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# Personal and Professional Development of Military University Cadets during the Pandemic

Tatyana S. Prosvetova (a), Vladimir F. Lazukin (b), Alla V. Safonova\* (c)

(a), (b), (c) *Military Educational and Scientific Center of the Air Force «N.E. Zhukovsky and Y.A. Gagarin Air Force Academy», 394064, Voronezh (Russia), 54A The old Bolsheviks street, safalla23@gmail.com*

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## Abstract

The purpose of the study is to examine the model of organizing the information and educational environment of a military university in extreme conditions (under pandemic conditions). The research relied on the theoretical methods: the analysis of scientific pedagogical and military pedagogical literature concerning the research problem, comparison, correlation, synthesis, generalization of the findings; empirical methods: survey, opinion poll, interview; statistical methods: comprising grouping, ranking, scaling. The data was collected at the Military Educational and Scientific Center of the Air Force “Air Force Academy named after Professor N. Ye. Zhukovsky and Yu. A. Gagarin” in Voronezh. The sample comprised 300 cadets. The study identified the socio-pedagogical and psycho-pedagogical conditions for the personal and professional development of cadets. These are the willingness of the teaching staff and commanders to carry out educational activities within the information and educational environment of a military university along with pedagogical and moral training activities; cadets’ involvement in an independent creative search, their ability to use independently information and communications technologies of the Air Force Academy, and their motivation to use learning support materials in different academic subject areas. The results of the study emphasized the relevance and importance of pedagogical and moral training resources in the information and educational environment of a military university.

*Keywords:* higher military educational organization, socio-pedagogical conditions, psycho-pedagogical conditions, reflection.

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\* Corresponding author. E-mail: safalla23@gmail.com

## **Introduction**

Information society is marked by a new level of human activities and is characterized by receipt, storage, and transmission of information giving the priority to universal moral values. The model of the information and educational environment in a military university at the beginning of the 21st century was aimed at organizing the cadets' educational process using information and communication technologies (ICT), developing their military professional motivation, contributing to self-improvement and quality training under extreme conditions. The spread of coronavirus infection in 2020 required organizational changes in the educational process in a higher military education, the development of new approaches and optimization of the conditions to meet information and educational needs as well as providing new opportunities for cadets' personal and professional development.

The current study is determined by a growing demand for models of organizing the information and educational environment in higher education in a situation of large-scale quarantine measures (Klyagin, 2020). In addition, to enhance the performance of the model of the information and educational environment, it is necessary to develop the methodological basis for its implementation in a military university, determine the principles, identify the conditions for its effective application (pedagogical, organizational, technological, informational and others), elicit its educational potential.

## **Purpose and objectives of the study**

The purpose of the study is to examine the model of organizing the information and educational environment of a military university in extreme (pandemic) conditions. Research objectives are 1) specify characteristics and new features of the information and educational environment in a military educational institution during the COVID-19 restrictions; 2) identify a specific character of educational activities in an autonomous learning environment of a military university; 3) define the advantages and challenges of its organization under extreme conditions; 4) reveal cadets' adaptability to the information and educational environment of a military university under extreme conditions. The essence of the aforementioned considerations is that cadets' personal and professional development under pandemic conditions is achieved not only by the active use of information technologies but also by a wide range of socio-pedagogical, psychological-pedagogical, organizational, technical transformational changes aimed at improving the military-professional training of future officers which complies with increasing requirements for their job duties.

## **Literature review**

Modern national pedagogical science justifies the approaches and provides the insight into the educational environment. Various aspects of educational environment problems are set out in psychological and pedagogical concepts of the eminent scholars (Artyukhina, 2006; Bondarevskaya, 2000; Slastenin, 2003; Yasvin, 2001), focusing on complex factors, culture-congruent behavior and the idea of social education, conditions for the development and self-development of the individual. In the context of our research the concept of “information and educational environment of a university”, is defined in academic papers (Butsyk, 2016; Verbitsky, 2012; Zakharova, 2015) as a set of information tools, links, organizational and methodological components, applied information; as a system combining information resources, cultural and content-related aspects that constitute the potential of a university and comply with social objectives. The analysis of foreign scientific pedagogical research (Echenique, Molías, & Bullen, 2015; Fabri, Moore, & Hobbs, 2004) on the problem of the educational information environment, made it possible to identify its essential feature – the effectiveness of an educational organization as a social system.

The research into the information and educational environment of a higher military education institution (Alekhin & Trenin, 2018; Raetskaya, 2017; Zhezhel, 2012), showed that the above definitions do not provide a comprehensive understanding as they are based on different initial theoretical and methodological foundations. The information and educational environment of a higher education institution is characterized by a purposeful organization by its agents (command personnel, faculty members, officers, cadets) of sets of information, educational and methodological support, material and technical support as well as all kinds of activities (educational, duty-related, extracurricular) and their interactions focused on personal and professional development.

The research on restrictive measures during the spread of COVID-19 and their impact on the acquisition of knowledge in higher education conducted by Russian and foreign experts shows that digital services can only help follow the training programmes but they cannot completely take the place of full-time training (Klyagin, 2020; Rumbley, 2020). We hope that the conclusions of this research will contribute to filling the gaps in anti-crisis response in higher professional education. It should be noted that the specifics of military education made it possible to deploy anti-COVID measures which consisted not only in restricting communication outside the educational organization but also in implementing the recommendations of Russian Federal Agency for Health and Consumer Rights and constant monitoring of the spread of COVID-19.

## **Methodology**

Theoretical methods (analysis of psycho-pedagogical, military-pedagogical literature, comparison, correlation, synthesis, modelling, generalization); empirical methods (questionnaire survey, opinion poll); statistical methods (grouping, ranking, scaling) were used. The sample group for the research was selected from cadets of 2-5 course years (N=300) of Military Training and Research Center of the Air Force “Air Force Academy named after Professor N. E. Zhukovsky and Yu. A. Gagarin” in Voronezh. First-year students who were yet applicants during the period of the large-scale quarantine measures were excluded from the research. The sample group was selected on the basis of the quota and cluster sampling. The key elements of the questionnaire are open-ended questions allowing the cadets to give detailed responses which were not taken into account in the responses to closed-ended questions. Open-ended questions have undoubtedly increased the accuracy of empirical methods and, in particular, helped elicit the pedagogical potential of the information and educational environment of a military university. The cadets’ responses were compared and cross-checked for correlation relationships. The questionnaire was the main data collection tool. The authors performed data processing using computer software package for statistical analysis SPSS 15.0.

The questionnaire, consistent with the purpose and objectives of the study, was designed by the authors and was not used in any previous surveys. The validity of the questionnaire established the correspondence between theoretical constructs and empirical indicators measured by means of the questionnaire. The participation in the research was anonymous and was conducted under the supervision of course officers in the absence of the researchers. Personal data of the respondents was not processed. All the participants gave their written consent to participate in the study. The topic of the study is fully consistent with the research activities carried out at the Department of Military and Political Work, and was approved by the Educational and Methodological Center of the Military Educational and Scientific Center of the Air Force “Air Force Academy named after Professor N.E. Zhukovsky and Yu. Gagarin”.

The analysis of scientific pedagogical and military pedagogical literature, its comparison and correlation allowed us to characterize core pedagogical and military-pedagogical categories and identify them within the current state of higher military professional education. Synthesis determined content structuring and a new cognitive construct. Generalization resulted in formulating the conceptual issues of the study and its conclusions.

The educational process in military universities over the survey period was based on the existing regulatory documents (Ministry of Science and Higher Education of the Russian Federation, 2020, Order of the Ministry of Defense of the Russian Federation, 2014, State Duma of the Russian Federation, 2012), government projects implementing higher education programs.

Statistical methods were used for quantitative and qualitative processing of empirical data.

The analysis of theoretic and empiric material on the problem of research allowed the authors to develop a model for organizing the information and educational environment in a higher military educational institution in extreme conditions. The model identifies theoretical and methodological, content-related, technological components, determines psychological and pedagogical, socio-pedagogical and pedagogical principles, teaching aids, socio-pedagogical and psycho-pedagogical conditions.

## Results

The results obtained reflect the effectiveness of the model of the information and educational environment of a higher education institution under extreme conditions.

Figure 1 below presents the assessment of learning motivation sustainability under pandemic conditions.

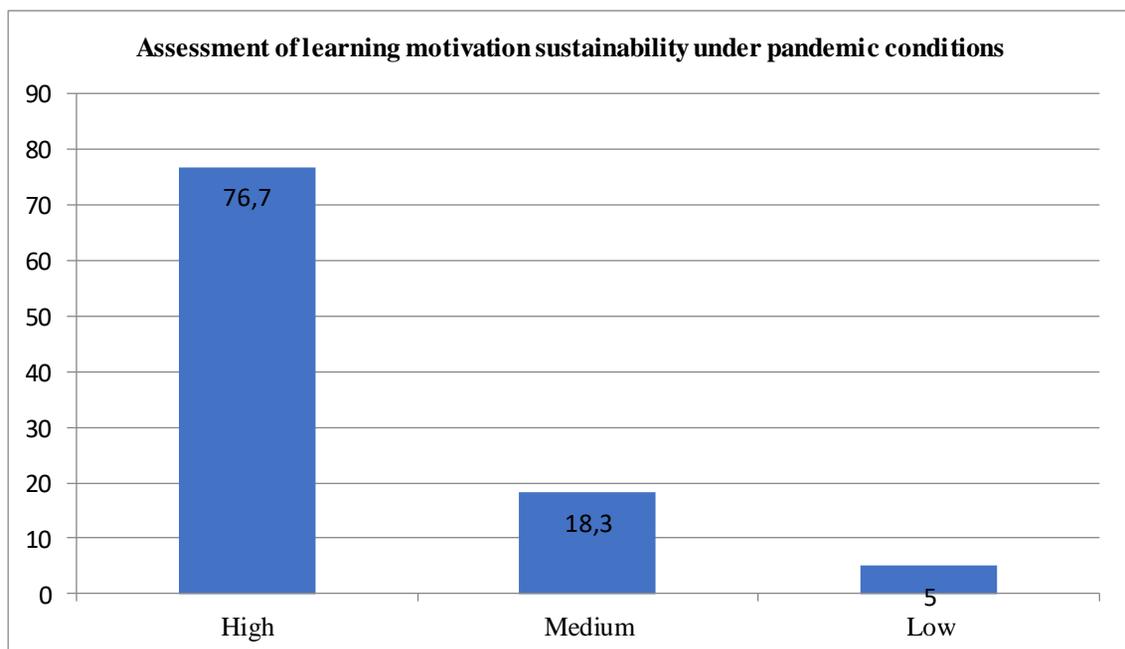


Figure 1. Assessment of learning motivation sustainability under pandemic conditions

The bar graph (Figure 1) shows integral indicators characterizing the degree of sustainability of cadets' motivation for learning (high, medium and low) which is indicative of the level of its development in a military university.

The analysis shows that 76.7% of cadets have high motivation for learning, medium level of motivation is registered in the case of 18.3% of respondents, and only 5% of cadets have low motivation (fluctuations from mere presence to total absence in course of training). This group requires special attention and individual psychological and pedagogical support.

Cadets' learning motivation sustainability correlates with their dominant personal motives. The method of ranking for determining the reasons influencing the choice of profession of a military engineer showed the following: the social status and financial position of a military officer are important for 32% of the respondents; 29% care about family traditions continuity in a military dynasty; 28% follow their military friends' examples, acquaintances' and relatives' example; 18% of respondents are attracted by participation in military rituals; 15% of respondents are inspired by the heroic acts of heroes of Russia; for 13% the interest in scientific developments in the field of aviation and astronautics is a priority, military literature and films influenced the choice of 9% cadets. Under this approach, personal motives neutralize random external events and increase efforts and determination. Training at a military university under pandemic conditions determined the following trends in motivation dynamics: motivation did not change for 69.3% of respondents, an increase in motivation was observed for 13.6% of respondents, motivation decreased for 5.3%, and 11.8% of cadets found it difficult to answer. This led us to the conclusion that the number of cadets having sustainable motivation has not changed significantly during the pandemic.

The results of the research indicate that 81.7% of cadets who chose the response options "quickly and easily", "adapted without difficulty" adapted successfully to the new conditions of variable learning forms during the pandemic, for 13.8% of respondents variable learning forms caused certain difficulties, and only 4.5% were unable to adapt. The results obtained correlate with the responses to the question about the convenience of variable learning forms used during the global pandemic. Despite the difficulties, 68.2% of the respondents answered positively, while 3.6% assessed the approach combining the participation of an instructor and the use of ICT as "too easy", 15% of respondents found it inconvenient to learn, and 13.2% found it difficult to answer.

The assessment of the reorganization of the educational process in a military university during the pandemic based on the results of the study is presented in Figure 2.

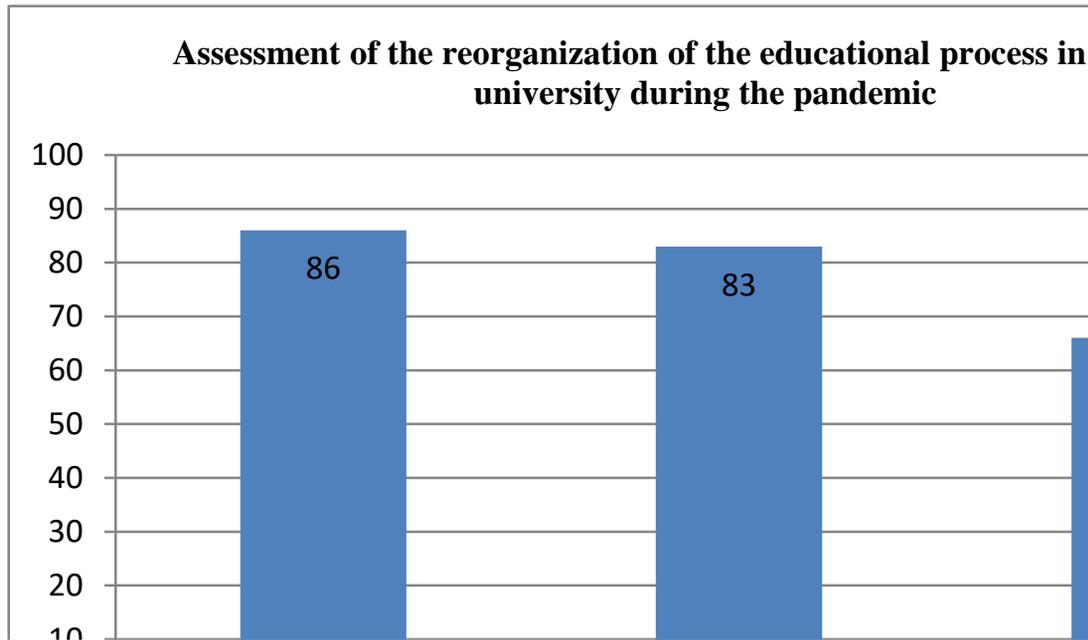


Figure 2. Assessment of the reorganization of the educational process in a military university during the pandemic

The analysis of the bar graph in Figure 2 allows to conclude that the results of variable learning forms using both traditional teaching methods and ICT at the end-of-year exams of 2019-2020 academic year compared with the previous results remained at the same level for 86% of cadets, 83% of cadets gave a positive evaluation of teaching staff work, 66% of cadets showed satisfaction for using ICT at a military university. Face-to-face classes remained the learning form of choice according to the students: simulator training, field training programs (at the airfield), special military games, practicals, tutorial instructions. Specifics of a military educational institution do not allow implementing a full-scale distant learning since some military professional disciplines are designated as “secret” and “for official use”, for example, information on the modernization of weapons and military equipment, research work for defense order and command, protecting automated systems. Despite the specifics, some elements of distance technologies were used (video lectures pre-recorded by the teachers; presentation of projects on military scientific work).

The results of the study showed that 64% of cadets would like to continue distance learning as an auxiliary element of educational process, 31% opposed implementing this technology in a military university, 5% of the respondents were neutral. The assessment correlates with the responses to the question “What educational tools helped you to adapt to new conditions during the pandemic?”

The cadets were able to select several answer options and they rated positively training films – 24% of survey respondents, Internet resources – 21%, electronic textbooks – 10%, presentations - 18%, learning support materials in different academic subject areas – 17% , study guides – 7%, video conferences – 3%. According to 74% of the survey respondents, face-to-face classes remain the learning form of choice (simulator training, field training programs at the airfield, tutorial instructions).

An important indicator of the questionnaire is the satisfaction of cadets with the educational process at a higher education institution during the survey period, which is in relation with the motivation for learning, and in general, determines the quality of the military professional training of future officers and their professional development in the army. From the analysis of the responses, the following conclusions can be drawn: satisfaction with the educational process during the pandemic was positively assessed by 82.4% of the respondents; and 17.6% of cadets responded “rather no than yes”, “not satisfied” and “neutral”. This group of cadets requires individual work for the purpose of a reasonable change in their negative attitude to learning process.

This circumstance illustrates the fact that the popular answers of respondents to the question on the main difficulties of learning process during the pandemic were: insufficient information – 14%, the difficulty of understanding lectures in the absence of a teacher 29%, the difficulty of doing practical assignments without detailed explanations – 39%, a large amount of assignments – 41%.

The answers obtained in the course of the study are the result of a dramatic reorganization of the educational process which included distance work of civilian teaching staff while the limited number of military teaching staff was not sufficient to provide training classes in accordance with the schedule. In a number of cases course officers conducted training sessions and performed the functions of teaching staff.

The results of the questionnaire survey on the formation of command-methodological and pedagogical skills are presented in Figure 3.

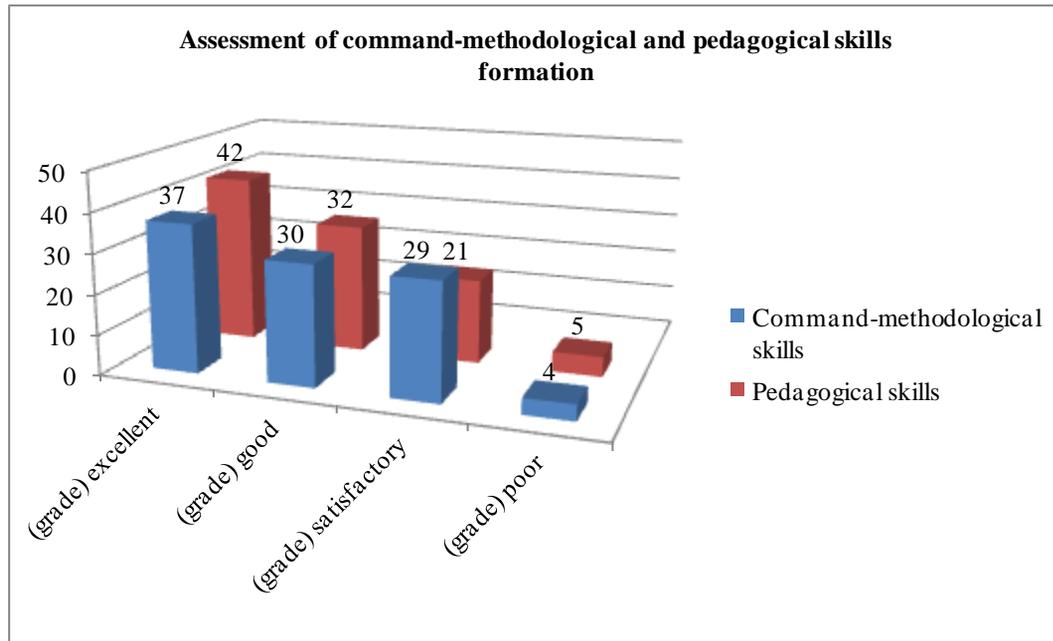


Figure 3. Assessment of command-methodological and pedagogical skills formation

The analysis of data in the bar graph in Figure 3 implies that 96% of cadets have developed command-methodological skills, 95% have pedagogical skills, and after graduating from a higher military educational institution military specialists should be able to and ready to solve their service duties according to their officer position. Cadets having unsatisfactory assessment in command-methodological and pedagogical skills are provided with available time to correct the unsatisfactory results in compliance with the requirements to corresponding military service positions. Command-methodological and pedagogical skills formation went on continuously with the pedagogical support of tactical leaders both during class time and in extracurricular time in accordance with the approved plan of the Air Force Academy. Cadets' practical activity in various positions (private, squad leader, deputy platoon commander, platoon commander, company executive officer, company commander) was carried out continuously under the direct supervision of commanders and military instructors, both in class time and in extracurricular hours according to the daily routine (classes, daily duty detail, guard duty, sporting and mass participation events, cultural and leisure activities, development of methodological skills in preparing and holding meetings with military personnel, organizing and conducting combat training classes with subordinates, performing official duties in managing units in daily activities and in the course of the battle).

This type of activity is aimed at the development of self-organization and self-improvement of future

officers, development of their pedagogical skills.

Pedagogical skills formation characterizes the importance of military professional training. The cohesion of a military group and its combat readiness, military discipline, moral, political and psychological state of military personnel depend on the commander's competence in performing the functions of an educator and instructor. Cadets, therefore, actively carry out individual work with subordinates; hold activities aimed at preventing offenses among personnel; share positive experience of their squad; undertake daily sessions of information on current world political and social events in their platoon; summarize the results of academic and combat training.

The process of command-methodological and pedagogical skills formation correlates with the essence of the socio-pedagogical approach focused on education, moral training and integral cadets' personal and professional development which are realized in the interaction of the subjects of the educational environment of a military university.

The results of the research of extracurricular activities during the pandemic are presented in Figure 4.

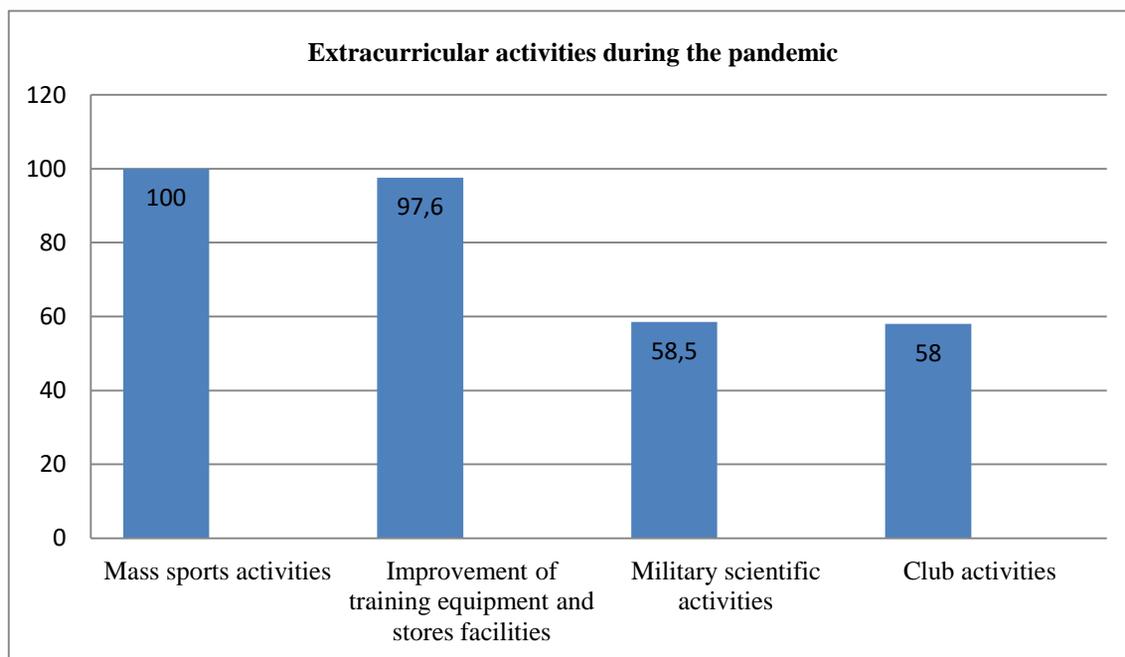


Figure 4. Extracurricular activities during the pandemic

Military service is a special type of public office characterized by a high level of the officers' physical fitness and their active participation in social activities during the period of service in the Armed Forces of the Russian Federation (RF Armed Forces).

The results of the analysis of the bar graph in Figure 4 indicate that 100% of the university cadets took part in mass sports activities. The ranking of the respondents' answers was distributed as follows: 100% of the respondents practiced individual training, both targeted and on a regular basis; 36% participated in sports games, 30% took part in competitions in various sports; 28% are members of select academy, faculty, course teams; 12% participated in sports camps.

Comparison and correlation of responses to the question on cadets' participation in mass sports activities during the pandemic made it possible to single out training sessions, training of academy select teams, competitions in military-applied sports, relay races, sports games, races. Military sports competitions in tug-of-war, one km and three km-distance running, obstacle course competitions, swimming race in a military uniform, paramilitary crosses with grenade throwing and shooting, competitions in gymnastics on uneven bars, long horse, crossbar, mats were organized and held during the survey period as part of mass sports activities. Mass sports activities are an integral part of a military professional training and they shape physical and moral qualities of national homeland defenders (strength, endurance, agility, swiftness, mobility).

According to the results of the study 97.6% of the respondents participated in the improvement of the training equipment and stores facilities. Due to the spread of coronavirus infection in spring of 2020, civil engineering and technical personnel worked remotely. Hence, training equipment and stores facilities maintenance was carried out completely by the cadets and the officers of the Air Force Academy. The analysis of open questions in questionnaires showed that cadets took part in the following activities: maintenance of training weapons, military and special equipment; maintenance and running repairs of sports facilities; fixing of supplementary equipment at sports areas; spring premises redecoration; barracks and housing stock improvements; laying out flower beds, planting trees and shrubs on the premises of the Academy; equipping hobby rooms in cadet units; transformation of parade grounds for team and sports games; renovation of buildings and constructions of value for the Aerospace Forces and for the Air Force Academy.

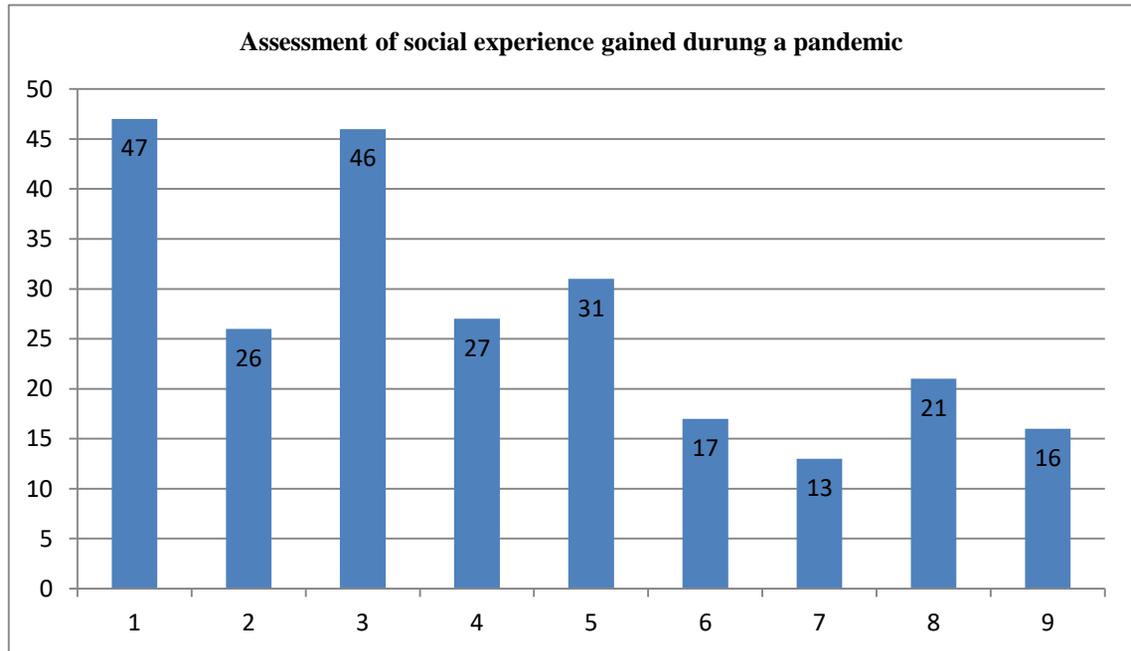
The improvement of training equipment and stores facilities during the survey period aimed at strengthening the cohesion of the military group, the development of cadets' aesthetic and socio-cultural abilities and skills as well as the applied aspects of military professional training.

During the pandemic, the scientific activities of cadets were carried out in compliance with the schedule of the military scientific society sections of the Air Force Academy in 2019-2020 academic year. The results of the study indicate that 58.5% of the respondents are members of the Military Scientific Society. Analysis, comparison, correlation of the answers allowed concretizing and describing the activities in this area. In this regard, we may cite the cadets' participation in research projects (11%); preparation of scientific papers within the framework of the project of the Armed Forces of the Russian Federation presented via videoconference (4%); participation in cadets' best scientific work contest at various faculties, academic departments and research units (10%); preparation and publication of research results in articles, reports, abstracts in various collections of research papers (72%); software products development (electronic textbooks, training and monitoring programs) and implementation of work-improvement suggestions; configuring information support system for the educational process.

The results of the study showed that extracurricular activities in the Air Force Academy are also represented by club activities involving 58% of cadets. Professional training of military personnel implies full harmonious personality development of military personnel and creativity development. The quarantine measures established by the regulatory documents of the Government of the Russian Federation restricted most events outside the military university, in-person participation in agitation campaigns, presentation of creative work to a wide audience. However, it did not represent an obstacle to the development of cadets' amateur talent activities in the information and educational environment of the Air Force Academy. The analysis of the questionnaire survey allows to assume that the cadets' participation club activities was distributed as follows: participation in the teams of the Club of the Cheerful and Inventive – 20%, participation in the show of amateur performances – 18.3%, arranging literary and poetry soirees, military history readings – 26%, organization of military and patriotic work – 34%.

The content of extracurricular activities in the information and educational environment of the higher education institution during the pandemic corresponded consistently and systematically to the goal of personal and professional development presented in the competencies being formed, taking into account the cadets' age-related interests and needs, contributing to the creativity and realizing cadets' creative potential.

The results of the assessment of social experience gained by the cadets during the pandemic are presented in Figure 5.



Legend: 1 – self-education; 2 – increasing socio-cultural level; 3 – organizing and arranging cultural and leisure events; 4 – improvement of facilities maintenance activities; 5 – strengthening military discipline; 6 – improving the methods and forms of military political work; 7 – mentorship; 8 – administrative activities; 9 – improving individual command skills.

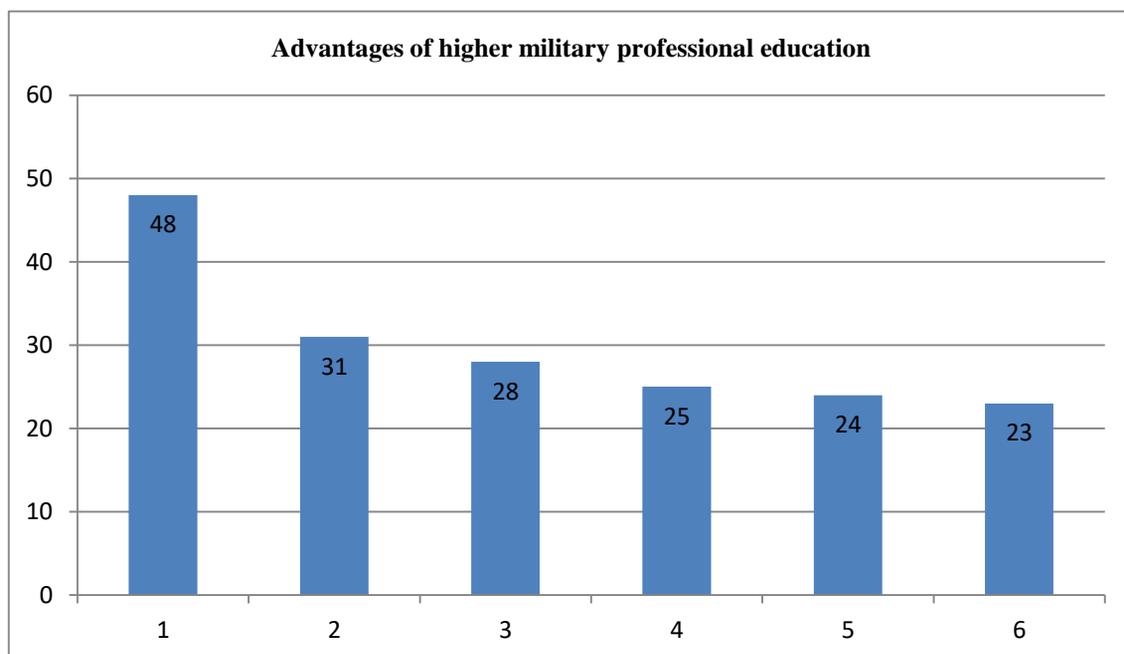
Figure 5. Assessment of social experience gained during the pandemic

The results of the study of cadets' social activity during the pandemic restrictions correlate with their achievements in educational activities, their degree of motivation for learning, and their behavioral attitudes in the military community. From the analysis of the bar graph data based on multiple choice answer questionnaire on social experience gained during the pandemic, it follows that almost half of the respondents indicated self-education (47%) and participation in cultural and leisure activities (46%), a quarter of the respondents took part in facilities maintenance activities (27%), in military discipline strengthening events (31%), 26% of cadets increased their socio-cultural level. The basis of the military pedagogical process is the development of political culture of future officers. Educational activities (social, humanitarian and thematic units of military-professional disciplines), the implementation of military political activities (information, campaigning, propaganda), various forms of practical activities (interaction management and mentorship) contribute to the political culture development in the Air Force Academy.

In this regard, 17% of students indicated the improvement of methods and forms of military and political activities, 13% mentioned mentorship, 21% and 16% noted management activities and the improvement of

the individual command skills respectively which determines the acquisition of important qualities of graduate officers for decision-making in the achievement of the assigned tasks.

The assessment of the benefits of higher military professional education is presented in Figure 6.



Legend: 1 – self-education; 2 – self-improvement of personal qualities; 3 – strengthening corporate codes and practices; 4 – mutual assistance; 5 – self-control; 6 – self-evaluation.

Figure 6. Advantages of higher military professional education

Future officers described self-education (48%), self-improvement of personal qualities (31%), strengthening of cadets' corporate codes and practices (28%), mutual assistance in self-training (25%), self-control (24 %), self-evaluation (23%) as the advantages of military professional education in the extreme conditions of 2020, which demonstrates their ability to self-organize due to reflection skills which are part of the competence of a modern military professional.

## Discussion

The analysis and generalization of the pedagogical experience of the transition from traditional teaching forms to distance learning during the pandemic of 2020 in civilian Russian and foreign universities

presented in scientific papers (Hodges, Moore, Lockee, Trust, & Bond, 2020; Shurukhina, Dovgal, Glukhih, & Klyuchnikov, 2020) and sociological studies (Organization of education in a pandemic, 2020; Russian information news portal, 2020) enables to identify a number of social, psychological, physiological problems of digital education in the information and educational environment of a military university (a crisis of motivation for learning, a decline in academic performance, social detachment and estrangement, insufficient self-organization, lack of availability of special equipment for practical training, isolation and information gap, formalization of the learning process, suspended research work, lack of educators personal example, increased material disparity in teaching practice, lack of pedagogical education, loss of university traditions).

The effectiveness of the model of organizing the information and educational environment of a higher education institution under extreme conditions was manifested in the integration of digital technologies and traditional educational programs. Cadets' involvement in social life of a military educational institution, for one part, contributed to their personal and professional growth, the formation of command-methodological and pedagogical skills for personnel assets training, and for the other part, their social activity was the main condition for their successful adaptation to extreme living conditions caused by the pandemic.

## **Conclusion**

A comprehensive analysis of the study allowed to determine the components of the model of organizing the information and educational environment in a military university during the pandemic. Thus, the theoretical and methodological component is represented by the goal of cadets' personal and professional development; psychological and pedagogical, socio-pedagogical and pedagogical principles. Motivation for learning and adaptation to extreme conditions is of the first priority. Connection between theory and practice in a military university is determined by a special socio-cultural environment; the connection of all types of activities relies on military professional orientation. The content-related component of the information and educational environment is represented by educational, service, extracurricular activities. ICT, e-learning technology, network learning, elements of distance learning form the technological component of the information and educational environment. The search for effective ways to improve the quality of cadets' training and education led to the use of modern tools in the educational process via informational, instructional, material and technical support as well as the development of criteria, levels and indicators.

The model includes socio-pedagogical and psycho-pedagogical conditions which ensure the effectiveness of cadets' personal and professional development: the willingness of the teaching staff and commanders to

carry out educational activities within the information and educational environment of the military university in combination with pedagogical and morale training activities, the educational system and resources of the military university, cadets' involvement in an independent creative search, their ability to use independently ICT (information and communications technology) of the Air Force Academy, the motivation for the use of learning support materials in different academic subject areas. The result presented in the model of organizing the information and educational environment of a military university during the pandemic is cadets' personal and professional development determined by a high level of their adaptive abilities in extreme conditions.

The research provides the basis for identifying the main areas of pedagogical activities in a military university. Firstly, there is a shift in emphasis from the traditional learning process to self-education, self-development, self-education. Secondly, personnel management system, interaction organization, mentorship develop. Thirdly, there is an increase in overall socio-cultural level. Fourthly, the quality of education is improved through the advancement of the methods and forms of military political work, cultural and leisure activities (clubs, sports events). Fifthly, facilities maintenance activities are up-levelled. Sixthly, military discipline and military group cohesion strengthen, individual command skills improve.

The results of the study revealed the predominance of pedagogical and moral training resources in the information and educational environment of a higher education institution which serve as the basis for putting forward suggestions as a necessary condition for reaching the decisions aimed at improving the quality of training in the system of higher military professional education.

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### **Competing interests**

The authors have declared that no competing interests exist.

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