UDC 378: 159.98 (08)
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PSYCHOLOGICAL CHARACTERISTICS OF PROFESSIONAL ACTIVITY OF NUCLEAR ENERGY

The article presents the results of a study of professional experts Atomic Energy using a modified version of the technique repertory lattice. Made a description of a typical model of professional activity, which includes the planning, operational and specific objectives.The structure of the professional image - and the relationship of subordination of knowledge and information about technical complex range and specific manufacturing operations. Identify hardly influence the degree of experience of experts on the structure of the conceptual model and subjective perception of operational problems. Discovered types of conceptual models based on grouping professional tasks and structured image profession.
***Keywords**: nuclear power, conceptual model, professional activity, operational task, operator, professional tasks, professional quality special tasks.*

Efficacy and safety of nuclear energy, which is a significant area economy Mykolaiv region and throughout Ukraine becomes a very important task for universities that prepare professionals for the industry. This study carried out in the framework of the target program of research "Investigation of mechanisms of motivation of the subject of intellectual capacity in technical universities, regional and sectoral aspects» (№ state registration 0105U001762) and conducted by the author on request of the Department of thermal power and nuclear steam generators and Mykolaiv National University of Shipbuilding Admiral Makarov m. Mykolaiv.

The relevance of the operators of nuclear power plants (the AU) often appears along with technical parameters leading factor in the efficiency and safety of the technical system. As indicated by several studies, the necessary professionally important qualities, knowledge and skills are not sufficient condition for effective and reliable performance of professional activity [3; 5; 8]. Activities in complex technical processes is largely determined by mental regulation, including mental representation of the subject work, known as a conceptual model of [2; 4; 6].

The main function of the conceptual model of mental regulation of operator activity is to provide for the human operator conscious orientation in the processes that occur in the technical and complex work environment, understanding past and future changes in these processes, including service as a result of their own actions [4]. Of particular importance in this case takes the structure of the professional image - and the relationship of subordination of knowledge and information about technical complex manufacturing operations. The formation of ideas about the technical process influenced by a number of factors; structure of knowledge, understanding of the relationships of various systems and hardware for acquired and developed in the process of professionalization specialist, they differ greatly in different qualification of operators. In addition, the structure of ideas about causal relationships of different elements and Hardware, including prioritization providing subjective significance of this or other aspects of professional exercise significant influence specificity of professional human range of professional tasks, the scope of personal responsibility [2 ; 3; 6; 7].

As part of a systematic approach to the study of conceptual models of professional research important is the psychological structure of individual concepts and criteria combining various functional and technological elements that give them a subjective meaning [3; 4; 6].

The purpose of the article is to consider mental representations of professional activity of nuclear energy as a major component of content conceptual model of professional activity.

As a research method used technique repertory lattice D. Kelly. In a modified version role of list included the most common typical tasks that perform specialists of higher-level management nuclear power plant, performing general control and management of large technical complexes in daily activities.

After a survey of experts made a list of eighteen of the most common operations set out in summary form, to suit all investigated:

1. Preparation and administration equipment at work.

2. Identify and control disorders normal operation of the nuclear power plant.

3. Adjustment and stabilization parameters of the reactor in transient conditions.

4. Adjust the system parameters and equipment after automatic start.

5. Reservation management systems in case of violation.

6. The surgical removal of equipment malfunction.

7. The output of equipment in standby state or repair.

8. Review and test equipment in accordance with the regulations of maintenance.

9. Maintenance of equipment.

10. Insertion of equipment in regular status after completing maintenance.

11. Control of security.

12. Reservation of safety in case of violation.

13. The surgical removal of violations of safety.

14. Preparation and introduction to the work of normal operation.

15. Adjust the parameters of safety in their automatic inclusion.

16. Maintain documentation.

17. Planned switching equipment.

18. Monitoring the automatic inclusion of equipment.

This list is in the process of working with experts divided into the following content blocks that were kind of sub criteria 'subjective evaluation and comparison of professional operations:

1. Block physical conditions

For example, the following indicators: "automated operation", "work is done by hand", "technically difficult job," "physically tensions wife-work").

2. Block cognitive complexity of work (characterizes the complexity of decision professional decisions requirements for certain mental functions).

3. Block Labour Organization (describing the need to unite divergent operations in performing their professional tasks, subordination perform tasks specific algorithm).

4. Block social conditions (coordination of multiple specialists direct and indirect subordination, especially interpersonal interaction, the need for organizational functions attitude to work and employees).

5. Block training (independence, readiness for various professional situations).

6. Block motivation (human idea of the place and role of the operations in the overall structure of the nuclear power plant).

The resulting study data revealed a generalized idea of professional activities. Thus, among the typical professional tasks most important priority is "prompt elimination of violations of systems or safety equipment", "adjustment and stabilization parameters of the reactor plant transients in the nuclear power plant ", "backup systems in case of violation," "detection and monitoring violations of normal AC operation "," control panel systems and equipment for their automatic inclusion ',' control inclusion of security. "

Approximately half of professional tasks performed by operators in difficult conditions, which often impede their performance, especially in terms of time and shortage of simultaneous execution of several actions; The majority of problems outside the circle of immediate responsibilities and require quality control. The research found that despite the fact that only a small fully automated the operations, the most difficult and the operator feels burden through the actions of organizational, occupational factors, and as a result of increased personal responsibility and the need to perform manufacturing operations, which are key to the whole of the nuclear power plant in whole. The most difficult problem considered associated with maintenance of equipment and training and commissioning. This class of problems related to the support staff work of equipment differs as increased technical complexity and significant physical activity.

It is noted differen high cognitive complexity of the problem, the presence of additional factors that further complicate itstion: the need to act in accordance with obstanovki, the need to act in time defitsy - one for potential danger to life and health, the complexity of decision the right decision. Thus, we can assume that this problem is key systemos tvoryuvalnoyu professional operators of the AU.

Analyzing the data, we can conclude the existence of a general concept idea tial nature of professional activelysti and the presence of two classes (types) professional tasks:

1. Planned problem (related to repairs, pro-prevention and maintenance of equipment Lock submitted professionals routinely, we daily performed by a clear algorithm, despite the fact that these trans-talkie can be physically or technically complex, they still estimated by experts as being learned and Names-chnymy);

2. Operational problems, including a group of emergency problems (related to the detection and elimination of violations in technical systems, control and adjustment systems you-cases of violations, the control parameters of security involving action in operational situations constantly changing circumstances, different the complexity you-fulfillment, high responsibility for the re-sults require high accuracy at lack of time and skill to make quick decisions and act on the situation, these operations are critical, they are considered non-standard specialists, despite the fact that in-HN also performed on the clear algorithms-IOM and specialists are trained them, yet these operations are considered difficult and tense because they need is psychological readiness to act in the conditions islands, requiring the adoption of a single correct solution in the short term. Under operational tasks shown separately -ma subgroup problems, which are called "extra's". These tasks other than physical, technical, cognitive complexity, and lack of time are a potential danger to inh rd and health, all this leads to an increased psychological-schenoho tension pov'yazanoho the complexity of making the right decision the first, high reliability mistakes personal responsibility for the result, the need for quality control and testing results. These operations require form-stable of psychological preparedness them. These operations impose major demands not

only the training of specialists, but also for their personal qualities and individual-cial properties).

Based on the grouping of occupations, tasks are the generalized conceptual model-on professional management of reactor engineering workshop speakers. The most important, urgent, urgent priority task is to eliminate neshta-lence situations, surgical removal of violations of safety systems and equipment. Securing the AU is an essential component of all pro-sional activities specialist, is a major factor leading to subjective perception of pro-sional problems; another factor is the leading on-ensuring the performance of the plant, equipment performance, around these two factors focused implementation of all other professional tasks. Using factor analysis identified three evaluation factors descriptive-suyut subjective perception degree vahomos th professional tasks:

1. Complexity and Responsibility (includes offbeat, unconventional char ter work, lack of stable algorithms actions need to act on the situation, dump-tiynist decisions, actions shortage of time, the key nature of the difficulties in making decisions and new little-known work);

2. The technical complexity (incorporating automate dated types of technically easy work, lack of exercise in the performance of work, its independence prevition, performing advanced skills-ness absence of necessary checks);

3. Security (includes potential of the danger to pechnist of the work-life and health responsibilities for re-work results).

Analysing the subjective perceptions of experts in the distribution and evaluation of professional tasks for Content-blocs, classification and evaluation criteria ki found that the conceptual model of pro-sional atomic energy specialists have basic types:

1. Undifferentiated conceptual model of "young professionals" (uyavlya-professional tasks are as independent, professional grouping tasks into meaningful units zdiys-nyuyetsya or too generalized or too independent. A weak relationship problems in groups and associations logic problems in the group);

2. Slabkodyferentsiyovana conceptual model (professional tasks grouped in two major content blocks and items are not grouped in blocks, have equivalent expression).

3. Conceptual model of "care experts" (professional activities are focused on safety, the conceptual model is centered around the problems associated with high risk, requiring emergency actions);

4. Conceptual model of "performers" (experts in the structure of the professional ideas, where everyday tasks associated with the maintenance, inspection and repairing of the equipment took the first place);

5. Conceptual model of "safe daily work" (two main problems related to the safety and support of the daily work of the AU have the equal importance. The idea of the significance of other functions is submitted for the performance of the main functions.

6. Highly differentiated conceptual model (is a complex subjective picture of professional activity, characterized by the differentiation and consistency of the elements, the combining of the professional tasks show their ordering, interdependence in the complex structure of the professional activity).

These types of conceptual models of the professional activity are inherent to certain categories of professionals. The first type is inherent to 16% of the professionals of the total sample and corresponds only to the beginners with the record of service of 1-2 years. The second type of conceptual model is inherent to 9% of professionals with the record of service up to 2 years and it can be assumed that this is a transitional type of conceptual model for young professionals. The third type is found in 16% of experts with the record of service from 1 to 5 years. The fourth type is inherent to only 1% of professionals with the record of service of 1.5 years. We can assume that this pattern of the professional activity is due to the lack of professional experience. The fifth type is most common among professionals, it is inherent to 31% of the subjects with the average record of service more than 5 years, and we can assume that this is the main type of the professional model of the experienced professionals. The sixth type is inherent to

25% of specialists, but the dependence of this type of the professional model from work experience is not detected, it is common for the beginners as well as more experienced professionals. It is likely that this type of the conceptual model of the professional activity is caused by the individual characteristics and high reflection of these professionals. The research of personal characteristics of this type of professionals is a promising direction for further research.

The impact of the experience of the experts on their subjective perceptions of professional activities, which are reflected in the conceptual model, shown in the differentiation of certain types of professionals who differ by some strategy and tactics of the professional activity, selection of its key points, focus on the performing of the process activities in a particular sector and more or less coherence and internal logic. It can be affirmed that subjective conceptual models serve as a basis for the formation of an individual style of specialists.

Also, the research led to the conclusion that the differences of the individual perceptions of the professional tasks are largely determined by the experience of professionals, the degree of mastering of the activity. This is confirmed by the fact that the biggest difference in the representation of professional tasks was in the assessments of the potential danger to life and health, the probability of erroneous actions implementation, technical complexity of professional tasks, including difficulty of making the right decision. Also, the research revealed the effects of experience confirming data already known about the dynamics of the professional formation and in most cases described by a classical U-shaped learning curve.