

Partial methodology for assessing the level of methodological training of trainers during combat training of tank brigade during combat readiness

Volodymyr Kharabara ^A; Iurii Repilo ^B

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Abstract

The experience of using tank brigade and units in the of anti-terrorist operation (ATO) and the operation of the Joint Forces (OJF), which are the main strike force of the Land Forces, indicates that their successful combat performance depends to a large extent on their combat capability. The level of preparedness of the brigade has a direct impact on combat capability.

During combat renewal, combat training activities are conducted during which the training facilities acquire certain capabilities to perform combat missions. Due to the limited time involved in conducting combat training, methodological training of trainers has a significant impact on their level of training. This requires the search and implementation of new approaches to the quality of combat training activities by leaders of training in the course of combat readiness, which requires the development of a scientific and methodological apparatus to assess their level of methodological training. The article proposes a partial methodology for assessing the level of methodological training of leaders of training during combat training in the course of combat readiness, as part of a comprehensive methodology for assessing the effectiveness of combat tank training in the course of combat capability, which allows to take into account the impact of training leaders on the quality of training. The use of the proposed method allows the training subjects to quantify the level of methodological training of the trainers and to identify problems in the organization of their classes. The above methodology uses indicators that characterize the level of knowledge and skills of the head teacher in the subject of study, their experience in their classes and the availability of training courses to improve pedagogical skills.

Keywords: combat training, methodological training of trainers, evaluation, tank brigade.

Introduction

The conduct of pro-Russian illegal armed units and regular "hybrid war" troops in eastern Ukraine with the use of firefighting means creates prerequisites for causing damage to the Ukrainian defense forces, that is, reducing their combat capability. For the purpose of replenishing the damage inflicted by the enemy and bringing personnel, weapons and military equipment into combat capability, a complex of measures is being taken in the course of restoration of combat capability. After the organizational measures combat training is carried out.

Changes in the nature of military conflict in eastern Ukraine, existing and emerging forms and methods of use of troops, weapons and tactics, changes in the scope and content of the tasks involved with tank crews, implementation of the principles and standards adopted by the armed forces of Member States NATO, require a set of measures to improve their combat training in the course of combat readiness.

The direct impact on the effectiveness of combat training in the course of combat

^A The National Defence University of Ukraine named after Ivan Cherniakhovskyi, senior instructor of the department of command and control of troops (forces) in peacetime, e-mail: Ivanovuth@ukr.net, ORCID: 0000-0001-7912-6578

^B The National Defence University of Ukraine named after Ivan Cherniakhovskyi, Doctor of military sciences, Professor, professor of the Missile Troops and artillery department, e-mail: iuriirepilo@gmail.com, ORCID: 0000-0002-1393-2371

readiness, among other indicators, is the level of methodological training of leaders of classes.

The imperfection of existing methodological approaches to assessing the level of methodological training and the inability of their full application to assess the level of methodological training of leaders during combat training during the restoration of combat capability, leads to the improvement of scientific

and methodological apparatus and justification of the proposed changes.

Therefore, there is a need for scientific substantiation of a partial methodology for assessing the level of methodological training of leaders during combat training activities, as part of a comprehensive methodology for evaluating the effectiveness of combat training of tank brigade in the course of combat readiness. All this testifies to the relevance of the topic under consideration.

Analysis of recent research and publications

Analysis of previous research and publications in this area [1-3] shows that they are based on the evaluation of some of the components of the methodological training of leaders of classes.

Researchers proceeded from those scientific tasks that were generated by current problems of the time and applied the criteria and indicators that most fully reflected the processes under consideration. Information about publications that reveal an assessment of the level of methodological training of leaders of classes during combat training activities during the restoration of combat readiness is unknown to the

authors.

Thus, the above approaches can only be partially used in assessing the level of methodological training of trainers during combat training of tank brigade in the course of combat readiness.

Setting objectives. Therefore, the purpose of the article is to develop a scientific and methodological apparatus for assessing the level of methodological training of trainers, as part of a comprehensive methodology for evaluating the effectiveness of combat training of tank brigade in the course of combat readiness.

Results and discussion

Assessment of the level of methodological training of the leaders of the classes during the events of the CT TBR during the restoration of fighting capacity $K_{МП}(t)$ it is suggested to calculate on functional dependence which takes into account the level of methodological preparation a team leader in the composition of the team, given its importance. Thus, as the level of methodological training of each leader of the lesson does not depend on the level of methodological training of the other, and therefore their indicators are not dependent on each other, it is proposed to use additive aggregation [4] to evaluate the level of methodological training of the leaders of the lesson [4]:

$$K_{МП}(t) = \sum_{a=1}^A K_{МПa}(t) \cdot q_a \quad (1)$$

where $K_{МПa}(t)$ – level of methodological training a the leader of the lesson in the

composition of the TBR at a discrete time;

q_a – weight coefficient of importance of the a -th leader of the lesson in TBR;

A – number of trainers in tbr.

Weighting factors of importance a the head of the class q_a calculated by normalizing comparative ranks of positions R_{ab} in accordance with the expression proposed in [5]:

$$q_a = \frac{R_{ab}}{\sum_{a=1}^A R_{ab}} \quad (2)$$

where R_{ab} – comparative rank a the head of the class;

$\sum_{a=1}^A R_{ab}$ – sum of all ranks of heads of employment.

Comparative rank a the head of the class comparative rank of head of class:

$$R_{ab} = 1 - \frac{N_{ab}-1}{I} \quad (3)$$

where N_{ab} – sequence number a the head of the class.

The indicators that characterize the level of methodological training a the head of the class $K_{MIIa}(t)$ it is proposed to include: his level of knowledge and skills in the subject of study, experience in his studies and the availability of his advanced training in improving pedagogical skills.

So, since these indicators are not dependent on each other, then to calculate the level of methodological training training a the head of the class $K_{MIIa}(t)$ it is suggested to use additive aggregation:

$$K_{MIIa}(t) = \sum_{l=1}^3 C_{MIIal}(t) \cdot q_l \quad (4)$$

where $C_{MIIal}(t)$ indicators that characterize the level of methodological training a the leader of the lesson at a discrete point in time: "the level of knowledge and skills in the subject of study" $C_{Ha}(t)$ "Lessons learned" $C_{Ja}(t)$; "Availability of advanced training courses on improving pedagogical skills" $C_{Ka}(t)$;

q_l – weighting indicators $C_{MIIal}(t)$.

Assessment of the level of knowledge and skills in the subject of study a the head of the class $C_{Ha}(t)$ it is proposed to determine the indicators that characterize the level of his theoretical knowledge and practical skills. So, as the knowledge and skills of the leader of the lesson are not dependent on each other, and therefore their indicators are not dependent, then to evaluate the level of knowledge and skills in the subject of study a the head of the class $C_{Ha}(t)$ it is suggested to use additive aggregation:

$$C_{Ha}(t) = \sum_{y=1}^2 B_{ya}(t) \cdot q_y \quad (5)$$

where $B_{ya}(t)$ indicators that characterize the level of development a the head of the class on discrete moment in time: "theoretical knowledge" $B_{T3a}(t)$ "Practical skills" $B_{nya}(t)$;

q_y – weighting indicators $B_{ya}(t)$.

Determination of weights q_y carried out by the method of expert evaluation [6].

An indicator that characterizes the level of theoretical knowledge a the head of the class $B_{T3a}(t)$ it is suggested to calculate the results of theoretical questions (testing) in the subject of study. The total number of questions should provide an objective and comprehensive

evaluation of the questions.

Assessment of the level of theoretical knowledge a the leader of the class $B_{T3a}(t)$ is defined by the expression:

$$B_{T3a}(t) = \frac{X_{npa}(t)}{X_{пита}} \quad (6)$$

where $X_{npa}(t)$ – number of correct answers provided by a the leader of the class;

$X_{пита}$ the total number of theoretical questions tested in a the leader of the class;

An indicator that characterizes the level of practical skills a the leader of the class $B_{nya}(t)$ calculated on the basis of the practical tasks performed by him on the subject of study.

Assessment of the level of practical skills a the leader of the class $B_{nya}(t)$ is defined by the expression:

$$B_{nya}(t) = \frac{X_{вика}(t)}{X_{зава}} \quad (7)$$

where $X_{вика}(t)$ – number of completed tasks by the head of the class;

$X_{зава}$ – total number of tasks checked in a the leader of the class.

"Lessons Learned" indicator a the leader of the class $C_{Ja}(t)$ characterizes his ability to qualitatively prepare and conduct classes. His calculation is proposed to be conducted according to the dependence, which takes into account his practical experience as a leader of the class, taking into account the importance of the event:

$$C_{Ja}(t) = \sum_{z=1}^Z L_{Jza}(t) \cdot q_z \quad (8)$$

where $L_{Jza}(t)$ – an indicator that takes into account practical experience as a leader of the class a serviceman z the event;

q_z – weight factor of importance z the event;

Numerical value of the indicator practical experience in the role of leader of the class a serviceman z the event $L_{Jza}(t)$ it is calculated based on the number of activities (exercises, trainings, classes) he has undertaken in the last three years [7]

$$L_{Jza}(t) = \frac{H_a}{H_n \cdot e^{\left(\frac{H_a - H_n}{H_n}\right)}} \quad (9)$$

Where H_a – number of activities (exercises, trainings, classes) that you have conducted a the

leader of the class in the last three years;

H_n – the total number of activities (trainings, trainings, classes) that are designated for the event a the leader of the class according to schedules, over the last three years.

Indicator “availability of advanced training courses in improving pedagogical skills” in a the leader of the class $C_{ka}(t)$ characterizes the availability of his advanced training in improving pedagogical skills. In order to assess the availability of a refresher course for improving pedagogical skills, the leader developed a rating scale, which is given in Table.

This indicator is estimated in points, so its value is reduced to a dimensionless value by the expression:

$$C_{ka}(t) = \frac{X_{ka}(t)}{5} \quad (10)$$

Where $X_{ka}(t)$ – assessment in points of availability of training courses for improvement of pedagogical skills at the head of the training.

Table – Scale for assessing the presence of a refresher course for improving pedagogical skills

Passing advanced training on improving pedagogical skills	Score in points
in the last year	5
within two years	4
for three years	3
for four years	2
for over four years	1
did not take courses	0

Conclusions

Thus, the article developed a partial methodology for assessing the level of methodological training of trainers as part of the evaluation of the effectiveness of combat training of tank brigade in the course of combat readiness, which uses indicators that characterize the level of knowledge and skills of trainers in the subjects of

training, their experience in conducting their classes and their advanced training in improving pedagogical skills.

Prospects for further scientific research in this area can be justified recommendations for the organization of methodological training of leaders of classes.

References

1. Naryshkin V. G. Methodical bases of estimation and calculation of indexes of fighting ability of divisions and parts. *Military Thought*. 2009. № 2. P. 58-65.
2. Tatarchenko A. E. Accounting for command and staff training in evaluating management effectiveness. *Military Thought*. 1981. № 7. P. 42-48.
3. Georgadze O. A., Makalish O. V. Methodical approach to assessing the level of training of the tactical-level military administration. *Collection of scientific papers of the Center for Military-Strategic Studies of Ivan Chernyakhovsky National University of Defense* 2016. № 3 (58) Pp. 104-108.
4. Shevchenko V. L. Qualitative similarity of a convolution in mathematical models of processes of development of complex systems. *Collection of scientific works "Telecommunication and Information Technologies"*. 2014. № 3. P. 32–38.
5. Zagorka O. M., Mosov S. P., Stuzhuk P. I. Elements of the study of military systems: [textbook. manual]. Kyiv: NДAU, 2005. 100 p.
6. Processing and analysis of statistical and expert data: [textbook. manual] / team of authors. Kyiv: NUDU, 2011. 122 p.
7. Prisnyakov V. F., Prisnyakova L. M. Mathematical modeling of information processing by the operator of human-machine systems. Moscow : *Mechanical Engineering*, 1990. 248 p.