

## Competency-based approach in higher education: The main concepts

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**Annotation.** The article is devoted to the actual problem of higher education – the application of the competency-based approach to the training of a modern specialist. The analysis of the source base of the research was carried out for the purpose of specifying the concepts of "competence" and "competency-based approach", as well as highlighting the features of competency-based approach application in higher education of Ukraine. The purpose of the article is to clarify the concept of "competence", "competency-based approach", as well as the characteristics of competency-based approach application in higher education of Ukraine in the context of its harmonization in accordance with the requirements of the European Union. The article provides a definition of the concept of "competence", "competence approach". The key competences for life in the 21st century are characterized, the components of the professional competence of a modern specialist are presented.

**Keywords:** institution of higher education, competence, competency-based approach, key competences for life in the 21st century, professional competence of a specialist, structure of professional competence.

### Компетентнісний підхід у вищій освіті: основні поняття та категорії

**Анотація.** Стаття присвячена висвітленню результатів дослідження, присвяченого вивченню застосування компетентнісного підходу в системі вищої освіти України. Проведено аналіз науково-педагогічної літератури, висвітлено компетентності та їх роль у ХХІ столітті, проаналізовано ключові компетентності та професійну підготовку фахівців, освіти та навчання на основі компетентнісного підходу, розробку навчальних планів та освітніх програм на основі компетентнісного підходу, а також підготовку майбутніх спеціалістів на основі компетентнісного підходу. Метою статті визначено наступне: конкретизувати поняття «компетентність», «компетентнісний підхід», а також особливості застосування компетентнісного підходу у вищій освіті України. У статті компетентність трактується як така, що передбачає не лише наявність знань у певній галузі, а й наявність певної кваліфікації, а головне, можливість і право, повноваження виконувати певний вид роботи. Компетентність

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проявляється в конкретній ситуації в процесі професійної діяльності. Професійна компетентність фахівця – це складна цілісна інтелектуальна, професійно-особистісна конструкція, яка формується в процесі його професійної підготовки у закладі вищої освіти, проявляється, розвивається та вдосконалюється у професійній діяльності, а ефективність її реалізації суттєво залежить від видів теоретичної, практичної та психологічної готовності фахівця до неї, особистісних, професійних та індивідуально-психічних якостей, сприйняття цілей, цінностей, змісту та особливостей цієї діяльності. Характерними рисами ключових професійних компетентностей є забезпечена поліфункціональність, приналежність до метаосвітньої сфери, інтелектуальна спроможність, багатовимірність. Доведено, що в сучасній вищій освіті поряд із традиційним та інноваційним підходами реалізується компетентнісний підхід до навчання. Ці підходи тісно пов'язані між собою, завдяки особистісній спрямованості та діяльнісному компоненту інноваційної освіти. У зв'язку з цим компетентність особистості нерозривно пов'язана не лише з продуктивною діяльністю, спрямованою на вирішення теоретичних і прикладних завдань, а й з відповідальністю за свої дії. Однак, поряд зі схожістю, ці підходи мають суттєві відмінності. Сформульовано та представлено висновки.

**Ключові слова:** заклад вищої освіти, компетентність, компетентнісний підхід, ключові компетентності для життя у XXI столітті, професійна компетентність фахівця, структура професійної компетентності.

### Introduction

The modern higher education in Ukraine is developing in the context of European integration. That requires coordination of its legal framework, theory, and practice of higher education in accordance with the priorities of the European vector. The experience of European countries in identifying the key competencies necessary for life in the 21st century justifies the need to develop a single framework of qualifications that facilitates the process of comparing educational levels and qualifications of graduates of higher education institutions. Based on the use of European experience, the National Framework of Qualifications has been developed in Ukraine, the standards of higher education are being developed for the first (bachelor's), second (master's) and third (scientific and educational) level of higher education. Accordingly, this allows institutions of higher education to develop educational programs that specify integral, general, and professional competences, learning outcomes of future specialists in various fields. In our research we determine the professional competence as an integrated unity that combines knowledge, abilities and skills, values, and attitudes necessary for young people to fully realize themselves in society and the professional environment, and also determines the readiness of a graduate of a higher education institution for the labour market.

*The analysis of recent research and publications.* The comprehensive study of the source base of the research made it possible to find out that scientists analyse various issues of the application of the competence approach in higher education in Ukraine and other countries. In particular, key competencies and their role in the 21st century are analysed [5, 9]; key competencies and professional training of specialists [13, 14, 16]; education and training based on a competency-based approach [17, 19]; developing curriculum and educational programs based on a competency-based approach [21]; training future specialists based on a competency-based approach [22, 23, 24].

We consider it necessary to investigate the theoretical foundations of competency-based approach application in higher education of Ukraine.

*The formulation of article purpose.* The purpose of our article is defined as follows: to clarify the concept of "competence", "competency-based approach", as well as the characteristics of competency-based approach application in higher education of Ukraine.

### Results

Signing of the Bologna Declaration in 1999 marked the beginning of one of the most extensive reforms of higher education, which in many ways determined one of the directions of higher education development in Ukraine. The Bologna Declaration formulated the concept of international recognition of educational results and demanded that the academic community develop mutually understood criteria for such recognition [17].

During the Bologna process, various versions of similar criteria began to be actively developed, and this new methodology was called the competency-based approach. Researchers claim that competency-based approach should be understood as a comprehensive and descriptive tool, which allows to identify the competences of a specialist. It is mentioned in literature that competency-based approach is a vigorous factor which influences the integration of education and training with labour market demands and needs. "... employers seek graduates who have not just knowledge but the combination of skills, knowledge, and ability to put their expertise in practice that can be defined by the word competence or competency. However, it is not just that this is something requested or required by employers. It becomes necessary because the world demands it as well" [5, 1]. This is the tool of promoting individual and professional mobility [22]. Competency-based approach is important in the proves of aligning demands of labour market with curricula of higher education institutions which train future specialists. "This means that people will often rely not on the specific knowledge they acquired from university but more general abilities, as well as the capacity to acquire new skills as required. This is why competencies are especially important. There are several competencies that become particularly significant in the modern world. Competence means that you have the ability to do something well. You are capable of performing a task or job effectively" [5, 2].

The desire to participate in the Bologna Process obliged the Ukrainian educational system to speak a language adequate to the languages of the educational systems of other participating countries and requires the adoption of Western educational terminology. If for the Western European conceptual system the category of the competency-based approach is natural, which has evolved in the last four decades, then for Ukrainian educational tradition, which uses a different system of concepts to describe professionalism development, in particular the well-known categorical triad of "knowledge, abilities, skills", the use of the competency-based approach posed the problem of a kind of revision of the entire categorical system in pedagogy, determining the place of new categories and their interaction with those categories that have already become traditional [19].

The terminology, in addition to the scientific one, has a political significance to a large extent. A meaningfully inaccurate term creates a false understanding of it, leads to erroneous evaluation of the actual essence. That is why it is so important to reach a common language between academic community, employers, and graduates of higher education institutions regarding the quality of learning outcomes, the level of knowledge, skills and abilities. Therefore, the transition to the competency-based approach requires the development of a new theoretical basis, identification of the conceptual cohort of European pedagogical terminology, understandable to all participants of the educational process.

Different approaches to the perception and interpretation of the concept of "competency-based approach" are obviously related to the features of the socio-economic development of each state, national traditions, features of the formation and development of the education system inherent in each nation. Researchers Kan and Murat [8], Zhao [23]

believe that the competency-based approach means a gradual reorientation of the leading educational paradigm with a predominant transfer of knowledge to create conditions for mastering a complex of key, general branch and subject competencies, i.e. in shifting the ultimate goal of education from knowledge to competence.

It is worth mentioning that competence implies not only the presence of knowledge in a certain field, but also the presence of a certain qualification, and most importantly, the opportunity and right, authority to perform a certain type of work. Scientists Rico-García and Fielden Burns [16] associate the content of the competency-based approach in education with the formation of an individual's ability or readiness to mobilize all his or her resources (systemic organized knowledge and abilities, skills, and mental qualities) that are necessary for the performance of a certain task at a high level, as well as adequate for a specific situation, that is, in accordance with the purpose and conditions of the course of a specific action. In our opinion, the concept of the competency-based approach was clearly substantiated by such scientists as Di Rienzo [4], Tahirsylaj and Fazliu [20], etc.

In McMillan Dictionary one can find the definition of the notion "skills": "the ability to do something well, usually as a result of experience and training" [10]. Merriam Webster dictionary defines "skills" as "the ability to use one's knowledge effectively and readily in execution or performance", "dexterity or coordination especially in the execution of learned physical tasks" "a learned power of doing something competently: a developed aptitude or ability" [11]. The analysis of research literature shows that the notion "skills" is interpreted as "automated components of tasks, which are undertaken with a relatively low mind control and include routine jobs" [19, 4].

"Ability is defined as "the level of skill that someone has in a particular job or activity" [10]. In the Merriam Webster Dictionary "ability" is determined as "the quality or state of being able (physical, mental, or legal power) to do something; competence in doing something; natural aptitude or acquired proficiency" [11]. "Abilities are defined as all kinds of innate characteristics of a person that are necessary to perform tasks and services, and they are thought to be, to a greater extent, something a person is born with" [19, 4].

Merriam Webster Dictionary provides the following definitions of the term "competence": "the quality or state of being competent: such as

- 1) the quality or state of having sufficient knowledge, judgment, skill, or strength (as for a particular duty or in a particular respect);
  - legal authority, ability, or admissibility;
  - the ability to function or develop in a particular ways;
  - the ability of embryonic cells and tissue to undergo differentiation in response;
- 2) a sufficiency of means for the necessities and conveniences of life" [11].

Collins Dictionary gives the definition of the word "competence" as "the state of being legally competent or qualified" and provides its synonyms "ability, skill, talent, capacity, expertise, proficiency, capability" [1]. Competence is determined as "the ability to do something in a satisfactory or effective way" [10]. "Competences are strongly associated with mastering complex situations (contradictory information, informal collaboration, and abstract, dynamic, and highly integrated processes) demanded by modern-day employers and transcend the level of skills and/or abilities, given their synergistic and inter-related nature" [19, 4]. OECD determines competences as "more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context" [14, 4]. Besides, OECD explains the relationships between individual competences and the influence on the organization development as well as achievement of mutual goals [14].

So, considering the definitions of the main categories of our research, we understand that competency-based approach and its implication in higher education is of great

significance nowadays. "... employers seek graduates who have not just knowledge but the combination of skills, knowledge, and ability to put their expertise in practice that can be defined by the word competence or competency. However, it is not just that this is something requested or required by employers. It becomes necessary because the world demands it as well" [5, 01].

Competence is manifested, in our opinion, in a specific situation in the process of professional activity, because if it remains undetected, potential, then this is not competence, but only a hidden possibility. Competence cannot be isolated from the specific conditions of its implementation and activity. Within such an understanding, we can emphasize that competence is preparedness (theoretical, practical, personal, psychological, etc.) to carry out a certain professional activity and the presence of professionally important qualities of a specialist that contribute to this activity.

Professional competence of a specialist is, in our opinion, a complex integral intellectual, professional and personal construction, which is formed in the process of his professional training at a university, is manifested, develops and improves in professional activity, and the effectiveness of its implementation depends significantly on the types of specialist's theoretical, practical and psychological readiness for it, personal, professional and individual mental qualities, perception of goals, values, content and features of this activity. Therefore, it is manifested in activity and cannot be limited only to certain knowledge, abilities, and skills. Many examples can be given of excellent students who could not optimally apply the acquired professional knowledge in specific production and management situations [6; 22].

In this regard, to be a competent specialist, one should have fundamental theoretical and practical training, and it is necessary to be creative, personally, professionally, and psychologically ready and able to effectively apply the acquired professional knowledge in professional activities [9; 13].

In the context of higher education, we consider the meaning of the concept of "professional competence" as the one which gives us the opportunity to substantiate the leading methodological approach to determining the competence of any specialist, which takes into account various aspects of his activity intellectual (cognitive), professional (professional) and personal (subject), which complement each other, contribute to their complex and systematic manifestation, if necessary, can compensate for insufficient development of certain indicators of his competence [12].

If certain of them are insufficiently formed, a specialist is unable to achieve the main goal of his own activity, systematically and comprehensively implement his main competencies. This approach is called subject-activity. Therefore, professional competence is a combination of theoretical and practical preparedness of the future specialist for future professional activities and the main indicator of the presence of developed professional thinking [6].

According to scientists, the characteristic features of key professional competencies are as following:

- 1) multi-functionality (mastery of competencies allows solving various problems in everyday life and professional activity) [18];
- 2) belonging to the meta-educational field (competencies are supra-subject and interdisciplinary and can be applied in different situations) [2];
- 3) intellectual capacity (competencies presuppose the presence of general and professional intelligence, require abstract and professional thinking, self-reflection, self-identification, self-evaluation, etc.) [15];
- 4) multidimensionality (include various mental processes: analytical, communicative, "know-how", common sense, etc.) [3].

We distinguish the main elements of professional competence of a specialist:

- knowledge, skills and abilities are a set of mental formations that form general and professional intelligence, general scientific, personal and professional preparedness of a specialist for a certain type of professional activity;
- the professional position of a specialist – a system of established guidelines and value orientations, attitudes and evaluations of internal and surrounding experience, reality and prospects, as well as the specialist's own achievements, which determine the nature of his activity, behaviour, communication, place and role in official activities and everyday life;
- individual and mental features – a stable combination of various structural and functional components of the psyche, which determine the individuality of a specialist, the unique style of his activity, behaviour and are embodied in specific qualities of professional activity;
- acmeological invariants of a specialist – internal factors that determine the need for active self-development, productive realization of creative potential in work and advancement to one's own peaks of excellence in professional activity.

It is worth mentioning the elements of specialist's professional competence structure:

1. General human competence (general cultural, moral, political, social, informational, communicative, ethical, ecological, valeological).
2. General scientific competence (methodological, theoretical, methodical, research).
3. General professional competence (general professional, economic, technical, legal, psychological, pedagogical).
4. Professional competence (technological).
5. Functional competence (strategic, managerial, management of subjects and objects of activity, executive).
6. Personal competence (motivational, autopsychological, regulatory, adaptive, educational).

The competency-based approach is also aimed at activating the activity of students as subjects of educational activity. In contrast to traditional approaches, where educational activity is reduced to the process of acquiring knowledge, abilities and skills, the competency-based approach assumes their unity, interpenetration, and addition by other, no less important, components. Its basis, as with the activity approach, is based on the idea of the active nature of the education content. However, with the competency-based approach, educational activity is aimed at another result – the formation of the student's system of competencies. The content of the latter includes their personal attitude to objects and processes that are necessary for productive activity in relation to them. Therefore, competences acquire the meaning of the student's own values. The same results are desirable when applying a person-oriented approach to learning. With both educational approaches, the product of the processes of socialization, training, and general professional training for the performance of the entire spectrum of vital functions should become a responsible individual capable of embodying a free, humanistically oriented choice.

Competency-based approach to learning is implemented in modern higher education along with traditional and innovative approaches. These approaches are closely related to each other due to personal orientation and the activity component of innovative education. In this regard, personal competence is inextricably linked not only with productive activity aimed at solving theoretical and applied tasks, but also with responsibility for one's actions. However, along with similarities, these approaches have significant differences.

Based on the analysis of literary sources, the following conclusions were drawn:

1. Competency-based approach is the focus of the educational process on the formation and development of the system of key and subject competencies of the individual.

2. Among the main features of the competency-based approach there are the following ones:

- recognition of competencies as the final result of training and their purposeful formation;
- shifting emphasis from the awareness of the subjects of education to their ability to use information to solve practical problems;
- assessment of students' level of competence development as a result of the educational process;
- student-centred orientation of education;
- the targeting of professional training for the future employment of graduates.

As we can see, the most important factors in the recognition of the competency-based approach in education are shifting the emphasis from the content of education to results, from knowledge to personality development; ensuring the relationship between education and the labour market and including practically-oriented life situations in education.

In this regard, the competency-based approach establishes the subordination of knowledge to skills, ensuring the specialist's holistic ability and his readiness to solve professional problems in a specific and non-standard practical situation of educational or pedagogical activity. It also ensures the overcoming of formalism, the separation of theory from practice, the transition of knowledge into value orientations, adds personal meaning to the educational process, stimulates the growth of professional qualities necessary for the successful performance of professional functions. However, as the analysis of sources on this issue shows, the main difficulty in using the competency-based approach in the educational process is that there are different approaches (activity-based, personality-based etc.) and interpretations of its main categories "competence", "skills", "ability". The debatable and controversial nature of the above-mentioned concepts requires a more detailed analysis of them within the framework of the study of this issue. For this purpose, we analysed and to some extent used the materials of the works of those scientists who, in our opinion, came closest to understanding both the essence of the very concept of the "competency-based approach" and its main categories.

In the context of our research, the updated ideas of the above-mentioned approaches which are integrated in the competency-based approach, the main educational result of which is a specialist with formed professional competence. The implementation of the competency-based approach in the educational process provides the opportunity to transition to practice-oriented professional training, which allows solving tasks related to the formation of future specialists' creativity, skills in posing and solving problems that arise in the process of professional formation. And with the successful implementation of the competency-based approach, instead of forming knowledge, skills and controlling the level of their assimilation (and from this traditionally conclusions are made about the quality of education), it is necessary to form and evaluate the fundamentally different competencies of a university graduate.

### **Conclusions**

From what has been said, the following conclusion can be drawn: the competency-based approach is understood by scientists as the orientation of the educational process towards achieving results, which are hierarchically subordinated to key, general and professional competences, and is the main factor in the formation of both the content of education and its educational methodological support and at the same time serves as a conceptual reference point in the organization of content and procedural aspects of higher education.

Among its features there is the creation of an education model that is based on learning outcomes, regulates the self-development of students, teachers, and the entire education

system. In the process of analysing scientific sources on the specified problem, it was found that the most frequently used categories that are found in the context of modernization of education with the help of the application of the competency-based approach to the content and procedural side of modern higher education at the world and European level turned out to be the following categories: competence, skills, ability. The competency-based approach considers the specified categories as leading positions in the educational process.

The desire to participate in the Bologna Process obliged the Ukrainian educational system to speak a language adequate to the languages of the educational systems of other participating countries and requires the adoption of Western educational terminology. Different approaches to the perception and interpretation of the concept of “competency-based approach” are obviously related to the features of the socio-economic development of each state, national traditions, features of the formation and development of the education system inherent in each nation.

Professional competence of a specialist is a complex integral intellectual, professional and personal construction, which is formed in the process of his professional training at a university, is manifested, develops and improves in professional activity, and the effectiveness of its implementation depends significantly on the types of specialist’s theoretical, practical and psychological readiness for it, personal, professional and individual mental qualities, perception of goals, values, content and features of this activity. The characteristic features of key professional competencies are as following: multi-functionality, belonging to the meta-educational field, intellectual capacity, multidimensionality. The main elements of professional competence of a specialist are as following: knowledge, skills and abilities are a set of mental formations, the professional position of a specialist, individual and mental features, acmeological invariants of a specialist.

#### References

1. Collins Dictionary. (2023). Retrieved from: <https://www.collinsdictionary.com/dictionary/english-thesaurus>
2. Dang, T. K. A., Bonar, G., & Yao, J. (2023). Professional learning for educators teaching in English-medium-instruction in higher education: A systematic review. *Teaching in Higher Education*, 28(4), 840-858.
3. Desiriani, D., Kristiawan, M., & Wardiah, D. (2023). The Influence of Self-Efficacy and Work Environment on Teacher’s Professional Competence. *Journal of Social Work and Science Education*, 4(1), 120-131.
4. Di Rienzo, P. (2020). Making Informal Adult Learning Visible. The Recognition of the Third Sector Professionals’ Key Competences. *Education Sciences*, 10(9), 228.
5. Fuchs, K. (2022, September). The importance of competency development in higher education: Letting go of rote learning. *Frontiers in Education*, 7, p. 1004876. Frontiers. Retrieved from: <https://www.frontiersin.org/articles/10.3389/feduc.2022.1004876/full>
6. Grande, R. A. N., Berdida, D. J. E., Villagrancia, H. N., Raguindin, S. M., Cornejo, L. T. O., Al Reshidi, N. M., ... & AlAbd, A. M. A. (2022). The moderating effect of burnout on professionalism, values and competence of nurses in Saudi Arabia amidst the COVID-19 pandemic: A structural equation modelling approach. *Journal of Nursing Management*, 30(7), 2523-2536.
7. Hecklau, F., Galeitzke, M., Flachs, S., & Kohl, H. (2016) Holistic approach for human resource management in Industry 4.0. *Procedia CIRP*, 54, 1-6.
8. Kan, A. Ü., & Murat, A. (2020). Examining the self-efficacy of teacher candidates’ lifelong learning key competences and educational technology standards. *Education and Information Technologies*, 25, 707-724.

9. Ko, W. H., & Lu, M. Y. (2022). Do professional courses prepare hospitality students for efficient surplus food management? A self-evaluation of professional competence in food waste prevention. *International Journal of Sustainability in Higher Education*, 23(6), 1315-1331.
10. *MacMillan Dictionary*. (2023). Retrived from: <https://www.macmillandictionary.com>
11. *Merriam Webster Dictionary*. (2023). Retrieved from: <https://www.merriam-webster.com/dictionary>
12. Nam, P. S., Tuong, H. A., Weinhandl, R., & Lavicza, Z. (2022). Mathematics Teachers' Professional Competence Component Model and Practices in Teaching the Linear Functional Concept—An Experimental Study. *Mathematics*, 10(21), 4007.
13. Nasiopoulou, P., Williams, P., & Lantz-Andersson, A. (2022). Preschool teachers' work with curriculum content areas in relation to their professional competence and group size in preschool: A mixed-methods analysis. *Scandinavian Journal of Educational Research*, 66(3), 533-548.
14. OECD. (2005). *The definition and selection of key competencies. Executive summary*. Retrieved from: <https://www.oecd.org/pisa/definition-selection-key-competencies-summary.pdf>
15. Park, M., & Kim, Y. (2023). Instructional quality of two beginning mathematics teachers for three years: what professional competency makes a difference?. *Educational Studies in Mathematics*, 112(3), 505-529.
16. Rico-García, M., & Fielden Burns, L. V. (2020). Intercultural communication in engineering studies: a key competence in global labour markets. *European Journal of Engineering Education*, 45(6), 833-853.
17. Sala, A., Punie, Y., Garkov, V., & Cabrera, M. (2020). *LifeComp: The European framework for personal, social and learning to learn key competence* (No. JRC120911). Joint Research Centre (Seville site).
18. Singh, M. N., Roberts, M. C., McKinney, W. S., Kelly, S., Ortega, A., Doyle, R., & Tampke, E. C. (2023). Advocacy as a professional competency in psychology. *Training and Education in Professional Psychology*.
19. Škrinjarić, B. (2022). Competence-based approaches in organizational and individual context. *Humanities and social sciences communications*, 9(1), 1-12.
20. Tahirsylaj, A., & Fazliu, F. (2021). From content-to competence-based curricula—An educational account of curriculum policy in Kosovo. *European Education*, 53(1), 1-14.
21. Van der Klink M., & Boon, J. (2002) The investigation of competencies within professional domains. *Human Resource Development International*, 5(4), 411-424.
22. Yang, G., & Zang, X. (2022). Development of the professional competence and professional self-concept of undergraduate nursing students during the clinical practice period: A cross-lagged panel analysis. *Nurse Education in Practice*, 63, 103360.
23. Zhao, K. (2020). Educating for wholeness, but beyond competences: Challenges to key-competences-based education in China. *ECNU Review of Education*, 3(3), 470-487.