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Complex Practical Exercises as an Innovative Form of Teaching Military-Special Disciplines forFuture Bachelors of the State Border Security: Interdisciplinary Link

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Abstract: The article substantiates the experimental program of professional competencies formation in future bachelors of the state border security by means of complex practical exercises. The level of cadets' motivation to master the specialty of a border guard officer was determined; the influence of training classes according to the author's teaching methods on the efficiency of professional competencies formation in cadets of the state border security is determined; the levels of their professional competencies formedness are determined. The research was conducted at Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine in 2018-2021. 191 cadets of the Faculty of the State Border Security took part in the research. The summative assessment evaluated the degree of mastering the system of knowledge about the essence, content, methods, ways of professional activities; skills and abilities of future bachelors of the state border security to independently solve urgent tasks of border surveillance at the tactical level. The main dominant motives that inspire the cadets to quality education were presented; the key reasons that hinder the formation of the cadets' professional competencies were outlined. Research methods: system-structural analysis of pedagogical, psychological, educational and methodical, normative sources for tracing the development of pedagogical thought on the researched problem; study of academic instructors' experience, existing needs of border practice; comparison; synthesis and abstraction; summative assessment, survey, statistical analysis. At the end of the experiment, it was found that the level of professional competence in the experimental group cadets is significantly better ($p < 0.001$) compared to the control group cadets. It is determined that the number of the experimental group cadets with a high level of professional competencies increased at the end of the experiment compared to the control group, which confirmed the effectiveness of the experimental program.

Keywords: *complex practical exercise, professional competencies, future bachelors of the state border security, training, military-special disciplines.*

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1. Introduction

Today, one of the important tasks of the State Border Guard Service of Ukraine (SBGSU) is to ensure the protection and surveillance of the state border in the face of aggression by the Russian Federation (RF) and other threats and challenges (Tseveloyv, 2017; Lazorenko, 2017). That is why there is a need for highly qualified border guard officers who are able to accomplish the task of ensuring the state border security in the area of responsibility of the border guard unit, as well as to perform urgent tasks of border surveillance at the tactical level. Introduction of European standards into the educational process, constant changes in the environment of professional activities, application of modern technologies of the state border surveillance require constant improvement and bringing the level of training of border guard officers to the present time requirements. (Common Core Curriculum, 2017; Dekanoidze & Khelashvili, 2018; Ivars et al., 2016; Zalitis et al., 2020).

The content of the educational process should be focused on the needs of cross-border practice (Lazorenko, 2019; Training Portfolio, 2017; Zalitis et al., 2016). That is why the problem of enhancing the practical component of cadets training at Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine (NASBGSU) is important and relevant. The main disciplines of professional orientation, which are taught at NASBGSU, are military-special ones. Based on the results of their study, the cadets develop professional competencies necessary for their further service at the border (Bilyavets, 2018; Bondarenko et al., 2016; Lemeshko, 2016; Lazorenko et al., 2019). They cover the main range of knowledge, skills and abilities that are inherent in the profession of a border guard.

1.1. Analysis of researches and publications on the issue

The peculiarities of Romanian law-enforcement agents training were presented in the study of Răzvan Roşca (2014). Comparative issues of border guards training considering practical aspects in Ukraine and the USA were scrutinized by (Bloshchynskyi, 2017a). I. Bloshchynskyi revealed the importance of information technologies usage by cadets at NASBGSU during the English language studying (Bloshchynskyi, 2017b; 2017c). Scientists, namely (Bloshchynskyi et al., 2018) substantiated the usage of electronic methodological software for enhancing the cadets' practical training at NASBGSU for final examinations. Practical tasks of fostering the English language mastering in the class with the cadets of "Law" specialty were elaborated by (Karpushyna et al., 2019; Karpushyna et al., 2021). S.

Khosravi emphasized that along with the development of ICT, there is a need to initiate an information criminal storage system in Iranian Police for legal purposes (Khosravi, 2018).

Practical issues of presenting ways of acting in life situations in Romania based on the new theory: "The action of 4C" were revealed in the article by (Hategan, 2018).

Positive practices on discrimination situations management for Roma students at were presened by (Goga, 2019). Determination of the preschool teacher educational needs considering teaching practice using quantitative and qualitative data was regarded by (Toklu, & Hursen, 2021). They proposed to extend their internship duration in preschool institutions.

Some scholars explored and described the specifics of the beginning teachers practice on the sample of primary schools from the city of Monterrey, Mexico (Sanchez Rodriguez et al., 2018).

Practical implications of social services were studied by (Sandu, & Unguru, 2018). Some authors regarded qualitative interviews of social workers in child protection in the Czech Republic (Hloušek et al., 2020).

A critical look at the practice approach considering ELT challenges was made in the study of (Maftoon, & Sarem, 2015). A peculiar didactic project with master students practice the module (Research techniques) combining theory with practical skills in social research was presented by (Boșoteanu, & Netedu 2018).

At the same time, the analysis of the literature sources (Bondarenko, 2017; Baratyuk & Lazorenko, 2017) showed that the effectiveness of professional activities of the NASBGSU graduates largely depends on the cadets' ability to apply the acquired knowledge in practice. In addition, according to various scientists (Dekanoidze & Khelashvili, 2018; Bloshchynskyi, 2015) the level of involvement and motivation of border guard cadets in terms of mastering the professional competencies needed to manage a border unit, as well as the level of their practical skills are insufficient to perform the assigned tasks within the primary commissioned slot. The solution to the problem will be possible if the formation of professional competencies is organized in an integrated manner, taking into account the interdisciplinary links of military-special disciplines with the use of modern educational technologies.

1.2. The Aim

The aim of the work is to study the effectiveness of complex practical exercises as an innovative form of teaching military-special disciplines for future bachelors of the state border security.

1.3. Tasks

1. To find out the level of cadets' motivation to master the specialty of "State Border Security" at the beginning of the pedagogical experiment.

2. To determine the impact of exercises using the author's teaching methods on the effectiveness of professional competencies formation in future bachelors of the state border security.

3. To determine the levels of professional competencies formedness in the cadets of the EG and the CG in the field of the state border security.

2. Materials and Methods

2.1. Participants

The experimental research was conducted at the NASBGSU in 2018–2021. The research involved 191 cadets of the Faculty of the State Border Security. The experimental group (EG, n = 94 cadets) and the control group (CG, n = 97 cadets) were formed. The control and the experimental groups were formed according to the years of recruitment: the EG consisted of the cadets who entered the Academy in 2019, the CG cadets started their training in 2018. The CG cadets studied according to the curricula, which foresaw the conduct of field practical exercises in each academic discipline separately, and the EG cadets studied according to the experimental curriculum, which provided for practical exercises against a single tactical environment with the involvement of academic instructors of military-special disciplines in complex. Testing the level of cadets' knowledge, skills and practical abilities in military-special disciplines at the beginning of the experiment showed that the groups were generally identical i. e. the EG and the CG indicators did not differ significantly ($p > 0.05$) in terms of their performance level, quality and average grade.

This research complies with the ethical norms of the Law of Ukraine "On Higher Education" of July 01, 2014 No. 556-VII and the Letter of the Ministry of Education and Science of Ukraine "On Prevention of Academic Plagiarism" No. 1 / 11-8681 of August 15, 2018, as well as the requirements of the Order of the SBGSU Administration "On Approval of the Regulations on the Organization of Scientific and Scientific-Technical Activities in the State Border Guard Service of Ukraine" No. 440 of June 13, 2012. Informed consent was obtained from all persons included in this research.

Research Methods: scientific analysis of the research problem; study of academic instructors' experience, existing needs of border practice; system-structural analysis of pedagogical, psychological, educational and

methodical, normative sources for tracing the development of pedagogical thought on the researched problem; comparison; synthesis and abstraction to substantiate the possibilities of complex practical exercises for the professional competencies formation of cadets in the process of teaching military-special disciplines, formulation and systematization of conclusions, identifying ways to further research the problem.

2.2. Research Procedure

Field practical exercises with the CG cadets were conducted according to the current curriculum, which provided for various exercises in certain disciplines during the academic year without taking into account interdisciplinary links. The experimental program was designed in such a way as to primarily provoke cadets' interest in mastering the profession of a border guard officer: the curriculum included: a block of theoretical classes combined into a content-related module; field practical exercises combined into a complex with the involvement of academic instructors of the leading departments of the military-special disciplines block; all subsequent exercises were a continuation of the previous ones and were conducted against the background of a single tactical situation according to a common concept; the cadets performed practical tasks as a part of the unit (element of service procedures, border guard detail, operating personnel); the academic instructors of the Border Guard Service Department introduced instructors-assistants to the chief instructor at the training places. The following departments of the NASBGSU were involved in conducting complex practical exercises as: Border Guard Service, Border Control, General Military Disciplines, Technical Means of Border Surveillance, Foreign Languages, Administrative and Jurisdictional Activities, Personal Security and Use of Force. Each of the Departments prepared a block of tasks in the disciplines assigned to them, in accordance with the curriculum. For example: Border Guard Service Department – in the discipline of "Tactics of Border Guard Service", Border Control Department – in the discipline of "Organization of Border Control at Border Crossing Points", etc.

To solve the first task, the survey was conducted among the EG and the CG cadets, according to the authors' questionnaire, which identified the main motives that inspired cadets to choose the profession of a border guard officer and the reasons that hinder the formation of professional competencies. The questionnaire, which conducted a study of the cadets' motivation to master the specialty of "State Border Security", was developed by us taking into account all the requirements for sociological research. The questionnaire contained 20 questions that allowed to comprehensively study

the cadets' attitude to the organization and conduct of practical exercises and their importance for the formation of professional competencies at the beginning of their training at the Faculty of State Border Security in order to take these issues into account during the development and implementation of the draft experimental program.

To solve the second task, comprehensive inspection tests (CIT) were conducted with the EG and the CG cadets in order to obtain objective information about the initial level of the cadets' knowledge on the program material, as well as their skills and abilities at the beginning and the end of the experiment. The CIT contained 30 variants of tasks of equivalent complexity and had an integrated character, i. e. the solution of the CIT tasks required not isolated knowledge of separate topics of instruction and sections (modules) of military-special discipline from cadets, but revealing of ability of their integrated practical application. Each CIT task began with the words: "Identify…, justify…, analyse…, evaluate…, etc." Each of the options provided for solving of typical practical tasks depending on the specifics of academic disciplines. The following indicators were used to assess the cadets' knowledge and skills: completeness, depth, strength of learning, consistency, efficiency, generalization of knowledge and skills. In addition, the ability to link the content of the discipline with the content of future professional activities, reasonable solving of professional problems, as well as the degree of independence of the task performance were taken into account.

The method of practicing teachers (Bondarenko et al., 2020) was used in order to solve the third task and determine the professional competencies formedness; it involved assessing the professional competence of law enforcement officers according to cognitive and operational criteria. The cognitive criterion of cadet's professional competence reflects the level of knowledge acquisition in specific subjects of military-special disciplines; the ability to cognitive activities; the ability to find and analyse the necessary information. In general, the cognitive criterion presupposes that future bachelors of the state border security have knowledge of the legislative block, among which knowledge of the legal basis and procedure of physical force and special means usage, firearms and knowledge of algorithms in various situations is important. It is on the basis of this knowledge that professional skills and abilities to act in different conditions of the situation are formed. The operational criterion establishes the existence of cadets' ability to apply the acquired knowledge and formed skills and abilities for the effective performance of typical and non-standard service tasks.

The cognitive criterion was determined by such indicators as: 1) knowledge of laws and regulations; 2) knowledge of the algorithm of actions of the border guard. The development of the operational criterion in future bachelors of the state border security was determined in accordance with departmental documents on such procedural indicators: 1) the formedness of skills and abilities; 2) the effectiveness of actions in different conditions.

Three levels (high, medium, low) of professional competence of the border guard officer were defined on the basis of the defined criteria and indicators.

A set of modern general scientific methods was used to achieve the aim and implement the tasks of the research. They include theoretical and empirical methods, as well as methods of mathematical statistics. The significance of the difference between the cadets' indicators was determined with the help of the Student's t-test. The dynamics of groups indicators was also verified, values for all tests were set at $p < 0.05$. Statistical analyses were made using SPSS software (version 21), adapted for pedagogical research.

3. Results

At the beginning of the experiment we conducted the survey among the EG and CG cadets according to the authors' questionnaire in order to find out the level of cadets' motivation to master the specialty of "State Border Security". The main motives that inspire the cadets to quality education and the reasons that hinder the formation of professional competencies were identified. It is determined that the dominant motives of the cadets are 1) the desire to serve at the state border; 2) respect and authority in society; 3) the possibility of career growth; prestige of the profession and material incentives, etc. (Table 1).

The main reasons that hinder the formation of professional competencies in cadets are dissatisfaction with the content of academic disciplines, which is mentioned by 66.5 % of the cadets, laziness – 51.3 %, lack of proper training conditions – 23.6 %, irrationally formed training schedule – 13.1 %, lack of desire – 12.0 % and others (Table 2). The analysis of the reasons showed that the cadets entering the NASBGSU have low motivation to study, they are not adapted to the conditions of military service with clear regulations of the daily routine, physical loads, involvement in the daily duty service, and so on.

Table 1. Motives that inspire the cadets to master the specialty of "State Border Security" (n = 191)

Motives	Rank position
The desire to serve at the state border	1
Respect and authority in society	2
Career opportunities	3
Prestige of the profession and material incentives	4
Desire to acquire professional knowledge, skills and	5
Correspondence of own qualities to the chosen	6
Romantic attractiveness of the profession	7
Obtaining a diploma of education	8
The desire to use the profession of a border guard for	9
Impact of influential people	10

Source: Authors' own conception

Table 2. Reasons that prevent the cadets from mastering the specialty of "State Border Security" (n = 191)

Reasons	%
Dissatisfaction with the content of academic disciplines	66.5
Laziness	51.3
Lack of proper training conditions	23.6
Irrationally formed training schedule	13.1
Lack of desire	12.0
Involvement in the daily duty service	9.4
Significant physical activities	9.9
Low level of personal training	5.7
Imperfect training facilities	7.3
Boring training classes	10.5
Lack of relevant literature	4.2
Lack of free time	14.7
Imperfect incentives for quality learning	6.2
Lack of self-education skills	6.2
Lack of influence of commanders	4.7

Source: Authors' own conception

This should be taken into account in the process of implementing the author's program of formation of professional competencies of cadets with the use of complex practical exercises.

We have created a program of professional competencies formation of future bachelors of the state border security using complex practical exercises based on the work of many scientists (Lazorenko, 2017; Mysyk et al., 2004; Ovcharenko et al., 2014; Serhiyenko et al., 2016; Sutyshev, 2018). The main objectives of the experimental program are: to increase the involvement and motivation of cadets to master the specialty of a border guard officer; improving the quality and success of training in military special disciplines; deepening of professional knowledge and improvement of practical skills and abilities of cadets; teaching cadets to think, solve service tasks, make decisions and act autonomously; increasing the effectiveness of the professional competencies development of future bachelors of the state border security.

During the formation of the experimental program, we took into account the list of competencies (Common Core Curriculum, 2017; Lazorenko et al., 2019) to be mastered by a graduate of the NASBGSU. The main focus was on learning outcomes not as a sum of knowledge, but as the cadet's ability to act adequately in different situations. Theoretical practice was undertaken before the start of the experimental program implementation, which provided for the formation of conceptual-analytical and productive-synthetic levels of knowledge formedness. The latter level involves a deep understanding of the process at the state border security, the ability to synthesize, generate new ideas, to transfer previously acquired knowledge to a typical, non-standard situation.

In terms of practical skills and abilities, the experimental program provided for the consistent implementation of typical tasks of operational and service activities, close to real conditions, practice to perfection of different employment options, solving introductory situations, i. e. role-playing (Bondarenko et al., 2020; Mashtaler et al., 2020), which trainees will have to perform in the process of their future professional activities and the acquisition of professionalism. The atmosphere of the training classes encouraged the cadets to show and develop operational thinking in non-standard situations, which is the main principle of the process of forming professional competencies. Practical exercises were conducted in various military-special disciplines whereupon each subsequent exercise was a continuation of the previous one.

Complex practical exercises on the experimental program were conducted in three stages. Stage 1: route march to the place of exercise undertaking. The following training issues were worked out during the first stage: 1) movement within the unit; 2) repulse of an armed attack by the enemy; 3) overcoming the area contaminated with toxic substances. The

academic instructors of the Departments of Border Guard Service and General Military Disciplines were involved in this stage. Stage 2: operational and service activities organization of the border surveillance unit. The following training issues were worked out during the second stage: 1) establishing a base camp in a place of long-term service; 2) organization of the service by border guard details; 3) cessation of illegal activities. The academic instructors of the following departments were involved in the second stage: Border Guard Service, Border Control, Administrative Activities, Engineering Support of Border Surveillance, Logistics, and Foreign Languages. The third stage was devoted to the search for offenders on border issues, including at night with the use of technical means of border surveillance (thermal imaging devices and complexes, searchlight station, night vision devices). The academic instructors of the Departments of Border Guard Service and Engineering Support of Border Surveillance were involved during the third stage. The main principle of a complex practical exercise was to teach what is needed in the practical activities of the future border guard officer.

The main criteria of professional competence of future bachelors of the state border security are cognitive and operational ones. The cognitive criterion characterizes the degree of mastering the system of knowledge on the essence, content, methods, and ways of professional activities. The operational component is the main component that contributes to the transformation of theoretical knowledge into practical skills. Theoretical knowledge will help the cadets to qualitatively master the profession of a border guard officer, learn how to act in different conditions and acquire the ability to make well-grounded decisions, because an officer can teach subordinates only when he personally knows how to act. That is why the experimental program is aimed at developing the skills and abilities of future bachelors of the state border security to independently solve urgent problems of border surveillance at the tactical level.

During the pedagogical experiment, the CG cadets studied according to the current curriculum, and the EG cadets followed the experimental curriculum, which included complex practical exercises in military-special disciplines. The summative assessment was conducted in the form of a CIT upon completion of the training, which included theoretical questions and practical tasks.

We analysed the average score on the indicators of cognitive and operational criteria according to a four-point scale with the aim to study the effectiveness of the experimental program of cadets (Table 3). No significant difference in the training of the EG and the CG cadets was revealed

according to the results of determining the indicator of the cognitive criterion of "Knowledge of laws and regulations" ($p > 0.05$). The amount of knowledge on the legislative block did not differ significantly, but the studied indicator was higher in the EG ($p > 0.05$). This result is stipulated by the fact that the proposed method of training provides for the acquisition of practical skills by the cadets that are necessary for the effective solution of typical and non-standard service tasks at the tactical level.

The processing of the cognitive criterion of "Knowledge of the algorithm of actions of the border guard" at the end of the experiment showed a significant difference in the cadets training of the EG and the CG ($p < 0.05$). The average score of the studied indicator of the EG cadets exceeded the indicator of the CG representatives by 0.24 points and made 4.01 ± 0.79, in the CG it was, respectively – 3.77 ± 0.77, which confirms the positive effect of the of experimental program implementation.

The analysis of the indicator of the operational criterion of "Professional and practical skills formedness" at the end of the experiment showed a significant ($p < 0.05$) difference in the cadets training of the EG and the CG (Table 1). On a four-point scale, the average value of the studied indicator of the EG cadets was 3.86 ± 0.83 points, and in the CG cadets it was 3.81 ± 0.83 points. Performance of situational tasks by the CG persons was more accompanied by making errors. The most common are insufficient justification of the management decision, lack of references to laws and regulations in solving practical problems, lack of explanations about the algorithm of actions of officials of the border unit, stereotypeness in decision-making in typical conditions. There are many situations in which the CG students made inappropriate decisions, set tasks for subordinate border guards without taking into account possible changes in the situation, and so on.

The study and mathematical processing of the indicator of "Effectiveness of actions in different conditions" showed a significant difference ($p < 0.001$) in the cadets' preparedness of the EG and the CG (Table 1); at the end of the experiment this indicator was higher by 0.21 points and made 4.03 ± 0.79 in the EG cadets, and, respectively, it was 3.82 ± 0.80 ($p < 0.001$) in the CG cadets. The results reliably confirm the high efficiency of exercises in accordance with the experimental program.

Table 3. Dynamics of indicators of professional competence in the EG and the CG cadets during the pedagogical experiment **(n = 191, X ± m)**

Tests	CG (n = 97)			EG (n = 94)		
	Stages of the experiment		P	Stages of the experiment		P
	The beginning	The end		The beginning	The end	
Indicators of the cognitive criterion						
Knowledge of laws and regulations	3.71 ± 0.91	3.78 ± 0.85	> 0.05	3.67 ± 0.88	3.85 ± 0.80	> 0.05
Knowledge of the algorithm of actions of the border guard	3.66 ± 0.83	3.77 ± 0.77	> 0.05	3.65 ± 0.85	4.01 ± 0.79	< 0.001
Indicators of the operational criterion						
Skills and abilities formedness	3.68 ± 0.83	3.81 ± 0.83	> 0.05	3.63 ± 0.87	3.86 ± 0.83	> 0.05
Effectiveness of actions in different conditions	3.70 ± 0.85	3.82 ± 0.80	> 0.05	3.67 ± 0.84	4.03 ± 0.79	< 0.001

Source: Authors' own conception

Table 4. Levels of professional competence formedness in future bachelors of the state border security **(%, n = 191)**

Levels of professional competence	CG (n = 97)		EG (n = 94)	
	The beginning	The end	The beginning	The end
High	27.4	32.0	27.7	48.9
Medium	27.8	32.0	44.7	38.3
Low	47.4	36.0	27.7	12.8

Source: Authors' own conception

Comparing the data of the EG and CG, we concluded that the ratio of the EG and the CG cadets in terms of levels of their professional competence formedness was almost the same (Table 4). After the implementation of the experimental program, the number of the EG cadets with a high level of activity of the component increased from 27.7 % at the beginning of the experiment to 48.9% at the end of the experiment. At the same time, the number of cadets with medium and low levels decreased from 44.7 % and 27.7 % to 38.3 % and 12.8 %, respectively. The number of the CG cadets with high, medium and low levels of professional competencies formedness did not change significantly during the experiment. The comparative analysis of the ratio of cadets in terms of different levels of professional competence at the end of the experiment showed that the number of the EG cadets with high and medium level is 16.9 % and 6.3 % higher than in the CG, and with low level – by 23.2 % lower, which reliably confirmed the advantage of the experimental program over the traditional one.

4. Discussion

According to the results of the research, the levels of professional competence formedness in future bachelors of the state border security, i. e. high, medium and low levels, are substantiated.

The high level of professional competence of future bachelors of the state border security is characterized by a deep understanding of the procedure and system of the state border security, a high level of motivation to succeed in professional activities, a high degree of self-organization and understanding of the profession of a border guard. Future specialists of this level have a deep knowledge of laws and regulations on border issues, skills and abilities to apply them in practice considering the results of risk analysis and projected development of the situation. They regularly engage in self-education, improve their professional skills and are able to perform complex tasks and practical problems of security of the border sector. They are able to manage the unit in various forms of operational and service activities and make well-grounded management decisions.

The medium level of professional competence of future bachelors of the state border security is characterized by unstable interest in the system and processes of the state border security, an average level of motivation to succeed, a moderate desire for self-organization and an average level of understanding of the profession of a border guard. Future specialists have the appropriate knowledge of laws and regulations on border issues and sufficient skills to apply them in practice in accordance with the current situation. The cadets periodically engage in self-education and self-improvement, and need control and assistance in solving specialized service tasks. They are able to manage the unit in various forms of service activities and make appropriate management decisions in everyday life.

The low level of professional competence of future bachelors of the state border security is characterized by casual interest in professional activities, a low level of theoretical knowledge and practical skills, indifference to success in these activities. The cadets of this level have limited knowledge of laws and regulations on border issues, basic skills and abilities to apply them in practice; they are indifferent to learning. The cadets receive knowledge formally. They do not engage in self-education and self-improvement and have a low level of self-organization. They avoid solving complex tasks and practical issues of the border security, they have a general idea of the algorithm of the head of the unit and the procedure for making management decisions.

We can conclude, based on the results of assessing the level of professional competence of the cadets, that the experimental program has positive effect i. e. the indicators of the EG cadets are much better ($p < 0.001$) than the CG cadets at the end of the experiment in terms of the indicators of operational criteria.

Comparing the results of the formation of professional competence in the experimental and control groups, we can see positive changes in the work of experimental groups. Oral answers of the EG cadets were more complete, and the results of practical tasks accomplishment showed a deep understanding of the process of the state border security, the ability to synthesize, generate new ideas, transfer previously acquired knowledge to typical, non-standard situations. This confirmed our assumption that the cadets will be motivated to master the profession of a border guard officer, when the training classes are organized interestingly and meaningfully, and their content will meet the needs of border practice. Skills and abilities formed by the cadets during complex practical exercises in military-special disciplines will help them in further professional activities within the primary commissioned slot, as well as to carry out synthesis, generate new ideas, transfer previously acquired knowledge to typical, non-standard border-related situations.

5. Conclusions

1. The survey showed a low level of cadets' motivation to master the specialty of "State Border Security" at the beginning of the pedagogical experiment. Among the main dominant motives that inspire the cadets to quality education are the desire to serve at the state border, respect and authority in society, the opportunity for career growth. The main reasons that hinder the formation of the cadets' professional competencies are dissatisfaction with the content of academic disciplines, laziness, lack of proper training conditions, irrationally formed training schedule, lack of desire.

2. The results of verifying the cadets' level of professional competence formedness determined a positive effect from the implementation of the experimental program of the professional competencies formation of future bachelors of the state border security with the use of complex practical exercises i. e. the EG cadets' indicators are much better than the CG cadets' ones at the end of the experiment. Comparing the results of the EG and CG cadets at the end of the experiment, we identified significantly better indicators of the cognitive criterion of "Knowledge of the algorithm of actions of the border guard"

($p < 0.05$), indicators of the operational criterion of "Skills and abilities formedness" ($p < 0.05$) and "Effectiveness of actions in different conditions" ($p < 0.001$), which confirms the positive effect of the experimental program implementation.

3. It has been determined that the number of the EG cadets with a high and medium level of professional competence at the end of the experiment is 16.9 % and 6.3 % larger, respectively, than in the CG, and with a low level by 23.2 % smaller, which confirms the effectiveness of experimental program.

References

Baratyuk, V., & Lazorenko, O. (2017). Aktualni pytannya navchannya prykordonnykiv diyam po zastosuvannyu zakhodiv i zasobiv vplyvu na pravoporushnykiv [Topical issues of border guard training on the application of measures and means of influence on violators of the law]. Zbirnyk naukovykh prats Natsionalnoyi akademiyi Derzhavnoyi prykordonnoyi sluzhby Ukrayiny. *Ser. : Viyskovi ta tekhnichni nauky, 1*(71), 14–25. URL: http://nbuv.gov.ua/UJRN/znpnapv_vtn_2017_1_4

Bilyavets, S. (2018). Osoblyvosti vprovadzhennya metodychnoyi systemy formuvannya profesiynoyi kompetentnosti maybutnikh ofitseriv-prykordonnykiv u protsesi navchannya viyskovo-spetsialnykh dystsyplin. [Features of introduction of methodical system formation of professional competence of future border officers in the process of teaching military special disciplines]. Zbirnyk naukovykh prats Natsionalnoyi akademiyi Derzhavnoyi prykordonnoyi sluzhby Ukrayiny. Ser. : Pedahohichni nauky, *1*, 50–64. URL: http://nbuv.gov.ua/UJRN/znpnadpcpn_2018_1_6

Bloshchynskyi, I. (2015). Kryteriyi ta pokaznyky komponentiv profesiynoyi kompetentnosti maybutnikh ofitseriv-prykordonnykiv pid chas fakhovoyi pidhotovky z vykorystannyam tekhnolohiy dystantsiynoho navchannya [Criteria and indicators of components of future borderguard officers' professional competence during training with the usage of distance learning technologies]. Molod i rynok, *7*(126), 77–82. URL: http://nbuv.gov.ua/UJRN/Mir_2015_7_16

Bloshchynskyi, I. (2017a) Peculiarities of professional training of the US Border Patrol Special Operations Group's agents. *Comparative Professional Pedagogy, 7* (3), 42–48. DOI:10.1515/rpp-2017-0034

Bloshchynskyi, I. (2017b). Enhancement of cadets' practical training at the National Academy of the State Border Guard Service of Ukraine named after Bohdan Khmelnytskyi. *Science and Education*, *4*, 5–10. https://doi.org/10.24195/2414-4665-2017-4-1.

Bloshchynskyi, I. (2017c). Usage of Anki specialised program application during future Border Guard officers' independent foreign language professional training for passing state examination. *Information Technologies and Learning Tools, 58* (2), 49–58. https://doi.org/10.33407/itlt.v58i2.1605

Bloshchynskyi, I. H., Halus, O. M., Pochekalin, I. M., & Taushan, D. V. (2018) Use of electronic educational and methodological software packages for improving the preparation of future bachelors of philology. *Information Technologies and Learning Tools, 66*(4), 105–121. https://doi.org/10.33407/itlt.v66i4.2327

Bondarenko, V. (2017). Sluzhbova pidhotovka yak skladova systemy profesiynoho navchannya pratsivnykiv natsionalnoyi politsiyi Ukrayiny [Service training as part of a system of professional training for National Police staff of Ukraine]. Naukovyy chasopys Natsionalnoho pedahohichnoho universytetu imeni M. P. Drahomanova. Ser. 15, *7*(89), 4–8. URL: http://nbuv.gov.ua/UJRN/Nchnpu_015_2017_7_3

Bondarenko, V., Khudyakova, N., & Davygora, Yu. (2020). Practical aspects of formation of professional competence of patrol police officers. *Scientific Journal National Pedagogical Dragomanov University, 5*(125), 29–35. https://doi.org/10.31392/NPU-nc.series15.2020.5(125).05

Bondarenko, V., Reshko, S., & Yemchuk. O. (2016). Komponenty profesiynoyi kompetentnosti pratsivnykiv pidrozdiliv patrulnoyi sluzhby Natsionalnoyi politsiyi Ukrayiny [Components of professional competence of employees of patrol service units of the National Police of Ukraine]. *Legal Psychology, 2,* 81–90. URL: http://nbuv.gov.ua/UJRN/urpp_2016_2_9

Boșoteanu, C. I., & Netedu, A. (2018). Combining Theory with Practical Skills in Social Research. An example that Involved Master Students in a Research on Reading Habits. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 9*(4), 72–76. https://lumenpublishing.com/journals/index.php/brain/article/view/2054

Frontex, *Common core curriculum : for border and coast guard basic training in the EU* (2017). Frontex https://data.europa.eu/doi/10.2819/829367

Dekanoidze, K., & Khelashvili, M. (2018). Systemy osvity ta pidhotovky politsiyi v rehioni OBSYE

[Police education and training systems in the OSCE region]. Kyiv. URL: https://www.osce.org/files/f/documents/e/2/423404.pdf

Goga, M. (2019). Inclusion of Roma Students in Romanian Schools – Examples of Good Practice. *Revista Romaneasca pentru Educatie Multidimensionala, 11*(1), 88–99. https://doi.org/10.18662/rrem/98

Hategan, V.-P. (2018). Involving Philosophical Practice in Solving Life Situations. The Action of 4C Theory. *Postmodern Openings, 9*(3), 20–35. https://doi.org/10.18662/po/34

Hloušek, J., Kappl, M., & Smutková, L. (2020). The Best Interest of the Child and its Application in the Practice of Social Workers in the Czech Republic. *Postmodern Openings, 11* (2), 175–192. https://doi.org/10.18662/po/11.2/169

Ivars, Z., Zukova, M., & Madzule, I. (2016). Quality assurance in border guards education: challenges and topical issue. *Public Security and Public Order, Scientific Articles, 17*, 290–305. URL: https://ojs.mruni.eu/ojs/vsvt/article/view/5683

Karpushyna, M., Bloshchynskyi, I., Shumylo, I., Isaieva, I., & Mysechko, O. (2021). English Linguistic Competencies Formation through Specially Designed Border Guards' Practical Training. *Arab World English Journal, 12* (2), 479–495. https://dx.doi.org/10.24093/awej/vol12no2.33

Karpushyna, M., Bloshchynskyi, I., Zheliaskov, V., Chymshyr, V., Kolmykova, O., & Tymofieieva, O. (2019). Warm-Up as a Means of Fostering Target-Language Performance in a Particular English Class. *Revista Romaneasca pentru Educatie Multidimensionala, 11*(2), 141–159. https://doi.org/10.18662/rrem/122

Khosravi, S. (2018). Prevention of Becoming the Database to a Crime Scene. *Postmodern Openings, 9*(2), 109–101. https://doi.org/10.18662/po/21

Lazorenko, O. (2017). Taktychne prykordonne navchannya yak innovatsiynyy vyd pidhotovky kursantiv-prykordonnykiv [Tactical border education as an innovative type of cadets training]. Zbirnyk naukovykh prats Natsionalnoyi akademiyi Derzhavnoyi prykordonnoyi sluzhby Ukrayiny. Ser. : Viyskovi ta tekhnichni nauky, *1,* 166–177. URL : http://nbuv.gov.ua/UJRN/znpnapv_vtn_2017_1_14.

Lazorenko, O. (2019). Main directions of improving the practical training of future bachelors of state border security in the process of studying military-special disciplines. *Scientific Bulletin of the Flight Academy. Series: Pedagogical sciences, 6,* 82–87. https://doi.org/10.33251/2522-1477-2019-6-82-87

Lazorenko, O. V., Zabolotna, O. V., & Magas, G. A. (2019). Implementation of the educational program of training of border guards in the specialty «State Border Security» in Ukraine. *Revista Românească pentru Educație Multidimensională, 11,* 4 (Sup1), 117–133. https://doi.org/10.18662/rrem/181

Lemeshko, O. (2016). Professional competence as a part of future border guard officers to the localization of non standard situations at check points across the state border. *Collection of Scientific Works «Military Education» of the*

National University Defense of Ukraine named after Ivan Chernyakhovsky, 1(33), 179–184. https://doi.org/10.33099/2617-1783/2016-1/179-184

Maftoon, P., & Sarem, S. N. (2015). A Critical Look at the Presentation, Practice, Production (PPP) Approach: Challenges and Promises for ELT. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 3*(4), 31–36. https://lumenpublishing.com/journals/index.php/brain/article/view/1932

Mashtaler, A., Lazorenko, O., & Baratyuk, V. (2020). Experience of using roleplaying game in teaching military-special subject of future bachelors of state border security. *Collection of Scientific Works of the National Academy of the State Border Guard Service of Ukraine. Series: Pedagogical Sciences, 23*(4), 239–250. https://doi.org/10.32453/pedzbirnyk.v23i4.601

Mysyk, A., Klochak, A., & Figura, O. (2004). Metodyka pidhotovky ta provedennya kompleksnykh praktychnykh zanyat z taktychnoyi ta fizychnoyi pidhotovky z pidrozdilamy Derzhavnoyi prykordonnoyi sluzhby Ukrayiny: navchalno-metodychnyy posibnyk. [*Methods of preparation and conduct of comprehensive practical classes on tactics and physical training with units of the State Border Guard services of Ukraine: educational and methodical manual]*. Khmelnytskyi. NADPSU.

Ovcharenko, V., Panchenko, V., & Bashkatov, E. (2014). Polovyy vykhid yak odna z form pidhotovky kursantiv vyshchykh viyskovykh navchalnykh zakladiv [Field output as one of the forms of training cadets of higher military educational institutions]. *Honor and law, 4,* 46–48. DOI: https://doi.org/10.33405/2078-7480/2014/4/51/139661

Roşca, R. (2014). Selecting and Training Police Agents. *Bulletin of the Transilvania University of Braşov, 7*(56), 1, 163-170. http://webbut2.unitbv.ro/BU2014/Series%20VII/BULETIN%20VII%20PDF/18_ROSCA%201-2014.pdf

Sanchez Rodriguez, L. I., Dominguez Saldivar, A., & Mendoza Jimenez, G. J. (2018). The Professional Practice of Beginning Teachers in Primary Education in Mexico. A Case of Study in Monterrey, Nuevo León, Mexico. *Revista Romaneasca pentru Educatie Multidimensionala, 10*(4), 201–216. https://doi.org/10.18662/rrem/82

Sandu, A., & Unguru, E. (2018). Could Neuroenhancement be an Ethical Approach in Social Practice? *BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 9,* 21–29. https://lumenpublishing.com/journals/index.php/brain/article/view/2110

Serhiyenko, Yu., Lavrentyev, A., & Antonenko, S. (2016). Formation of tactics of actions of cadets taking into account their cerebration during training in higher education institution, *Slobozans'kij Naukovo-Sportivnij Visnik, 4*(54), 94–98. https://doi.org/10.15391/snsv.2016-4.017

Sutyshev, T. (2018). Actual tactical and operational tasks as the basis for the formation of competencies and content modules of educational disciplines of the operational-tactical block. *Collection of Scientific Works of Kharkiv National University of the Air Force, 4*(58), 128–134. https://doi.org/10.30748/zhups.2018.58.18

Toklu, D. A., & Hursen, C. (2021). Assessment of the Educational Needs of Preschool Teacher Candidates as regards Teaching Practice. *Revista Romaneasca pentru Educatie Multidimensionala, 13*(2), 356–381. https://doi.org/10.18662/rrem/13.2/426.

Trainings at Frontex - European Union. (2017). Training Portfolio, Frontex, European Border and Coast Guard Agency, Warsaw. URL: https://frontex.europa.eu/assets/Publications/Training/2017_Training_portfolio.pdf

Tseveloyv, O. (2017). Naukovi pidkhody do vyznachennya zahroz natsionalnoyi bezpeky Ukrayiny u sferi bezpeky derzhavnoho kordonu [Scientific approaches to the definition of threats to national security of Ukraine in the sphere of security of the state border]. *Investments: Practice and Experience, 11,* 109–112.URL: http://www.investplan.com.ua/pdf/11_2017/22.pdf

Zalitis, I., Ignatjeva, S., Davidova, J., & Kokina, I. (2020). The basic principles of designing a quality management system in education institutions of professional field of police and border guards. In Proceedings of 12th International Conference on Education and New Learning Technologies, 6-7 July (pp. 3765-3773). https://doi.org/10.21125/edulearn.2020.1033

Zalitis, I., Soboļeva, D., & Madžule, I. (2016). Professional training of the state border guard officials of the republic of Latvia: essentials, challenges and possible solutions. *Border Security and Management, 1*(6), 123–135. http://dx.doi.org/10.17770/bsm.v1i6.1708