

Modern approach to the development of professional competence of academic faculty staff in higher military educational institutions

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Annotation. The article is dedicated to a pressing issue in higher education in Ukraine – the development of professional competence among academic faculty staff in higher military educational institutions in the context of modern teaching methods and threats to the national security of the state. Key aspects of the development of professional competence among academic faculty staff in Ukrainian higher military educational institutions are explored within the framework of a synergistic approach. The article describes the teaching process based on the research of A. Bandura and the synergistic effect in training and retraining academic faculty staff.

Keywords: Academic faculty staff, synergistic approach, professional competence development, educational process, higher military education, military experts.

Сучасний підхід до розвитку професійної компетентності науково-педагогічних працівників вищих військових навчальних закладів

Анотація. Сучасні вимоги до рівня професійної компетентності військових експертів визначаються викликами та загрозами, які стали особливо актуальними після початку масштабної російської агресії проти України. Ці вимоги визначають фундаментальні зміни в організації та змісті освіти для майбутніх військових фахівців. Одним з ключових чинників, що впливає на ефективність впровадження змін в систему навчання, підвищення кваліфікації та перепідготовки військових експертів, є професіоналізм науково-педагогічних працівників вищих військових навчальних закладів України.

Традиційна парадигма вищої освіти в Україні, зокрема вищої військової освіти, як вона сформувалася в кінці 20-го та на початку 21-го століття, є занадто статичною, монологічною і спрямованою на дисциплінарну диференціацію знань в автономні, закриті системи, які мають бути "прочитані" студентами або вивчені ними. Така переважно закрита і орієнтована на рівновагу парадигма практично неадекватна для розвитку і стає все більш несумісною з реальностями швидкозмінного і нестабільного глобального середовища та викликами, які стоять перед військовими фахівцями. У цьому контексті актуальним є розгляд нових парадигм освіти, серед яких особливу увагу

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заслугове синергетичний підхід. Цей підхід передбачає інтеграцію теоретичних принципів та практичних результатів на основі відкритих синергетичних узагальнюючих принципів.

Стаття присвячена актуальній проблемі вищої освіти України – розвитку професійної компетентності науково-педагогічних працівників вищих військових навчальних закладів в умовах сучасних викладів та загроз національній безпеці держави. Досліджено ключові аспекти розвитку професійної компетентності науково-педагогічних працівників вищих військових навчальних закладів України в контексті синергетичного підходу. Описано процес навчання відповідно до досліджень А. Бандури та синергетичний ефект у ньому стосовно підготовки та перепідготовки науково-педагогічних кадрів.

Ключові слова: науково-педагогічні працівники, синергетичний підхід, розвиток професійної компетентності, освітній процес, вищій військовій навчальній закладі, військові фахівці.

Introduction

The modern requirements for the level of professional competence of military experts are driven by challenges and threats that became particularly acute after the onset of the large-scale Russian aggression against Ukraine. These requirements define fundamental changes in the organization and content of education for future military professionals. One of the key factors influencing the effectiveness of implementing changes in the training, retraining, and qualification improvement system for military experts is the professionalism of scientific and pedagogical staff in higher military educational institutions in Ukraine.

The traditional paradigm of higher education in Ukraine, and specifically higher military education as it evolved at the end of the 20th and the beginning of the 21st century, is too static, monological, and focused on disciplinary differentiation of knowledge into autonomous, closed systems that are to be "read" by learners or brought to their knowledge. Such a predominantly closed and equilibrium-oriented paradigm proves practically inadequate for development and becomes increasingly incongruent with the realities of the rapidly changing and unstable global environment and the challenges faced by military professionals. In this context, it is relevant to consider new education paradigms, among which the synergistic approach deserves particular attention. This approach involves the integration of theoretical principles and practical results based on open synergistic generalizing principles.

The analysis of recent research and publications. The synergistic approach to understanding the laws of self-organization in social systems has been explored by researchers such as K. Bailey, O. Dzyoban, M. Moiseyev, and J. Scott. These scholars believe that synergetics, as a theoretical basis for the self-organization of complex systems, can and should be applied to education, which is a complex open system of a social nature.

Ukrainian scholars, including V. Kremen, E. Luzik, V. Lutay, L. Tkachenko, V. Shamrai, and others, have investigated the educational process in higher education within the paradigm of synergetics. In their works, these researchers affirm that the synergistic approach in higher education contributes to the formation of highly intellectual and creative individuals capable of functioning effectively in the contemporary conditions of an unstable world.

The problems of applying the synergistic approach in the preparation of future specialists in the field of national security and defence are the subject of scientific research by A. Vitchenko, V. Osodlo [1], A. Lihotsky [2], O. Panfilov [3], V. Artemov [4], and others. However, despite a sufficient number of works related to the application of the synergistic approach in education, the methodological and practical context of synergetics in the preparation of future military specialists remains underdeveloped. This is especially true concerning the application of the

synergistic approach to the development of professional competence among scientific and pedagogical staff in higher military educational institutions in Ukraine.

The formulation of the article's purpose. To investigate the key aspects of developing the professional competence of academic faculty staff in higher military educational institutions in Ukraine in the context of the synergistic paradigm of education.

Results

The process of reforms in the higher education system at the beginning of the 21st century raises crucial questions about a contemporary, effective, and adequate model for preparing professionals. Education represents an extremely complex open system, existing in the conditions of an unstable society. The large-scale Russian aggression has definitively shattered in the consciousness of most Ukrainians the traditional worldview where the world is perceived as rigidly structured with cause-and-effect relationships, and where causal chains typically have a linear nature, with consequences mostly proportional to the causes. Until recently, many believed that the course of development of any phenomenon or process could be explained by causal schemes, both in the past and predicted for the future. Consequently, the present was determined by the past, and the future was seen as a combination, an interaction between the past and the present. A well-established myth of linear thinking is, for example, the conviction held by the majority that processes of civilizational advancement and global progress occur exponentially [5].

The study of self-organization mechanisms has led to the emergence and development of a new conceptual approach to world analysis called "synergetics." Synergetic approaches have transformed into the social sphere and become the foundational idea of the theory of general self-organization. In this context, synergetics is considered a means of shaping a new perspective for individuals on the world and themselves in it, creating a new conceptual framework for thinking, attitudes toward life, and an effective life position. The synergetic approach is specifically designed to ensure the educational synthesis of humanitarian, technical, and military-specialized disciplines based on multi-level integration of the entire knowledge complex. The trend toward exponential growth in the volume and intensity of information flows in almost all fields of knowledge, manifested in the shift from emphasizing individual disciplines studied in the educational program for military specialists, to strengthening interdisciplinary connections, requires qualitatively new approaches to the content of education and a reorientation in the forms, methods, and approaches to teaching in higher military educational institutions. When using an interdisciplinary approach in education, unlike the traditional one, the goal is not only to provide knowledge but also to teach individuals to listen and understand colleagues working in different specialities and develop skills for dialogue among experts from various fields of scientific knowledge. The necessity for such dialogue becomes increasingly apparent. Therefore, in our view, the application of the synergetic approach to the transition of education to a comprehensive understanding of individuals in all the fullness of their individual and social relations proves to be productive.

This article did not aim to delve into the essence of the fundamental categories of the synergetics concept (dissipative structures, chaos, instability, attractors, bifurcations, etc.), as they are sufficiently detailed in the scientific literature. However, it is worth noting that from the perspective of the synergetic approach, structural genesis and changes in systems occur in a state of maximum instability. Additionally, it's important to emphasize that the concept of instability (or non-stability) in this context loses its negative connotation. As Ilya Prigogine notes, "instability can be a condition for stable and dynamic development. Only systems far from equilibrium... are capable of spontaneously organizing themselves and developing... Therefore, without instability, there is no development." He goes on to state, "If a system is structurally stable against the invasion of new units, a new mode of functioning is not

established... new units ('innovators') perish" [6, p. 251]. In a higher military educational institution, self-organizing systems include the student, the instructor, and their interaction.

To identify ways to optimize the functioning of such systems, the role of synergy can involve:

- determining the mechanisms of operation of each system: Analyzing and studying the processes that determine the self-development of each system, ultimately defining their functioning;
- identifying the logic of interaction between these systems within the synergetic paradigm of thinking: Exploring and analyzing the interaction between different systems, based on a synergetic approach that considers the processes of change in one self-developing system under the influence of the self-development of another;
- searching for specific conditions to ensure the self-development of students using the synergetic approach and building upon existing developments in the field of humanistic-personal pedagogy, subject-action learning, etc.

From the perspective of synergy, in organizing the educational process in a higher military educational institution, the emphasis is not only on knowledge transmission but also on teaching the mastery of methods for updating and quickly navigating through information, as well as methods of self-education. In the educational sphere, the synergetic approach is applied not only to self-education but also to other specific teaching methods: nonlinear dialogue that stimulates cognition, adaptive modification in learning, and more. Therefore, acquiring education enables finding successful combinations in some cases, which can be mechanisms for searching for parameters such as "learning to learn" and "learning to solve non-standard problems" [7, p. 21–22]. Nonlinear dialogue is considered a way of interaction between the instructor and the student with direct feedback, as educational interaction for solving non-standard problem situations.

From the perspective of synergy, personal development is seen as a constant movement from one state of the system to another, where chaos, randomness, creation/destruction, passage through bifurcation points, etc., are natural states of the system that, sequentially changing each other, construct a continuous chain of transformations [8]. This means that, through joint activity in such situations, the student and the instructor begin to function at the same speed and pace. Learning becomes interactive. In this process, not only does the instructor teach the student, but the student also teaches the instructor, and they become collaborators cooperating. The instructor must learn to "see" the students and understand them. In the process of learning, during which the one who does not know transforms into the one who knows, the instructor changes as well [9, p. 19]. To understand the processes of cognition, creativity, and the acquisition of new knowledge, synergy represents learning as an "adaptive modification" and the development of individually professionally significant qualities, traits, and abilities.

As a result of research conducted in several NATO member states' institutions of higher military education, it has been proven that an interactive chaotic environment is highly productive for the development of creative, non-standard thinking. Since the processes of planning, information processing, and decision-making based on it, as well as practical actions in combat situations, reflect precisely this type of thinking, it is necessary to develop it in future military professionals during their training. The results of these studies, which involved analyzing the learning process from a single point of equilibrium (acknowledging facts, asserting a single point of view) to learning on the edge of chaos, where there are many points of view, where reasoning develops in different directions, and where students listen to the opinions of others and form their judgments based on this [10]. The role of academic faculty staff in this process is not to disseminate knowledge and assess the correctness of judgments, but to observe the course of reasoning and transfer the learning process from one level to

another. As a result, understanding becomes deeper and more multifaceted, and the energy of the group largely stimulates the motivation to learn, rather than the instructor's insistence on demands.

To achieve this, the process of developing the professional competence of academic faculty staff should also be considered from the perspective of a synergistic approach. The professionalism of instructors and the process of their retraining and professional development, based on outdated approaches and principles, cannot meet the requirements for the training of military professionals in today's context. In our opinion, the most accurate description of the process of acquiring and developing the professional competence of academic faculty staff from the perspective of a synergistic approach can be illustrated using the "Bandura curve" – a graph on which Ukrainian-born American psychologist A. Bandura demonstrated the relationship between time and the level of competence of a learning individual [13].

The graph consists of two parts: the main part (solid thick curve), which reflects the actual dynamics of the process of an individual (in this case, academic faculty staff) acquiring professional competence, and an additional part (dashed curve), which represents the expectations (of academic faculty staff and the employer) from the training or professional development process of the instructor. As seen in Fig. 1, the expectations and reality are almost unrelated to each other.

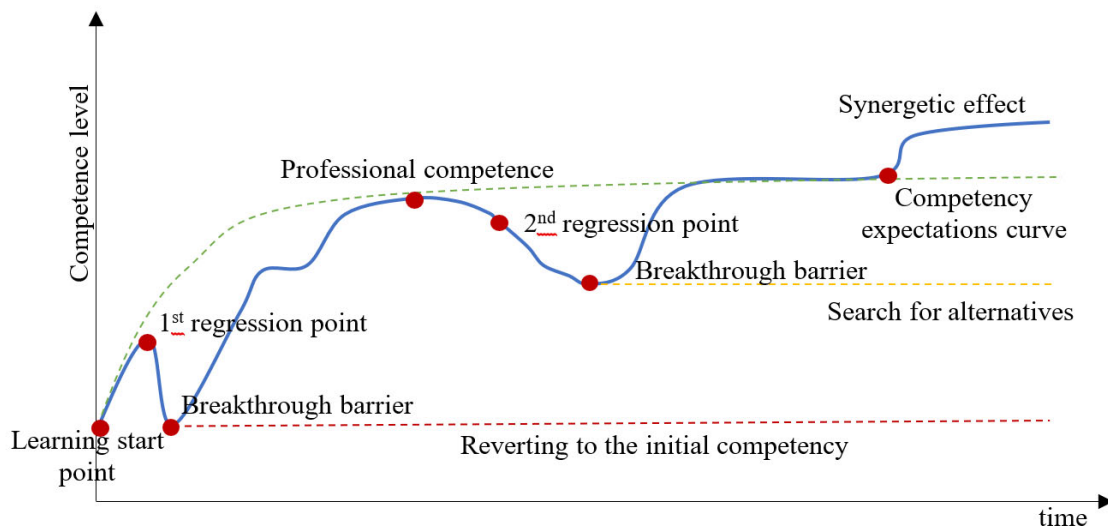


Figure 1. Professional Competence Development Graph by A. Bandura

For ease of perception, let's divide the graph into several parts, which conventionally reflect the stages of formation and development of professional competence: 1) from the initial level of development to the first barrier overcome; 2) from overcoming the barrier to achieving professional competence; 3) from the level of professional competence to the second barrier overcome; 4) from overcoming the barrier to the synergistic effect and beyond. In the first stage, the academic faculty staff, acquiring professional competence, is filled with enthusiasm for learning something new. This process usually lasts for a certain period, after which a certain decline in enthusiasm and motivation occurs. This is called the first regression point on the graph. It is characterized by the fact that the new academic faculty staff members, after the initial enthusiasm, experience a certain stagnation because it is not clear how to apply the acquired knowledge in practice, their interconnection, and so on. If this stage is not overcome and knowledge is not reinforced, the person quickly returns to the level of their initial incompetence.

If the new academic faculty staff members make efforts and do not abandon their development, further accumulating knowledge and skills, i.e., overcoming the first barrier (the second stage), and additionally gaining new experience, over time, they will reach a level where they can apply their abilities in a professional context. When this happens, such a new academic faculty staff member reaches a stable plateau in their field, which is visible on the graph.

Later, at the stage of acquired professional competence (mastery) – the third stage, the academic faculty staff members face new tasks, problems, and challenges. Overcoming these requires updating knowledge, undergoing professional development, and retraining. Here, the second regression point occurs. If the academic faculty staff member does not try again and does not continue the learning process, they may regress to the second barrier, characterized by minimally sufficient yet outdated professional competence, which gradually diminishes.

In the fourth stage, when the academic faculty staff overcomes the second barrier, it signifies an understanding that the process of improvement is essentially continuous. Consequently, they formulate a strategy for further development, leading to new heights over time. On the graph at the fourth stage, we observe the so-called starting point of the synergetic effect—indicating that continuous learning and skill development eventually create a level of professionalism that can grow exponentially, leveraging the previously gained experience and leading to breakthroughs.

In the context of unfolding human creative abilities, the synergetic approach to education seeks not to eradicate chaos but to find the most fruitful balance between order and disorder [11, pp. 11–12]. Moreover, according to O. Ponomarov, in a student's curriculum, there are subjects they enjoy, others they may not like but understand their necessity and study, and there are those they fundamentally refuse to learn, attempting to pass the corresponding exams or tests somehow. Thus, the student finds themselves in direct interaction with this environment, and all the mentioned factors, along with numerous others, intricately influence the formation and development of their personality. Only a synergetic approach to the educational process can identify the reasons for deviations in this development from the expected or desired direction and the ultimate results [12].

Therefore, from a synergetic perspective, learning, during which both the academic faculty staff and the student undergo profound transformations, unfolds as a specific modification of their activity and interaction models in the direction of the task that needs to be solved. Similar to a complex open system with inherent properties of nonlinearity, the higher education system itself is constantly influenced by various factors related to the political, economic, and social processes in society and its demands for future professionals. In this context, effectively addressing the needs of the comprehensive unfolding of individual abilities and methods of continuous self-education, synergetics provide an opportunity to rely on the principles of complementarity of methodological traditions and ways of knowing. This allows shaping in the student a system of moral, religious, political, aesthetic, and personal-existential values somehow related to the acquisition of education.

Conclusions

In summary, applying a synergetic approach to the development of professional competence for academic faculty staff in higher military education institutions in Ukraine, as a theory of self-organization of the higher education system, allows us to reconsider the issue of retraining and qualification improvement for instructors in line with contemporary challenges. It also contributes to enhancing the level of interdisciplinary education for future military professionals.

Moreover, the application of the synergetic approach contributes to solving the problem of providing each educational subject with the opportunity to define an individual learning trajectory and pace, as well as encouraging autonomy in making choices and making

responsible decisions. It is evident that synergetics, as a scientific research direction, is in demand in the system of military professional education. The results of implementing these scientific developments need to be verified experimentally.

The prospects for further research involve conducting studies on the development of a conceptual framework, defining criteria, indicators, and levels of the formation of professional competence for academic faculty staff in Ukrainian military higher education institutions. Additionally, it is important to justify the factors and conditions for creating a unified methodology for this process.

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