

Advantages of the "Learning by Doing" Method in Developing Managerial Competencies among Bachelor-Level Cadets at a Military Educational Institution

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Abstract: *The article aims to experimentally substantiate the advantages of employing the "learning by doing" method in developing managerial competencies among bachelor-level cadets at a military educational institution. The research methodology involved analyzing the works of scientists on the formation of managerial competencies of future specialists, studying the scientific approaches proposed in these works, and generalizing the pedagogical experience of using the "learning by doing" method.*

Taking into consideration the results of the ascertaining stage of the experiment, several difficulties were identified in the process of developing managerial competencies among bachelor-level cadets at a military educational institution, which prompted the development of a methodology for forming managerial competencies among bachelor-level cadets at such institutions. Its components include the institutional, organizational, and resultative components. In the experimental group, attention was consistently focused on the use of the "learning by doing" method throughout all stages of the research. It is based on the active participation of bachelor-level cadets in practical experiences to develop their managerial competencies. The primary concept of this method is that engaging in practical tasks and making decisions independently is more conducive to developing competencies than simply listening to lectures or reading theoretical materials. The pedagogical experiment demonstrated that applying the author's methodology for developing managerial competencies among bachelor-level cadets at a military educational institution, based on the "learning by doing" method, enhances their overall professional training.

Keywords: *managerial competencies; "learning by doing" method; development of managerial competencies; bachelor-level cadets; military educational institution.*

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Problem statement

The new conceptual provisions for organizing higher military education in Ukraine prioritize training focused on the self-development, self-education, and self-realization of specialists. Awareness of this requires the organization of high-quality training for future officers in higher military educational institutions, which depends not only on the acquisition of knowledge but also on its constant updating and continuous professional development.

The results of the analysis of the experience of border guards in performing their professional (operational and service as well as service and combat) tasks in the current conditions of martial law and repulsion of Russian aggression show that strengthening the practical component of professional training of officers, in particular concerning the management of the unit, is of particular importance. Theoretical knowledge is of practical use when it serves as the foundation for professional skills that enable competent action in any situation.

The development of managerial competencies among bachelor-level cadets occurs within the broader process of becoming a person, specifically as a future leader of a unit. The content and instructional methods at a military educational institution play a leading role.

Analysis of the latest researches

The “learning by doing” method has been developed and applied by various researchers and educators at different times. In particular, active searches in this direction were conducted at the turn of the nineteenth and twentieth centuries. The work of the American scientist John Dewey, who argued that learning should be based on students’ active experiences rather than the transfer of knowledge, is significant. (Dewey, 2016; Yuan Gao & Jinjin Lu, 2023).

Psychologist David Kolb developed the Experiential Learning Model (1984), based on the cyclical process of gaining experience, reflection, conceptualization, and active application of knowledge (Kolb & Fry, 1974). Kurt Lewin, the founder of group dynamics theory, emphasized the importance of active learning and practical experience in developing competencies, including managerial ones (Lewin, 1992).

The Italian educator Maria Montessori introduced the method of learning through practical actions, which promotes independence and skill development through sensory experience (Montessori, 1912).

The issue of professional training for bachelor-level cadets in a military institution is of great interest to modern scientists. Researchers study the project-based learning role in the future management officers' training (Kozyar et al., 2023), the potential for interdisciplinary connections and synergies in military education (Farion et al., 2023), personal traits of service members (Matokhniuk et al., 2020), cadets' self-government in the framework of their organizational culture formation (Miroshnichenko, et al., 2024), practical aspects of the border guard personnel management (Polovnikov, et al.; Nikiforenko, 2021), decision-making skills, professional mobility model of the further professional movement vector (Schleicher, 2016; Surhund et al., 2021).

Also of interest are studies in the field of military pedagogy (Bloshchynskiy, et al., 2018; Dyiak & Volobuiev, 2025; Dyiak & Boyko, 2006; Lazorenko, et al., 2022), which address various aspects of professional competence development.

Today, specialists in the sphere of military pedagogy make an essential emphasis on the formation and development of professional competencies for military service in emergency conditions. A graduate of a military educational institution should be prepared to perform various types of professional activities, namely management (Sofian, Serkhovets, Afanasyev, Kovalchuk & Miroshnichenko, 2024).

Researcher Bohdaniuk "considers the future professional activity of officers as a creative process. He draws attention to the importance of developing motivation for professional activity, as well as to the importance of applying innovative approaches in the training of bachelor-level cadets" (Bohdaniuk, 2007).

We share this opinion. However, the problem of studying the choice of instructional methods for developing managerial competencies among bachelor-level cadets at a military educational institution, in general, and the "learning by doing" method in particular, requires detailed research.

The article aims to experimentally substantiate the advantages of employing the "learning by doing" method in developing managerial competencies among bachelor-level cadets at a military educational institution.

Research methods

To solve our tasks, we used various research methods. Firstly, theoretical methods: *definitional and comparative* analysis, synthesis, systematization – to determine the state of development of the problem of using the "learning by doing" method in the process of training future

specialists in pedagogical theory and practice, to determine the essence and peculiarities of this process in a military educational institution, to generalize the pedagogical experience of using the “learning by doing” method in the process of training military specialists; modeling – for pedagogical conditions of using the method of “learning by doing” in the process of forming managerial competencies among bachelor-level cadets at a military educational institution; *empirical*– various types of observations, surveys, questionnaires, interviews, study of academic and methodological and regulatory documentation, direct and indirect observation, the method of expert assessments, self-assessment – to diagnose the level of bachelor-level cadets’ preparedness; pedagogical experiment (ascertaining and formative stages).

The use of experimental method in our research is also associated with active intervention in the pedagogical situation through the use of the “learning by doing” approach in developing managerial competencies among bachelor-level cadets and involves targeted observation. To conduct the pedagogical experiment, the following was chosen: the basis for the experimental work, the peculiarities of the choice of the experimental (hereinafter referred to as EG) and control (hereinafter referred to as CG) groups, etc.; planning the required number of observations, the procedure for using research tools (methods and techniques), forms and methods of collecting and recording results, etc.; analysis and processing of experimental data; statistical calculations; interpretation of the research results. The pedagogical experiment was conducted to evaluate the effectiveness of substantiated pedagogical conditions for implementing the “learning by doing” method in developing managerial competencies among bachelor-level cadets at a military educational institution. Mathematical statistics methods were utilized for both quantitative and qualitative analysis of the research results.

As a set of methods, approaches and procedures used to achieve the research goal, the methodology contains a justification for choosing the “learning by doing” method in the process of forming managerial competencies of bachelors in a military educational institution, analyzes how the effectiveness of this approach in the educational process is studied, describes research procedures, methods of data collection, statistical processing and comparison of results before and after the implementation of the “learning by doing” method.

Presentation of the primary material

The managerial competencies of bachelor-level cadets as future military specialists comprise an integral set of cognitive, operational, and personal characteristics that are developed during their professional training. They encompass a system of specialized knowledge, managerial skills, practical skills, as well as professionally significant personal qualities that ensure the effective implementation of a military leader's functions. The developed competencies enable the bachelor-level cadet to exercise delegated powers rationally, make informed decisions in complex management situations, and ensure an adequate level of organization within the subordinate unit.

Understanding the specifics, functions and tasks of a border guard officer as a commander (organizational, managerial, educational, military-pedagogical, administrative and economic activities, management of the organization of the service of troops, etc.), taking into account the results of the analysis of scientific literature, surveys of cadets, officers of cadet units and scientific and pedagogical staff, it was found that managerial competencies consist of leadership, organizational and communication competencies.

Leadership competencies are determined by the presence of professional self-awareness, moral and ethical principles, a high level of erudition and education, language and general cultural literacy, developed reflective thinking, as well as such characteristics as punctuality, endurance, proactive attitude, and responsibility.

Organizational competencies correlate with cognitive intelligence, a high level of discipline, a strong commanding will, strategic organization, prompt decision-making and implementation, reasonable demands, confidence in one's actions, level-headedness, perseverance, energy, determination, and effective management.

Communication competencies are conditioned by emotional stability, logical and structured thinking, a high level of cognitive memory, creativity, psychological endurance, tolerance, and social goodwill, which ensure effective interaction in a professional environment.

The research revealed several features of managerial competencies among bachelor-level cadets as future military specialists: by function (provide for the organization of the activities of the subject, subordinate service members and military personnel, establishing constructive interpersonal interaction); by content (allow future military specialists to give the decision on the management of subordinates an optimal form; to

communicate the management decision to subordinates in a clear, emotionally charged, volitional and mobilization style; to clearly and correctly perform the functions, rituals, external attributes established by regulatory documents).

It has been found that managerial competencies are developed through the study of general scientific and professional academic subject areas in lectures, practical sessions (including complex tasks), independent and individual training sessions, and during internships in military units.

The results of analyzing scientific literature, observations, expert surveys, and conversations with the scientific and pedagogical staff of the departments, officers of cadet units, and cadets allowed us to identify the criteria for the development of managerial competencies among bachelor-level cadets at a military educational institution: motivational, educational, and activity-oriented.

The motivational criterion reflects the cadet's professional and personal self-determination to perform managerial functions in a military team. The indicators of this criterion are the attitude towards mastering the practical part of the block of general scientific and professional academic subject areas, awareness of the managerial competencies importance in future professional activities, and the desire for self-improvement.

The educational criterion reveals the degree of mastery of the scientific and methodological foundations required for the effective use of managerial competencies in professional activities. The indicators of this criterion are the mastery of general scientific and professional academic subject areas, awareness of the forms and methods of managerial skills applying, and the ability to make informed managerial decisions in everyday activities.

The activity-oriented criterion reflects the manifestation of managerial competencies in everyday activities and the need to improve them. The indicators of this criterion are the ability to enhance managerial competencies in professional activities, the ability to assess the managerial competencies of one's own and junior colleagues, and the ability to develop managerial competencies in junior colleagues.

To identify the state of managerial competencies development among bachelor-level cadets at a military educational institution, an experimental study was conducted. It involved 364 bachelor-level cadets of fourth year of study. This choice was made given that all academic disciplines of the general scientific cycle and a significant number of professional academic disciplines are studied by cadets from the first to the third year. The average age of the participants in the experiment was 20–21 years. Regarding the ethics of the study, the composition of the participants

and the conditions for conducting the study were previously approved by the ethics committee. All participants were informed in advance of the possibility of refusing to participate, without any other consequences for their status. However, all participants consented to participate in the study.

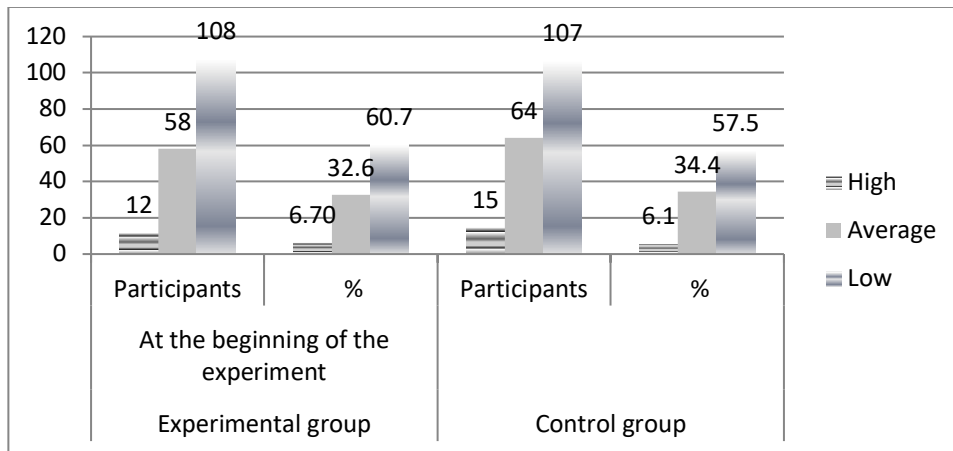
They were divided into the EG, consisting of 178 participants, and the CG, composed of 186 participants. The composition of the EG and CG was determined in accordance with the general population using the following methods: nested sampling, when not only individual respondents were selected as research units, but also groups (in our case, study groups) with the subsequent selection of cadets; quota sampling, when cadets were selected in the EG and CG in compliance with quotas (year of study - fourth, gender - male and female, age - 20 - 21 years). In this case, the recommendations of unit commanders and teachers were taken into account.

By gender, the ratio is as follows: EG – 112 male and 66 female cadets, CG – 108 male and 78 female cadets. Since all bachelors, regardless of gender, were in the same conditions, the gender aspect was not taken into account in further calculations.

The research and experimental work were conducted using a combination of empirical (various types of observations, surveys, questionnaires, interviews, and studies of educational, methodological, and regulatory documentation) and theoretical (analysis and synthesis, induction and deduction, comparison, abstraction, specification, and classification) research methods.

According to the results of the ascertaining stage of the experiment, it has been found that the bachelor-level cadets of both experimental (hereinafter referred to as EG) and control (hereinafter referred to as CG) groups have approximately the same data – mostly average (EG – 32.6 %, CG – 35.4 %) and low (EG – 61.9 %, CG – 59.1 %) levels of managerial competencies formedness (Figure 1).

Figure 1. Control and experimental groups distribution of bachelor-level cadets by levels of their managerial competencies formedness at the ascertaining stage of the experiment



A number of difficulties in the process of developing managerial competencies among bachelor-level cadets in a military educational institution were identified, which can be divided into three groups: 1) related to the insufficient theoretical development of the problem of forming managerial competencies among military specialists and the lack of clear recommendations for the scientific and pedagogical staff on methods of ensuring the effectiveness of this process; 2) difficulties of a targeted nature related to the insufficient attention of the scientific and pedagogical staff to the formation of managerial competencies among bachelor-level cadets, with insufficient practical experience of managerial activities of individual scientific and pedagogical employees necessary for the successful formation of managerial competencies among bachelor-level cadets; 3) methodological difficulties related to the lack of modern scientific and methodological literature on the formation of managerial competencies among bachelor-level cadets at a military educational institution.

The presence of these difficulties led to the development of a methodology for developing managerial competencies among bachelor-level cadets at a military educational institution. Its components include the institutional, organizational, and resultative components.

The institutional component of the methodology is reflected in the purpose of studying general scientific and professional academic subject areas. It is realized through solving the tasks of the educational process. This component of the methodology ensures the effective achievement of the

expected result – an increase in the level of managerial competencies formedness.

The organizational component of the methodology encompasses a set of forms, methods, and techniques for developing managerial competencies among bachelor-level cadets.

Taking into account the structure of the studied phenomenon, the content of the methodology includes the following blocks: “development of leadership competencies among bachelor-level cadets”, “development of organizational competencies among bachelor-level cadets”, “development of communication competencies among bachelor-level cadets”, each of which provides forms, methods, means and techniques for the development of managerial competencies.

The resultant component of the methodology for developing managerial competencies among bachelor-level cadets is a description of the expected outcome of implementing a sound methodology in the educational process, based on the definition of criteria and indicators of this phenomenon’s formation. The effectiveness of the methodology was determined by qualitative and quantitative assessment of the compliance of the resultant component with the expected result.

To test the developed methodology, a formative stage of the experiment was conducted. It involved 364 bachelor-level cadets. They were divided into the EG, consisting of 178 participants, and the CG, composed of 186 participants. The process of forming managerial competencies aimed to replicate the subject and social contexts of future professional activities in the training.

One of the methods proposed for addressing this issue, which aims to bring the educational process closer to future professional activities, including their associated challenges and scenarios, is the “learning by doing” approach. Therefore, the experimental group at all stages of the research focused on the use of the “learning by doing” method. It is based on the active participation of bachelor-level cadets in practical experiences to develop managerial competencies. The primary concept behind this approach is that engaging in practical tasks and making independent decisions is more effective in developing competencies than simply listening to lectures or reading theoretical materials.

The activities conducted in the EG included:

- creating situations of motivation for the development of managerial competencies among bachelor-level cadets;
- drawing up a program and individual plan for the development managerial competencies among bachelor-level cadets;

- application of forms and methods of interactive learning;
- directing bachelor-level cadets' activities to self-improvement of managerial competencies.

The educational process in the CG was traditional, and no additional conditions were established to foster the development of managerial competencies.

The main principles of the “learning by doing” method are as follows: practical experience (performing tasks directly, solving real problems), reflection (analyzing one’s own experience, discussing the results, concluding), active participation (each participant is involved in the learning process), learning from their own mistakes (development through trial and error), application of knowledge in practice (the acquired understanding is immediately used in real situations).

Diagnostics of cadets’ readiness to use the “learning by doing” method is possible only if they have a conscious attitude to the content of the educational material. At the same time, the effectiveness of the educational process largely depends not only on interdisciplinary connections, but also on integrating the educational process with fostering work in the units.

Successful implementation of innovative instructional methods requires a comprehensive and systematic approach. First, it is necessary to conduct a thorough analysis and optimization of the possibilities for advanced training of the scientific and pedagogical staff, primarily through internships, which will enhance their readiness to work effectively in an innovative educational environment. Secondly, it is necessary to create an academic space at a higher military educational establishment that closely approximates the actual conditions of professional activities, ensuring the practical orientation of the educational process and the development of managerial competencies essential for the successful performance of service tasks.

The effectiveness of scientific and research work was monitored by the main tasks. They were set at each stage of the experimental study. In particular, the motivational criterion assessed: attitude to mastering the practical part of the block of general scientific and professional disciplines, awareness of the significance of management competencies in future professional activity, desire for their self-improvement. The educational criterion assessed: mastering the content of general scientific and professional disciplines, awareness of the forms and methods of management skills applying, ability to make management decisions in everyday activities. The activity criterion assessed: ability to self-improve

management competencies in their future professional activities, ability to evaluate management competencies - one's own and junior colleagues, ability to form management competencies in junior colleagues. The research results obtained before and after the experiment were compared for each criterion using mathematical statistics methods.

As a result of the experimental work, it has been found that implementing the developed methodology, utilizing the "learning by doing" method, in the process of developing managerial competencies among bachelor-level cadets at a military educational institution led to an increase in the level of these competencies. After its implementation, there was a redistribution of the CG and EG cadets by the levels of their managerial competencies formedness. However, this redistribution is insignificant in the CG, and it is significant in the EG (Table 1).

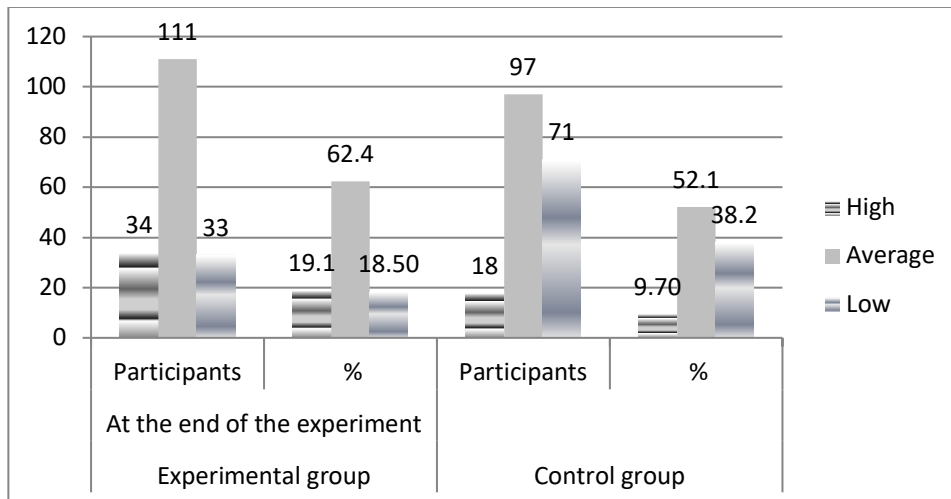
Table 1. Distribution of bachelor-level cadets of the experimental and control groups by levels of their managerial competencies formedness at the beginning and end of the formative stage of the experiment

Levels of formedness	Experimental group				Control group			
	At the beginning of the experiment		At the end of the experiment		At the beginning of the experiment		At the end of the experiment	
	Participants	%	Participants	%	Participants	%	Participants	%
High	12	6.7	34	19.1	15	6.1	18	9.7
Average	58	32.6	111	62.4	64	34.4	97	52.1
Low	108	60.7	33	18.5	107	57.5	71	38.2

The share of the EG bachelor-level cadets with a high level of managerial competencies formedness increased by 12.4 % (from 6.7 % to 19.1 %), and the share with an average level increased by 31.6 % (from 32.6 % to 64.2 %). At the same time, the number of bachelor-level cadets with a low level decreased by 42.2 % (from 60.7 % to 18.5 %). At the same time, in the CG, the number of bachelor-level cadets with a high level of formedness increased by only 3.6 % (from 6.1 % to 9.7 %), while those with a low level decreased by only 19.3 % (from 57.5 % to 38.2 %).

Thus, the EG obtained higher results taking into account to the selected criteria and indicators, which confirms the effectiveness of the experimental work (Figure 2).

Figure 2. Distribution of bachelor-level cadets of the experimental and control groups by levels of their managerial competencies formedness based on the results of the formative stage of the experiment



Discussion

By demonstrating the existence of significant differences in the average values of managerial competencies before and after the experiment, we have established the effectiveness of this research in forming managerial competencies among bachelor-level cadets at a military educational institution using the “learning by doing” method.

The pedagogical experiment demonstrated that utilizing the author’s methodology for developing managerial competencies among bachelor-level cadets at a military educational institution, based on the “learning by doing” method, enhances overall professional training.

Based on the experimental work results, it is recommended that the scientific and pedagogical staff take into account that the main factors of the development of managerial competencies among bachelor-level cadets in the process of their training using the “learning by doing” method and in their cognitive activity in general are the following:

- organizational coherence of the educational process and minimization of stress factors, which contributes to the effective assimilation of knowledge and the acquisition of managerial skills;
- availability of a clear motivational component of training and appropriate incentives that ensure the active involvement of bachelor-level cadets in educational activities and contribute to the development of their managerial competence;

- the formation of a favorable social and psychological climate within the military unit is a key factor in the development of managerial skills among future military professionals.

To this end, when preparing for a training session using the "learning by doing" method, it is essential to take into account the number of bachelor-level cadets participating in the session, their age, social, gender characteristics, level of theoretical knowledge, educational and cognitive activity in other forms of engagement, the socio-psychological climate in the military unit, the factors that shape it, and the instructor's readiness to use this method.

We have ensured that the "learning by doing" method is one of the most effective approaches to developing managerial competencies among bachelor-level cadets at a military educational institution. It allows not only learning theoretical knowledge but also applying it in practice immediately.

At the international level, this article may be valuable because: first, it updates a practice-oriented approach that is consistent with international trends in the transition from theoretical training to an active, problem-oriented and practical educational process; second, it integrates pedagogical innovations with the requirements of military education, demonstrating an interdisciplinary approach that meets modern educational trends; third, it shows how the method of "learning by doing" contributes to the formation of leadership, organizational and communicative competencies, which is important for the training of modern officers and has universal significance for military education in different countries.

Conclusions

The authors interpreted the managerial competencies of bachelor-level cadets as an integral set of cognitive, operational, and personal characteristics that were developed during their professional training. They encompassed a system of specialized knowledge, managerial skills, practical skills, as well as professionally significant personal qualities that ensured the effective implementation of a military leader's functions. Managerial competencies encompass leadership, organizational, and communication skills. *The authors also defined the following criteria for managerial competencies formedness among bachelor-level cadets at a military educational institution: motivational, educational, and activity-oriented. To identify the state of managerial competencies formedness among bachelor-level cadets at a military educational institution, an experimental study was conducted.*

Thus, in the process of developing managerial competencies among bachelor-level cadets at a military educational institution, it is worthwhile to

employ the “learning by doing” method. The use of this method contributes to the managerial competencies development, which will enable the future military specialist to self-actualize as a professional and form general life competency as a solid foundation for success, including professional success. This corresponds to the task of higher education in facilitating the transformation of learning into a means of developing the cognitive capabilities of bachelor-level cadets and trainees as the subject of their professional development.

A promising direction for further research on this problem is to investigate the feasibility of using the method of “group discussion,” situational, and role-playing games in the educational process of a military educational institution.

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