

THE ADVANTAGES OF A SYNERGISTIC APPROACH IN TRAINING STUDENTS OF SECOND-LEVEL EDUCATION IN HIGHER MILITARY SCHOOL

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Abstract: The article aims to substantiate the advantages of a synergistic approach in training students of second-level education in a higher military school. Studies of preparing students' issues in the indicated field are conducted by scientists using many general pedagogical approaches: systemic, cybernetic, humanistic, competence-based, and others. Each of these approaches is important for improving the specified process. Together, they originate the methodological foundation of training applicants for second-level education in a higher military school. But in many scientific works of foreign and domestic researchers, attention is not focused on applying a synergistic approach in preparing future military professionals. Therefore, it has prompted the scientific pursuit of this study.

Keywords: Development of the national and international security system, Future military professionals, Higher military school, Professional military education, Second-level education, Synergistic approach.

1 Introduction

In order to implement Ukraine's strategic course toward membership in the European Union and the North Atlantic Treaty Organization (from now on referred to as NATO), some reforms are being implemented [5], including in education. The military education system is an integral part of the national education system. The modern military and political conditions in which military education currently operates make it necessary to improve the system of training students to get higher education in military school, including those who receive education at the second (master's) level.

The professionalization of military education involves the formation of a modern model of professional military education [24], which ensures the training of military specialists based on their continuous professional development [26]. It considers the general trends in the development of the national and international security system, changes in the principles and methods of conducting armed struggle, new requirements for the quality of military education, and the formation of integrity based on NATO standards. Furthermore, professional military education cultivates the development of a military leader by providing a wide range of professional knowledge and developing creative thinking throughout an army career.

2 Literature Review

Various aspects of the problem of training military personnel are of interest to scientists and practical specialists of the Armed Forces and other components of the defense forces. Many works highlight the theoretical and methodical principles of training military-special disciplines for future masters of military-social management [12, 16, 25], the issue of training officers for professional interaction, socio-economic training of cadets and trainees in the process of continuous education at a higher military educational institution, and the formation of the professional culture of military personnel.

Foreign and domestic scientists investigated numerical studies in military education [4, 6, 14]. Biliavets and Sobko carried out studies on the formation of professional competence of military personnel; Serdiuk reviewed the integrity; Anatoliy Miroshnichenko researched methods of formation of professional commander competencies and training of officers to manage the primary units. In the studies mentioned by us and

others, scientists use different scientific approaches to justify their meaning. In particular, *systemic* (makes it possible to consider the process of training students of higher education in a higher military educational institution from the point of view of integrity, mutual enrichment and interdependence of its components [20], to reveal the structure of this process, the peculiarities of its organization (focus on qualitative and quantitative characteristics), the main mechanisms of its management; *functional* (presupposes the definition of the functions of training students of higher education in a higher military educational institution and the practical provision of their implementation in the practice of the educational process [17]; *personally oriented* (enables taking into account the individual characteristics of each student of higher education as a bearer of spiritual, moral and professional values, which he must embody in multifaceted self-realization under a time of patriotic activity); *humanistic* (presupposes the creation of conditions for personal self-realization); *competence* (puts forward specific requirements for the content of knowledge, abilities and skills necessary for the competent performance of professional tasks (sive activity)); *synergistic* (contributes to the strengthening of the connection between education and practice, coordinates the relationships between various components of the system of training applicants for higher education in a higher military educational institution based on dialogicity and interaction) [3].

Thus, Vozniuk analyzes the synergistic paradigm of learning the world, the formation and prominent features of pedagogical synergy as a new form of pedagogical reflection that conceptualizes designs and optimizes pedagogical systems based on synergistic principles, studies known pedagogical strategies regarding the presence of synergistic features in them. The author emphasizes that, even though many works have been devoted to the problems of synergy in education, such concepts as "pedagogical synergy" and "synergistic approach in education" have not yet received a straightforward interpretation in pedagogy and are at the stage of development and justification [27, p. 5].

The results of the analysis of the works of Balender, Bloschynskyi, Bkhinder, and others allow us to state that the training of officers of the armed forces and law enforcement agencies in educational institutions of foreign countries is based on the principles of the axiological approach, the concept of pragmatism, behaviorism, the humanistic paradigm, and the meritocratic idea. According to foreign military pedagogues-theoreticians Bell, Briggs, Gagne, and Royce, to improve the quality of higher military education, it is expedient to apply the approaches and principles of fundamentalization and interdisciplinary.

In the middle of the 20th century, the system approach became dominant in scientific knowledge and planning the development of society and its structures and substructures, including pedagogical ones. There are material and abstract systems. The first is divided into non-living systems and living systems. Abstract systems as a product of human thinking can also be divided into a number of different types depending on the chosen basis of classification: systems of the conceptual apparatus of research and systems of hypotheses of theories (this includes scientific knowledge about the systems themselves). There are static and dynamic systems. In static systems, the structure and connections remain unchanged over time; in dynamic systems, they are subject to change due to the influence of internal and external factors. According to the nature of the relationship with the environment, closed and open systems are distinguished.

At the present stage, both the general theory of systems and specialized ideas of systems in specific spheres and branches of life (including the theory of pedagogical systems) are actively developing [7]. Furthermore, a new interdisciplinary field of science – synergetics (from the Greek "*sinergeia*" –

commonwealth) studies self-organization processes in open systems, mainly social, economic, and pedagogical [8]. Synergetics reveals and investigates the qualities of systems, trends, and opportunities for their development builds and checks models of the growth of orderliness, structural complexity, and hierarchy of systems. Thus, we can consider that the system-synergistic approach makes it possible to form a holistic view of the world in general, the non-linearity of the processes taking place in it, and, in addition, to use the deductive method of assimilating the information field of modern sciences, which is extremely important in the conditions of the growth of information volumes, in including what concerns higher military education.

Drobin proposes to present the theoretical-conceptual "model of the formation of a synergistic product of education" in the form of a chain: "social order – the concept of synergistic education – the educational process – the formation of the product of education" [10, p. 83]. At the same time, it is through self-organization that the scientist proposes to consider the "model of formation of a synergistic product of education" [10, p. 83].

The literature analysis [22, 27] shows that the pedagogical adaptation of the ideas of synergy into the content of the training of students of higher education at the second level has some difficulties. There are not enough fundamental didactic studies of this problem regarding the content of higher military education. The practicality and relevance of introducing the ideas of synergy in the training of officers are determined by the presence in the practice of their professional activity of both traditional linear and nonlinear probabilistic synergistic thinking and stems from the contradictions between the need to implement a synergistic approach in the professional activity of officers and insufficient development of the original conceptual principles in the pedagogical theory pedagogical synergy; the declaration of a personally oriented learning paradigm and the lack of effective technologies for its implementation, and an open system of training students of higher education, the content of which should be multifaceted and varied.

3 Materials and Methods

In solving these tasks at the initial research stage, we applied the following empirical research methods: the study of documentation, pedagogical observation, and survey (interview, questionnaire, generalization of independent characteristics). These methods were used to search for actual material.

The observation method consisted of the direct perception of such a pedagogical phenomenon as training students of second-level education in a higher military school. We used observation not only as an independent method but with other approaches: observation during a conversation and observation during a group or individual study.

The survey method was implemented in the following forms: conversation, interview, and questionnaire. In addition, this method was used as an auxiliary method of pedagogical research to clarify the conclusions obtained by other methods.

Regarding the questionnaire method, a set of inquiries was arranged in content and form. The questionnaire method is relatively economical and allows you to analyze and process data using statistics. Therefore, this method was used in combination with other methods.

We also operated such research methods as comparison, assessment (expert assessment, self-assessment), creation of professional situations, and pedagogical experiment. With the help of comparison, peculiarities of applying different approaches were revealed.

It is known that using a pedagogical experiment facilitates the compelling study of pedagogical processes. The pedagogical experiment method is used in numerical studies [2, 29]. This method is of interest to our research, as it influences the process of training applicants for higher education at the second level in

a higher military institution. The experimental method in our study is associated with active intervention in the pedagogical situation through a synergistic approach and involves targeted observation. To conduct a pedagogical experiment, it was necessary to perform the following:

- Choose a base of experimental work;
- Determine the peculiarities of the selection of the experimental group (EG) and the control group (CG);
- Plan the required number of observations and the procedure for using research tools (methods and methodological techniques), forms and methods of collecting and registering results;
- Analyze and process experimental data;
- Perform statistical calculations;
- Interpret research results.

4 Results

The achievements of synergy open wide opportunities for modeling the system of higher military education with the help of methods applied to natural and exact sciences [23]. In order to develop an open system of training applicants at the second level, we studied the internal reasons for its natural development.

This is related to the implementation of the Concept of transformation of the military education system, which was adopted with the aim of "achieving a high level of operational interoperability, interdepartmental cooperation, coordinating the actions of the Armed Forces and other components of the defense forces according to NATO standards and procedures, staffing them with motivated, professional and educated personnel the composition adopted the Concept of transformation of the military education system" [5]. Synergy creates the necessary guidelines for scientific research, enriches their methodological base [28, p. 115].

Synergetics makes it possible to move from "linear" thinking, which has developed within the framework of a mechanical picture of the world, to a non-linear, appropriate new stage of the functioning of the educational space. Most of the objects studied by her are open, non-equilibrium systems governed by non-linear laws. All of them show the ability to self-organize, and their behavior is determined by the previous history of their evolution [9, p. 7]. In our research, such an object is training higher education students at the second level in a higher military educational institution. In the current conditions of instability and unpredictability of the world, the idea of non-linear thinking as multivariate and unpredictable can be helpful for the training of higher education applicants. Synergetics is focused on the search for universal laws of evolution of any educational system. Therefore, it can be a methodological basis for predictive and management activities in modern military education.

Based on the study of the works of modern scientists [27, 28, 29], one of the conditions for the implementation of a synergistic approach is the creation of an appropriate environment that contributes to the formation of a creative personality. We understand a synergistic environment as a set of material, spiritual factors and means in an open pedagogical system, in which, upon the interaction of those who teach and those who are taught, based on dynamic hierarchy and observation, there is a strengthening of cognitive actions, coordination of the pace and levels of development of those who are taught, the formation of a creative personality that combines rational and irrational components of thinking, has a holistic worldview and knows nature without rejection at the fundamental level [28].

The main components of a synergistic environment are informational and methodological, ergonomic, economic, and legal components, which, interacting, give a positive pedagogical result of forming a creative personality with a synergistic thinking style. We attribute the following to the main pedagogical, didactic, and psychological conditions that contribute to the formation of a synergistic thinking style [28]:

- The time-coordinated study of individual disciplines of the curriculum;
- Ensuring continuity in the development of concepts;
- The unity of internalization of general scientific concepts, filling them with reasonable content using hermeneutics;
- Implement a unified approach to disclosing the same class of concepts.

The same opinion is held by Nazarova and Shapovalenko [21, p. 3–6], who believe that overcoming linear thinking is one of the main conditions for involvement in the ideas of synergy and the possibility of using synergistic principles in pedagogical practice. A synergistic understanding of the world is essential for the education of a person, and also that a synergistic way of thinking is characterized by openness, dialogic, and communicativeness [28, p. 129], the formation of which is a mandatory program outcome of the study in educational programs at the second (master's) level. A synergistic approach can be used in education.

A person as an object of education should be understood as a complexly organized open system that exchanges matter and information with the same open natural and social world [15]. With this approach, the understanding of the content of education changes radically. In the synergistic sense, education is an objectless process; here, the subject and the object are identical. This is the construction of one's personality from the inside based on processing all available information. Synergetics as an educational methodology reveals a new understanding of the unity of humans, nature, and society. As a part of a self-developing system, a human cannot forcefully transform it without causing catastrophic consequences. Therefore, the education of the 21st century must overcome alienation from the world and return a person to his integrity.

Education based on these principles should save a person from technocratic pedagogy. In essence, this is a revolution in the foundations of education, which requires a rethinking of many value orientations, lifestyles, and thinking, without which the advancement of humanity to a new type of civilization is impossible [28, p. 134–135]. Synergetic methodology operates with such a concept as "synergy" (from the Greek "synergos," where "syn" means "together," and "ergos" is "action"), which has a cumulative effect. The interaction of two or more factors is characterized by their impact significantly outweighs the development of each component in the form of their simple sum. For example, interaction, combining the knowledge and efforts of several people, can be mutually reinforcing under the conditions of a particular organization. Thus, during their studies for the master's degree, students of higher education participate in command and staff exercises once a semester. From the standpoint of a synergistic approach, this is due to the optimization of educational systems with the help of academic and practical resources of pedagogical science [28].

This makes it possible to substantiate educational systems as a simple collection of various educational phenomena and as an evolutionary process, a coordinated interaction of all its elements (subsystems) [11, p. 82]. The importance of synergetics for the theory of training students of higher education at the second level in a higher military educational institution lies, first of all, in the fact that it deals with open, self-developing systems, which are interpreted quite broadly: it is any object that interacts with the world external to him, which affects the object, changing its structure and content according to unique patterns.

The factors of the pedagogical process are not constant. They change every day [19]. Moreover, even a slight change in one has significant consequences for others. This interdependence occurs at a synergistic level. Any informational changes that are caused by social, social, economic, political, etc. changes are reflected in the structure of the pedagogical process [1]. In our opinion, the main components of the system of training students of higher education at the second level are as follows: goal; content; principles; areas of training; training subjects; stages of preparation; forms and methods of practice; assessment and

correction of training results; relationships between the named components. Other training systems have a similar structure. At the same time, such systems are subsystems of the pedagogical system of a higher educational institution. In this case, training higher education students at the second level is part of the world.

Thanks to synergistic methodology, the result of a specific pedagogical action is analyzed in terms of the relationship between this action and the goal. In case of contradiction, corrections are made in the process of pedagogical activity for the purpose that determines it [13, p. 37]. Implementation of the principle of unity of didactics, experiment, and practical components of the educational process requires a synergistic approach. Based on a synergistic approach, the integration into a single complex of the components of the military education system involves interdepartmental coordination of the training of military specialists on defense issues, centralized training of operational and strategic level officers for the Armed Forces and other components of the defense forces, updating of professional standards, optimization of the network of military educational institutions and their structures, regulatory and legal support of relevant measures.

The basis of implementing the synergistic approach in education is the constant interaction of internal and external environments in the education system, which form the social order and the concept of its practical implementation [10, p. 84]. The internal environment is a complete system with separate elements with specific characteristics, structure, purpose, and tasks oriented toward the final product of education. Therefore, the educational process with the appropriate methods and means necessary for implementing the social order reflects a synergistic approach.

5 Discussion

The provisions mentioned above correspond to the tasks of the transformation of the military education system, which include the following:

- Development and implementation in the educational process of military educational institutions of updated educational programs aimed at forming a new style of military leadership and integrity, increasing the level of practical training and readiness for pre-professional activities, taking into account the needs of integration into NATO and own experience of conducting combat operations by the Armed Forces and other forces defense;
- Ensuring the implementation of the principle of "Education throughout the entire military career";
- Acceleration of the process of introduction of modern information, information and communication technologies, and distance learning technologies;
- Ensuring the quality of military education, implementing the responsibility of stakeholders for the implementation of educational activities, and implementing the legally established requirements for ensuring and guaranteeing the quality of education [5].

The system of military education includes such components as degrees and levels of education [24], levels of military education [25], fields of knowledge and specialties (subject areas of education and science, military accounting specialties) [26], educational standards and professional standards, educational programs, qualifications, license conditions, specialized institutions of military education and other subjects of scholarly activity, participants in the educational process, governing bodies in the field of military education [18], as well as normative legal acts regulating relations between them. Therefore, the training of those seeking education at the second level in a higher military school, taking into account a synergistic approach, is carried out within the framework of combined formal and informal education within educational programs following the standards of higher education, the list of fields of knowledge and specialties according to the relevant degrees of higher education (scientific degrees) and levels of military education. Within the formal education framework, it is

envisaged to obtain such degrees of higher education and scientific degrees as bachelor's, master's, Ph.D., and D.Sc.

According to the National Framework of Qualifications, the second level of higher education is the master's level, which provides for the acquisition by a person of in-depth theoretical and practical knowledge, abilities, and skills in the chosen specialty, the general principles of the methodology of scientific and professional activity, and other competencies sufficient for the effective performance of tasks of an innovative nature corresponding to the level of professional training.

The legislation determines the scope of the educational and professional master's training program at 90 hours and the academic and scientific training program at 120 hours. As for non-formal education, it is envisaged to acquire such levels of military education as tactical, operational, and strategic. The training of applicants for higher education, which is carried out in higher military institutions, provides for: (i) Obtaining a master's degree in higher education at the same time as getting a tactical level of military education; (ii) Obtaining a master's degree of higher education in the field of knowledge "Military Sciences, national security, state border security" in certain specialties after receiving an operational level of military education; (iii) Obtaining a master's degree of higher education in the field of knowledge "Military sciences, national security, security of the state border" in the specialty "National security (by separate areas of support and types of activities)" for the defense forces after obtaining a strategic level of military education.

Within the synergistic approach, the following is possible:

- A. Acquiring a master's degree in higher education and a tactical level of military education based on a bachelor's degree in higher education by cadets (students) in the educational and professional programs of the relevant specialties with simultaneous mastering of the educational programs of professional military education of the tactical level command course (L-1C).
- B. Acquiring a master's degree of higher education in the field of knowledge "Military Sciences, national security, security of the state border" in the specialties "Military management (by types of armed forces)," "Supply of troops (forces)," based on a higher education degree not lower than a bachelor's degree, including among those acquired in other fields of knowledge, by trainees who, within the framework of professional military education, have mastered the educational programs of the command course of the tactical level (L-1C), the command and staff course of the tactical level (L-2) and the course of officers of the joint staffs of the operational level (L-3).
- C. The master's degree of higher education in the field of knowledge "Military Sciences, national security, security of the state border" with the specialty "National security (by separate areas of support and types of activities)" is obtained based on the master's degree of higher education in other specialties, including other fields of knowledge, students who, within the framework of professional military education, mastered the educational programs of the course of officers of the joint staffs of the operational level (L-3) and the course of the senior management of the strategic level (L-4). In addition, the educational program of the strategic level (L-4) senior management course is a component of the master's academic program in this specialty.

The above makes it practical to use interdisciplinary connections. Interdisciplinarity is one of the signs of a synergistic approach.

6 Conclusion

Within the framework of our research, structural and logical schemes for the study of academic disciplines were developed to improve the process of training students in higher education. As the survey results confirm, in the experimental group, where

preparing students for education took place in compliance with the mentioned schemes, it was possible to achieve better results in the educational process.

Training students at the master's level in a higher military school based on a synergistic approach offers the modern system of military education an update based on the ability to understand reality and change it. Considering the synergistic approach's focus on the individual's self-development and the Concept of transforming the military education system in 2022, we believe it appropriate to use the synergistic approach as a fundamental method in contemporary education.

The prospect for further scientific research on the identified issues is the study of the role of the andragogic approach in preparing applicants for second-level education in a higher military school, taking into account gender aspects.

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