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José María Pino Suárez 400-2 esq a Lerdo de Tejada. Toluca, Estado de México. 7223898475
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TÍTULO: Desarrollo de la motivación de los futuros pilotos de aviación civil para la actividad profesional.

AUTORES:

1. Assoc. Tetiana Plachynda.
2. Ph.D. Galyna Pukhalska.
3. Ph.D. Kateryna Kryzhevska.
4. Ph.D. Almira Dranko.
5. Ph.D. Oksana Ursol.
6. Prof. Ihor Bloshchynskyi.
7. Prof. Oleksandr Didenko.

RESUMEN: El artículo destaca el problema actual de la formación profesional de futuros pilotos de aviación civil y se enfatiza la necesidad de desarrollar su motivación para la actividad profesional. Se ofrecen condiciones pedagógicas del desarrollo de la motivación para esta actividad, en particular: aquella que proporciona el contenido del material educativo con el uso de métodos de enseñanza interactivos; creándose un fondo emocional positivo en las clases en la institución educativa de vuelo y la adquisición independiente de las competencias profesionales mediante el uso de la experiencia de los instructores piloto en forma de apoyo tutorial. Se describen los resultados del experimento pedagógico sobre el desarrollo de la motivación para la actividad

profesional de los futuros pilotos, confirmándose la efectividad de las condiciones pedagógicas propuestas.

PALABRAS CLAVES: futuros pilotos, formación profesional, motivación para la actividad profesional, aviación civil.

TITLE: Developing of future civil aviation pilots' motivation for professional activity.

AUTHORS:

1. Assoc. Tetiana Plachynda.
2. Ph.D. Galyna Pukhalska.
3. Ph.D. Kateryna Kryzhevska.
4. Ph.D. Almira Dranko.
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6. Prof. Ihor Bloshchynskyi.
7. Prof. Oleksandr Didenko.

ABSTRACT: The article highlights the current problem of professional training of future civil aviation pilots. It is emphasized the need to develop their motivation for professional activity. The pedagogical conditions of motivation development for professional activity are offered, particularly: motivation providing by the content of educational material with the use of interactive teaching methods; creating a positive emotional background at classes in the flight educational institution; encouragement for independent acquisition of the necessary professional competencies through the use of experience of pilot-instructors in the form of tutorial support. The results of the pedagogical experiment on the motivation development for professional activity of future pilots, which confirm the effectiveness of the proposed pedagogical conditions, are described.

KEY WORDS: future pilots, professional training, motivation for professional activity, civil aviation.

INTRODUCTION.

The pace of scientific and technological progress in the aviation industry of the XXI century gradually takes this kind of transport to the level of mainstream use by the population of the planet, what put on the agenda a task for the preparation of a sufficient number of skilled pilots capable of quickly adapting to permanent innovations during their professional activity. It is evident that the basis for such capability is the professional competence that is acquired when studying at flight educational institution.

Usually flight educational institution intending students aiming to become a pilot of civil aviation are motivated to acquire the required competences. However, at time went on, when they encounter difficulties in studying, flight training, minuses of professional activity, etc., their motivation decreases. Therefore, the goal of faculty of flight educational institutions is to create the necessary pedagogical conditions for the effective training of future civil aviation pilots.

DEVELOPMENT.

Literature review.

Studying the issue of motivation for learning activity, F. CEAUȘU (Felicia CEAUȘU, 2018, p. 7) emphasizes: «The meanings of the term – to be motivated for learning correlates and expresses at behavioral level a present stimulant, mobilizing and directed disposition in order to achieve some goals. We are talking about those stimulating elements that often the educators call them desires. It is logical to accept the idea that on such motivational routes, the student will be very much involved in the learning tasks, he/she will be inclined towards finalities that are aware to him/her in a great extent. He/she transfers in learning, relatively and constantly for a certain period of time, his/her

cognitive potential, affective and cognitive-actional states, life experience etc.».

As used in this research, the scholarly opinion of the following scientists R. Kazlauskaitė-Markelienė R. Gedminienė is significant. They emphasize that «…vienu iš svarbiausių uždavinių tampa paramos studentams užtikrinimas, siekiant padidinti aukštojo mokslo prieinamumą, sėkmingai plėtoti į studentą orientuotas studijas. One of the most important tasks is to provide support for students in order to increase access to higher education and to develop student-centered researches successfully». (Rolanda Kazlauskaitė-Markelienė, Rasa Gedminienė,2015, p. 33). We accept authors' point of view as effective professional training of future civil aviation pilots is contingent upon the drawing of instructors` attention to the interests and motives of students.

The scientists S. Nourinezhad, N. Shokrpour and Z. Shahsavar remark that «…define intrinsic motivation as doing something which is inherently interesting or enjoyable. For example, a student can be highly motivated to do his/her homework out of interest. It means that the student could be motivated to learn a new skill because he or she understands its value. Extrinsic motivation refers to doing something because it leads to a separable outcome. An illustration of this kind of motivation is the student who wants to get a good grade to obtain the consent of teachers or parents. In both examples, the nature and focus of the motivation vary while the amount of motivation is not necessarily different» (Sepideh Nourinezhad, Nasrin Shokrpour & Zahra Shahsavar, 2017, p. 72).

Challenging is the idea of the scientists as for the inner students' motivation. Particularly H. Tohidi and M. Mehdi Jabbari hold that: «Intrinsic motivation refers to motivation that is driven by an interest or enjoyment in the task itself, and exists within the individual rather than relying on any external pressure… Research has found that it is usually associated with high educational achievement and enjoyment by student's evaluation theory. Students are likely to be intrinsically motivated if they: Attribute their educational results to factors under their own control (e.g., the effort expended), Believe they can be effective agents in reaching desired goals (i.e. the results are

not determined by luck), are interested in mastering a topic, rather than just rote-learning to achieve good grades. Extrinsic motivation comes from outside of the individual. Common extrinsic motivations are rewards like money and grades, coercion and threat of punishment. Competition is in general extrinsic because it encourages the performer to win and beat others, not to enjoy the intrinsic rewards of the activity. A crowd cheering on the individual and trophies are also extrinsic incentives» (Hamid Tohidi & Mohammad Mehdi Jabbari, 2012, p. 820).

After the research, the authors make a comment that «… motivation towards being assessed shows to be one of the crucial indicators of the quality of the educational process. Teachers motivated towards assessment ascribed importance to competences oriented towards the students, to competences oriented towards the educational process and the competence oriented towards self-development of the teacher, whilst competences oriented towards the student and towards developing the personality of a student dominated. This research contributed to prove the importance of motivation in the process of developing the professional competences of a teacher regarding the perception of how important these competences are in the educational process. The research further confirmed the synergy between the causal and resultative motivational hypotheses. The assessment of teacher by their superiors leads to heightened motivation and the motivation towards assessment leads the teacher to an effort of increasing his/her success in the educational process» (Eva Stranovská, Mária Lalinská & Ivana Boboňová, 2018, p. 572).

Tryhub I. emphasizes that the process of future specialists training improving in modern education is rather complicated and conditioned by several important factors. One of them is the adequacy of students` educational activities motivation for the purposes and objectives of the educational system in higher educational institutions. The issue of motives for learning development, what is an integral part of future professional development, is relevant because modern students lose gradually their incentive to study activities (Trihub IP, 2014).

Investigating the training of future civil aviation, specialists H. Pukhalska (2006) emphasizes that the training of future pilots is a system consisting of complementary elements. The author considers the professional training in respect of several aspects: on the part of its organizers, as a process of development of conditions for the purposeful formation and development of cadets' certain opportunities for future professional activity in the process of preparation at the flight educational institution by state institutions, management entities and instructors; on the part of future pilots, as a process for achieving the necessary level of preparedness for professional assignment (H. Pukhalska, 2006).

R. Makarov noted in his research for future pilots` training that a high level of motivation for professional activity is necessary in addition to the required sound professional knowledge, skills and abilities (R. Makarov, 2005, pp. 146-148).

T. Plachynda focused on adequate and even-handed evaluation of future pilots, insisted on the importance of reflection and self-direction development for cadets in the process of training, called attention to the skills to conduct the self-rating of future pilots for the purpose of further individual improvement in her research with the objective of insuring the professional training quality of flight educational institutions cadets (T. Plachynda, 2014).

Scientific papers of the above mentioned authors are significant in pedagogical science but they are not aimed at development of motivation for professional activity of future pilots. Considering the specific nature of civil aviation specialists' professional activity, more specifically: responsibility for the lives of passengers and crew members, responsibility for flight safety, responsibility for craft etc., the most important task of flight educational institutions is the qualitative professional preparation of future aviation industry specialists. The development and growth of future pilots' motivation for professional activity depend on effective organization of learning process.

Methodology.

The conducted pedagogical experiment was aimed at the verification of motivation formation for professional activity of future aviation specialists in higher educational institutions in the field of aviation. 538 people (the students 1-4 years of study) participated in the experiment. The control group (CG) and the experimental group (EG) were formed: CG – 265 students, EG – 273 students. The Wilcoxon signed-rank test was used to determine homogeneity of two groups. The critical values have been calculated for the significance point α=0.05 and sample sizes n1=265, n2=273 (table 1).

Table 1. Critical values for the Wilcoxon signed-rank test (α=0.05; n1=265; n2=273).

Critical values	CG – EG n_1=265, n_2=273	CG – CG $n_1 = n_2$=265	EG – EG $n_1 = n_2$=273
Low	67882	66901	71055
Upper	74953	73814	78276

Motivation formation for professional activity of future pilots was tested with the use of K. Zamfir technique modified by Artur Rean which proposes the list of motives with internal motives indexes, external positive motivation and external negative motivation and where five-point grading scale is proposed to define their significancy for experiment participants. The expressiveness index of each type of motivation is the number inside from 1 to 5 (may be non-integral).

Experimental data relating to the levels of motivation formation for professional activity of future pilots at the input control stage is presented in Table 2 and is shown in the diagrams (Figure 1).

19,55% of participants showed the high level of motivation formation for professional activity at the ascertaining experiment stage. Among them 19,10% are the experimental group cadets and 20,00% - control group cadets. 55,75% of experiment participants showed the intermediate level of

motivation formation. Among them 56,40% are the experimental group cadets and 55,10% - control group cadets.

Table 2. The levels of motivation formation for professional activity of future pilots at the ascertaining experiment stage (empirical distribution).

Level		low	intermediate	high
Points		1,0 – 2,9	3,0 – 3,9	4,0 – 5
		2,5	3,5	4,5
Cadets quantity	CG(x) $n_1 = 265$	66	146	53
	EG(y) $n_2 = 273$	67	154	52
		133	300	105

24,70% experiment participants are at the low level of motivation formation. Among them 24,50% are the experimental group cadets and 24,90% - control group cadets.

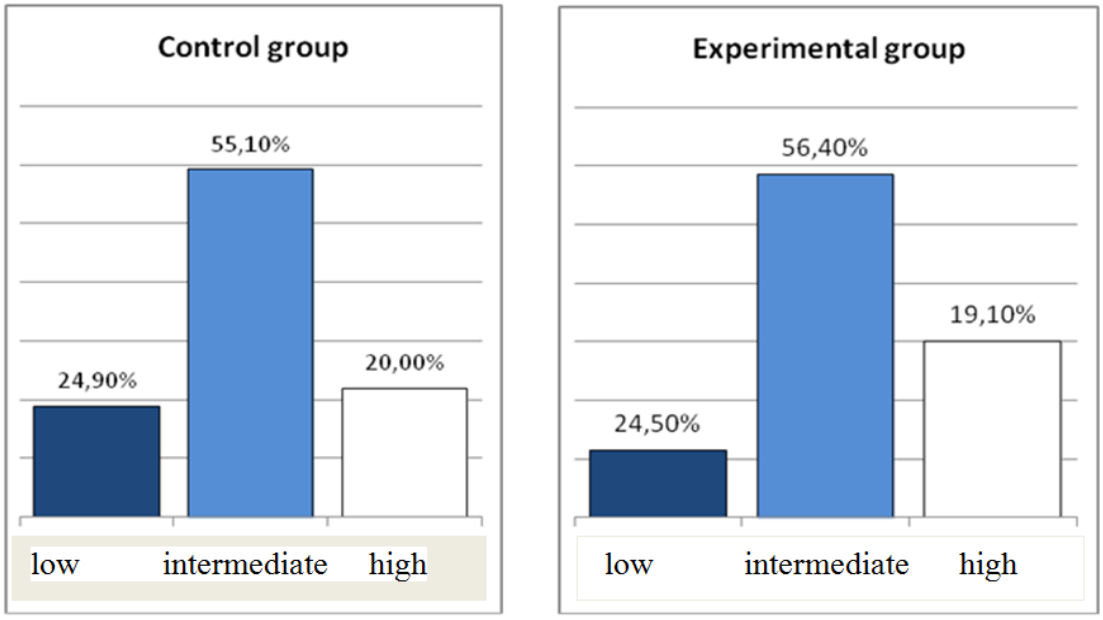

Figure 1. The diagram of motivation formation for professional activity of future pilots in control and experimental groups at the ascertaining experiment stage.

The analysis of these groups' indexes showed that the studied groups are qualitatively homogeneous, and their numerical indices do not differ significantly. The representatives of the studied groups with a high level of formation for professional activity have higher indexes of internal motivation (satisfaction from the process itself and the result of learning, the possibility of the most complete self-realization).

External positive motives (scholarships, encouragement, the need to achieve social prestige, and respect for others) are more significant for a large part of the studied cadets (about 56%).

Some experiment participants (about 25%) consider it important for themselves to avoid criticism from teachers and groupmates, the desire to avoid possible punishments or troubles (external negative motivation).

In order to develop the required level of motivation for professional activity of future civil aviation pilots we have introduced pedagogical conditions into the educational process, namely:

• Providing motivation with the educational material content with the use of interactive teaching methods.

• Creating a positive emotional background in class at flight educational institution.

• Stimulation of independent development of the necessary professional competencies through the use of experience of pilot-instructors in the form of tutorial support.

As for the first pedagogical condition, we have established in the course of the research that the stimulating content of the educational material motivates the future pilots' professional activity in the process of educational activity and subject - subject relations. An important element of future pilots' professional activity motivation development is the novelty of the educational material content, that causes the student's orientation. At the same time, the novelty element is an important factor in the functioning of professional motivation in general, since it activates educational activities.

The content of the subject is able to offer students something new that can impress and surprise them and cognize the problem. These are new facts, information, theories, ways and means of solving a certain problem, the existence of which students did not guess. The new information differs contrastingly from the knowledge already acquired, causes surprise, focuses attention and activates cognitive and professional interest. Thus, the motivation of novelty is considered by us mainly from the point of view of the supply of new material. The motivation of novelty contributes to mastering the means of the acquired knowledge and skills operating. It is often reflected in the content of the material that goes beyond the curriculum. Instructors often turn to non-program material, wishing to develop students thoroughly and encourage them to work independently.

The combination of educational material novelty and interactive learning methods increases the motivation for professional activity, since future pilots are active subjects in the educational process. The following interactive methods are proposed by us: inverted lecture, brainstorming, discussions, debates, analysis of civil aviation pilots` professional actions, case study, etc.

The activity of future pilots in the classroom while using the interactive teaching methods rose significantly, they participated in the discussion of the training material actively, prepared in advance for the class, discussed the aviation events vigorously, etc.

Except insuring the students' interest in the novelty of educational material, it is important to create a positive emotional background in the classroom. Unsuccessful organization of a training class by an instructor causes a temporary disorder in the student body and a negative attitude towards the instructor.

We created a positive background during the training classes with future pilots with the use of a competitive learning method (it gives a boost for activation of educational interest through the use of the educational game elements and creation of a general positive mood); student encouragement (deserved high grade, instructor's positive judgment, groupmates` positive reaction to student

achievement, approval or benevolent tone or attitude of the instructor, etc.); democratic style of teaching (the instructor looks upon the student as an equal partner), etc.

Understanding of job factor and responsibilities when performing professional tasks is valuable for future civil aviation pilots. In that context, it is impossible to replace the use of the experience of pilot instructors in the form of tutorial support in process of future pilots training. Necheporuk Y. notes that "The increased interest in tutoring is due to the fact that the higher school is not able to prepare its graduates to solve all the problems that will happen to them on the life course. As a result, a new task is emerging. It is necessary to develop universal methods of activity for students which seems to be the ways of solving problems in various spheres and types of activities such as modeling, forecasting, system analysis, designing, research, etc." (Necheporuk Y., 2015, p. 130).

On the basis of pedagogical experience study in Flight Academy of NAU in the framework of lectures on psychology on "Professional reliability", pilot V. Gromov based on his own life experience and useful information toolkit accumulated in the course of communication with other aviators, developed correct psychological patterns of the 4 course of study cadets (Kushnir O., 2015, 2016). The hero of Ukraine, honored test pilot O. Halunenko joined the academic studies systematically, who shared his experience with future cadets and motivated them to qualitative professional activity. In addition to the mentioned aviators, future pilots contact instructor-pilots who hold their flying practice.

Tutoring effect is that the future pilots not only ask that sense of their own actions but finally feel up to internal motivation for studying. They discover the reasons for themselves and their own priorities to acquire the necessary professional competencies. So, the tutor helps the cadet to become the subject of his own activity, self-education.

Results and discussion.

We conducted the formative stage of experiment at Flight Academy of National Aviation University (Ukraine, Kropyvnytskyi) during 2016-2018. The aim of the experiment was to develop future civil aviation pilots' motivation for professional activity. The suggested pedagogical conditions caused a positive dynamics of future civil aviation pilots motivation development, that is proved by the processing of experimental data with the use of mathematical research techniques (Table 3 and Figure 2).

Table 3. The main indexes of motivation formation for professional activity of future pilots after the formative stage of experiment.

Groups	*sample mean*	*confidential interval*	*level*	*homogeneity*	*the difference in mean x*	*t-criterion value*		*significance of difference in means*
						empirical	*critical*	
CG	3,53	(3,45; 3,51)	intermediate	non-homogeneous	0,16	3,06	1,96	significant
EG	3,69	(3,62; 3,76)	intermediate					

25,95% of participants showed the high level of motivation formation for professional activity after the formative stage of experiment. Among them 30,00% are the experimental group cadets and 21.90% - control group cadets. 58,92% of experiment participants showed the intermediate level of motivation formation. Among them 58,60% are the experimental group cadets and 59,20% - control group cadets. 15,15% experiment participants are at the low level of motivation formation. Among them 11,40% are the experimental group cadets and 18,90% - control group cadets.

After the formative experiment, the studied groups became qualitatively non-homogeneous, and the quantitative parameters of the experimental group exceed significantly the corresponding

parameters of the control group. It indicates the effectiveness of the suggested pedagogical conditions.

Thus, the implementation of suggested pedagogical conditions in the educational process of flight educational institution makes the training of future civil aviation pilots more qualitative.

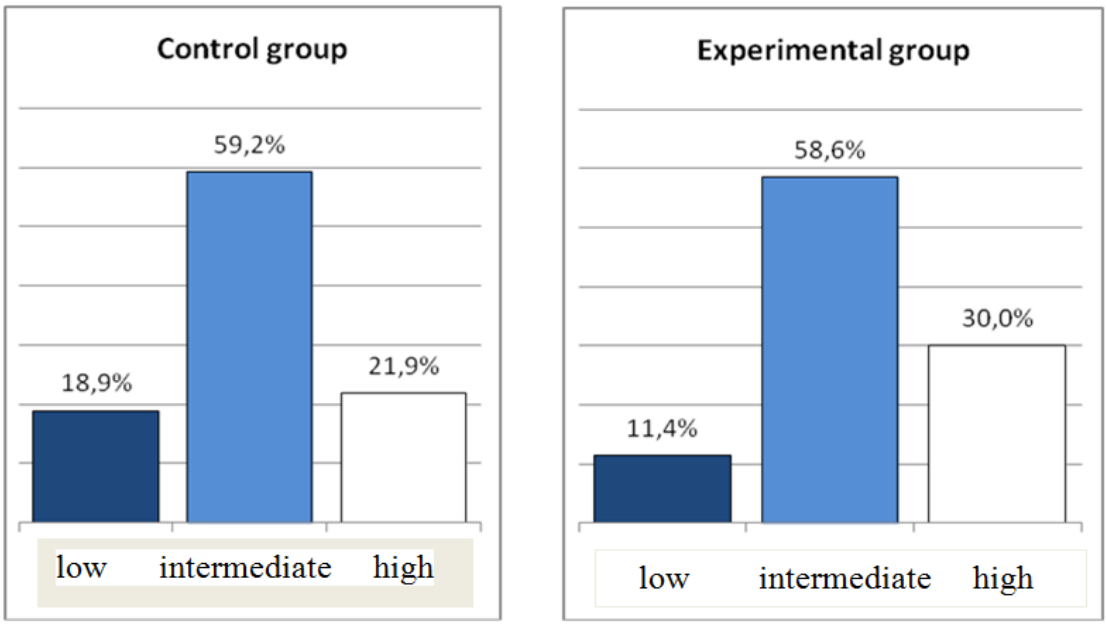

Figure 2. The diagram of motivation formation for professional activity of future pilots in control and experimental groups at the formative experiment stage.

There are some difficulties with regard to the permanent and extended application of the outlined pedagogical conditions, for example:

• The training material should comply with the requirements of the International Civil Aviation Organization (ICAO) and European Aviation Safety Authority (EASA).

• The updating of educational information requires a large amount of instructor time.

• Not all cadets involved to active interactive teaching methods are enthused.

• Sometimes, it is difficult to create a positive background in the class due to the age of students, because it is the age of the late adolescence and forwardness, what causes emotional changes in students.

• The involvement of aviators in training activities is difficult due to their business, etc.

However, future pilots are constantly emphasized about their responsibility as aviation specialists who ensure the safety of the flights in civil aviation and are responsible for the lives of passengers and crew members and at last, they are actively involved in the educational process.

CONCLUSIONS.

It was in the article revealing that future civil aviation pilots entering the flight educational institution are mostly motivated to study activity, however, they are faced with difficulties in mastering of study material, flying practice, negative factors of professional activity, etc., and in the result lose motivation for professional activity. Therefore, the authors of the given research proposed a series of pedagogical conditions in order to develop the future civil aviation pilots' motivation for professional activity.

The experiment demonstrated that after the implementation of the suggested pedagogical conditions (providing motivation with the educational material content with the use of interactive teaching methods; creating a positive emotional background in class at flight educational institution; stimulation of independent development of the necessary professional competencies through the use of experience of pilot-instructors in the form of tutorial support) into the educational process of Flight Academy of National Aviation University there has been a significant improvement in the future pilots' success in the experimental group (pretest results: the high level – 19,1%; middle – 56,4%; low – 24,5%; post-test results: the high level – 30,0%; middle – 58,6%; low – 11,4%). The conducted experiment has proved the effectiveness of future civil aviation pilots` motivation

development via implementation of the outlined pedagogical conditions.

Prospects for further scientific research include studying the ways of improving the future aviation specialists' training in the context of European integration.

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DATA OF THE AUTHORS.

1. Tetiana Plachynda. Doctor of Pedagogical Sciences, Associate Professor, Head of the Department of Professional Pedagogics and Social Humanities, Department of Professional Pedagogics and Social Humanities, Flight Academy of National Aviation University, Kropyvnytskyi, Ukraine. E-mail: praydtan@ukr.net

2. Galyna Pukhalska. PhD in Pedagogy, Assistant Professor of the Department of Professional Pedagogics and Social Humanities, Flight Academy of National Aviation University, Kropyvnytskyi, Ukraine. E-mail: galamarykay72@gmail.com

3. Kateryna Kryzhevska. PhD in Pedagogy, Associate Professor of the Department of Professional Pedagogics and Social Humanities, Flight Academy of National Aviation University, Kropyvnytskyi, Ukraine. E-mail: kasenka01@yahoo.com

4. Almira Dranko. PhD in Pedagogy, instructor of Flight operations, aerodynamics and flight dynamics department, Flight Academy of National Aviation University, Kropyvnytskyi, Ukraine. E-mail: dranko.a@icloud.com

5. Oksana Ursol. PhD in Pedagogy, Assistant Professor of the Department of Professional Pedagogics and Social Humanities, Flight Academy of National Aviation University, Kropyvnytskyi, Ukraine, E-mail: ursol7@ukr.net

6. Ihor Bloshchynskyi. Doctor of Pedagogical Sciences, Professor, Head of English Translation Department, Faculty of Foreign Languages and Humanities, Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine, Khmelnytskyi, Ukraine. E-mail: i.bloshch@gmail.com

7. **Oleksandr Didenko.** Doctor of Pedagogical Sciences, Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine, Khmelnytskyi, Ukraine, E-mail: didenko.alexandr69@gmail.com

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