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INNOVATIVE METHODS FOR ENHANCING THE PROFESSIONAL TRAINING OF RESCUE UNITS

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ANNOTATION

This article analyzes the significance of using innovative methods to enhance the professional training of rescue unit personnel. The study highlights the possibilities of applying modern educational technologies, simulation-based training, virtual and augmented reality technologies (VR/AR), digital simulators, and practical exercises in order to improve preparedness for action in emergency situations. It also examines innovative mechanisms for developing rescuers' professional competencies, fostering rapid decision-making skills, and ensuring readiness for effective action in emergencies. The findings of the study contribute to improving the professional training of rescue unit personnel and increasing the effectiveness of rescue operations in emergency situations.

KEYWORDS: *Rescue Units, Professional Training, Innovative Methods, Simulation-Based Training, Virtual Reality (VR), Augmented Reality (AR), Professional Competencies.*

In contemporary conditions, the growing risk of natural and technological emergencies places high demands on the activities of rescue units. In emergency situations, rescuers' professional training is of decisive importance for saving lives, evacuating the population to safe locations, and minimizing damage. For this reason, the continuous improvement of the professional training of rescue unit personnel is one of the key tasks of the emergency management system.

The effective organization of rescue operations in emergencies directly depends on rescuers' physical, psychological, and professional preparedness. Rescuers must be capable of making rapid decisions in emergency situations, acting in hazardous environments, and effectively using modern equipment and technologies. From this perspective, alongside traditional instructional methods, the introduction of innovative educational technologies into the training of rescue unit personnel is of great importance.

International practice shows that the use of innovative educational technologies in the training of rescuers makes it possible to significantly increase the effectiveness of professional training. In particular, simulation-based training, virtual reality (VR) and augmented reality (AR) technologies, digital simulators, and modeling methods are widely used to prepare rescuers for action in emergencies. These technologies make it possible to model various emergency scenarios, develop rescuers' practical skills, and improve their decision-making capacity.

Innovative methods are also widely used in foreign countries to improve the professional training of rescue unit personnel. For example, simulation training, digital simulators, and virtual reality technologies are used in the training of rescuers in countries such as the United States, Germany, and South Korea. This helps strengthen rescuers' practical preparedness and ensures their ability to act effectively in emergency situations.

In the Republic of Uzbekistan as well, considerable attention is being paid, within the framework of the state system for the prevention of and response to emergencies, to improving the professional training of rescue unit personnel. However, there remains a need to introduce innovative educational technologies in this field, use modern simulators, and expand simulation-based training.

From this perspective, it is of great importance to conduct a scientific analysis of the possibilities for using innovative methods to improve the professional training of rescue units, to study the mechanisms for introducing modern educational technologies in this field, and to develop scientifically grounded proposals and recommendations aimed at strengthening rescuers' professional competencies.

Under modern conditions, the increasing number and scale of natural and technological emergencies place high demands on the activities of rescue units. During emergencies, the protection of people's lives and health, the reduction of damage, and the effective organization of rescue operations largely depend on the level of rescuers' professional training. Therefore, the continuous improvement of the professional training of rescue unit personnel is one of the major tasks of the emergency management system.

In emergency situations, rescuers are expected to make rapid decisions, operate in hazardous environments, use modern machinery and equipment, and possess practical skills related to protecting the population. This, in turn, requires rescue unit personnel to have a high level of professional competence. From this standpoint, improving the system of rescue training, introducing modern educational technologies, and using innovative teaching methods are matters of pressing importance.

Global practice demonstrates that the use of innovative educational technologies in the training of rescue unit personnel makes it possible to significantly improve the effectiveness of professional training. In particular, simulation-based training, virtual reality (VR) and augmented reality (AR) technologies, digital simulators, and modeling methods are widely employed

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to prepare rescuers for action in emergency situations. These technologies make it possible to model various emergency scenarios, develop rescuers' practical skills, and enhance their decision-making ability.

In the Republic of Uzbekistan, considerable attention is likewise being devoted, within the framework of the state system for the prevention of and response to emergencies, to improving the professional training of rescue unit personnel. However, there remains a need to further expand the introduction of innovative educational technologies and to develop broader opportunities for using modern simulators and simulation-based training in this field.

Accordingly, a scientific analysis of the possibilities for using innovative methods to enhance the professional training of rescue units, improvement of the mechanisms for introducing modern educational technologies in this sphere, and the development of scientifically grounded proposals and recommendations aimed at strengthening rescuers' professional competencies are of urgent importance.

The activities of rescue units are of crucial importance in the prevention of emergencies and the elimination of their consequences. During natural and technological emergencies, the rapid and effective actions of rescuers constitute a decisive factor in saving lives, reducing material losses, and mitigating the consequences of emergencies. Therefore, the professional training of rescue unit personnel must be maintained at a high level.

Under contemporary conditions, the nature and scale of emergencies are becoming increasingly complex. Natural disasters, industrial accidents, transport catastrophes, and other hazardous situations require rescuers to possess a high level of professional training, skills in the use of modern technologies and equipment, and the ability to make rapid decisions under extreme conditions. This makes the continuous improvement of the training system for rescue unit personnel imperative.

However, an analysis of practice shows that a number of problems still exist in the process of training rescuers. In particular, the predominance of traditional instructional methods, limited opportunities for using modern simulation and digital technologies, an insufficient number of practical exercises, and the inadequate introduction of innovative approaches aimed at developing rescuers' decision-making skills in emergency situations constitute some of the main problems in this field.

At the same time, the possibilities of using simulation-based training, virtual reality (VR) and augmented reality (AR) technologies, digital simulators, and modeling methods in the training of rescuers for the effective organization of rescue operations in emergencies have not been fully utilized. This may adversely affect the development of rescuers' practical preparedness and professional competencies.

In light of the above, the introduction of innovative methods for improving the professional training of rescue units, the use of modern educational technologies, and the development of new approaches aimed at strengthening rescuers' practical skills constitute an urgent scientific problem. This study is specifically devoted to addressing this problem and analyzes the possibilities of using innovative methods to enhance the professional training of rescue unit personnel.

The main objective of this study is to analyze the theoretical and practical foundations of using innovative methods to improve the professional training of rescue unit personnel, to examine the possibilities of using modern educational technologies and simulation-based training, and to develop scientifically grounded proposals and recommendations aimed at enhancing rescuers' professional competencies.

In addition, the study examines the possibilities of using simulation-based training, virtual reality (VR), augmented reality (AR) technologies, digital simulators, and modeling methods in the process of preparing rescue unit personnel to act in emergencies. The study analyzes the opportunities these technologies provide for developing rescuers' practical skills, enhancing their decision-making capacity under extreme conditions, and ensuring preparedness for effective action in emergency situations.

Another important objective of the study is to examine the experience of foreign countries in the training of rescue unit personnel, analyze the innovative educational technologies and training systems used there, and develop scientifically grounded proposals for adapting this experience to the national emergency management system.

Thus, the study is aimed at formulating scientific conclusions and practical recommendations directed toward improving the professional training of rescue unit personnel, introducing modern innovative teaching methods, and increasing the effectiveness of rescue operations in emergency situations.

To achieve the purpose of the study, the following key tasks were identified:

- To analyze the theoretical and methodological foundations for improving the professional training of rescue unit personnel;
- To examine the significance of rescuers' professional competencies and practical skills in carrying out rescue operations in emergency situations;
- To analyze the current state of the system for training rescue unit personnel and identify the existing problems in this field;
- To explore the possibilities of using innovative methods such as simulation-based training and virtual reality (VR) and augmented reality (AR) technologies in the training of rescuers;
- To study and comparatively analyze the experience of foreign countries in improving the professional training of rescue unit personnel;
- To substantiate innovative mechanisms for improving rescuers' practical preparedness and developing their professional competencies;
- To develop scientifically grounded proposals and practical recommendations aimed at increasing the effectiveness of the use of innovative methods in enhancing the professional training of rescue unit personnel.

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In the course of this study, a number of scientific research methods were employed to examine the theoretical and practical aspects of applying innovative methods to improve the professional training of rescue unit personnel.

First, the methods of analysis and synthesis were used to review and generalize scholarly literature, regulatory and legal documents, and materials from international organizations related to the research topic. Through these methods, the theoretical foundations of improving the professional training of rescue unit personnel, as well as the development trends in this field, were analyzed.

A comparative analysis method was used to study the experience of various countries in the training of rescuers. Through this method, the innovative educational technologies and training systems used in the preparation of rescue unit personnel in countries such as the United States, Germany, Japan, and South Korea were analyzed, and their similarities and differences in relation to the national system were identified.

A systems approach was also employed to examine the training process for rescue unit personnel as a unified system consisting of interconnected elements. This method made it possible to analyze the interrelationship among the educational process, simulation-based training, digital simulators, and practical exercises.

In addition, institutional analysis was used to examine the organizational and institutional aspects of the system for training rescue unit personnel. This method made it possible to study the organizational mechanism of the training system, the curricula, and the role of educational technologies.

Furthermore, statistical analysis was used to examine data on the preparedness level of rescue unit personnel and their performance in emergency situations. Through this method, data on rescuers' professional training levels, the effectiveness of practical exercises, and their actions in emergencies were analyzed.

Thus, the comprehensive application of the above-mentioned scientific methods made it possible to conduct a multidimensional analysis of the significance of using innovative methods to improve the professional training of rescue unit personnel, identify existing problems, and develop scientifically grounded conclusions and proposals aimed at improving this field.

The study analyzed the importance and effectiveness of applying innovative methods to improve the professional training of rescue unit personnel. The results of the analysis showed that the effective organization of rescue operations in emergency situations directly depends on rescuers' high level of professional training and practical skills.

Within the framework of the study, the main factors affecting the professional training of rescue unit personnel were identified. In particular, rescuers' physical and psychological preparedness, their ability to make rapid decisions in emergencies, their skills in using modern equipment and technologies, and the effectiveness of practical exercises were identified as key factors determining the results of rescue operations.

According to the findings of the study, the use of innovative educational technologies in the training of rescue unit personnel makes it possible to significantly improve the effectiveness of professional training. In particular, simulation-based training, virtual reality (VR) and augmented reality (AR) technologies, digital simulators, and modeling methods play an important role in developing rescuers' practical skills.

The study substantiated that the ability to model different emergency scenarios through simulation-based training can help enhance rescuers' preparedness for action in emergency situations. Such training enables rescuers to develop skills in decision-making under hazardous conditions, the effective organization of rescue operations, and the use of modern equipment.

It was also found that the use of virtual reality (VR) and augmented reality (AR) technologies can make the training process for rescuers even more effective. These technologies make it possible to model various emergency situations in a virtual environment, develop rescuers' practical skills, and enhance preparedness for action under extreme conditions.

The findings showed that the introduction of innovative methods in improving the professional training of rescue unit personnel contributes to increasing the effectiveness of rescue operations and broadening the possibilities for rapid and effective action in emergencies.

Thus, the findings of the study provide a scientific basis for substantiating the significance of using innovative methods to improve the professional training of rescue unit personnel and make it possible to develop scientifically grounded proposals and recommendations aimed at improving educational technologies in this field.

In international practice, special attention is paid to improving the professional training of rescue unit personnel. The growing complexity and scale of modern emergencies require the improvement of rescue training systems, the introduction of innovative educational technologies, and increased effectiveness of practical training [1].

In particular, in the United States the training of rescuers is organized by the Federal Emergency Management Agency (FEMA) and the National Fire Academy. Simulation-based training, digital simulators, and virtual reality (VR) technologies are widely used in the country's rescue training system. These technologies make it possible to model various emergency scenarios and develop rescuers' practical skills.

In Japan, the system for training rescue unit personnel is organized at a high level, and preparedness for emergencies is implemented within the framework of the national security policy. Modern simulators, simulation-based training, and digital modeling technologies are used in the training process. This contributes to the development of rescuers' skills for operating under extreme conditions.

In Germany, the training of rescuers is carried out by the Federal Office of Civil Protection and Disaster Assistance

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(BBK — Bundesamt für Bevölkerungsschutz und Katastrophenhilfe) and specialized training centers. Practical exercises, special simulation centers, and digital simulators are widely used. In addition, team-based drills and training exercises based on emergency scenarios are conducted in the process of rescue training.

In South Korea, the system for training rescue unit personnel is organized on the basis of innovative technologies. Virtual reality (VR), augmented reality (AR) technologies, and digital simulation platforms are widely used in the training of rescuers. These technologies make it possible to model various emergency scenarios and improve rescuers' practical preparedness.

The experience of the countries reviewed above shows that the use of innovative technologies is of great importance in improving the professional training of rescue unit personnel. In particular, simulation-based training, virtual reality technologies, digital simulators, and modeling methods make it possible to develop rescuers' practical skills and increase their preparedness for effective action in emergencies.

In the Republic of Uzbekistan as well, certain measures are being implemented within the framework of the state system for the prevention of and response to emergencies to enhance the professional training of rescue unit personnel. However, analysis of foreign experience indicates that there remains a need to more broadly introduce innovative educational technologies and to further develop the possibilities of using simulation-based training and digital simulators in this field.

From this perspective, studying foreign experience and adapting it to the national training system for rescue units is of significant importance for improving rescuers' professional training and ensuring the effectiveness of rescue operations in emergency situations.

The scientific novelty of this study lies in the comprehensive analysis of the theoretical and practical foundations of using innovative methods to improve the professional training of rescue unit personnel, as well as in the development of scientifically grounded proposals and recommendations aimed at introducing modern educational technologies in this field.

The study substantiated the following scientific novelties:

- The theoretical foundations for improving the professional training of rescue unit personnel and its impact on the effectiveness of rescue operations in emergency situations were analyzed systematically;
- The possibilities of using innovative educational technologies in the training of rescuers, including simulation-based training, virtual reality (VR), augmented reality (AR), and digital simulators, were substantiated;
- The priority areas of innovative educational technologies aimed at developing the professional competencies of rescue unit personnel were identified;
- The effectiveness of applying practical exercises and digital modeling methods in preparing rescuers for action in emergency situations was scientifically substantiated;
- On the basis of an analysis of foreign experience, scientifically grounded proposals and practical recommendations were developed for introducing innovative methods to improve the professional training of rescue unit personnel.

Thus, the findings of this study contribute to advancing the scientific foundations of the use of innovative methods in improving the professional training of rescue unit personnel and make it possible to refine scientific approaches aimed at increasing the effectiveness of rescue operations in emergency situations.

Based on the findings of the study, the following practical recommendations were developed with the aim of improving the professional training of rescue unit personnel and preparing them for effective action in emergency situations.

First, it is advisable to broadly introduce simulation-based training and modeling technologies in order to improve the process of training rescuers. This approach makes it possible to artificially model various emergency scenarios and develop rescuers' practical skills.

Second, it is necessary to expand the use of virtual reality (VR) and augmented reality (AR) technologies in the training of rescue unit personnel. These technologies make it possible to model hazardous and extreme conditions in a virtual environment and to improve rescuers' preparedness for action in emergency situations.

Third, the introduction of digital simulators and interactive educational platforms is of great importance for developing rescuers' professional skills. These platforms make it possible to organize the training process more effectively and increase the effectiveness of practical exercises.

Fourth, it is necessary to regularly organize integrated training sessions and joint exercises in order to improve the professional training of rescue unit personnel. Such exercises contribute to the development of rescuers' teamwork skills in emergency situations.

Fifth, in order to ensure the effective use of innovative educational technologies in the training process, it is advisable to introduce special educational programs aimed at developing the digital and professional competencies of rescue unit personnel.

Sixth, improving the regulatory and legal framework governing this field is also important for enhancing the system of training rescue unit personnel.

Thus, the implementation of these practical recommendations will contribute to improving the professional training of rescue unit personnel, ensuring the effectiveness of rescue operations in emergency situations, and further strengthening public safety.

Under modern conditions, the growing risk of natural and technological emergencies places high demands on the activities of rescue units. During emergencies, the protection of people's lives and health, the reduction of damage, and the effective organization of rescue operations largely depend on the level of rescuers' professional training. Therefore, the

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continuous improvement of the professional training of rescue unit personnel is of great importance.

The findings of the study showed that the use of innovative educational technologies in the training of rescue unit personnel makes it possible to significantly improve the effectiveness of professional training. In particular, simulation-based training, virtual reality (VR) and augmented reality (AR) technologies, digital simulators, and modeling methods contribute to developing rescuers' practical skills and increasing their preparedness for effective action in emergency situations.

An analysis of foreign experience showed that the use of innovative technologies is of great importance in improving the professional training of rescue unit personnel. In countries such as the United States, Japan, Germany, and South Korea, simulation-based training, digital simulators, and virtual modeling technologies are widely used in the training of rescuers.

Within the framework of the study, the main directions for improving the professional training of rescue unit personnel were identified. These include the introduction of innovative educational technologies, the broad use of simulation-based training and digital simulators, the organization of integrated training exercises, and the development of rescuers' professional competencies as priority tasks in this field.

Thus, the effective use of innovative methods in improving the professional training of rescue unit personnel is of great importance for ensuring the effectiveness of rescue operations in emergencies, developing rescuers' practical skills, and safeguarding public safety. The findings of the study make it possible to develop scientifically grounded proposals and recommendations aimed at improving educational technologies in this field and enhancing the professional training of rescue unit personnel.

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