

Motivational Mechanisms of Demonstration of Professional Competences in a Situation of Uncertainty

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Abstract: The research paper establishes that the efficient resolution of a situation of uncertainty is achieved due to the motivational mechanisms for the manifestation of professional competencies. The psychological essence of the condition of uncertainty, the role of needs, intentions and professional goals in the restructuring of energy in the mental apparatus of a person, the place of motive as a conscious impetus of a person to specific actions are revealed. The author proposed the concept of the relationship of psycho-physiological and motivational mechanisms for the actualization of professional competencies in a situation of unexpected changes in the professional goals and objectives of the activity. The topicality of the work is due to the need to study the effect of motivation to act on the manifestation of professional competencies in a situation of uncertainty. An important goal of the research paper is assessed - a theoretical-psychological analysis of the motivational mechanisms for the expression of professional competencies of a subject of activity internally motivated for success in an unexpected professional situation, taking into account his personal, professional skills. The theoretical significance of our work is in the theoretical-methodological substantiation of the motivational model for the manifestation of the abilities of an extreme profession specialist's personality to apply professional competence in the conditions of uncertainty. It has been proved that the motivational factor of actualization of professional competencies in a situation of risk is fundamental in deciding to cope with unforeseen difficulties.

Keywords: Professional competences, motivational mechanisms, situation of uncertainty, decision-making, intentions, needs, motives, goals.

1. INTRODUCTION

The modern world is characterized by the dynamic changes in the content of human labour, professional requirements, finding new ways to fulfil important tasks, especially with elements of uncertainty, lack of information. There is a growing demand for a competitive subject of the labour market, who can work in given problem situations of risk, unforeseen conditions. It can be assumed that a specialist who is focused on overcoming uncertainty is at the same time motivated for professional development and the achievement of success in professional activity. Motivational mechanisms of the demonstration of professional competencies in a situation of uncertainty are associated with internal motivation and the choice of productive strategies for its resolution. Owing to them, a specialist with developed professional competencies can successfully solve tasks in the conditions of uncertainty. On the one hand, situations of uncertainty enable the professional to be creative and realize his personal potential, and on the other hand, they can provoke emotional instability and professionally disadapt. Professional competencies are the most optimal variant of the standard for measuring the professional aptitude of a specialist in a situation of

uncertainty, his level of tolerance to it. The internal motivation for the professional growth of a specialist's personality in any unforeseen circumstances will allow flexible use of professional competencies and make responsible decisions in the conditions of risk. Therefore, the study of the problem of the motivational mechanisms of demonstration of professional competencies in a situation of uncertainty for the world scientific psychology is exceptionally urgent.

The urgency of the problem of motivational mechanisms of manifestation of professional competencies in a situation of uncertainty has determined the need for a theoretical and psychological analysis of the competent [1-5], subjective-personal and activity [6-8], motivational [9-14], and psychophysiological approaches [15, 16]. The cultural and historical concept of [6, 7] on the development of mental functions and the highest level of self-regulation is essential for the scientific presentation of the role of these approaches in the study of this problem. The theoretical basis for the research was the experimental work on choosing a decision in a situation of uncertainty [10, 11, 17-21]; professional competence as a personal and professional quality [1-5, 22, 23]; theoretical concept of a situation of uncertainty [24-27]; the ratio of the motivation for success and risk probability [9, 12-14, 24].

In the world psychological literature, much attention is paid to the study of the external characteristics of the

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situation of uncertainty, its connection with personal and professional qualities [1-5, 24-27]. Or the role of professional competencies in choosing a decision at a cognitive level is investigated in details utilizing the recognition by an individual of his capabilities and the risk of the threat of extreme life conditions [17-21]. There are very few works analyzing the motivational determinants of rapid decision-making, psycho-physiological mechanisms of motivation and motivational tools of demonstration of professional experience in overcoming extreme conditions. This aspect of the problem in scientific research has not yet been noticed. Undoubtedly, the motivational potential of a person is well studied in the world science: level of aspirations, reaction to success, decision-making, striving for success, avoidance of failures, intentions and needs. The conceptual provisions of [12] on quasi-needs as a tense system or intentions that arise in a situation of uncertainty and provide human activity deserve particular attention.

The psychological status of a highly professional specialist able to successfully overcome uncertain conditions is not limited to the motivation for success or the recognition of a frustrating need. We believe that the underlying condition to find the way out of the extreme task is the motivational mechanism of demonstration of professional competencies as "the motivational and target model of certain professional competencies existing in the psyche of the subject of activity, distinguished to overcome the situation of uncertainty". In such a motivational model, there is always, to some extent, a set for improving performance. The dynamism of this model at the level of consciousness of the subject of activity depends on its personal and motivational qualities, consistency between intentions, motives, goals of action and features of successful decision-making in a situation of uncertainty.

In the world psychological science, the issue of the motivation of achievement as a psychological factor of success is well studied [9, 13, 28-30]. We attempt to describe the integrative mechanism of extracting professional competencies of the subject of activity, internally motivated for success in an unexpected professional situation, taking into account the subject's personal and professional qualities.

An essential objective of the research paper is the theoretical and psychological analysis of the motivational mechanisms of demonstration of *professional competencies* as an integrative personal

and professional education in resolving situations of uncertainty. Such a task requires the establishment of the influence of the motivational sphere of personality on the interrelation of the personal qualities of specialists of professions with the situations of risk and their professional competencies in deciding to cope with unforeseen difficulties. We assume that the internal motivation influences the development of the psychological readiness of a personality of a specialist to the successful fulfilment of duties in unexpected situations to the successful use of professional competences, which ensures the effectiveness of planning of acceptable solutions for the achievement of the goal. Motivational mechanisms for the manifestation of a high level of expertise in professional situations of uncertainty are important to be analyzed on the basis of competence, as well as personal and activity approaches.

An essential *objective* of the research paper is a theoretical-psychological analysis of the motivational mechanisms for the manifestation of professional competencies as an integrative personality and vocational education in resolving situations of uncertainty. This formulation of the task requires the determination of the influence of the personality-motivational qualities of the specialists of extreme professions on the manifestation of professional competences in making decisions to cope with unforeseen difficulties.

It is essential to analyze motivational mechanisms for the manifestation of a high level of competence in professional situations of uncertainty on the basis of the competence-based and personal-activity approaches.

Their interconnection and functional integrity ensure the objectivity of studying the issue of psychological mechanisms for overcoming uncertainty. The next equally important hypothesis is that personal and motivational properties in combination with professional competence can provide prediction and prevention of unforeseen circumstances of professional life, and as it arises - an optimal choice of strategies for resolving difficulties. We consider tolerance to uncertainty, readiness for independent decision-making in extremely critical conditions, responsibility, motivation to achieve the goal, initiative, self-control, creativity, stress tolerance to be such personality qualities.

The theoretical significance of our work consists of theoretical and methodological substantiation of the motivational model of demonstration of the personality

abilities of a specialist to apply professional competences in the conditions of uncertainty. The practical significance of the problem under study is that the results of its theoretical research can be used in military psychology, labour psychology, extreme psychology. The generalized conclusions of the study of the motivational mechanisms of demonstration of professional competences in a situation of uncertainty can be used to develop training exercises (methods) for overcoming the extreme case in gestalt therapy, rational psychotherapy, existential psychotherapy, cognitive psychotherapy, as well as for conducting socio-psychological trainings and in the practice of psychological counselling.

2. MATERIALS AND METHODS

The research paper uses theoretical methods of studying the motivational mechanisms of demonstration of professional competencies in a situation of uncertainty. These include: a theoretical and methodological analysis of the problem (for example, determining stable relations and relationships between elements of doubt in the works [21] and our understanding of unforeseen situations), generalization and comparative analysis of sources (a comparative study of our data with data obtained in [26], systematization and modelling of the analyzed objects (the works [9, 12-14, 28-30] of the world psychological science are used as analogue models for expanding and deepening knowledge about the manifestation of motivation in a situation of uncertainty).

The methodology of our study as a set of rules for the use of theoretical methods and techniques took into account its primary purpose, tasks, hypotheses and conditions in a logical sequence.

A systematic generalization of information with comparative analysis and explanation of scientific facts was used. Based on the study of the psychology of the issues of professional competencies, the situation of uncertainty and the patterns of motivation for action, the problem of the research paper was presented as an integrated psychological area with the system of author's conceptual positions. The interaction and interdependence of these components (issues) and the subject of the problem under study - the motivational mechanisms of demonstration of the professional elements in the situation of uncertainty are analyzed with the use of analytic-synthetic and inductive-deductive operations of generalization of information. For example, individual characteristics of professional

competencies, conditions of uncertainty, psychophysiological mechanisms of motivation, and the personality-motivational qualities of a specialist are used in the sections of the research paper for analysis. We successfully used technical operations of synthesis in explaining the motivational mechanisms for the manifestation of professional competences in a situation of uncertainty. Based on the results of the generalization of the materials of the research paper, further ways of developing the range of problems under study are outlined.

In the theoretical method of psychological analysis, the explanation technique is partly used, which is usually used to interpret empirical data. A description of the experience and generalization of the results of our previous empirical studies is also considered to be an explanation. The explanation was also given due to the appeal to psychophysiology, it's understanding of the motivation and response of a person to uncertain conditions. The category of "process" was used in explanation to describe the action of an integrated motivational mechanism for extracting professional competencies in a situation of unexpected change in the working conditions. The interpretation of the theoretical study of the structure of this motivational model was made by describing the (development) process of motivation in the demonstration of professional competencies.

Expansion and deepening of scientific ideas about professional competencies and motivational determinants of their demonstration in a situation of uncertainty were made in the process of modelling - a method of the research of theoretical models, the indirect use of the object, allowing to replace the original with a model. The logical basis of the modelling method is the conclusions based on the analogy of the motivational model in the Chapter of "Results".

The informativeness of the research paper was enriched on the basis of meaningful comparative analysis of world psychological sources, the establishment of their standard and contradictory provisions concerning the patterns of motivation, the situation of uncertainty and the conditions of demonstration of professional competencies.

3. RESULTS

The motivational mechanisms of the demonstration of professional competences in a situation of uncertainty are considered through the integration of

motivational formations - motives, intentions, needs, level of striving, cognitive interests - determining the productive fulfilment of professional tasks in the conditions of uncertainty. In essence, the motives for the achievement of professionally meaningful goals, the goal-formation process, coping strategies of the person's interaction with the conditions of uncertainty, the correlation of personal and professional capabilities and the result of resolving difficult situation, psycho-physiological properties of the human psychic system are combined in the integrative motivational mechanism of demonstration of professional competencies in unforeseen circumstances (Figure 1).

Figure 1 shows the correlation of the components of the model of the integrative motivational mechanism of demonstration of professional competences in the situation of uncertainty as follows. Motivational patterns of this model: 1) frustrating needs can become a source for intentions to find ways out of the extreme case; 2) if the demand get realized and being implemented - it is a structural element of the motive, because it, as well as the motive, determines the direction of action and induces to act; need is only a passive state of subjective feeling of a need, and when a decision is made to satisfy it, it automatically becomes part of the motive in pursuit of intermediate goals of the activity; 3) the contradictions between the needs and the opportunities of their satisfaction

determine the activity of an individual, the desire to solve professional problems and organize a successful resolution of unpredictable situations in the activity; 4) inducement to act by certain intentions, needs and motives is denoted as motivation - it is the process of choosing a decision between different possible coping strategies for overcoming uncertainty, that is, a professional aspiration for success; 5) the needs are predetermined by the vital necessity of adapting to the requirements of the situation of uncertainty; and the dependence of the motive for achieving success in the activities on intentions and needs is the highest level of demonstration of motivational mechanisms in the application of professional competencies by a specialist; 6) due to the psycho-physiological properties of the motivation, external behavioural actions are initiated - a component of a professional act aimed at transforming the conditions of uncertainty. On the basis of these motivational patterns, one can confidently define the motivational mechanism of demonstration of professional competencies as "the motivational and target model of certain professional competencies existing in the psyche of the subject of activity, distinguished to overcome the situation of uncertainty".

One of the aspects of our research was the author's concept of the relationship of psycho-physiological and motivational mechanisms for the actualization of professional competencies in a situation of unexpected

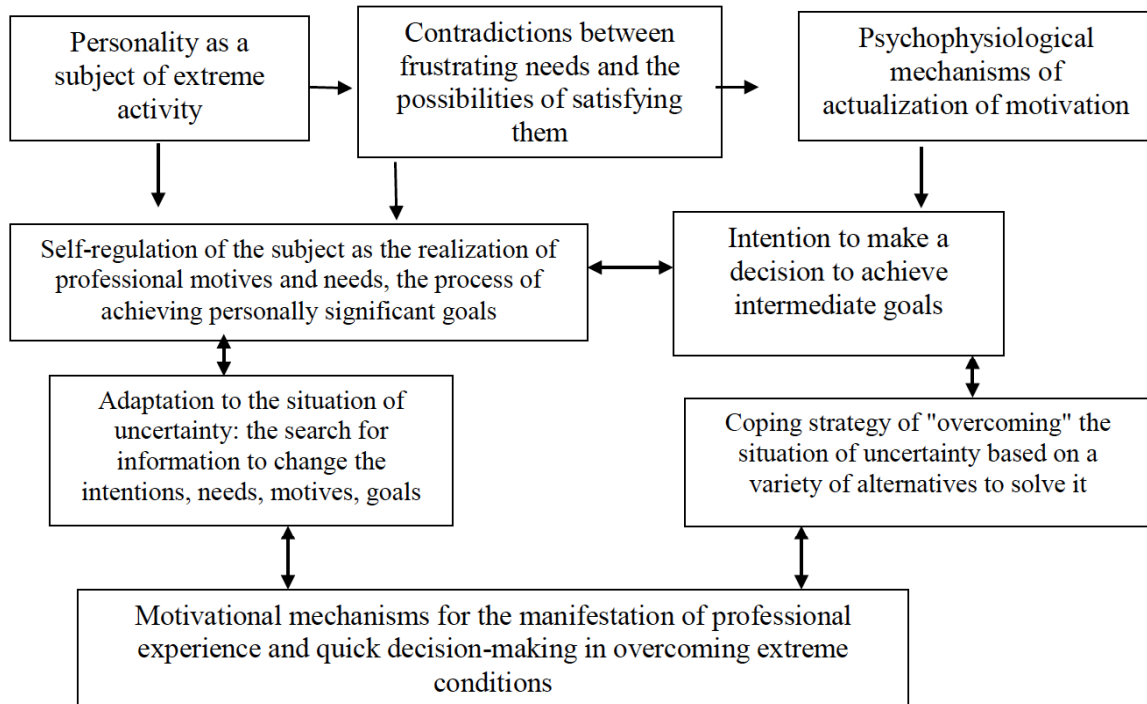


Figure 1: Model of an Integrative Motivational Mechanism for the Manifestation of Professional Competences of an Individual in a Situation of Uncertainty.

changes in the professional goals and objectives of the activity. These mechanisms are part of an integrative functional, psychological system that ensures communication of an individual with the outside world. In particular, due to the organization of the neural structure as an internal motor system, external behavioural actions — a component of a professional act — are launched. Motivational mechanisms for the manifestation of professional competencies and psychophysiological mechanisms of motivation are considered in the integrative motivational model of their interaction. They can cause the transformation of unpredictable conditions or provide a positive attitude to the situation of uncertainty through needs, intentions, intermediate goals, motives.

The effectiveness of professional activity in the conditions of uncertainty depends on the professional competence of an individual to make optimal decisions. The ultimate result of the choice and actions to implement the decision is the professional activities of an individual as a result of achieving professional goals through an adaptive coping strategy "overcoming the situation of uncertainty". An individual with this coping strategy is self-confident as a professional specialist, self-motivated for success and professional development. The intention of a competent specialist to decide against the background of realizing his emotional tension and cognitive assessment of the conditions of uncertainty is implemented through personal and professional qualities: tolerance to the situation of uncertainty, mental well-being, motivation for success, cognitive interest, subjective locus of control, professional responsibility.

Professional competences of resolving situations of uncertainty are defined as a set of methods (strategies) of professional activity, which allow using theoretical knowledge in practice based on specialized knowledge, skills and abilities. Professional competencies are the professional abilities to manage the activities in a situation of ambiguity successfully. Professional competencies in combination with motivation and positive attitude towards the activity result in qualitative indicators of the subjective creative approach in solving the problem situation.

The situation of uncertainty, as we understand it, is associated with frustrating obstacles on the way to the achievement of goals and the fulfilment of professional tasks, therefore, is the situation of the impossibility of implementation of the plan and necessary actions in professional activity. The criteria for overcoming the

situation of uncertainty are psychological readiness to overcome the difficulties as a set of personal and professional qualities, internal motivation to achieve success, the features of professional reflection, professional thinking and the performance of professional activity, characterized at the individual, motivational, emotional, volitional, creative and action levels. It is the motivational factor - as a determinant trigger mechanism for demonstration of an optimally acceptable professional act of a person in a professionally unexpected environment – that is a fundamental factor in overcoming the situation of uncertainty in this chain of professional criteria.

The main characteristics of the situation of uncertainty are lack of information, unknown variables, novelty, unexpected occurrence, complexity, insolubility. We studied the idea of the condition of doubt by the following parameters: the uncertainty of the individual experience in time (present, future, past), the uncertainty of the goals set, the uncertainty of the available resources - personal and professional, the uncertainty of the decisions made.

Emergencies in professional life can cause crises with emotions of insecurity, fear and anxiety, especially in people who are inclined to control life; many personal contradictions (for example, between the need to reach the goal and the impossibility of achieving it) in people with unadapted, ambivalent coping strategies. After some adaptation to the situation of uncertainty and finding information about its solution, there appears some ability to fulfil professionally complex tasks, as evidenced by new behavioural models with the ability to make responsible decisions. Professionally adapted specialists, with the coping strategy of overcoming in the conditions of uncertainty, get an opportunity of positive self-assertion, the realization of personal and professional potential.

Disadapted specialists in the conditions of uncertainty or those specialists who have been in those conditions for a long time can have psychosomatic illnesses, neurotic patterns, can be enabled to analyze professional difficulties and to make optimal decisions, moreover, to realize that the decisions made are erroneous. The dominant coping strategy for them is avoidance, evasion of the stressor situation. Such a strategy is justified when it comes to saving people's lives.

Thus, the use of personal resources in a situation of uncertainty is related to professional competence and is provided by the motivational integration mechanism, as evidenced by the internal motivation to actively search for the missing information and the optimal decision-making with the subsequent achievement of professional goals.

The use of successful coping strategies in a situation of uncertainty is connected with the competence of a specialist, his personality motivational qualities. The motivational factor of actualization of professional competencies in a situation of risk is fundamental in deciding to cope with unforeseen difficulties.

4. DISCUSSION

There are many approaches to the definition of professional competence: competence, systemic and structural, personal and activity, cultural, professional. In a competence approach, "professional competence is an integrative ability to creative problem solving on the basis of mobilization (application) of knowledge, skills, abilities in order to achieve a set goal in a particular situation" [2, p. 9-10]; professionally important qualities [5, p. 9-10]; a kind of psychological system of qualities in which such a quality as an intention - in the form of conscious focusing of energy in the mental apparatus of man to achieve the goal - acts as the system-maker; an effective solution to the problem in the current extreme situation of uncertainty [10, 11].

The rapid decision-making in situations of uncertainty takes place due to the motive for success in the activity. The final result of the choice and actions for the implementation of the decision made is the professional activities of an individual as a result of achieving professional goals (success). People with the motivation to succeed in their activities are motivated for professional development, more confident, independent, psychologically successful, responsible. In situations of uncertainty, they are oriented towards success, inclined to risk, getting a result.

In world psychological science, the motivation for achievements is studied as a success factor [9, 12, 13, 28-30]. There are different opinions about the link between risk and motivation to succeed. J. W. Atkinson [9] reveals their negative relationship - the higher the probability of risk, the lower the motivation to achieve success. According to [12], people motivated to

succeed have a high degree of risk. We believe that indicators of the motivation to succeed in the conditions of uncertainty may also have an individual variation related to the level of aspirations. Those who are afraid of failures may have a low or high level of risk, and those who are moderately and strongly oriented towards success prefer an average level of risk. A person who does not avoid risk, as a rule, assumes responsibility for his decisions [24]. Readiness for risk in a situation of uncertainty is a component of self-regulation of behaviour, a personal and professional property that influences decision-making. It happens that avoidance of the solution without motivation to succeed may be justified. So, C. Dow Sheila [25] argues that ignoring uncertainty can sometimes be a successful mechanism for overcoming it.

According to [13, p. 42], people who are motivated to achievements in their activities are oriented towards success and "when setting the goal, they count on the possibility of success more than the possibility of failure". The dominant motives for success are persistent characteristics - they can affect personality traits. The results of H. Heckhausen's research in the context of the study of the concept of risk show: "If the motive of avoiding failure is stronger than the motive of achievement, and the activity associated with the fulfilment of tasks is not avoided, the tasks of moderate complexity - in comparison with very simple and complex - will least motivate to activity" [14, p. 9]. J. Atkinson [9] and D. McClelland [12] associate the individual motivational styles with the aspirations of subjects to succeed or to avoid failures. When a person orients himself to success, he does not feel fear of failure, and when he is focused on preventing failures, he hesitates in making decisions.

At the initial stage of the interaction of an individual with the external situation, the motivation for the achievement is triggered by psycho-physiological mechanisms. According to the theory of motivation of [15], any motivation is conditioned by the urgent need (need as a state of stress), which, through neural connections, transforms into the activation of the hypothalamic centres of motivation that influence demonstration of the motivation to achievement. The actualization of the motivation to achieve success is associated with enhanced neural connections in the left hemisphere of the brain [15]. Further, psychological mechanisms of self-regulation of the subject of activity get activated, consciously establishing a balance between the inner world and an unexpected external situation.

Psychological literature provides no definitions with the use of the interconnection in determining the aspects of the motivational mechanisms of demonstration of professional competencies and peculiarities of the resolution of situations of uncertainty. In order to identify the motivational mechanism of demonstration of professional competence in extreme professional activities, it is necessary to analyze the content of the situation of uncertainty from a psychological point of view.

Uncertainty is the gap between what is known and what needs to be known to make the right decisions. The concept of "right decisions" is, of course, relative [24]. As is well-known, the deficit of the necessary information to fulfil the task can lead to high levels of proneness to conflict, depression, low tolerance to uncertainty, aggressive behavioural trends, psychological distress in terms of clinically significant symptoms of depression, anxiety and the risk of developing PTSD (posttraumatic stress disorder) [27]. Authors [26] describe such individual differences in adaptation to extreme conditions as emotional instability, high neuroticism, anxiety or emotional stability and conscientiousness when fulfilling professional assignments. Researchers [21] point to different features of perception of the position of uncertainty by an individual.

According to [11], the perception of a frustrating object or event usually entails, according to [12], the following: 1) the *emergence* of a certain tense psychic system, arousing the need and actualizing the *intention*; 2) *the existing state of tension*, rooted in the *intention* to achieve the goal, possessing "*requiredness*" receives power over motoricity; 3) this type of requiredness *has a regulating influence* on the mental and physiological processes, and, most importantly, on the *motoricity*; 4) actions partly caused by requiredness of objectively existing objects and events, contribute to the implementation of *intention*, thereby leading the stress of the psychic system to equilibrium.

In the psychological literature, the intention is defined as a conscious purpose, the sense of desire or action, leading to a significant change in life. Author [10], in analyzing the psychology of intentional acts, distinguishes free and volitional intentions as a product of historical, cultural development [10]. Purpose promotes the storage of the necessary information in the operational memory, which allows it to be always ready for action in changing conditions of activity,

encourages the implementation of adequate operations at the right moment and in a particular direction while preserving the necessary and sufficient motivation [16].

The intention prompts adequate situations of the uncertainty of action, facilitating *access to motoricity*. On the way to achieving the goal in the psychic system, energy is *restructured*; as a result, a part of the energy becomes free, which allows it to be used for setting and achieving intermediate goals [16]. N. A. Bernstein showed that "an important role in this process is played by the needs and the central volition goals, as the brain-coded models of the organism of the future, which determine the content of the development process" [16, p. 214].

In this connection, L. S. Vygotsky states that "there is no permanent formula that would determine what and how much knowledge, skills and abilities one needs and that would be true for any professional, but at each stage of its development we have their peculiar changing relationships" [6, p. 110]. The result of professional development is the ability of an individual to apply knowledge, skills, engrams, professional experience in professional activities [1-3] for rational decisions in the uncertain world [3, 18, 19].

In life, it rarely happens that the performer knows precisely the result of each of the choices concerning the suddenly emerging external situation. At the same time, under challenging conditions of activity, few managerial decisions are made in circumstances where probabilistic outcomes of possible alternatives are known. In such situations, the task of choosing the optimal alternative is of primary importance. In the conditions of such uncertainty, the problem to be solved is first determined, the intermediate goal of the forthcoming actions is clearly formulated (what, for what, through what, where, when, to whom and in what times it should be made), that is, a verbal model of the task of decision-making is formed. When choosing an alternative, a person tries to consider, if possible, all the significant factors, such as the probability of success, the assessment of progress, the probability of failure, the loss that may result from failure. Based on the results of our empirical studies, it has been proved that the strategy of preserving a multitude of diverse alternatives rather than one is the most successful [4].

In a situation of uncertainty, when a frustrating element occurs, a person can set an objective of achieving several intermediate goals, which, in his opinion, will allow him to some extent approach the

achievement of the main objective. An example would be the actions of astronaut A. A. Leonov, when during a spacewalk his spacesuit swelled up so much that it didn't let him move normally, not to mention returning to the spacecraft. The astronaut, realizing a problematic situation of uncertainty, which had not been worked out during training for the flight, thought that he was the only person on Earth who had ever faced a similar problem and would have to solve it on his own. To return to the airlock, A. A. Leonov set an intermediate goal and realized it: with intricate prudence, ventures his life he released pressure to the minimum allowable (emergency) and literally squeezed through the hatch. Due to limited movement and the impossibility to bend his knees without support, A. A. Leonov sets the second intermediate goal: contrary to the instructions, he enters the airlock head-first, not feet. Inside the aircraft, he set the third goal: to turn around inside the aircraft, as the inner hatch cover opened inwards and occupied a third of the working space.

In this case, the incentive for actions aimed at achieving the immediate intermediate goal is the intention as an incentive for efforts that facilitates the organization of human behaviour in a situation of uncertainty, allowing him to arbitrarily carry out actions aimed at satisfying needs that do not have their own impetus in the interest of achieving intermediate goals. The primary function of the intention was that it as an element of the content of the motive for success was an incentive for actions aimed at the consistent achievement of intermediate goals.

The research of [23] provides interesting scientific data concerning the relation of professionally important necessary qualities and competencies. They identified *five* essential qualities that act as competencies in the course of activity: motives, psycho-physiological qualities, self-concept, knowledge and abilities, skills [23, p. 9-23]. Practical action based on the integration of these qualities-competencies is supported by the worldview rationale and realization of understanding how, why, for whom and for what it is performed, for what professional competencies are formed in general, what gives them multifunctional properties. W. Hutmacher believes that the concept of "competence" is closer to the conceptual field of "*I know how*", that is, to the practical component, rather than to the field of "*I know what*", that is, to the theoretical part [22, p. 58-62].

The example from flying practice is provided for a clearer understanding of the role and place of implicit

knowledge in the system of competence approach. No matter how many times experienced instructor pilots told you about how to land an aircraft, thoroughly working through the established procedure and sequence of actions and operations in the aircraft simulator cockpit; unfortunately, no one has yet tried to land it in reality. It is verbally impossible to render those feelings that arise from the perception of the earth by pilots in the process of approaching the earth's surface or to the runway, at the landing stage. Examples of implicit knowledge are cases when the driver determines the speed of movement based on the incoming flow of the earth, shaking, engine noise.

The example of landing on August 23, 1963, of Tu-124 passenger aircraft on the Neva River between the Alexander Nevsky Bridge and the railway bridge, with both engines consistently failed due to lack of fuel, is widely known in the mass media. The aircraft was at an altitude of 500 meters above the city centre of Leningrad. Captain Viktor Yakovlevich Mostovoy, a very experienced pilot, decides to land the aircraft on the Neva River. Because Captain of the plane did not have the bodily experience of landing the plane on water, he transferred control of the plane to the less experienced pilot Vasily Grigorievich Chechenev. He was less experienced in terms of his flight qualifications, but in the past, as a military pilot, he served in naval aviation and had the experience of landing aircraft on water, which allowed him to orient the plane competently and prevent its diving into the water or hydraulic shock of the fuselage tail section when the plane contacted the water surface. All passengers and crew were safely evacuated to the ground from the aircraft landed on water. This example once again emphasizes that, according to [16], in the course of practical activity the engrams (bodily experience) are formed in the human psychic apparatus in the form of capturing actions, movements in the long-term memory that are captured in long-term memory as mental formation which is actualized by intention, thus allowing to achieve the intended intermediate goal. L. S. Vygotsky [6, 7] formulates such formulas of movements or engrams as psychological systems, which are proved by the fact of the existence of motor skills and automated movements.

The emerging goal-setting process in the automatic process contributes to the formation and subsequent actualization of intention as a motivational mechanism for demonstration of competence. Aim is nothing more than a means of internal preparation and mobilization of the psyche to perform the necessary actions as part

of the psychological readiness to perform complex, unusual or lasting actions to achieve the set intermediate goal. The psychological mechanism of *intention* contributes to the immediate inducement of the mature mental formations. But the question arises, how can the psychological system of qualities or engrams actualized by the intention be extracted from the mental apparatus of an individual and be directed towards the achievement of an intermediate goal. A psycho-physiological target integration mechanism solves this task. At the psycho-physiological level, the target integration mechanism makes a target choice from among the mental formations selected by the intention and transforms them into the rubrospinal level, that is, to the level of motoricity.

The mental formations (qualities) in the form of energy fields, that are actualized by intention, are realized in a specific movement, in behaviour, strictly observing the previously got pace as the observance of particular time durations and rhythm in the form of quantitative ratios of these formations [16, p. 232]. The target-integration mechanism chooses engrams corresponding to the current situation from the central nervous system, integrates them into a particular psychological system, and as a suitable target which is adequate to the current situation, delivers to the rubrospinal level of the psyche, from which a timely signal is sent to the necessary executive muscle. Such a goal, as we see, is integrable mental formations (qualities-engrams, actualized and prepared by the intention to vital actions) aimed at achieving the set intermediate goal.

The integrated motivational mechanism of demonstration of professional competences in uncertain conditions of activity is actualized at two levels. At the psycho-physiological level, the *target integration mechanism* targeted and pointwise transforms selected mental formations into the rubrospinal level of the central nervous system, forming the psychological system as a combination of qualities. At the subconscious level, the motivational mechanism performs the function of the impetus for and planning of behaviour, the actualization of the necessary competencies to achieve intermediate goals [1]. Thus, the psycho-physiological components of the psychic system are interconnected with the psychological properties of an individual, and together they influence the motivational demonstration of his professional competencies in a situation of uncertainty.

In modern labour psychology, Western psychologists stick to a personal approach to the study

of professional competencies. According to it, personal qualities are considered in the content of the concept of professional competencies. Success in activity is provided by such personal and professional qualities as tolerance to unpredictability, resistance to stress, responsibility, initiative, independence, self-confidence. The relationship between personal and professional qualities with the success of solving uncertain situations was examined in many psychological studies [17]. For example, the peculiarities of decision-making in an extreme situation are influenced by such personal qualities as empathic and psychopathic character traits taking into account a multi-ethnic sample of testees [20], self-confidence with a positive self-assessment [31]. Without any doubt, self-esteem is related to the level of aspirations — the desired level of self-assessment of a person (“I” level), which helps to ensure maximum success in one or another type of activity or communication. Significant discrepancies between aspirations and real opportunities predetermine an incorrect assessment of self by a person. As a result, his behaviour becomes uncertain (inadequate), emotional breakdowns occur; anxiety increases. Self-assessment is an important regulator of behaviour, the attitude of a person to success and failure is dependent on it.

Professional competencies are viewed in the context of a competence approach not only as personal qualities, but, first of all, as the ability of the subject of professional activity to successfully carry out his duties through motivational mechanisms for increasing the efficiency of actions, experience in overcoming uncertainty, the ability to creatively solve problems for achieving goals [2]. Competence is supported by many other qualities, namely: orientation towards achievement, intention, wisdom, building relationships, orientation toward the interlocutor, developing others, search for information, team leadership [23]. For example, the initiative to search for information as a competence implies a certain level of wisdom, analytical and conceptual thinking, intention, intuition, interpersonal understanding, personal observation, professional feeling, cooperation [5].

The motivational mechanisms of demonstration of professional competences of an individual in a situation of uncertainty can correspond to several levels of coping with the conditions of uncertainty — high, medium and above average. They point to the motivation of the subject of activity to achieve success, cognitive interest in expanding the systemic use information, categorical and conceptual apparatus for

solving unexpected problems and many alternatives for making decisions in the conditions of uncertainty.

The stated patterns of mutual influence of the motivational peculiarities of a specialist's personality and the situation of uncertainty in the model of demonstration of his professional competencies can create conditions for the realization of personal and professional potential in activities. External causes, according to [8], always act through internal conditions. Their influence is determined by the system of relationships of the subject to a particular life situation in which a specific activity is carried out. Based on the interaction of external conditions of action and internal (personal and professional) qualities, an understanding of the essence of the situation of uncertainty as a motivational factor in the development of a person's professional competence is realized.

5. CONCLUSIONS

An essential objective of the research paper has been implemented – a theoretical and psychological analysis of the motivational mechanisms for the manifestation of professional competences in resolving a situation of uncertainty as an integrative personality and professional education. This formulation of the task confirmed the establishment of the influence of the personality-motivational qualities of the specialists of extreme professions on the manifestation of professional competencies in making decisions to cope with unforeseen difficulties. The further direction of our further research is the problem of motivational mechanisms for the development of professional competencies to resolve situations of uncertainty.

Competent approach to the study of professional competencies in a situation of uncertainty is of the integrative-personality-activity nature and is aimed at analyzing the psychological readiness of a specialist to overcome unpredictability in professional life as a set of personality-motivational qualities. There is always the realization of professional abilities and coping strategies for successful management of activities in a situation of ambiguity in his professional experience. At the same time, the motivational factor of actualization of professional competencies in overcoming unforeseen difficulties – the professional motive for achieving success, the realization of professional needs, intentions and goals – is fundamental.

REFERENCES

- [1] Korchemny PA. Acmeological component of the competence-based approach in education. *Acmeology* 2014; 4: 118-124.
- [2] Korchemny PA, Klimova EM. Comparative analysis of approaches to the main problems of psychological science in the XXI century. *Human Capital* 2016; 4(88): 8-10.
- [3] Korchemny PA. Competences: psychological problems of perception, acceptance and realization. *Bulletin of MGOU. Series: Psychological Sciences* 2013; 2: 44-57.
- [4] Korchemny PA, Blinnikova SL. Conflict resolution strategies: basic approaches and effectiveness in the educational activities of cadets. *Herald MGOU Series: Psychological Sciences* 2012; 4: 5-12.
- [5] Korchemny PA. Competence as a psychological system. *Human Capital* 2017; 5: 86-90.
- [6] Vygotsky LS. On psychological systems. *Collected Works: in 6 volumes. In: Vol. 1. Questions of the theory and history of psychology. Moscow: Pedagogy* 2002; pp.109-131.
- [7] Vygotsky LS. *Pedagogical psychology. Moscow: Pedagogy-Press* 1996.
- [8] Rubinstein SL. *Problems of a general psychologist. Moscow: Pedagogy* 1976.
- [9] Atkinson JW. Motivational determinants of risk-taking behaviour. *Psychological Review* 1957; 64: 359-372. <https://doi.org/10.1037/h0043445>
- [10] Lewin K. Intentions, will and needs. *Psychologische Forschung* 1926; 7: 294-399. <https://doi.org/10.1007/BF02424364>
- [11] Lewin K. *Vorsatz, Wille und Bediirfnis. Berlin: Verlag von Julius Springer* 1926. <https://doi.org/10.1007/978-3-642-50826-4>
- [12] McClelland D. *Human Motivation. St. Petersburg: Peter* 2007.
- [13] Heckhausen H. *Psychology of achievement motivation. St. Petersburg: Speech* 2001.
- [14] Heckhausen H. *Motivation and activity. Moscow: Pedagogy* 1986.
- [15] Anohin PK. *Selected Works. Cybernetics of functional systems. Moscow: Medicine* 1998.
- [16] Bernstein NA. *Physiology of movements and activity. Moscow: Science* 1990.
- [17] Gilboa I. *Theory of decision under uncertainty. New York: Cambridge University Press* 2009. <https://doi.org/10.1017/CBO9780511840203>
- [18] Hastie R, Dawes RM. *Rational Chois in an Uncertain World: The Psychology of Judgment and Decision Making. Los Angeles, London, N.-Y., Singapur, Washington: SAGE Publications* 2010.
- [19] Kurz-Milcke E, Gigerenzer G. *Heuristik Decision Making. Marketing JRM* 2007; 1: 48-60.
- [20] Ju U, Kang J, Wallroven Ch. To Brake or Not to Brake? Personality Traits Predict Decision-Making in an Accident Situation. *Front. Psychol* 2019; 10: 1-11. <https://doi.org/10.3389/fpsyg.2019.00134>
- [21] Waring S, Alison L, Carter G, Barrett-Pink C, Humann M, Swan L, Zilinsky T. Information sharing in interteam responses to disaster. *J Occup Organ Psychol* 2018; 91(3): 591-619. <https://doi.org/10.1111/joop.12217>
- [22] Hutmacher W. Key competencies for Europe. Report of the Symposium (Berne, Switzerland, March 27-30, 1996). A Secondary Education for Europe Project. [cited 2019 Apr 15]: Available from: <https://files.eric.ed.gov/fulltext/ED407717.pdf>
- [23] Spencer LM, Spencer SM. *Competences at work. Moscow: HIPPO* 2005.
- [24] Abbott J. Understanding and Managing the Unknown: The Nature of Uncertainty in Planning. *Journal of Planning Education and Research* 2005; 24. [cited 2019 Apr 15]. <https://doi.org/10.1177/0739456X04267710>

- [25] Dow Sheila C. Addressing Uncertainty in Economics and the Economy. *Cambridge Journal of Economics* 2015; 39(1): 33-47.
<https://doi.org/10.1093/cje/beu022>
- [26] Collado A, Hainaut J-P, Monfort V, Bolmont B. Sensation Seeking and Adaptation in Parabonauts. *Front. Psychol* 2018; 9: 296.
<https://doi.org/10.3389/fpsyg.2018.00296>
- [27] Leiler A, Bjärtå A, Ekdahl J, Wasteson E. Mental health and quality of life among asylum seekers and refugees living in refugee housing facilities in Sweden. *Soc Psychiatry Psychiatr Epidemiol* 2019; 54(5): 543-551.
<https://doi.org/10.1007/s00127-018-1651-6>
- [28] McGregor HA, Elliot AJ. Achievement Goals as Predictors of Achievement-Relevant Processes Prior to Task Engagement. *J Educational Psychology* 2002; 94(2): 381-395.
<https://doi.org/10.1037/0022-0663.94.2.381>
- [29] Schuler H, Thornton G, Frintrup A, Mueller-Hanson R. *AMI-Achievement Motivation Inventory*. Oxford: A Hogrefe Company 2004.
- [30] Ziegler M, Schmidt-Atzert L, Buhner M, Krumm S. Fakability of different measurement methods for achievement motivation: questionnaire, semi-projective, and objective. *Psychology Science* 2007; 49(4): 291-307.
- [31] Mruk C. *Self-esteem research, theory, and practice: Toward a positive psychology of self-esteem*. 3rd ed. New York: Springer 2006.

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