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Original research article

Professionally Important Qualities of Bachelors in Technosphere Safety

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Abstract

Introduction. Professional development of cadets training under the Technosphere Safety program, 03.20.01 (hereinafter, referred to as bachelors) is largely characterized by the development of professionally important qualities. Professionally important qualities of bachelors are shaped at the university. Educationalists' understanding of such qualities enables them to find the ways to improve the quality of vocational training. To date, this is the first study to distribute professionally important qualities into groups depending on bachelors' operational actions in risk situations.

Methods. These were questioning and analysis of psychological, pedagogical, and specialized literature. The study used the personality-activity approach to analyze and interpret professionally important qualities. The sample comprised of 71 mid-level and high-level commanding officers of the Ministry for Extraordinary Situations of Russia. At the first stage the authors specified 23 professional qualities that are important for bachelors and also four groups of their manifestation. At the second stage, the questionnaire-based data enabled authors to distribute qualities into groups. Each group contained the most important quality.

Results. This section describes the distinguished groups of professionally important qualities, including (a) universal qualities (courage), (b) qualities important for professional activities (speed of assessment of operational situations), (c) qualities providing staff management (leadership), and (d) qualities of self-management (stress tolerance).

Discussion. The authors consider professionally important qualities as a component of bachelors' success in environments with risk factors. The findings of the study are of particular interest to universities. The studied qualities may be used to evaluate graduates' personality and to determine failures in their training. This aspect enables educationalists to purposefully create special conditions for the manifestation of professionally important qualities of a certain group in the educational process.

Keywords

personality, bachelor, professional activity, important qualities, manifestation of qualities, risk factor, stress tolerance, courage, speed, leadership

Highlights

- Professional activity of bachelors requires professionally important qualities.
 - The manifestation of bachelors' professionally important qualities depends on the implementation of operational actions in environments with risk factors, which makes it possible to divide them into groups and to distinguish the most important ones.
 - Modeling professional situations, which enable the manifestation of bachelors' professionally important qualities in risk situations, may be considered as a technology for their formation.
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Introduction

The efficiency of professional activities of officers in the Federal Fire Service ensures the safety of lives of individuals and material assets of the state as well. As practice shows, among all the graduates of universities of the Ministry for Extraordinary Situations bachelors take up the posts related to practical activities more often. Thus, in 2017, more than 80 % of graduates of the Ivanovo Fire Rescue Academy of State Firefighting Service of EMERCOM of Russia were appointed to the position of a guard commander, deputy chief, and chief of the fire and rescue unit. An essential feature of these posts is to provide guard duty in the fire and rescue unit and to carry out the main combat mission.

During emergency response, officers are subjected to excessive physical, psychological, and psycho-emotional stress (Chovyrova, 2016). Bachelors' identity is influenced by the need to carry out activities at night, in unsuitable for breathing environment, taking into account the conditions and limitations of time resources (Grinchenko & Tarakanov, 2018). In solving professional tasks bachelors should take reasonable risks and be responsible for subordinate personnel when giving orders (Mardakhaev, 2015; Karpov & Karpov, 2016).

The analysis of the relevant literature enabled us to distinguish the following main operational activities of bachelors: (a) decision-making and the realization of these decisions, (b) inclusion in activities while maintaining managerial functions, (c) implementation of professional activities in accordance with official duties, interacting with staff, (d) quick assessment of a situation and analysis of options for possible actions, taking into account tactical capabilities of a unit, and (e) ensuring the reliability of the implementation of tasks in situations of professional risk right up to life sacrificing.

The above operational actions are carried out in the extreme environment, which is characterized by suddenness, scale of the emergency and the duration of the impact of risk factors on individuals. Due to the lack of necessary experience in bachelors, insufficient understanding of the professional situation as a whole, insufficient psychological preparedness and a low level of emotional stability, the process of performing professional activities is disrupted. Stress among bachelors is one of the main factors in the failure to complete the task (Strel'nikova, 2015).

In insufficiently prepared individuals stressful situations provoke such mental states as severe excitement, short-term or long-term stupor, manifested in immobility and silence (Shevchenko & Makarova, 2016). Confusion leads to difficulties in analyzing the incoming information, the implementation of incorrect actions, and a distortion in perceiving time intervals. This leads to reduced efficiency, errors, disruptions, increased likelihood of injury and failure to complete the task (Strel'nikova, 2015; Zhuikova, 2015; Shipilov, Sharabanova, Zeinetdinova, & Kokurin, 2017). We should also note that the duration of the emergency response process requires constant mobilization of bodily resources.

Therefore, the successful implementation of operational actions in situations with risk factors depends on a number of conditions: (a) providing bachelors with information about professional situations, reliability of fire engines, fire fighting equipment and personnel, and (b) developed professional skills, abilities and personality traits that support a person's ability to work when solving tasks in atypical conditions of professional activity (Shoigu & Tarasova, 2017; Hansen, Netteland, & Wasson, 2016).

This study aims to identify professionally qualities important for a bachelor in technosphere safety and to distribute them into groups depending on the provision of operational actions in risk situations.

Methods

Research Design

The study was carried out in 2016. The experts were faculty members of the Ivanovo Fire Rescue Academy and mid-level and high-level commanding officers of the Ivanovo Local Fire and Rescue Garrison (n = 71).

The study was carried out in two stages. At the first stage, we distinguished professional qualities important for bachelors to implement professional activities and the main groups of their manifestation. At the second stage, we distributed the identified professional qualities into groups based on expert assessments. Each group contained the most important quality.

Research Methods

The study used the personality-activity approach that takes into account individual characteristics of each person (Kozhunov, 2016). The personality aspect of this approach ensures that the bachelor fulfills the tasks in the professional environment. The activity aspect prepares bachelors for self-realization when carrying out tasks for a professional purpose. On the basis of this approach, we identified professionally important qualities and their manifestation when bachelors perform tasks in the environment with risk situations.

The selection of professionally important qualities and their distribution into groups was carried out in the process of theoretical analysis of studies, psychological, pedagogical, and specialized literature. We developed a questionnaire to distribute the qualities into groups. The developed questionnaire represents a table. The head row of the table contains groups of manifestations of professionally important qualities; its left part contains a list of qualities. The experts should have marked an unlimited number of qualities necessary for each group of their manifestation. Moreover, the experts were asked to specify the most important quality for each group.

Results

The analysis of the relevant literature showed a close association of the concepts of 'professionally important qualities' and 'professionally significant qualities' (Dushkov, Korolev, & Smirnov, 2005, p. 471). The concept of 'professionally important (significant) qualities' was initially considered in specialized literature and studies on military psychology. Military psychologists emphasize that in order to solve the tasks of military professional activity, training and education, military personnel should have strong-willed character traits, as well as value orientations, motives, attitudes, and physical qualities (Marishchuk, 1982; Barabanshchikov & Fedenko, 1981, p. 90).

This aspect enabled us to distinguish 23 professional qualities important for bachelors, including the speed of assessment of operational situations, speed of decision-making in distracting influences and lack of time, speed of reaction to an unexpected auditory impression through certain actions, fidelity to professional duty, mutual assistance, discipline (manageability), collectivism, leadership, resourcefulness, responsibility in difficult situations, professional skills of observation, resoluteness, self-esteem, independence, courage, quick-wittedness, stress tolerance, exactingness, self-confidence, physical endurance and resistance to physical fatigue, purposefulness in distracting difficulties, and emotional stability.

The analysis of the nature of professional activities of officers of the Federal Fire Service enabled us to distinguish groups of professionally important qualities and provide their qualitative characteristics (Table 1).

No.	Groups of qualities	Qualitative characteristics
1	Universal qualities. Qualities that form the basis for bachelors' personality and enable them to perform actions for professional purposes	Bachelors' propensity for professional purposes
2	Qualities important for carrying out professional activities in risk situations. Predisposition of the bachelor to activities for professional purposes in risk situations	Bachelors' propensity for activities for professional purposes in risk situations
3	Qualities providing personnel management in risk situations	Bachelors' ability to manage personnel in risk situations
4	Qualities important for self-control in risk situations	Moral and psychological stability of bachelors' personality

After the survey of officers we distributed professionally important qualities into groups. Table 2 shows the results.

No.	Professionally important qualities	%
1	Discipline (manageability)	2,7
	Responsibility in difficult situations	4
	Purposefulness in distracting difficulties	9,3
	Resourcefulness	20
	Self-confidence	14,7
	Speed of reaction to an unexpected auditory impression through certain actions	18,7
	Courage	30,7
2	Speed of assessment of operational situations	24
	Professional skills of observation	12
	Quick-wittedness	9,3
	Independence	6,7
	Physical endurance and resistance to physical fatigue	18,7
	Mutual assistance	14,7
	Collectivism	14,7
3	Leadership	46,7
	Speed of decision-making in distracting influences and lack of time	34,7
	Exactingness	18,7
4	Fidelity to professional duty	9,3
	Resoluteness	16
	Selflessness	5,3
	Emotional stability	29,3
	Stress tolerance	38,7
	Self-esteem	1,3

Thus, each group contains the quality that comprehensively characterizes bachelors' personality in the learning process. These qualities are courage (30.7 %), quick assessment of operational environment (24 %), leadership (46.7 %), and stress tolerance (38.7 %).

Discussion

The analysis of the specialized literature and the results of the study enabled us to clarify the concept of 'professionally important qualities' of bachelors in Russian Ministry for Extraordinary Situations. This definition refers to the qualities that determine bachelors' ability and willingness to carry out activities for professional purposes in emergency response, which provide management of personnel and self-management in risk situations, showing fidelity to professional duty, resoluteness, and selflessness.

The review of the relevant literature confirms the findings of the experimental study. Thus, the effectiveness of the implementation of activities is closely interrelated with stress tolerance, courage, and resoluteness (Vlaskina, 2013). Stress tolerance ensures individuals' adjustment to extreme conditions to endure physical, intellectual, volitional, and emotional stress (Shevchenko & Makarova, 2016; Zhuikova, 2015). Courage helps individuals overcome the fear of a real or imagined danger. Resoluteness affects the speed of choice and decision making and also the implementation of subsequent actions (Glazunov & Sidorov, 2016). Leadership provides individuals' self in their consciousness and represents a combination of socio-communicative and socio-psychological means for ensuring the organization of social communities (Lozova, 2017; Martens, 2018). The indications of the development of professionally important qualities include the following skills of bachelors: (a) choosing and making managerial decisions, (b) predicting further actions, (c) analyzing situations, and (d) carrying out operational actions as a fire brigade commander.

Conclusion

The authors of the article do not replace the understanding of the essence of professionally important qualities of cadets-bachelors, but supplement it in the training section at universities of the Ministry for Extraordinary Situations of Russia.

Distribution of professionally important qualities into groups will make it possible to assess the professional development of bachelors' personality in universities of the Ministry for Extraordinary Situations of Russia and ensure its adjustment as a part of a purposeful pedagogical process (Sizikova, Anikeeva, Galkina, Mardakhaev, Starovojtova, & Makarov, 2015; Egorychev, Mardahaev, Rybakova, Fomina, & Sizikova, 2014; Mardakhaev & Makarenko, 2015; Romanov, 2015; Irkhina, Irkhin, Davydenko, Shehovskaya, & Krolevetskaya, 2016; Isaeva, Mamatova, Kovalenko, & Kurganskiy, 2016; Levanova, Sleptsova, Khripunkova, & Mazkina, 2018). To ensure this aspect, the training process should be focused on the development of personal qualities by virtue of motivation for self-development (Migunova, 2016). We should also emphasize that special attention should be paid to the intellectual, volitional, emotional, and physical spheres of personality (Tsilik, 2015). At the same time, faculty members and commanding officers must continuously improve the above specified professionally important qualities of bachelors through operational images of typical and atypical situations (Anikeeva, 2013). To achieve this goal it is necessary to use modeling of professional situations that may contribute to emotional states, ensuring the development of individuals' ability to self-regulation (Vasil'ev, 2017; Popova, 2018).

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