

PROFESSIONAL THINKING FORMATION AS A SCIENTIFIC PROBLEM

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INTRODUCTION

The professional activity of the expert involves the presence of a proper level development of professional thinking. Exactly the professional thinking allows you to solve professionally determined problems of varying complexity levels in everyday conditions and time deficits, without reducing the quality. The effectiveness of a specialist is determined mostly by his ability to make in time, accurate, non-standard and algorithmic-procedural decisions, which in connected with a high level of professional thinking development. In this regard, the studying of psychological mechanisms for the professional thinking development in order to train modern professionals are quite relevant in modern psychological science.

The analysis results of the scientific sources indicates that a number of the National and foreign scientists thesis' on the topic of studying the processes of activity and professional thinking, how to solve problems are touched upon in particular: G. O. Ball, V. V. Davidov, A. F. Essaulov, were devoted to the study of processes of activity and professional thinking, as problem solving, S. D. Maksimenko, G. S. Kostyuk, Y. I. Mashbits; V. P. Andronov, A. A. Batalov, L. V. Zasekina, E. O. Klimov, B. F. Lomov, V. N. Pushkin, M. L. Smulson, V. V. Chebyshev and others have studied the origin and patterns of specialists professional thinking in various aspects. The scientist V. O. Molyako devoted attention to the problems of solving professional problems in the conditions of limited time and the development of creative thinking (T. E. Gura, L. R. Dzhelilova, L. V. Zasekina, A. B. Zueva, O. Y. Kovanov, J. V. Krushelnytska, V. E. Lunyov, A. K. Markova, N. I. Povyakel, V. A. Semichenko, etc.), as most authors associate with the process of professional specialist development, acquisition of special professional knowledge, skills during professional training and further

professionalization, which are both allow to ensure effective solution of professional-zoom tasks, search and decision making in interdependence with the level of professional training, professional competence and professionalism at a certain stage of professional development, acquisition of professional skill as a whole. The peculiarities of professional thinking of the modern specialist were also described by American philosophers and psychologists W. James and J. Dewey, a German psychologist, thinking researcher K. Dunker, D. Daud, L. Elder, productive thinking by O. Zelts, and critical thinking by S. Terno, R. Paul, D. Cluster, P. Facione, Z. Husin, D. Halpern, and others.

The analysis results of the scientific works indicate that: 1) there is no single approach to a comprehensive understanding of professional thinking; 2) the issue of professional thinking development hasn't been sufficiently researched in theoretical and practical aspects.

On the basis of theoretical and methodological analysis of the national and foreign scientists approaches to analyze the composition of the term “professional thinking”; to determine its content and identify the main characteristics.

The intensity and speed of the information and technological progress invasion into the Ukrainian society development is increasing the activity of psychological processes, including thinking. The term “thinking” in psychology refers to qualitatively heterogeneous processes, because, as a rule, different phenomenological characteristics of thinking are based on their classification, typology and types. Usually, scientists propose “paired” classifications based on opposite, mutually exclusive or complementary features. The most researched and productive are the classifications of thinking, where differentiation of types of thinking is carried out by the way of scanning reality. The most common of these is practical thinking¹.

But the term “professional thinking” is deserves mostly to our attention. The analysis results of the scientific sources is known that for the first time the term “professional thinking” appeared in

¹ Disa O. V. (2015). *Bulletin of Dnipropetrovsk University*. Psychological mechanisms and factors of development of professional thinking.

XIX century, and began to be widely used only at the second half of the XX century in connection with the objective work intellectualization, the need for the professional mindset formation that allows to update knowledge, improve skills, think critically and find new original means of professional problems solving, well navigate the diverse information flowing, successfully overcome “emergency”, extreme situations. The very important ability is to subjective intellectually saturate own work processes, that is, to see, an isolate problems at work and to solve them creatively. The last one is peculiar to rationalizes and inventors who tend to see problems where they are not noticed by other professionals.

Depending on the activity nature, there is a further differentiation of professional thinking types. Thus, in artistic thinking, thinking differentiates between musical, stage, poetic, compositional and other. In the field of engineering and technical activity, where technical thinking functions, it is implemented both as an operational thinking on the management of large systems, also as a constructive thinking, and an engineering one. There are also juridical, pedagogical, medical (clinical) thinking and so on.

According to S. I. Ozhegov the explanatory dictionary a term “professional” the one that is related and connected to the profession².

So, any kind of professional thinking is conditioned by professional activity and is a separate case of thinking. As to A. Brushlinsky “A person... everywhere and always carries out mental activity with one only purpose: with the purpose of cognition constantly changing and therefore the new properties and relationships of the object, in general being”³.

There is an ambiguous understanding of this psychological phenomenon in scientific research on the problem and development of professional thinking.

Thus, V. V. Yagupov defines thinking as a mental cognitive process that allows a person to carry out indirect, abstract, generalized cognition of the phenomena of the world around, their essence and the connections between them, and which is carried out through mental

² Ozhegov S. I. (1957). *Dictionary of the Russian Language*, 11th ed., Stereotype. Moscow.

³ Leont’ev A. N. (2000). *Lectures on General Psychology*. Moscow: PER SE Publ.

operations – analysis and synthesis, comparison and discernment, judgments and conclusions, abstractions, generalizations, etc.; the process of indirect, generalized reflection of a person by reality in the most essential interconnections and relationships⁴.

Y. V. Krushelnytska considers that professional thinking is socially conditioned, inextricably linked to language, appears from the practice of sensory cognition, and is carried out through the appropriate operations system⁵. Systematic work on the thinking development is carried out at all study stages; the transition from ignorance to knowledge, from incomplete knowledge to holistic, from inaccurate to exact, from inability to ability occurs in the process of various thinking operations, 1. At the same time, professional thinking is closely linked to a specific professional activity and is a generalized reflection in the mind of the specialist of significant facts, phenomena and processes in their essential links and relations.

The main feature of professional thinking based on the paradigm activity is its activity origin. According to O. M. Leont'ev, thinking is generated in practice, and in practice manifests itself; it is an activity, a special activity and cognitive activity⁶.

The active's nature of professional thinking is emphasized on the predicate "practical", that is, it is aimed at transformation, not explanation of activity.

Some psychological patterns of thinking that are important for determining the specific professional thinking by the modern specialist were also investigated by W. James, K. Dunker, and critical thinking by J. Dewey etc. In fact, by W. James⁷, thinking differs from the pure imagination or associations sequence by such a specific property isolation as the separation of material content in this fact, which means the isolation from some whole of that particular trait, which is useful for solving a particular property problem. As to our opinion, it is the experienced specialists who are able to identify this useful significance of the trait as it can influence the phenomenon change in the

⁴ Yagupov V. V. (2004). *Military Psychology: A Textbook*. Kyiv: Tandem.

⁵ Krushelnytska Y. V. (2003). *Physiology and psychology of work: a textbook*. Kyiv: KNEU Publ.

⁶ Leont'ev A. N. (2000). *Lectures on General Psychology*. Moscow: PERSE Publ.

⁷ James William (1981). *The Principles of Psychology*, Vol. 1 (of 2). 11–20.

professional environment. K. Dunker, was willing to determine that it causes the subject to choose this particular aspect of the trait as meaningful, because the perception of the desired property as a peculiar act in the process of thinking and the use of the term “insight” in this context is insufficient. At the same time, the answer to this question is given by J. Dewey⁸, which considers the identification of intermediate concepts put between the distant purpose and the available means, bringing them into harmony with each other. However, the scientist believes that the source of this are past experience and knowledge, so this specific characteristic of thinking should be sought in deeper and broader observations, thoughts, mental habits, attentiveness, mobility, seriousness, in the “trained mind”. E. Max exploring the Viewell’s theory of specificity determines the jump induction beyond the existing method in the process of finding the necessary through abstraction and activity of imagination, which play a leading role in the new defining. At the same time, according to K. Dunker, this list (the interest to the facts interrelation, careful situation consideration, abstraction, activity of imagination and convenient case) leaves the search question still open⁹. From this point of view, K. Dunker writes that a new problematic situation cannot be solved by simply drawing up associative traces that are individually related to the constituents of the problem. At the same time, it has certain elements that are common with problem situations that have already been solved. These identical elements are rise-up idea about the previous decisions, and identical elements of the last one’s and in certain turn help to come up with new decision. As to our opinion, it is in this aspect that K. Dunker attempted to identify the specific characteristic of thinking that underlies professional thinking and its applied component.

Also, the analyses results the associations’ theories, the gestalt, the theory of the complexes of A. Zelts and the philosophy of D. Hume, K. Dunker we have concluded that thinking is a kind of process with the insight (understanding) of a problematic situation, leads to adequate response. And the deeper the insights, the stronger

⁸ Duncker, Karl. (1945). *On problem solving*. APA Psychological Monographs.

⁹ Duncker, Karl. (1945). *On problem solving*. APA Psychological Monographs.

the essential features of the problem situation determine the response, the more intellectual it is. This response is internally and directly determined by the essential features of the holistic problem situation. K. Duncker reveals the specificity of the professional thinking mechanism for a particular problem. The problematic situation must be first and foremost understood by the subject that is, perceived as a whole containing a particular conflict. This comprehension, or understanding, is the basis of the thought process¹⁰. After a complete understanding of the problem situation, the process of thinking with its “penetration into conflict conditions of the problem situation” is included. This penetration by K. Duncker is the first and main stage of thinking. Its content defines as a insightful grasping of the situation peculiarities that do causes this conflict. “Penetration” into a problematic situation ends with the functional adoption solution, which is a positive penetration result. The functional solution contains the essential features of the required task approach, that is, the “functional” aspect of the final solution. The second and last stage of thinking by K. Duncker – is the process of implementation (implementation) of functional solution, the choice of what is really needed for the solution (if the functional solution does not contain its implementation)¹¹. In our opinion, scientists have discovered a significant mechanism that underlies the professional thinking of a specialist and is an insight into grasping specific features of the problem, the ability to solve effectively new professional tasks which is based on professional knowledge, skills and experience.

In foreign researchers by S. Brookfield, R. Johnson, L. Elder, Gildirim, R. Paul, D. Cluster, V. Ruggiero, M. Skryven, P. Facione, D. Halpern, and others, is expanded and supplemented the concepts of term “professional thinking”. Thus, according to Halpern, professional thinking is directed and balanced; S. Brookfield considers this a positive and productive activity; R. Paul, L. Elder – skeptical of the conventional wisdom, as well as controlled, purposeful and meaningful; D. Cluster independent; E. Glaser as grounded; M. Skryven, R. Paul as intellectually disciplined rational and

¹⁰ Duncker, Karl. (1945). *On problem solving*. APA Psychological Monographs.

¹¹ James William (1981). *The Principles of Psychology*, Vol. 1 (of 2). 11–20.

reflective; P. Facione's as evaluative, open, purposeful, self-regulating judgment, cognitive process of man; V. Ruggiero as seeking answers; M. Skreven as professional interpretation and evaluation of observations, information and justification; by R. Johnson is a type of thinking that helps a person to organize, analyze, evaluate this information; by Yildirim is the process of finding, obtaining, evaluating, analyzing, synthesizing and conceptualizing information to develop thinking with self-awareness and ability to use that information creatively and without fear of risk; by R. Dumain as is not socially and historically conditioned in a non-existent form; analytical and reasonable consideration of different approaches.

So, the essence of professional thinking is considered by most researchers to be an assessment of information by the recipient. For example, V. Ruggiero advises readers to evaluate the facts of the message, the arguments for and against, and to distinguish between what is said and how it is said, by whom it is said, and how credible someone's statements are. The author advocates the need to put dialogical questions to separate arguments of information before making judgments about the problem raised in it. This, according to the scientist, will help to avoid inadvertent decisions made in a hurry, and allow considering both advantages and disadvantages of separate arguments, creating of a certain discussion and building own judgment around this discussion¹².

Speaking about the professional thinking components, most of researchers points out that it contains logical, problematic, creative thinking (R. Paul); emotionality, creative imagination, value attitudes (D. Halpern).

The reason or the trigger mechanism of professional thinking development, most scientists are considering contradictions (N. Daud, F. Stankato, S. Terno, D. Halpern, Z. Husin). These contradictions require the specialist to be open by opposing points of view, and ready to make an alternative solution of the problem, to review previous own judgments. Since of professional thinking source contradictions and problems, special skills are required for its development: interpretation, analysis, evaluation, explanation, conclusions, self-regulation. The

¹² Ruggiero V. R. (2012). *Beyond feelings: A Guide to Critical Thought*, 9th ed. McGraw-Hill.

mechanism of professional thinking is the thinking operations that determine the process of thinking and argumentation: goal setting, problem identification, hypotheses, ways to solve it, the consequences forecast, acceptance or rejection of alternative points of view.

The problem of the special critical thinking skills raises the question of the properties of the critical person attribute, that is defines if any human innate ability to analytical information perception and what kind of role the brain plays in this. Many current researches are dedicated to identifying these abilities and developing critical skills thinking.

So, D. Halpern considers that the professional is inherent the ability to plan, the thinking flexibility, perseverance, the willingness to correct mistakes, understanding of its own thinking process, the ability to compromise.

In this manner, he sees the presence of well-developed critical thinking skills and not well-developed ones. The author refers to the team experts opinion from the United States and Canada, who collaborated on the Delphi research method, and defines such abilities and skills of critical thinking as erudition, curiosity, persuasiveness in arguments, diligence and accuracy in complex issues, reason in choosing criteria, ability to concentrate research. Discovering humans ability to think professionally, P. Fachione emphasizes on taking into consideration not only its cognitive characteristics, but also the life attitude in general and individual, specific problems. Attitude towards life as a whole is expressed in curiosity, desire to be aware, willingness to use critical thinking, responsibility, confidence in one's own skills, openness to new thoughts, flexibility of thinking, understanding of other people's thoughts, fairness in taking arguments, honesty about one's own forward thinking and prejudice, prudence in decision making, desire and willingness to review previous judgments. Considering the attitude of people in solving specific problems, the author characterizes him in terms of the ability to clearly express an opinion, accuracy in dealing with complex issues, diligence in finding relevant information, a reasonable approach to the criteria selection, attention to the problem, persistence and accuracy in measurements¹³.

¹³ Lunov V. E. (2013) *Psychological peculiarities of formation of professional thinking of the personality in the system of police of Ukraine*: author. Thesis. cand. psycho. sciences: 19.00.01.Odessa. Nat. University after I. I. Mechnikov. Odessa.

Considering that professional thinking is also practical thinking, let us consider the functions of practical thinking. Regulatory function as an essential characteristic of mental reflection is especially significant for practical thinking. It emphasizes its inclusion in the immediate real transformation of a professional by the object of work: it is thinking in action, for action and action (that is an operational links that are usually subject to immediate implementation). The cognitive function of practical thinking indicates specificity in the conditions of activity. This characteristic of the commander's mind was especially emphasized by B. V. Teplov, who noted that "in many fields of scientific creativity, the representatives of both types of thinking (abstract and concrete). Can achieve greater, sometimes great results. "Graceful observation" as a component of practical thinking was noted by S. L. Rubinstein¹⁴. The difference between theoretical and practical types of thinking, according to B. A. N. Topuzova, is that "they are differently related to practice ... The work of practical thinking is mainly aimed at solving partial specific problems ..., whereas the work of theoretical thinking is focused mainly on the search for general laws"¹⁵. Both theoretical and practical thinking are related to practice, but practical thinking has a direct, instant connection with it. According to this, the practical intellect is usually aimed at solving a practical problem every time, and its conclusions are directly verified by practice. And the theoretical intellect appears to be mediated: it is tested in practice only at the final stages of work. Therefore, the features of practical thinking are closely related.

According to Y. G. Kornilov, practical thinking, knowledge, however, used from theoretical, it remains at the discovery of laws, ways of transformation of a certain object and using properties features; 2) it must be specifically summarized that the situation is adequate; 3) it must be an individual origin; 4) the particular character that he uses, because it's find out they do not reveal the properties features which is discovering and the higher rates exist in situations

¹⁴ Rubinstein S. L. (1973). *Problems of general psychology*. Moscow: Pedagogy.

¹⁵ Topuzova A. N. (2004). *Formation of professional thinking in students of management specialties in the university*: author. diss. ... Cand. ped. Sciences: 13.00.08. Magnitsky State University. Magnitogorsk.

they must include such technique as certain characteristics as soon as they exist; its characterized by non-verbalization, 8.

Practical thinking, as argued by S. L. Rubinstein, this thinking is carried out in the process of practical activity and directly aimed at solving practical problems. Theoretical thinking is achieved about efficiency gains, which provoked the situation with practical theoretical problems. However, practical thinking may implement theoretical activity results¹⁶.

According to O. V. Yagupova the problematic version of the maturity of thinking and professionalism of specific works representatives the use of professional tasks are closely created, with the possibility of the term “professional thinking”. This term for the last years very actively used as the psychology of work and professional psychology as well as in acmeology, professionalism psychology etc. Such kind of thinking, on the one hand, means the higher level of professional development thinking and in this context is closely related to the concept of “professional subjectivity”, and on the other – a special professional thinking, which must be from the point of view of professionalism, professional activities, classes, tasks and technologies of their solving etc.

The scientists emphasize on “professional thinking that has specific differences that are related to the activity specificity, in addition – means to achieve a higher level of thinking development – to increase his professionalism. Professional thinking... is characterized by a special combination of theoretical, practical and creative thinking, due to specific features of professional activity...”¹⁷.

By G. A. Nagorny “professional thinking” means judgments, conclusions, each of which conditionally appears in three subspecies: general, indirect and professional¹⁸.

The analysis results of the scientific sources show that the scientists who discover the problem of professional thinking in

¹⁶ Rubinstein S. L. (1973). *Problems of general psychology*. Moscow: Pedagogy.

¹⁷ Yagupov V. V. (2004). *Military Psychology: A Textbook*. Kyiv: Tandem.

¹⁸ Nagornaya G. O. (2013). *Methodological and technological bases of the study of musical art in the process of formation of professional thinking of personality*. Access mode: <http://lib.mdpu.org.ua/nvsp/BAK7/7/13.pdf>.

psychology and pedagogy, have not yet reached unanimity in the definition of this concept and give the following interpretation:

L. R. Dzhelilova stated the “professional thinking” as a complex personal formation, regulated on the basis of social and individual criteria, closely linked to the real life of a person, in particular, vocational training, professional development and self-development, professional education¹⁹.

O. M. Pechko states that “professional thinking” is the professional ability to analyze systematically, summarize, evaluate, creatively and effectively to carry out the educational process²⁰.

N. M. Kuchinova defines “professional thinking” as an important component of a professional skill of a specialist, which ensures successful fulfillment of professional tasks, making original managerial decisions in a certain field of activity, is the embodiment of professional competencies of a person and a condition of his professional development²¹.

Y. V. Krushelnytska offers her variant of the “professional thinking” definition – as an intellectual activity to solve professional problems. The high level of professionalism of the employee is connected with theoretical, creative thinking and developed practical intelligence²².

According to A. K. Markova, professional thinking includes the process of generalized and indirect reflection of professional reality by a person, ways of acquiring new knowledge about different aspects of work, techniques of setting, formulating and solving professional tasks, stages of making and implementing decisions in professional activity,

¹⁹ Dzhelilova L. R. (2008). *Psychological features of the development of professional thinking in future primary school teachers: diss. ...* For the sciences. degree of Cand. psych. Sciences: Special. 19.00.07 “Pedagogical and age psychology”. Liliya Dzhelilova. Odessa.

²⁰ Pechko O. M. (2015). *Formation of professional thinking of future teachers of physical culture by means of pedagogical situations: author. diss.* for the degree of Candidate of Pedagogical Sciences: Special. 13.00.04 Theory and Methods of Vocational Education. M. Pechko. Zhytomyr.

²¹ Kuchinova N. M. (2014). *Psychological features of the professional thinking of marketers. Problems of modern psychology.* Issue 24.

²² Krushelnytska Y. V. (2003). *Physiology and psychology of work: a textbook /* Y. V. Krushelnytska. Kyiv: KNEU Publ.

techniques of planning the work strategy, developing new strategies for professional activity. Therefore, the first place takes not the knowledge by itself, but certain ways of their involvement in the process of thinking. There are the following characteristics of professional thinking, which the scientist combines into three groups:

- basic types of thinking (theoretical, practical, visual-action, logical, linguistic, etc.);
- properties of thinking (activity, flexibility, independence, lability – rigidity, speed, etc.);
- operations of thinking (generalization, comparison, abstraction, etc.)²³.

However, N. I. Povyakel determines that professional thinking has specific professional differences that are related to the specificity of professional activity, reflects the level of professional development and acquires characteristics that are specific to the profession and the acquisition of professional competence. The scientist characterizes professional thinking with high metacognitive awareness, a culture of self-regulation, self-organization and self-mobilization. It is determined by the following criteria and attributes of professional thinking: highly developed qualification and professional competence, personal and professionally important qualities, motivation to achieve, organization, efficiency and mobilization, ability and flexibility of self-regulation, personal and professional development, orientation to education and realism and modern technologies for solving professional problems, low dependence on external factors²⁴.

According to A. Y. Kovanov, professional thinking causes constant maintenance and updating at a high level of special knowledge and skills, which provide the appropriate quality of search and decision making, which is largely achieved through a high level of professional training both through assimilation and awareness of experience and continuous self-improvement and advanced training²⁵.

²³ Markova A. K. (1996). *Psychology of professionalism*. Moscow: Knowledge Publ.

²⁴ Povyakel N. I. (2004). *Self-regulation of professional thinking in the system of professional training of practical psychologists*: diss. ... Dr. Psychol. Sciences: 19.00.07. National Ped. them. M.P. Drahomanov. Kyiv.

²⁵ Kovanov O. Y. (2002). *I'm a professional and I'm in a profession*. The world of psychology, 2, 135–143.

A. M. Topuzova defines the specifics of the manager “professional thinking” as the knowledge of the essence, identification of patterns and projects construction of production processes, based on deep professional knowledge and professional experience gained from their own experience and from the experience of other professionals. The scientist clarifies the basic features and peculiarities of the professional thinking training: growing activity and initiative of the individual, the formation of a new type of thinking, the presence of entrepreneurship, high responsibility, the ability to organize economically competently both their own activities and the activities of the team²⁶.

According to V. E. Lunov, professional thinking is a set of intellectual skills and personal qualities, the realization of which ensures the successful implementation of professional activity, the ability of a specialist to make and make certain decisions in an operationally significant situation with a certain temporal and spatial advance about the expected, future events are relevant in the case²⁷.

T. E. Gura defines professional thinking as a system-forming component of professional competence, which is reflected in substantive and procedural forms, depends on many situational and external factors that determine the specifics of the professional problems being solved, and personal, internal determinants that characterize the peculiarities of the specialist. its individual-psychological properties. The basic components of the professional thinking of a specialist T. E. Gura considers value-motivational, conceptual-semantic, operational and reflexive, which reflecting the internal psychological structure of thinking activity²⁸.

The results analyses are defined constantly review the classification of psychological characteristics and properties of

²⁶ Topuzova A. N. (2004). *Formation of professional thinking in students of management specialties in the university*: author. diss. ... Cand. ped. Sciences: 13.00.08. Magnitsky State University. Magnitogorsk.

²⁷ Lunov V. E. (2013). *Psychological peculiarities of formation of professional thinking of the personality in the system of police of Ukraine*: author. Thesis. cand. psycho. sciences: 19.00.01. Odessa. Nat. University after I.I. Mechnikov. Odessa,.

²⁸ Gura T. E. (2014). *Psychology of the development of professional thinking in future psychologists in the process of professional training*: author. diss. Dr. psychol. Sciences: 19.00.07. Nat. ped. them. M. P. Drahomanov. Kyiv.

professional thinking, and are known to exist, and they are grouped according to the content and purpose of N. I. Povyakel: 1) practicality, constructiveness, manufacturability, efficiency, concreteness; 2) productivity, searchability, initiative, ingenuity, flexibility, speed, extension, validity, openness, originality; 3) security, mobility, self-regulation, fatigue, reversibility; 4) reliability, consistency, predictability, purposefulness, breadth, depth, criticality; 5) professional-reference coexistence of theoretical and practical, thinking, professional concept, systematic, logical, dialectical²⁹.

So, the professional thinking is an intellectual activity of solving professional problems. Since the specificity of professional activity is predetermined by the peculiarities of the tasks that are carried out by different specialists, the quality of professional activity, or level of professionalism, depends on the type of thinking. A high level of professionalism is associated with theoretical (not empirical), creative, often intuitive thinking and advanced practical intelligence. Training of the professional should require a mandatory analysis of the professional tasks specifics and strategies of its solving, because the process of thinking is to solve certain tasks.

The professional thinking specificity mostly connected with the orienting of a specialist in the subject of his activity, and also by using the signs in this subject, and by technological side of professional activity. Researchers emphasize on the interconnection of change and technology of professional action with the forms and logic of professional thinking. A special object seems to “dictate” the way of its comprehension.

The great importance for professional thinking is the “sense” of the material, the partner, the opponent, the action, moreover, the problematic situation “sense” that has not appeared yet, but may occur in professional activity. Clearly, this a kind of “feeling”, despite its name, is not based on perception or emotion, but on the complex, coordinated work of all intellectual structures, expanded, automatic thinking that instantly processes all the data received by the senses, offers memory, allocates attention according to the needs of the

²⁹ Povyakel N. I. (2004). *Self-regulation of professional thinking in the system of professional training of practical psychologists: diss. ...* Dr. Psychol. Sciences: 19.00.07. National Ped. them. M. P. Drahomanov. Kyiv.

individual (personal meanings). Therefore, in this case, one can definitely speak about professional intelligence.

Than very feeling mentioned above is the basis to make a adequate means choice and the ways of solving professional problems. Yes, the extra high-level professionals often perceive objects and tools as “their own organs” as an extension of their bodies. The surgeon who probes the wound uses the probe as an extension of his arm, and the end of the probe he is looking for a bullet is “palpable” to him. An experienced train driver feels the train in motion all the way to the last wagon. The professionals are not only feel, but also on the basis of some, not always conscious signs, predict the occurrence of problem situation (unusual smell or noise in the car, the plane, some features of the patient’s behavior, the student, etc.)³⁰.

In fact, in some researches, professional thinking is defined as the process of professional problems solving in a particular field of activity, in others – as a certain type of orientation specialist in the subject of their activity. The first approach is related to S. L. Rubinstein’s concept of the determination of thinking “by external conditions through internal”. According to external conditions as to this concept, is a task that sets to the thought process the objective content and direction. So, the process of professional thinking study is on the focus of the specific features analysis of professional tasks.

The second approach is related to the concept of the gradual formation of mental activity by P. Y. Halperin, according to which the specific features of thinking, the content and structure of the mental image cannot be determined by the nature, features and tasks content. Thinking is considered to be as one or another type of orientation of the subject in the object of activity and its conditions, which in turn determines the origin of the tasks to be solved. Despite the attractiveness of this approach of the professional thinking study, it is not without drawbacks. As one of them, we see the lack of logically accurate characteristics of the concepts of “orientation” and “generalization”, as well as an underestimation of the specificity, originality of professional tasks that are solved by different specialists’ profiles.

³⁰ Trofimov Y. L. (2013). *Psychology*. The principle of a unified intelligence and professional thinking. Access mode: <https://westudents.com.ua/glavy/80033-343-printsip-dinogo-ntelektu-ta-profesynemislennya.html3>.

Thinking, according to G. P. Shchedrovitsky, exists in three forms: 1) pure thinking, 2) thought communication, and 3) thought-making, which are not identical but fundamentally different processes based on different laws. Pure thinking is deployed in perfect reality, defines the ideal object; it exists in diagrams, models, drawings and produces knowledge according to the laws of logic; the world of pure thinking is realized through the existence of human culture and is reflected in the texts of communication.

Thought communication is a kind of thinking that occurs through the knowledge operation that exists in the form of concepts, in the process of dialogue, that is, in the communicative form; it exists under the laws of communication, dialogue.

Mindedness is the thinking that occurs within the limits of practical action, “the thought that has passed to the level of situational action”³¹.

Mindfulness and pure thinking are interconnected by communication: when thought-communication finds the perfect object and begins to object on the ideal objects, it becomes the knowledge.

The reflection links pure thinking, thought communication and thought activity, which provides objectification, ontologization and subjectification and also forms a holistic phenomenon – human thinking³². And the reflection, according to G. P. Shchedrovitsky always has several forms: it is often carried out as a reflective attitude in the forms of thinking and mental imitation of the others actions; is both a mechanism of thought, and a kind of independent intellectual form that determines thinking itself, is primary to it.

So, professional thinking is first and foremost a reflective mental activity to solve professional problems. If the specificity of professional thinking depends on the peculiarities of the tasks undertaken by different specialists, the quality of professional activity or level of professionalism depends on the type of thinking. A high level is first and foremost related to a theoretical, reasonable type of thinking³³.

³¹ Shchedrovitsky G. P. (2005) *Thinking – Understanding – Reflection*. Moscow: Heritage MMK.

³² Shchedrovitsky G. P. (2005). *Thinking – Understanding – Reflection*. Moscow: Heritage MMK.

³³ Rubinstein S. L. (1973). *Problems of general psychology*. Moscow: Pedagogy.

In the course of duties accomplishing, the professional actively develops professional thinking as a symbiosis of practical and theoretical thinking, which allows solve the problems more adequately, rationally and systematically tasks and problems that are faced daily³⁴.

The opinion of O. V. Disa is quite correct. The thesis that “despite the conflicting views of scientists, the problem of common methodological approaches by which a comprehensive understanding of professional thinking could be built is extremely significant”³⁵.

Professional thinking skills are acquired by a specialist as a result of many years of practice. As a result of repeated repetitions, future professionals accumulate experience and develop professional thinking skills. The development of professional thinking is a complex process, usually proceeding rather slowly, and depends on general intelligence, practical skills and other factors.

CONCLUSIONS

Having analyzed the scientific and psychological sources, we have come to the conclusion that professional thinking is a holistic, specific, algorithmic and multilevel complex of intellectual processes, specific procedure-algorithmic actions and their results, which provides the solution of problems related to professional activity. This is an essential basis for the professional formation. The professional formation of thinking is based on the insightful transfer of identical elements of gestalt of acquired professional knowledge, skills and experience by finding and understanding its functional significance in its direct relation to this task (problem situation) and understanding of this intrinsic connection with it. According to the results of the study of the genesis of professional thinking, we found that its sufficient level of development in a specialist in modern realities requires the improvement of forms, methods and techniques of training high-quality professionals in educational institutions of Ukraine. Unfortunately, the volume of the article do not allow the author to

³⁴ Lunov V. E. (2013). *Psychological peculiarities of formation of professional thinking of the personality in the system of police of Ukraine*: author. Thesis. cand. psycho. sciences: 19.00.01. Odessa. Nat. University after I. I. Mechnikov. Odessa.

³⁵ Disa O. V. (2015). *Bulletin of Dnipropetrovsk University*. Psychological mechanisms and factors of development of professional thinking.

reveal more fully all the peculiarities of the national and foreign scientists views on understanding the essence of professional thinking.

SUMMARY

The article deals with the studying of professional thinking problem at scientific and psychological sources. Scientific approaches to the interpretation of the concept of professional thinking and ways of solving the professional thinking problems of specialists are characterized. The results of the scientific sources analysis testify to the ambiguity of the views of scientists, and in many aspects the opposite positions of this psychological phenomenon. Scientific views on methodological approaches and comprehensive understanding of professional thinking are revealed.

It has defined that professional thinking 1) is a holistic, specific, algorithmic and multilevel complex of intellectual processes, specific procedural-algorithmic actions and their results, which provides the solution of tasks related to professional activity; 2) the basis for the professional formation.

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