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## ENSURING THE QUALITY OF PROFESSIONAL TRAINING OF FUTURE TEACHERS IN THE CONTEXT OF SYSTEM APPROACH

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## ENSURING THE QUALITY OF PROFESSIONAL TRAINING OF FUTURE TEACHERS IN THE CONTEXT OF SYSTEM APPROACH

**Keywords:** system approach, professional training, future teachers.

The article examines the professional training of future teachers in the context of ensuring its quality. The process is responsible and complex, and its effectiveness is determined by many factors, including the use of a system approach to organization. During our scientific exploration, we have identified the system approach as a research object and have specifically considered the educational system. This system is characterized by the interrelationship of its components. Summarizing the views of researchers on the system approach, it is clear that it should not be solely associated with the process of cognition. The system approach has much wider possibilities as it can be considered as the methodological basis of not only cognitive but also transformative activity. From a system approach perspective, we view the training of future teachers as a system with its own content, a hierarchy of structural elements, cause-and-effect relationships, subject-subject interaction, and features of the educational process. It is argued that the problem of ensuring the quality of professional training of future teachers should be studied using a system approach, since it requires a system analysis of the external and internal systems of ensuring the quality of professional training of future teachers, identifying a set of elements, establishing and ordering connections between them, and highlighting system-forming connections that integrate various elements into a system.

## ZAPEWNIENIE JAKOŚCI KSZTAŁCENIA ZAWODOWEGO PRZYSZYCH NAUCZYCIELI W KONTEKŚCIE PODEJŚCIA SYSTEMOWEGO

**Słowa kluczowe:** podejście systemowe, kształcenie zawodowe, przyszli nauczyciele.

W artykule przeanalizowano kształcenie zawodowe przyszłych nauczycieli w kontekście zapewnienia jego jakości. Jest to proces bardzo ważny i złożony, a o jego skuteczności decyduje wiele czynników, w tym zastosowanie systemowego podejścia do organizacji. Analizując to zagadnienie, przyjęliśmy podejście systemowe wobec przedmiotu badań, którym jest system

edukacyjny. Charakteryzuje się on zależnościami między jego elementami. Z przeglądu literatury jasno wynika, że podejście systemowe nie powinno być kojarzone wyłącznie z procesem poznania. Niesie ono ze sobą znacznie szersze możliwości, gdyż można je uznać za metodologiczną podstawę aktywności nie tylko poznawczej, ale i transformacyjnej. Z perspektywy podejścia systemowego kształcenie przyszłych nauczycieli postrzegamy jako system posiadający własną treść, hierarchię elementów strukturalnych, związki przyczynowo-skutkowe, interakcje między podmiotami oraz cechy procesu edukacyjnego. Autorzy dowodzą, że problem zapewnienia jakości kształcenia zawodowego przyszłych nauczycieli należy rozpatrywać z wykorzystaniem podejścia systemowego, ponieważ wymaga on analizy zewnętrznych i wewnętrznych systemów zapewnienia jakości kształcenia zawodowego przyszłych nauczycieli, zidentyfikowania zbioru elementów, ustalenia i uporządkowania powiązań między nimi, a także ustalenia i uporządkowania powiązań między nimi.

### **Introduction**

The important tasks and challenges facing the Ukrainian education system today are leading to organizational changes at all its levels and increasing attention to quality assurance. The professional training of specialists in higher education institutions requires approaches that meet the demands of pedagogical science, practice, and the requirements of the digital society. In this regard, the system approach, as one of the important methodological approaches, deserves some attention. As Yu. Vintiuk rightly observes, “on the basis of this approach, it is possible to combine the achievements of various sciences and direct them to achieve the goals of educational activity” (Vintiuk 2017, p. 296).

It should be noted that the professional training of future teachers in the context of ensuring its quality is a responsible and complex process, the effectiveness of which is determined by many factors, including the use of a system approach to organization. As S. Sysoieva rightly remarks, “professional education can be attributed to the sphere of national interests. Its priorities in modern society should be: system approaches and solutions; values of world and national culture; humanistic morality; civic consciousness; worldviews and methodological solutions aimed at the formation of new generations of specialists capable of creative, professionally responsible activities of specialists who would be the highest asset of society and the state” (Sysoieva 2008, p. 19-20).

### **Systems approach as an object of research**

The system approach is used when the object of research is considered as a system, in particular an educational system, which is characterized by the interrelationship of its components, and therefore it is important to rely on it in the course of our scientific search. Thus, a summary of the views of scientists on the system approach leads to a conclusion that it is inappropriate to associate it only with the process of cognition. The system approach has much broader possibilities because it can be considered as a methodological basis not only for cognitive but also for transformative activity. In fact, this observation applies to social systems characterized by purposefulness. It is possible to ensure the purposefulness of the system only thanks to the transformative activity of a person (Khrykov 2006, p. 155).

The system approach is a direction of the methodology of scientific knowledge aimed at the study of objects as systems. It is the precise identification of a phenomenon in a larger system – the disclosure of the mechanisms of the integrity of the complex in a single theoretical construct (Kovshar 2015, p. 351).

According to scientists, thanks to the system approach it is possible to: solve the problem of creating a coherent pedagogical theory; study not only objects as such, but also their connections and relations; distinguish a new style of thinking, i.e. system style, reorienting from studying system elements to carrying out analysis through synthesis; operate the object of research holistically and in relation to the higher order system; effectively influence practice; pay attention to a complete and systemic deduction, which involves the movement of thought from original theoretical premises to generalized conclusions.

We consider the system approach to the problem of ensuring the quality of professional training of future teachers as the leading one, which involves considering the object of study as a system, identifying a certain set of its elements, establishing and ordering the connections between these elements, highlighting the system-forming connections that ensure the connection of various elements into a system.

Thus, the system is not just a simple combination of separate parts into a single whole, but a certain set of interconnected elements that form a special unity, connected by certain ties; in addition, individual elements can act as subsystems of a relatively large system. At the same time, we note that the system of the object is determined not only by the number of elements, but also by the nature of the system-forming connections and relations between them.

We can define the actual manifestations of system properties in the following (Malafiiik 2007): the reverse influence on each component of the system, from which certain changes are made to each element, adapting them in the interest of the system itself; the dependence of the essence of the system on the constituent (composition) components, on how these components are connected, in what order they are placed and how they interact; the impossibility of changing any part of the whole without causing certain changes in other parts of the whole; the transformation of elements into a complex structure as a result of complex interaction; the integrative property as an internal manifestation of the integrity of the system – as a result of the interaction between the elements of the system; ensuring a stronger connection of the system as a whole through mutual complementation of the elements; changes in the relations between all the parts, their functional dependencies, which, as a rule, is always caused by the appearance of new properties in the system.

This means that a change in one of the components (elements) of the system, e.g., learning technology, will cause a change in the nature of the system, i.e., it will have certain influences on the search for and use of new learning methods, tools or technologies.

It should be noted that when studying the system of ensuring the quality of professional training of future teachers it is advisable to take into account the basic principles of the general theory of systems, according to which it follows that the system is more effective, the higher its integrity, which is understood as the degree of interconnection of elements, in which changes in one cause changes in others or in the system as a whole; the effectiveness of the system depends on the degree of its compatibility with the environment.

A system that functions successfully in one environment may be ineffective when transferred to another; the effective functioning of the system depends on its optimization, i.e. the degree of compliance of the organizational component with the goal for which it was created. At the same time, optimality achieved in some conditions may not occur in others (Androshchuk 2013, p. 13). The researcher is convinced that these principles manifest themselves in a complex and simultaneous way and, in particular, may change depending on the purpose of the research.

### **Methodology of system approach in pedagogy**

In connection with the study of the outlined problem, the concept of “pedagogical system” is important, which scientists interpret as a system that describes the main connections and relations, structure

and organization of the object; which is a system characterized by purposeful functioning in relation to the student's development, special structures, connections and relations between its elements. Thus, Kuzmina, outlining the theoretical foundations of the concept of "pedagogical system", interprets it as "a set of interrelated structural and functional components subordinated to the purpose of upbringing, education and training of the younger generation and adults". In addition, the researcher distinguishes between the concepts of structural and functional components: "structural components are the main basic characteristics of pedagogical systems, the totality of which, accordingly, forms these systems and distinguishes them from all other (non-pedagogical) systems". "Functional components are stable basic connections of the main structural components that arise in the process of activities of managers, pedagogues, and those who study; they determine the movement, development, improvement of pedagogical systems, and as a result, stability, vitality, survival" (Biliakovska 2019, p. 54).

In view of the above, we can say that the system of ensuring the quality of professional training of future teachers is a complex system. Besides, in the system of ensuring the quality of professional training of future teachers, we distinguish two subsystems – external and internal ones. Each of the systems is based on certain elements that are connected by functional links and relations; it has its own characteristics and directly affects the quality of professional training of future teachers (Fig. 1.).

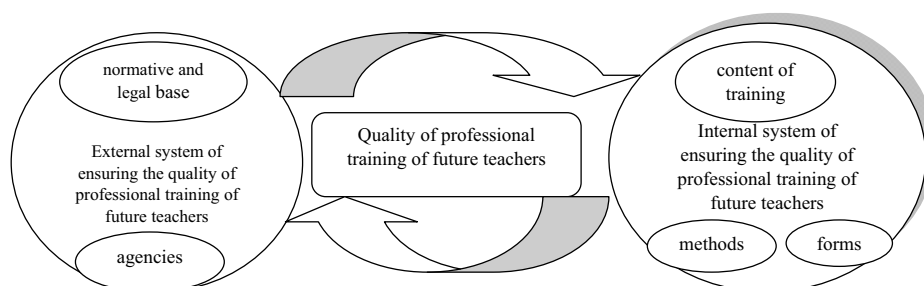


Figure 1. The system of ensuring the quality of professional training of future teachers.

It should be noted that the effectiveness of professional training of future teachers, as well as its quality, is determined by the conditions in which the educational system functions (Stepanchenko 2017, p. 163). The effectiveness of the system of professional training of future teachers is significantly influenced by the fact that the organization and management

of the educational process in higher education institutions, where the process of training specialists takes place, is carried out jointly by the administration, scientific and pedagogical staff, as well as with the involvement of students, which, of course, increases the responsibility of all subjects of the educational process for ensuring its quality (Biliakovska 2020, p. 57).

According to the scientists, the main methodological components of the system approach are three levels of systems research: subject, functional and historical. The system approach allows to explain the interaction between the parts and the whole, to establish certain regularities for various pedagogical phenomena and processes. The main principles of the system approach are presented in Table 1.

Table 1

The main principles of the system approach

Principle	Characteristics
Integrity	It is determined by a dialectical understanding of the nature of its internal connections and dependencies, the unity of the whole and the part in their simultaneous opposition.
Structures	It presupposes the need to describe the internal organization, the structure, i.e. the definition of the system components, connections and dependencies between them.
Integrativeness	It consists in the fact that each component of the system exists as such only conditionally, since it is in constant communication with other components and without them it cannot function as an element of the whole.
Hierarchy	It indicates that in some cases each system is a subsystem of a higher order system, and in other cases each component of the system functions as a subsystem.
External conditioning	It determines that each system can only exist in interaction with the environment in which it functions, acting as the leading active components of that interaction.
Global objective	The choice of the objective is a key factor in the interaction of system components, which should be aimed at achieving the overall (global) goal. All changes, improvements and system management should be evaluated with this in mind.
Development	It allows for taking into account the variability of the system, its ability to evolve, the accumulation of information taking into account the dynamics of the development of the environment.
Uncertainty	It is based on the consideration of the probability of the occurrence of an event with the prediction of possible consequences. The study of any pedagogical phenomenon can only be complete if it is included in the conditions of practical implementation.

Decentralization	It is defined as a reasonable compromise between complete centralization of the system and the ability of individual parts of the system to respond to the influence of the external environment. The balance between centralization and decentralization is determined by the purpose and the mission of the system. A fully centralized system is inflexible, unable to react quickly and adapt to changing conditions.
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*Source:* Biliakovska 2020, p. 57.

The use of the system approach in the study of the problem of ensuring the quality of the professional training of future teachers makes it possible to outline the main elements of the system, to determine the comparison criteria, the interrelationships within the system, the external relations and the influencing factors.

The peculiarity of applying the system approach to the professional training of future teachers in the context of ensuring its quality is that it requires the fulfilment of a number of conditions (Dubaseniuk et al. 2003): selecting in each specific case of a certain criterion, according to which the effectiveness of the pedagogical system or individual actions can be evaluated; presenting a model of possible activities of teachers of different skill levels, from which the most effective ones are selected; taking into account objective and subjective factors that contribute or do not contribute to the professional development of a teacher.

According to the scientists (Shakhov 2008) dialogical education of a teacher in higher education institutions is a complex and at the same time dynamic system, which has certain functions that ensure its sustainable existence: 1) internal (didactic, educational, reflective, communicative, diagnostic, informational), reflecting the possibilities of the whole system of basic pedagogical education, the interrelation and interdependence of its individual components; 2) external (coordinating and integrating), expressing the relationship of basic pedagogical education with other components of professional and pedagogical training, their interaction and logical connections.

As noted by the researchers (Dubaseniuk et al. 2003), the system approach “allows to set a single logic for the construction and deployment of not only each individual discipline, but also the content of the entire training of a specialist in higher education institution. At the same time, all the main directions of the educational process are covered – from setting objectives and constructing content, means to checking the effectiveness of new educational systems. The latter represents a complete technological cycle of training a future teacher” (Dubaseniuk et al. 2003, p. 12).



Therefore, on the basis of the above, we believe that the quality of professional training of future teachers can be ensured on a system basis, it requires consideration of a certain problem at the following levels (Biliakovska 2020, p. 59): 1) socio-pedagogical, which determines the orientation to the global, strategic goals of the educational system and the provision according to the content objectives. At the global level, the pedagogical interpretation (reinterpretation) of the state order should be carried out, which is ensured through the construction of a complete qualitative model of the future specialist (personal and operational); to solve the tasks of selecting optimal management strategies for higher education institutions, which ensure the implementation of the main objective in the practice of educational activity; 2) organizational and pedagogical, which establishes the principles of education and upbringing, the most effective forms, methods. At this level, the global objective is transformed into the system of intermediate objectives corresponding to certain stages of professional training. This leads to the improvement of educational programs, around which the new pedagogical system of professional training is built, the formation of the future teacher's personality; 3) specifically pedagogical – the effectiveness of certain pedagogical tools in real learning conditions, with students, is specified. It is at this level of direct interaction, while solving operational tasks, that the main events of life at a higher education institution take place (professional training is actually provided). Improvement of teachers' professional skills and development of students' creative abilities is an important direction for increasing their efficiency and quality.

It should be emphasized that the system approach is an important theoretical prerequisite for the study of the problems of higher education, since it involves the creation of a personality in the continuum, the integration of all the mechanisms and connections necessary for the effective formation of a future teacher. The system approach to the study of educational phenomena and processes, applied to such a phenomenon as the training of future teachers, allows us to highlight its properties, which are inherent in any similar system: “openness, dynamism, purposefulness, multi-functionality, development, self-management, self-improvement” (Komar 2011, p. 212).

## **Conclusions**

Thus, from the point of view of the system approach, the professional training of future teachers is a system with its inherent content, hierarchy of structural elements, cause-and-effect relations, subject-subject interaction,

and features of the educational process. The problem of ensuring the quality of the professional training of future teachers should be studied on the basis of the system approach, since it requires the system analysis of the external and internal systems of ensuring the quality of the professional training of future teachers, the identification of a set of elements, the establishment and arrangement of links between them, the selection of system-forming connections that ensure the combination of various elements into a system.

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