність самовираження.

Introduction

At the beginning of the new century, the problem of mastering a number of competencies of modern specialists, necessary for competition in the labour market, job search, functioning as an independent professional and an active participant in the life of society, became an actual issue. It is believed that knowledge, abilities and skills, values and attitudes are the main factors that contribute to ensuring the innovative capacity of the country's economy, its productivity and competitiveness in the international space.

Globalization processes, rapid changes in the modern labour market caused, first of all, by the rapid development and spread of information and communication technologies justify the need for lifelong learning. In particular, such skills as critical thinking, information and media literacy, the ability to establish interpersonal relationships and communication, to work creatively in a team of like-minded people, to implement innovative projects and to develop entrepreneurial activities are among the requirements that employers set for a modern university graduate.

At the same time, special attention is paid to the educational opportunities of a person, which are realized with the help of formal, informal, informal education. Various studies are conducted both at the level of the international educational space and at the European level. In such studies, the literacy level of different segments of the population is revealed: from teenagers to the elderly, and their results justify the need to develop a strategy for the formation of key competencies necessary for lifelong learning for every person.

Special attention is paid to educational institutions and teachers, whose main task is to prepare a person to function in society. It is about going beyond the boundaries of individual academic disciplines, activating interdisciplinary learning, establishing cooperation with external stakeholders, in particular employers, in order to clearly understand the needs of modern business and the labour market.

The analysis of recent research and publications. The search, processing and analysis of scientific and pedagogical literature, which covers the subject of our research, shows that the

problem of forming key competencies for lifelong learning is relevant. In particular, the following aspects of it are highlighted in the works of domestic and foreign researchers:

- state initiatives for the development of key competencies [9; 14];
- theory and practice of developing key competencies [17; 19];
- pedagogical approaches and their use in the process of developing key competencies [8; 13];
- teaching method and its use in the process of developing key competencies [11; 20];
- the relationship between the development of key competencies and the professional development of specialists [10; 18], etc.

The formulation of article purpose. The purpose of our article is to highlight the specifics of defining the main categories of the concept of "key competencies".

Results

The application of the competence approach in education in general and professional training of specialists became one of the trends in the international educational space at the beginning of the 21st century. "The competence approach is the focus of the educational process on achieving results, which are hierarchically subordinated to key, general subject and subject competence. Scientists consider the result of such a process to be the formation of a person's general competence, which is an integrated characteristic of a person, which is formed in the process of learning and consists of knowledge, skills, attitudes, activity experience and behavioral patterns of a person" [6, p. 144].

This is evidenced by scientific publications in which the competence approach, key skills, general and professional competences of a modern specialist are reflected as the subject of scientific research. It is also observed giving priority to the competence approach in the documents that regulate the development of education at different levels of the system in the context of the international, national, regional, and institutional context.

It is worth noting that each country uses its own model of integration of the competency approach and the formation of key competencies in educational programs. However, most importantly, focusing on the key competencies of education policymakers, theorists, and practitioners is aimed at expanding the learning experience for all citizens without exception. It is about preparing young people for activities in a rapidly changing environment, applying critical thinking, creative potential, independent and team work, developing innovative projects and entrepreneurship, etc.

The search for scientific and pedagogical literature, familiarization with the results of research by foreign and domestic researchers gives reason to emphasize that the problem of forming key competencies of student youth in university conditions is an urgent problem. In particular, various aspects of it are studied, which reflect the breadth of views and the complexity of its content.

In the scientific and pedagogical literature devoted to the research problem, key competences are interpreted as a complex combination of knowledge, abilities and skills, values and attitudes that are necessary for a person to continue learning throughout his life.

Knowledge is interpreted as a formation based on concepts, facts, figures, ideas, theories that are already known to mankind and contribute to the formation of understanding of a certain area or subject. We find confirmation of this statement in the "Ukrainian Pedagogical Dictionary", which provides the following interpretation: "Knowledge is a special form of spiritual assimilation of the results of knowledge, which is characterized by awareness of their truth. Knowledge is expressed in concepts, judgments, inferences, concepts, theories" [4, p. 137].

As for skills, this concept is considered as the ability to perform certain actions and processes, while applying existing knowledge in order to achieve a certain goal or defined results. "Skills are actions, the constituent parts of which become automated in the process of formation. In the presence of skills, human activity is faster and more productive. According to the types of action, the types of skills are also distinguished: motor, thinking, language, intellectual, sensory (actions based on perception), perceptive, etc." [4, p. 122].

Values and attitudes characterize a person's way of thinking and believing, his way of acting and behaving, reaction to other people's ideas or certain situations.

The analysis of the literature shows that there are numerous studies in which the interpretation of the concept of "competence" is presented. Bondarenko states: "competence is based on the synthesis of worldview attitudes, knowledge, skills, values, experience, emotions, activity, behaviour and other components mobilized for the active life of a person in an open, changing globalized world" [2, p. 2]. Alekseeva notes that "competencies are primarily an order of society for the training of its citizens, and the introduction of competencies into the normative and practical component of education makes it possible to solve the problem, typical for Ukrainian schools, when students can master a set of theoretical knowledge well, but experience significant difficulties in activities that require the use of this knowledge to solve specific life tasks or problem situations. Competence assumes the presence of minimal experience in the application of competence. It is important not to forget this when designing the educational process and formulating requirements for student training. A graduate of a modern school is a patriot, a bearer of Ukrainian culture, a competent speaker, a person with a knack for self-education. At the same time, students' ability to entrepreneurship and initiative, the ability to use the achievements of science and technology are important. Modern graduates should become innovators who will be able to develop something of their own, develop the technological world, and in the future be active citizens of Ukraine and effective, competitive employees" [1, p. 7].

Continuing the research on clarifying the essence of the concepts of competence, key competences, Makeev defines the main directions by which key competences should be determined in the 21st century: "learn to know (master the tools needed to understand the world), learn to work (work to make the necessary changes in environment), learn to co-exist (cooperate with others, get involved in all types of human activity), learn to live" [6, p. 145] (see Fig. 1).

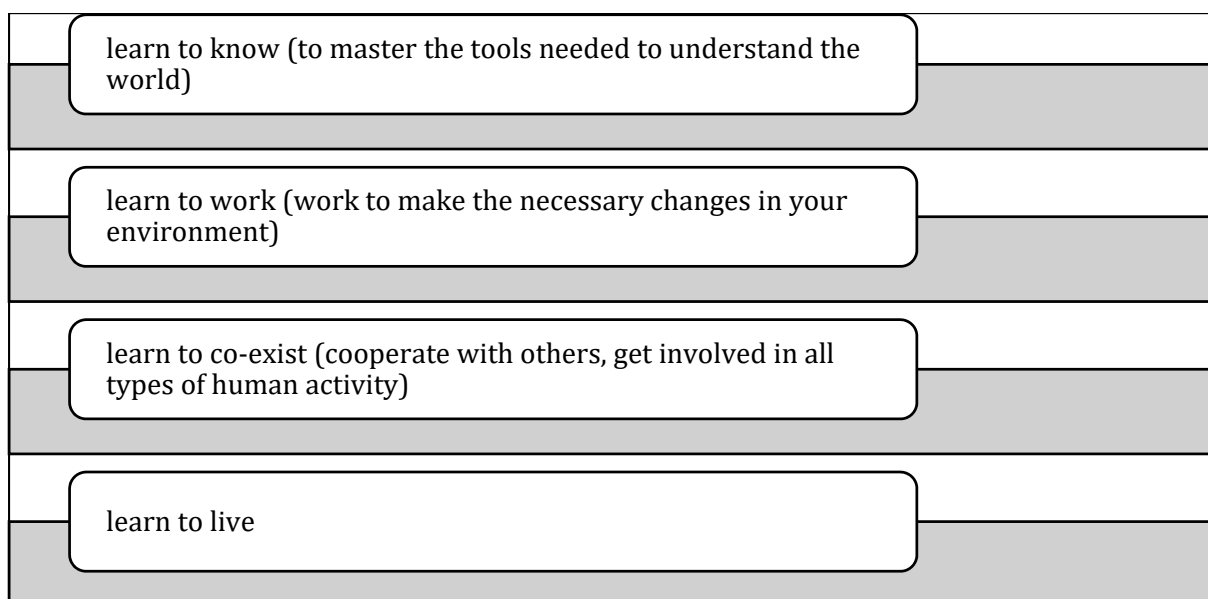


Fig. 1. Directions for defining key competencies [6]

Further, the author draws attention to the fact that "on the basis of the above, four key competencies can be distinguished: cognitive (learning to know); professional activity (learn to work); communicative (learn to coexist); generalizing-life-active (learn to live)" [6, p. 145] (see Fig. 2).

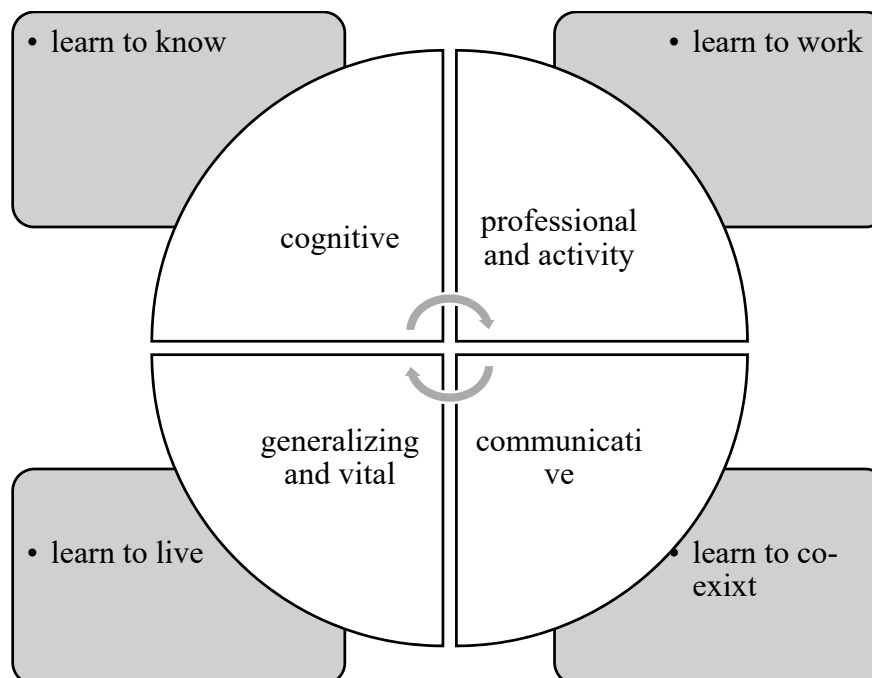


Fig. 2. Four key competencies by areas of use [6]

Researcher Glushko examines key competences based on the elaboration of European Union documents and claims that "key competences include knowledge (subject and interdisciplinary), a set of skills (cognitive and metacognitive skills, social, emotional, practical), attitudes and values (individual, local, public, global)" [3, p. 12].

It is worth emphasizing that key competences are formed throughout life through the use of opportunities provided within formal, non-formal and informal learning. Here it is worth noting that the formation of key competences is possible in different environments in which an individual lives and functions.

Scientists emphasize that all key competencies are important for a modern person and specialist. We agree with Lokshyna that "it is obvious that the transformation of education on the basis of competence requires a comprehensive approach, which involves the development of an appropriate environment, as well as the selection of adequate methods and forms of education in schools [5]. The Recommendations of the European Council of the EU define a number of innovations that contribute to the formation of key competencies. This is "the active role of the learner in the acquisition of key competences throughout life; individual and collaborative learning; project training; experimental training; interdisciplinary training; learning in the framework of multilingualism; use of digital technologies" [12, p. 102].

According to Makeev, "all key competencies are considered equal, as each of them contributes to a successful life in society. Necessary prerequisites for their formation are: critical thinking, creativity, initiative, the ability to solve problems and assess risks, make decisions and constructively manage emotions" [6, p. 146]. Bondarenko has the same opinion and emphasizes that "key competencies are vitally necessary for every person for a successful and happy life, regardless of the type of occupation and the profession chosen by him. These competencies are end-to-end, they permeate all school subjects and therefore must be formed

in all lessons without exception, and above all in the lessons of the Ukrainian language, which is the basis and universal means of their expression, mastery and application” [2, p. 34].

The formation of key competences is consistent with the concept of continuous learning: “the concept of education throughout life is basic for the development of the European education system. It is assumed that it should cover all strata of society, and be based on basic democratic and universal values. Education is the foundation of the construction of a single European social space, therefore it is important to create the continuity of this process: to provide people with basic knowledge, necessary abilities and skills, fundamental values without which the European community cannot exist (democracy, justice, equality, etc.)” [7, p. 144].

In the scientific and pedagogical literature, key competencies are considered, which include the following: “literacy, multilingualism, mathematical competence and competence in natural sciences, technologies and engineering, digital competence, personal, social competence and competence, for learning, civic competence, entrepreneurial competence, cultural awareness and competence of self-expression” [12].

Literacy should be seen as “the ability to understand complex ideas, effectively adapt to the environment, learn from experience, engage in different forms of reasoning, and overcome obstacles through reflection” [12]. This is the understanding, evaluation, use of the written text in the life of society, “to achieve one's goals and develop one's knowledge and potential. Literacy refers to the ability to read and write at a level at which people can effectively understand and use written communication in all media (print or electronic), including digital literacy” [12].

We define multilingualism as the ability of societies, institutions, groups and individuals to regularly use more than one language in everyday life. Today, multilingualism has spread in the educational context due to historical, social, political and economic reasons. Multilingualism in education takes many forms depending on factors such as linguistic diversity, the aims of the educational program or the characteristics of the languages used. In many contexts, a large number of learners have mother tongues other than those used in the educational institution.

Regarding mathematical competence and competence in natural sciences, technologies and engineering, “it should be noted that mathematical competence is understood as the ability to develop and apply mathematical thinking and understanding to solve a number of problems in everyday situations. Building on a strong command of the account, the emphasis is on process and activity as well as knowledge. Mathematical competence to varying degrees includes the ability and willingness to use mathematical ways of thinking and presentation (formulas, models, constructions, graphs, diagrams” [21]. “Competence in science, technology and engineering means the ability and willingness to explain the natural world using a body of knowledge and applied methodology, including observation and experimentation, to define questions and draw conclusions based on evidence. Competencies in technology and engineering are the application of this knowledge and methodology in response to anticipated human desires or needs. Competence in science, technology and engineering involves understanding the changes caused by human activity and responsibility as an individual citizen” [21].

In modern publications, the term “competence” is used more often than “skills”, which reflects the need for a broader and deeper meaning of the concepts. The relationship between competencies and skills is defined in the OECD project as following: “Competence is more than just knowledge and skills. It involves the ability to meet complex demands by engaging and mobilizing psychosocial resources (including skills and attitudes) in a specific context” [15, p. 4]. In its broadest definition, “based on policy documents and reports, digital competence consists not only of digital skills, but also of the social and emotional aspects of using and understanding digital devices. The European Commission has defined digital competence as the confident and critical use of information society technologies for work, leisure and

communication. Digital competence is based on basic ICT skills, i.e. the use of computers to obtain, evaluate, store, create, present and share information, and to communicate and participate in collaborative networks via the Internet” [16].

Civic competence is the awareness of how to fulfil one's roles in a democratic society. This requires information on relevant public topics, such as how to vote. This definition is based on the idea that competence is the ability to perform a task according to a certain criterion. Civic competence is a person's ability to perform the duties of a citizen.

Social competence is defined as the ability to effectively manage social interactions. In other words, social competence refers to getting along well with others, the ability to build and maintain close relationships, and to respond adaptively in social settings. Given the complexity of social interactions, social competence is the product of a wide range of cognitive abilities, emotional processes, behavioral skills, social awareness, and personal and cultural values related to interpersonal relationships. Social competence depends on the specifics of development (that is, expectations about social competence change depending on a person's age), a specific social situation, and cultural characteristics (that is, certain acts of social competence are related to cultural expectations).

Competence for learning is one of the key competences in the knowledge society, a competence that provides those who possess it and constantly appreciate it, increasing chances of adaptation and inclusion in the socio-professional environment. Nowadays, when knowledge is in a real process of expansion, information loses relevance in shorter periods of time, technology develops faster, and society needs to be transformed every day, people's ability to adapt can only be supported by their willingness to constantly learn and master the knowledge of how to make learning effective. Learning how to learn is the ability to constantly learn, to organize one's own learning, using effectively time and information in the context of formal, non-formal and informal education. The competence “learning to learn” incorporates awareness of learning needs, identification of possibilities to overcome barriers to successful learning. “Learning to learn” competence means collecting, processing and acquiring new knowledge and developing abilities, and at the same time seeking and using advice for further development. “Learning to learn” means that learners need to start with prior knowledge and experience of a person to ensure that they can use and properly use knowledge and skills in various contexts: society, professional environment, educational space, etc. Motivation and trust are vital to this competence.

Entrepreneurship education has several purposes. First of all, it is the development of awareness of entrepreneurship and the place of an entrepreneur in economic development of a country. This approach involves taking into account the experience through which students gain experience in entrepreneurial learning. One more purpose of entrepreneurial education is to start a one's own business. This approach is aimed at giving aspiring entrepreneurs the necessary knowledge and skills. So, we conclude that this competence means a person's ability to realise ideas in practice. It comprises creativity, innovative thinking and risk-taking, the ability to design and realise projects in order to achieve the results. It is the foundation for the development of skills and knowledge necessary for persons ready to participate in various kinds of activities.

Regarding the competence “cultural awareness and competence of self-expression”, we emphasize the value of realizing the importance of creativity in ideas presentation, practices and emotions in a variety of mass media, especially various types of arts.

Conclusion

The results of the analysis of documents outlining the problem of forming key competencies for lifelong learning are presented. It has been identified that key competences are included in the key competences for lifelong learning, including literacy, multilingual

competence, mathematical competence and competence in science, technology and engineering, digital competence, personal, social and continuing education competence, civic competence, competence entrepreneurship, cultural awareness and competence of self-expression.

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