

Psychological Analysis of Occupational Conditions in Extreme Environments and the Structure of Non-Standard Situations

Oksana KHURTENKO¹,
Kseniia BEREZIAK²,
Roman KHAVULA³,
Oksana VDOVICHENKO⁴,
Nataliia ONISHCHENKO⁵,
Svitlana LIEBIDIEVA⁶

¹Vinnitsia Mykhailo Kotsiubynskiy State Pedagogical University, Ukraine, kseniaxyrtenko@gmail.com

²Lviv State University of Life Safety, Ukraine, xmber@meta.ua

³Drohobych Ivan Franko State Pedagogical University, Ukraine, romankhavula@gmail.com

⁴The State institution "South Ukrainian National Pedagogical University named after K. D. Ushynsky", Ukraine, werta4877@gmail.com

⁵National University of Civil Defence of Ukraine, Ukraine, onishchenko@nuczu.edu.ua

⁶National University of Civil Defence of Ukraine, Ukraine, lebedeva@nuczu.edu.ua

Abstract: *Professional coaching career is associated with a wide range of issues and problems which need to be solved and are directly or indirectly determined by creative activity. Therefore, an appropriate training process of students, in particular prospective coaches, is an essential scientific and practical problem. The article presents a thorough psychological analysis of the structure of decision-making in extreme situations and identifies different types of non-standard situations in a coaching job. Also, it clarifies such concepts as "situation", "non-standard situation" and "extreme situation" in the activity of the individual. It describes different types of non-standard situations which can be manifested in professional coaching and their impact on the human psyche. It analyzes extreme conditions in the activities of athletes and coaches and the role of various mental functions and personality traits in problem-solving. Importantly, the article emphasizes the role of the coach's reflection and self-regulation in solving non-standard tasks under non-standard conditions. It indicates that two theoretical views on the nature of the human psyche and thinking correspond to two approaches to studying this particular problem. According to the first one, that is an adaptive approach, creative thinking as a form of behaviour is the result of learning, and only some individuals have creative ability. To teach creativity, however, one needs to include the elements of creative behaviour (problem-solving) and heuristics in the educational material. Another approach assumes that thinking is a productive process emerging as a result of a certain problematic situation. Prerequisites for the creative process are cognitive abilities and research activities of the individual.*

Keywords: *coaching job; creative activity; human psyche; adaptive approach; creative thinking; productive process; cognitive abilities.*

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Introduction

Sports activities, such as wrestling and competitions, are carried out with the help of special tools, actions, which aim to solve specific problems. Sporting achievement is possible due to solving problematic situations that are the result of changes in the behaviour of rivals and the conditions of athletes' struggle with them, their mental and physical states.

Different aspects of the problem under study are covered in the works of many scholars (Bakhmat et al., 2019; Bezliudnyi et al., 2019; Halaidiuk et al., 2018; Maksymchuk et al., 2018; Sitovskyi et al., 2019; Nerubasska, & Maksymchuk, 2020; Melnyk et al., 2019; Sheremet, Leniv, Loboda, & Maksymchuk, 2019; Gerasymova et al., 2019); Onishchuk et al., 2020; Maksymchuk et al., 2020; Khmil, & Popovych, 2019; Petrova, 2017). The authors of the article believe that any situation in sport can be considered problematic until the individual realizes it. If so, it becomes a task. Sports activity is characterized by the fact that athletes never deal with familiar conditions. They usually know their goals, namely general features of wrestling. However, they do not know what their rivals plan to do and what tactics of struggle they intend to choose. Thus, any situation of a sports competition is unknown to athletes and coaches and, therefore, problematic, to some extent difficult, and non-standard.

In this regard, it is vital to clarify the essence of such a concept as "situation" and its specific type, that is "non-standard situation". After all, a situation is the area of decision-making and, accordingly, determines certain psychological features.

Psychological analysis of any activity, including management, should consider specific structural elements. Moreover, these elements must be taken into account not separately but in unity. This integrity is possible due to an optimal combination of psychological analysis of its two types, namely, by elements (components) of activity and by units of activity analysis. Defining a system unit of activity analysis, including management, is the most important methodological and methodical task of psychological analysis. This task was considered differently in the context of different schools of Ukrainian psychology.

Vygotsky (1982) repeatedly considered two methods of mental analysis, including elements and units. Rubinshtein (2002) and Leontev (1975) suggest using action as units of analysis, Miasishchev (1998) – an attitude and Uznadze (2004) and his followers – affirmation. Many Ukrainian scholars propose the principle of activity-mediated modelling and study of decision-making (Karpov, 1993). It lies in the fact that decision-

making should be modelled and studied not in isolation from the structure of activity or in a ready-made form but indirectly. It means generating a more general and holistic regulatory framework, which includes decision-making as one of the necessary means of regulating the individual's activities at the wish of the individual. It should not be set only from the outside but created by the individual.

Psychological Structure and typology of Non-Standard Decision-Making Situations in Coaching Job

It is important to note that presently, there are studies in which integral acts of activity (Sidorenko, 2000) and structural-functional units of systemic analysis (Derkach, & Isaev, 1981) are considered as units of analysis on different activities. This article views Shvedin's (1989) approach as the most efficient one since the researcher suggests using situations as a unit of analysis.

An activity analysis unit is always systemic. Acting as an integral synthetic concept, it allows one to describe (analyze) any activity more specifically, namely, with certain consequences for practice. A criterion for the correct choice of an analysis unit is the extent to which it makes it possible to identify integral properties of the object, including its structure, dynamics of development, properties.

The situation as a unit of analysis fully meets these requirements. It allows one to conduct structural, functional and genetic analysis of the activity in systemic integrity. Activity is defined as a specifically human form of an active attitude to the environment, whose content is based on its appropriate change and transformation. Therefore, it is important to study it in a psychological context so that one can analyze the unity of the world (environment) and the very activity of the individual. According to Shvedin (1989), an activity can be considered in a system of three-dimensional space: tasks, the actor of activity, the objective conditions of activity.

Thus, the main structural elements of activity identified in psychology (motives, actions, operations, goals, results) are integrated concerning a specific actor of activity when performing a specific task under in specific objective conditions. The situation is the smallest, indivisible, systematically organized part of the activity, which reveals all its basic elements. Besides, it should be considered concerning the properties and characteristics of those who act in this situation and deal with the activity itself. It is these factors that cause non-standard situations, conditioned as

novelty, unusualness and something which does not fit into the general algorithm of activity.

The term “complicated situation” is quite close to the concept of a non-standard situation in psychology. Its main psychological feature lies in requiring the actor to use their mental and physiological capabilities to the fullest. At the same time, the focus is on the general conditions of the activity. In this regard, complicated situations can be somehow classified in the system of “extreme-non-extreme” operational conditions. According to such an approach, it is common to divide all the factors determining the difficulties of such situations into two groups based on the impact on the human psyche: complications in the functioning of the human body as a psychophysiological system; changes in socio-psychological factors of life and personality.

In this research, however, the term “non-standard situation” should primarily take into account the manifestation of extreme conditions in many sports. Yet, the research considers the situations manifested under the conditions of sports competitions.

Regarding coaches’ decision-making, a non-standard situation can be caused, on the one hand, by unusual (usually stressful) conditions of management in a competitive environment and, on the other hand, a new, unusual and creative nature of the task requiring effective solutions.

Any non-standard situation consists of the following three components: a situation (state) of the actor under control; a process that can develop in one direction or another; psychological, socio-psychological and other consequences.

The analysis of the nature of non-standard situations allows one us to note that:

Firstly, these are extraordinary phenomena which periodically occur in nature and official, economic and industrial spheres of society and pose a real threat to human life and health (natural disasters, industrial accidents and catastrophes, emergencies, sports trials requiring a high level of fitness); the factors affecting the human psyche in non-standard situations can have a strong negative impact, cause anxiety, stress, shock and panic behaviour and lead to a sharp increase in the physical loss;

Second, non-standard situations are not described in the regulations and are not incorporated in the personal experience of coaches as a model of activity. In this situation, there is an urgent need for a creative approach to decision-making, which can increase its effectiveness.

In psychology, the systemic-situational analysis offers different approaches to classifying non-standard decision-making situations

depending on the decision-making conditions and the most important tasks (grouping the conditions and nature of the situation tasks concerning the dominant psychological mechanisms of their acceptance). This research is based on the classification model (see Fig. 1) proposed in Stsiborovsky's study (2005).

Situation indicators		Tasks	
		Standard	Non-standard
Conditions	Standard	Reproductive thinking mechanisms	Creating thinking mechanisms
	Non-standard	Mental regulation mechanisms	Collective effects of mechanisms

Fig. 1. *The dependence of the dominant psychological decision-making mechanisms on the conditions and tasks of situations (systematized by the authors)*

The above-mentioned study suggests isolating types of non-standard situations clusters, whose model may be transferred to sports activities, as well as coaches' the activities. It allows one to understand the features of real sports activities, its non-standard nature (content; a level of complexity) to devise algorithms to solve and improve the training programme for students, namely, prospective coaches.

When dealing with standard situations, coaches act based on the known algorithm and achieve more or less successful results. It is important to note that non-standard situations of types 1-3 are much more difficult to solve.

Type 1 non-standard situations are characterized by the presence of non-standard tasks under standard conditions. Consequently, decision-making is of creative and productive nature, which follows the mechanisms of reflexive thinking. Athletes and senior managers create such situations for coaches since the training process should aim to develop the personality of the athlete. Type 2 non-standard situations are based on an ordinary, often

solvable problem under unusually difficult conditions. Therefore, decision-making is mainly stressful due to the impact of difficult activities. The most important condition for making effective decisions in such a situation is high emotional stability of the coach. Examples of such situations are games, team competitions on the road, unexpected changes in conditions (weather, the composition of the rival team, judges, competition schedule). Type 3 non-standard situations are traditionally related to non-standard tasks and stressful conditions of its performance. Thus, decision-making consists in the fact that coaches use the mechanisms of creative thinking and also maintain their psychological stability. Interestingly, such situations occur most often.

It must be noted that non-standard conditions, by the nature of their action or influence, are always manifested as motivating influences, i.e. those that violate the normal nature of the process, phenomenon, functioning. They include disturbing influences which force coaches to make the best decisions.

In psychological research, there is a general idea of the essence of extreme operational conditions. According to Platonov (1984), extreme conditions cause the human body's reactions which are on the verge of pathological disorders. Besides, Nebylitsin (1967) considered extreme conditions to be the limit values of those elements of the situation that create an optimal basis or at least do not act as a source of discomfort in the average values. Lebedev (1989) claims that evident extreme conditions are "changed" ones. Thus, he believes that the boundary separating usual conditions from changed ones is the situation when, having exhausted spare capacities, psychophysiological mechanisms and mental processes can no longer provide adequate reflection and regulation of activities under the influence of psychogenic factors. This approach implies either normal conditions or changed ones.

In this context, Zazykin (1995) introduced the concept of "special operational conditions", whose impact is compensated for with spare capacities.

Therefore, the main factors determining coaches' non-standard tasks are the novelty of the task (such a situation has not happened before); requiring coaches to broaden and deepen their knowledge; requiring them to be more reasonable and emotionally stable; requiring them to develop their intuition and ability to work with a team and athletes in case of information shortage; requiring them to make collective decisions in a competitive environment.

One can assume the following invariants of activities of coaches who make decisions: self-regulation under non-standard conditions; reflection under the conditions of non-standard tasks.

Psychological characteristics of decision-making in non-standard situations include the actor's subjective perception of risky tasks. There are four main stages in coaches' decision-making: creating the subjective perception of the task; assessing the effects of alternatives; forecasting the condition determining the consequences; choosing alternatives.

The subjective perception is an imaginary idea of the task, which is characterized by the following features: dependence on the structure of the task; dynamism; a type of representations (figurative, model-like); prospects to succeed (some ideas cannot lead to successful solutions).

Taking into account the traditional three-component understanding of situation's structure as a systemic unit of activity in psychology, the typology of non-standard situations of coaches' decision-making can be represented as follows: Type 1 non-standard situations which involve solving of unusual, complex and creative tasks of sports management; Type 2 non-standard situations which involve coaches' decision-making under unusual and difficult conditions of sports competitions; Type 3 non-standard complex situations which involve solving complicated problems under difficult conditions.

The theoretical analysis of the problem under study and relevant scientific literature shows that different types of non-standard situation are characterized by the dominance of mechanisms of reflexive-creative thinking and mental self-regulation. The psychological analysis of the effectiveness of decision-making in non-standard situations should include the methods of their isolation and systematic study. The success of coaches' decision-making in extreme sports situations depends on the level of their psychological readiness to implement these decisions.

Psychological Analysis of Athletes' and Coaches' Extreme Operational Conditions

A special socially significant type of activity is the professional activity of coach-teachers and coach-organizers in sports and physical education. The issues of such specialists' professional development are related to their professional readiness. It deals with the phenomenology, patterns and features of human development at the stage of maturity (Babushkin, 1985; Bekasova, 1999; Derkach, & Kuzmina, 1993). Considering the professional development of specialists, researchers pay special attention to motivational aspects of the activity, personality qualities,

links between the actor's motivational sphere and procedural aspects of the activity.

The success of a person's career and life is traditionally based on health and the means to maintain it. Therefore, there is the evident need for specialists who can support physical culture and sports a measure and way of human development. In this context, one should pay considerable attention to the studies on the factors in achievements in physical and teaching activity, the patterns of self-realization, as well as the self-realization of athletes and physical education specialists (Ageevets, 1997; Verzilina, & Lysenko, 1999).

It is important to note that professional development is one of the current issues in psychology. Many scholars interpret the term "professional development" as a process of progressive changes in personality under the influence of social conditions, professional activity and self-activity; as the development of professional orientation, competency, socially and professionally significant qualities; as certain readiness for continuing professional development; as a search for optimal methods of qualitative and creative performance of activities following individual psychological characteristics; as a process of gradual resolution of the existing contradictions between socio-professional requirements for the individual and their abilities and motivation to implement them (Karandyshev, 1994; Klimov, 1996a; 1996b).

Zeer (2003) believes that professional development is a complex continuous process of developing the specialist's personality. It begins from the moment of choosing and accepting a future career and ends after stopping it. In other words, it is a large part of human ontogenesis, which covers the period from the origination of professional intentions to the end of professional life. This research reveals the features of coaches' professional development and development of their psychological readiness to work under extreme conditions during their higher education study.

In modern psychology, there is an idea that professional development means gradual development and realization of one's professional path based on purposeful activity, comprehensive consideration of external and internal, social and individual factors of professionalization (Povarenkov, 1999).

The analysis of special literature shows that the problem of coaches' professional development was covered only fragmentarily. However, some areas of research on the personality and activities of specialists in physical education and sports can serve as a prerequisite for considering this particular problem.

At the same time, such scholars as Bekasova (1999) and Zernova (2004) analyzed professional training and development of psychological readiness in prospective specialists in physical education and sports. Besides, Babushkin (1990) and Gorskaya (2005) justified the origins of the motivational structure of actors in sports and teaching activity during professional development.

Sports activities are quite diverse and multi-dimensional. It must be noted that each sport has its specific features, which is why professional activities of coaches, to some extent, differ from each other in different sports. However, different types of sports share some general, typical conditions and features. According to Volianiuk (2006), they include the following: one's own body and motor skills act as the object of the actor's will and consciousness in sports; regular intense and maximum physical activity require significant willpower from the individual; a compulsory component of sports activities are competitions full of emotional experiences caused by the struggle for the championship and the highest results.

Sports activities are characterized by rather high physical and mental overload, constant self-restraint in everyday life, increased attention from the social environment, frequent separation from family, study or work. Intense loads, including psychological ones, require the athlete to have appropriate willpower and motivation to succeed. Furthermore, psychological readiness requires coaching even greater personal efforts.

This research aims to study the features in the development of students' psychological readiness to meet general requirements of coaching and their ability to make decisions in extreme situations, which are common to the most common sports.

It must be noted that competitions serve as an integral component of any sports activity, as well as the evidence of the level of the educational and training process organized by coaches. An integral indicator of coaching effectiveness is the results and achievements of students in sports competitions. Sports competitions require the greatest expenditure of energy and effort of both their participants and coaches.

Rodionova (2004) states that sports competitions are mainly characterized by the individual's striving for self-affirmation in a social environment through self-improvement and achievements in sports, harmonious personal development, the realization of activity motives and accomplishment of the main goal and, finally, evaluation of their psychological readiness to achieve this goal.

Athletes' readiness for competitions is characterized by the following indicators: confidence in one's abilities; the desire to achieve victory; optimally high emotional excitement; high resistance to various obstacles, environmental factors (influence of opponents, fans, judges); arbitrary behaviour, actions; optimal organization of attention, the focus of consciousness on the performance of mental and motor actions throughout the competition; motivation to participate in competitions and identification of the leading activity motive in this particular competition; clear manifestation of personality orientations and morale; a clearly defined aim to participate and act in this competition; readiness for maximum willpower, firm confidence in one's abilities and capabilities to win competitions; demonstration of high sporting achievements (Rodionova, 2004).

Sports competitions serve as a way and method for assessing coaches' effectiveness and ability to develop the athlete's personality, as well as a clear indicator of their psychological readiness for professional activity in unusual, more extreme situations.

Unfortunately, the psychological readiness of coaches to work in extreme situations has not been properly studied yet. Psychologists do not pay specific attention to the problem of developing such readiness in prospective specialists in physical education.

In comparison with the usual training process, sports competitions imply more complex, intense activity that places special demands on the individual. Both objective and subjective factors influence the process of their implementation and results. Objective factors include a system of interrelated indicators, such as conditions, requirements, structure and content of competitions, refereeing. Subjective factors involve athletes' psychological readiness to participate in competitions, which in turn is determined by coaches' psychological readiness to organize, manage and effectively solve various situations and problems which may occur during competitions.

Discussion and Conclusions

Thus, the extremity of competitions is characterized by complicated conditions, which are naturally reflected on a mental level of the individual in the form of anxiety, fears, stress, distress. The causes of their occurrence include the following: their unexpected occurrence and manifestation under different conditions of sports competitions; disruptions of normal life, certain threats to health (the possibility of injury); unusualness of competition situations, which can be created by the opponent; uncertainty

about the behaviour and tactics of the opponent's sports activities (partial or lack of information, contradictory conditions); an excess or inadequacy of information about the competition, opponents' behaviour and, therefore, the formulation of incorrect conclusions; high dynamics of the competition and lack of time for analysis, assessment of the situation, decision-making and implementation of specific actions, in comparison with usual conditions of training activities; high social responsibility (collective, socio-moral) for the results of competitions, own actions and deeds; the individual's reflection of long restrictions, difficulties and a certain life discomfort on the preparation of the competition or its course.

It must be noted that sports activities, competitions, as well as any other extreme activities, are intense and place special demands on the emotional sphere of both the athlete and the coach since their emotional states and experiences can be transformed and transmitted to others.

In general, any competition includes several different interrelated both planned and unexpected situations, which can be characterized by the following indicators:

1. Short duration of situations. Levels and types of competitions may differ. However, what they have in common is that they take place under conditions of a severe shortage of time with the maximum mental load of the participants and the coach and require their constant readiness for immediate actions at an extremely fast pace. Such situations are characterized by unexpectedness, speed of occurrence and course, lack or inconsistency of information, intensive intellectual functions (thinking, imagination, attention).

2. During competitions, it is essential to how high physical and mental endurance, mobilization, responsibility and often independence of athletes and coaches in decision-making.

3. The degree of uncertainty. In such situations, athletes and coaches need to choose the only right solution from several possible equally important options.

4. Situation may require athletes' and coaches' readiness for urgent and prompt actions. In these situations, special requirements apply to attention, the speed of mental functions (thinking, imagination) and the emotional balance.

5. Situations may be related to false information and opponents' manipulative, sly behaviour. In this case, decision-making depends on the amount of such information, the available time for its processing and the individual's sports experience.

6. Critical situations. These may occur in extreme cases of sports activities or competitions and provide the individual with a choice of possible results, that is victory or complete defeat. Such situations help athletes and coaches to reveal all their skills and adaptive capabilities. They serve as a criterion for checking athletes and coaches for compliance with their social status.

The authors of the article claim that coaching is one of the types of creative management since it requires non-standard thinking and ability to forecast possible consequences of team members' activities, as well as find a way out of an extreme situation, especially during competitions.

Some researchers believe that creative management is based on senior management experience. Others, however, assume that it lies in studying colleagues' experience and thus improving one's professional experience (Budnyk, 2004).

Most scholars associate managerial creativity with the formulation and creative solution of managerial tasks and situations. Consequently, this research defines managerial creativity as coaches' conscious activities aimed to solve professional problems effectively.

The development of professional readiness for creative solutions to sports problems begins with the development of original management thinking.

Two theoretical views on the nature of the human psyche and thinking correspond to two approaches to studying this particular problem. According to the first one, that is an adaptive approach, creative thinking as a form of behaviour is the result of learning, and only some individuals have creative ability. To teach creativity, however, one needs to include the elements of creative behaviour (problem-solving) and heuristics in the educational material. Another approach assumes that thinking is a productive process emerging as a result of a certain problematic situation. Prerequisites for the creative process are cognitive abilities and research activities of the individual (Budnyk, 2004).

Some scholars define managerial thinking as a special mindset and its specific focus, which are adequate to the nature of management (Klimov, 1996a; 1996b; Kuzmin, Volkov, & Emelianov, 1984). The main features of managerial thinking include the following: understanding life and management situations in terms of using them to achieve a certain management goal; perceiving various information sources from the standpoint of their further use as a means of management; striving to look at the situation from the standpoint of athletes and assess it in a psychological context; striving to comprehend the motives of subordinates' actions and

imagine their psychological state; feeling the motivation towards activity modelling; striving to acquire management-related knowledge, which gradually captures all its structural elements.

Today, there are two ways of developing creative thinking. The first one means teaching certain techniques of creativity in the framework of specially organized training courses. The second one lies in developing certain sets of creative techniques during special classes conducted by psychologists. Both of these ways have positive and negative features and, therefore, certain researchers insist on combining them.

Thus, coaching is related to a wide range of issues and problems that need to be solved and directly or indirectly or are determined by coaches' creative activity. That is why the process of preparing students (future coaches) for such activities is an essential scientific and practical problem.

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