

Formation of tactics of actions of cadets taking into account their cerebation during training in higher education institution

Yuri Sergienko
Alexander Lavrentiev
Sergey Antonenko

University of the State Fiscal Service of Ukraine, Irpin, Ukraine

Purpose: the formation of tactical actions of cadets taking into account their cerebation on classes in the subject matters, which is connected with modeling of situations on office activity.

Material & Methods: the analysis of law-enforcement practice when carrying out various operational investigative actions, which are connected with the detention of offenders and their prosecution. The computer tests of assessment of psychophysiological abilities of sportsmen, which are developed by V. S. Ashanin were used, for carrying out the research. The experiment ($n=25$) is made during four years.

Results: the main psychophysiological processes of cerebation at cadets-law enforcement authorities on special physical preparation classes, tactical-special preparation and tactics of behavior of the employee of fiscal service with organic firearms in unusual situations are established.

Conclusions: the structure and the model of preparation are experimentally proved and specified, the role of interrelations of physical and psychophysiological qualities is opened.

Keywords: tactical and special preparation, law-enforcement practice, cerebation, cadet, law enforcement officer, professional activity.

Introduction

Future professional activity of cadets, which will be connected with law-enforcement practice, is predetermined mostly by unusual situations, where act as major factors: specifics of the mode of the working day and non-normalized day, the nature of motive activity, and it, in turn, significantly influence the state of health and efficiency of workers. The change of situation presents during the operational actions constantly which, as a rule, passes in conditions of the limited space, insufficient information, uncertainty and impossibility to predict the whole development of the situation, which amplifies surprise and unpredictability of the end result.

The work in law enforcement agencies needs from a worker the big personal courage, ingenuity, figurative memory, the high level of organization, persistence and emotional firmness, ability, to make the decision quickly and coolly. They have to be able: to think logically and organize the activity; to carry out the urgent actions, which are provided by special tactics of operational and investigative subsections; to work with people effectively, to come into psychological contact; to resist to negative impact from participants of the process of inquiry; to be guided quickly in conditions which change; to apply different approaches to the assessment of the situation which has arisen, without templates and stereotypes of thinking [1; 5; 6; 10; 13].

The whole complex of special objects of the professional direction gives all the best in higher educational institutions of law enforcement agencies. Professionally-applied training

of employees of law enforcement agencies is one of such complexes. This complex consists of subject matters which provide ontogeny of the general and special qualities. The attention is paid concerning mastering actions of physical influence by methods of hand-to-hand fighting and ability to own organic firearms for the formation of specialized skills on classes of physical, special physical training, fire preparation, tactics of special preparation and tactics of behavior of an employee of the fiscal service with organic firearms in unusual situations.

Proceeding from the above, the professional activity of an employee of law enforcement agencies on the structure influences functional systems of organism in the course of ensuring result and can be classified on: physical, psychomotor and intellectual [4; 8; 9; 11; 12]. The cerebation is one of the psychophysiological mechanisms of the professional activity of a worker.

The specific feature of activity of law enforcement agencies is the existence of conflict situations in which an employee is resisted by persons of different degree of social safety, at the same time working conditions change quickly from the quiet state (sedentary form of work) to the maximum manifestation of exercise and psychological stresses where the following qualities have to be shown: quick and logical thinking, professional memory, attentiveness, observation, processing and decision-making.

A lot of scientists researched the level of the progress of achievement of the purposes in different types of the pro-

fessional activity of law enforcement officers, namely: the achievement of positive results in the professional activity (Yu. O. Prikhodko, I. V. Bandurka, B. V. Konovalova); the successful performance of methods of self-defense (S. A. Antonenko, O. A. Yareshchenko, O. M. Ivlyev, V. V. Bondarenko); the forecasting of the attacking actions of the opponent as the factor of increase in effectiveness of collisions (I. G. Znakovanu, V. D. Mironov).

The motivation of behavior of an offender is connected with features of collision with an employee. Attack, generally happens unexpectedly, mainly at the approach of workers for the verification of documents and so forth. Actions of attack depend on quantitative ratio of workers and offenders. If the number of workers prevails in number, then attack happens not at once, at first offenders try to disappear if it is not possible – to attack.

The feature of tactical actions is the individual character of a worker. As their physical, technical, tactical, fighting and psychological preparation is different, behavior in everyone is special. Therefore skills are necessary for employees how to work at deficiency of time, space, quickly and variable to change the position, to predict actions of the opponent and to make the decision. All these qualities need to be considered at carried out individual trainings and on practical training [3; 7; 9; 14].

Communication of the research with scientific programs, plans, subjects

The scientific research is carried out according to the research subject of the chair of special disciplines and the organization of vocational training of faculty of preparation, retraining and professional development of employees of tax police of University of the State Fiscal Service of Ukraine, for 2014–2019 on the subject “Formation of special professional qualities of employees of law enforcement agencies”, the state registra-

tion number is 0114U001841.

The purpose of the research:

to investigate the dynamics of psychophysiological mechanisms of cerebation at cadets during the study in HEI with the definition of factorial models.

Research tasks:

1. To analyze data of references on the counteraction of the worker to the armed offender.
2. To define components which influence the formation of tactics of actions of cadets taking into account their cerebation at threat of use of firearms (gun).

Material and Methods of the research

Methods of the analysis and generalization of scientific, educational and methodical and special literature are used in work.

The experiment within four years with cadets of the faculty of tax police was made for the solution of the purpose. 25 cadets who studied during the period from September, 2012 till June, 2015 participated in the experiment.

The computer tests of assessment of psychophysiological abilities of sportsmen, which are developed by V. S. Ashanin, were used for carrying out the research, namely: simple visual-motor reaction to a light irritant, difficult visual-motor reaction to a light irritant, simple audio-motor reaction to a sound signal, the assessment of level of switching and the distribution of attention were carried out by means of the technique of Gorbov “The red-black table”, the assessment of level of mental firmness, overall performance, degrees of ability to work were carried out according to the technique “Shulte Table” and short-term visual member [2].

Dynamics of psychophysiological indicators of cadets during study

Name of indicator	n	Year of study (M±m)			
		2012	2013	2014	2015
Sensomotor reactions					
Simple visual (s)	25	0,4±0,01	0,36±0,01	0,32±0,01	0,31±0,01*
Difficult visual (s)	25	0,52±0,03	0,41±0,02	0,39±0,01	0,35±0,01*
Simple acoustic (s)	25	0,46±0,02	0,38±0,02	0,33±0,01	0,3±0,01*
«Red-black table»					
Switching of attention (s)	25	150,08±7,74	135,56±6,91	132,0±5,33	129,16±5,3*
«Shulte Table»					
Overall performance (s)	25	46,93±0,68	44,52±0,25	44,37±0,45	43,5±0,3*
Degree of ability to work (s)	25	61,03±0,68	59,83±0,84	56,61±0,61	54,09±0,96*
Mental firmness (s)	25	59,42±0,42	57,12±0,8	56,4±0,96	54,02±0,82*
Short memory					
Short-term visual memory (quantity)	25	6,12±0,18	7,04±0,10	7,6±0,15	9,0±0,28*
Cooper test					
Endurance (meters)	25	2615,16±30,97	2670,84±27,33	2715,56±25,3	2810,3±33,15*

Note. * $P < 0,05$.

Results of the research and their discussion

We developed the experimental technique, which was based on application of special game exercises of professional orientation and modeling of situations, which can happen during the performance of official duties.

Physical exercises were aimed at the development of coordination abilities, endurance; power exercises of dynamic and static orientation were applied. Game exercises according to the contents demanded from cadets of quick switching from one kind of activity to another, decision-making on the basis of the gained knowledge, ability to quickly concentrate attention on necessary objects, and also their tactical behavior was studied.

Modeling of situations provided ability to keep in mind situation quickly into which the cadet had got in case of threat emergence, at the same time without exceeding limits of necessary self-defense, and the analysis of actions with the specified mistakes which were made during the solution of situation to which the cadet has got was carried out after that.

At the first stage we defined the dynamics of changes of indicators of sensomotor reactions, cognitive abilities and the general endurance of cadets, during the entire period of study which found display in the table.

The results of the conducted research demonstrate authentically positive dynamics of indicators on the whole psychophysiological parameters during the whole experiment.

We tracked changes which happen in processes of cerebration of cadets during the experiment by means of the factorial analysis at the second stage of our research.

It is revealed that the factorial structure of cerebration of cadets includes three factors at the first year. Three indicators entered *the first factor*: overall performance (0,855); degree of ability to work (0,896); mental firmness (0,894), which percent of the general dispersion equals 35,2%.

Two indicators entered *the second factor*: simple and difficult visual sensomotor reaction (0,606), (0,898), percent of the general dispersion of which equals 16,9%.

Indicators of endurance (0,778), and short-term visual memory (0,679) which percent of the general dispersion equals 13,9% entered *the third factor*.

The structure changed on the second year:

three indicators entered *the first factor*: overall performance (0,819); difficult visual sensomotor reaction (0,745); simple acoustical sensomotor reaction (0,705), percent of the general dispersion equals 24,5%;

indicators entered *the second factor*: idle times of visual sensomotor reaction (0,627) and switching of attention (0,896), percent of the general dispersion equal 19,2%;

indicators entered *the third factor*: mental firmness (0,702) and indicator of short-term memory (0,782) with percent of the general dispersion 16,1%.

Such major factors were defined on the *third year*:

the simple acoustical sensomotor reaction (-0,634), endurance (0,875) and short-term visual memory (0,608) entered *the first factor* (22,7% of the general dispersion);

indicators: difficult visual sensomotor reaction (0,782), switching of attention (0,758), the percent of the general dispersion equals 21,05% entered *the second factor*;

indicator of ability to work (0,830) entered *the third factor*, the percent of the general dispersion equals 13,8%.

Such factors were defined on the fourth finishing year:

indicators entered *the first factor*: difficult visual sensomotor reaction (0,769); switching of attention (0,722); short-term visual memory (0,649) with the percent of the general dispersion of 20,7%;

simple acoustical sensomotor reaction (0,853); mental firmness (0,733) which percent of the general dispersion, equal 17,6% entered *the second factor*;

simple visual sensomotor reaction (0,769); endurance (656); overall performance (0,612) entered *the third factor* (16,2% of the general dispersion).

The formation of special skills in the conditions of cerebration happens with the participation of sensomotor reactions, and from the point of view of structure of the organization of processing of information, psychomotor activity of the person is the integrated result of interaction motor (muscular) and central nervous (mental) systems [6; 11].

The made experiment demonstrates that cadets have changes in the studied factorial structure during the study. So, the components of indicators constantly change at cadets of the first three courses that confirm the acquisition of certain movement skills and the minimum motive experience from application of methods of hand-to-hand fighting. At the same time the perception of information, its processing are at first, and the decision is made only then at cadets of the fourth year at getting to the simulated situation.

Conclusions

It is necessary to form not only single knowledge and abilities of separate disciplines, and also to create conditions at the final stage of study, which will provide the importance and understanding of their application in the professional activity as the only complete experience, when forming professionally-applied skills at cadets.

Prospects of the subsequent researches in this direction

We see the subsequent research in the studied ways of the increase in efficiency of interaction in the connected subject matters of tactical and special preparation and special physical training for the organization of lawful application of physical influence for future employees of law enforcement agencies in the course of modeling of office activity in non-standard conditions and from use of weapon.

Conflict of interests. The authors declare that there is no conflict of interests.
Financing sources. This article didn't get the financial support from the state, public or commercial organization.

References

1. Antonenko, C. A. (2015), "Formation of adaptive processes in the first-year cadets to physical stress while studying in the universities of Ukraine law enforcement", *Naukoviy Chasopis seriya 15. Naukovo-pedagogichni problemi fizichnoi kulturi. Fizichna kultura i sport*, Vol. 2(55)15, pp. 12–15. (in Ukr.)
2. Ashanin, V. S. (2002), "Computer tests of cognitive abilities of athletes", *Slobozhans'kij naukovo-sportivnij visnik*, Vip. 5, pp. 164–166. (in Russ.)
3. Bondarenko, V. V. (2010), "Components of successful implementation of protective actions in attack enemy armed with knives", *Pedagogika, psikhologiya ta mediko-biologichni problemi fizichnogo vikhovannya i sportu*, No 3, pp. 11–13. (in Ukr.)
4. Vako, I. I. (2016), *Udoskonalennya tekhniki rukopashnogo boyu v protsesi spetsialnoi fizichnoi pidgotovki maybutnikh fakhivtsiv sluzhbi bezpeki Ukraini: avtoref. kand. nauk z fizik. vikh. ta sportu* [Improving techniques of unarmed combat in the special physical training of future specialists of security service of Ukraine: PhD diss.], Kyiv, 20 p. (in Ukr.)
5. Garkusha, V. C., Korneev, Yu. V. & Shamray, V. O. (2005), *Osobista bezpeka pratsivnikiv podatkovoi sluzhbi Ukraini* [Personal Safety Employees Tax Service of Ukraine], MP Lesya, Kyiv, 568 p. (in Ukr.)
6. Korobeynikov, G. V. (2008), *Psikhofiziologicheskaya organizatsiya deyatelnosti cheloveka* [Psychophysiological organization of human activity], Belaya Tserkov, 138 p. (in Ukr.)
7. Korolchuk, M. C. (2003), *Psikhofiziologiya diyalnosti* [Psychophysiology activities], Yelga, Nika- Tsent, Kyiv, 400 p. (in Ukr.)
8. Lavrentev, O. M. (2013), "Features of tactical and technical actions of law enforcement bodies of Ukraine at the opera armed with firearms (pistol)", *Naukoviy Chasopis seriya 15. Naukovo-pedagogichni problemi fizichnoi kulturi. Fizichna kultura i sport*, Vol. 14(41)13, pp. 97–101. (in Ukr.)
9. Lavrentev, O. M., Butok, O. V., Panasyuk, M. O. & Kandourova, A. O. (2013), "Features of tactical and technical actions of law enforcement Ukraine under the threat of the use of knives (knife)", *Naukoviy Chasopic. Seriya 15. Naukovo-pedagogichni problemi fizichnoi kulturi. Fizichna kultura i sport*, Vol. 8(35), pp. 74–79. (in Ukr.)
10. Plisko, V. I. (1991), *Formirovanie u sotrudnikov ustoychivogo psikhomotornogo sostoyaniya k vneshnim proyavlennyam opasnosti* [Formation of employees sustainable psychomotor state to the external manifestations of the dangers], RIO MVD Ukrainy, Kyiv, 128 p. (in Russ.)
11. Sergienko, Yu. P. & Andreyanov, A. M. (2007), "Formation of psychological characteristics of students in the classroom for physical training in teaching in higher educational institutions of power structures", *Pedagogika, psikhologiya ta mediko-biologichni problemi fizichnogo vikhovannya i sportu*, No 1, pp. 5–12. (in Ukr.)
12. Sergienko, Yu. P. & Lavrentev, O. M. (2007), "Application situational method in the classroom for specialist tax police", *Materiali p'yatikh Iripinskikh mizhnarodnikh naukovo-pedagogichnikh chitan, (Irpın, 24–25 travnya 2007)* [Materials Irpin fifth international scientific-pedagogical readings (Irpın, 24 - 25 May 2007)], Irpin, pp. 410–413. (in Ukr.)
13. Travnikov, A. (2006), *Operativnyy rukopashnyy boy po sisteme KGB* [Operational dogfight KGB], Feniks, Rostov-na-Donu, 352 p. (in Russ.)
14. Miller, L. (2006), *Practical police psychology: Stress Management and Crisis Intervention for Law Enforctment*, Published, 320 p.

Received: 02.07.2016.

Published: 31.08.2016.

Yuri Sergienko: University of the State Fiscal Service of Ukraine, Garden str., 90, Irpin, Kyiv region, 08201.

ORCID.ORG/0000-0002-0103-9615

E-mail: sergienkofpm@mail.ru

Alexander Lavrentiev: University of the State Fiscal Service of Ukraine, Garden str., 90, Irpin, Kyiv region, 08201.

ORCID.ORG/0000-0003-2785-2994

E-mail: alex.lavrentev.72@mail.ru

Sergey Antonenko: University of the State Fiscal Service of Ukraine, Garden str., 90, Irpin, Kyiv region, 08201.

ORCID.ORG/0000-0001-8127-4625

E-mail: antondocent@mail.ru