

Development of expert thinking of future teachers

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Abstract. The paper is devoted to the problem of the development of expert thinking of students. The urgency of this issues is in the changes in the functional duties of teachers of secondary general educational organizations and the need to develop expert competence. The axiological aspect of professional consciousness is common in expert and pedagogical activity. It is expressed in the adoption of professional and moral values and the definition of professional actions that ensure the quality of the learning and upbringing process. In a practical aspect, the expert thinking of a teacher reflects a complex of intellectual processes: analysis, synthesis, criticality and consistency. Intellectual process in expert activity of a teacher is aimed to solve problems formulated as tasks. The peculiarities of the solution of expert problems consist in the choice of methods and technologies of expert activity. Expert thinking is closely related to research activities. In the course of an expert study, the elements are identified that affect the quality of educational systems and problematic ones that require development. Expert thinking manifests itself at the methodological, tactical and operational levels. Like pedagogical thinking, expert thinking approaches scientific thinking and includes a systematic understanding of theories, laws, principles of education development, as well as knowledge of scientific methods and possession of the logic of thinking, scientific evidence in the determination of practical approaches to the solution of problems. The tactical level of expert pedagogical thinking is expressed in the assessment of pedagogical educational practice, its contradictions and the formulation of problems as pedagogical tasks. Expert thinking approaches diagnostic and includes the process of choosing methods and making diagnostic decisions. Operational level includes the manifestation of professional self-awareness, when personal results are evaluated and the connection with critical thinking is clearly traced and the ability to creatively generate innovative ideas. In particular, the paper reveals the general and special components in the manifestation of professional pedagogical and expert thinking. The main manifestations of the expert thinking of a teacher are shown as the ability to analyze, synthesize, identify cause-and-effect relationships, draw conclusions and highlight contradictions in the activities of an educational organization. The paper substantiates the need for a new theoretical vision and practical rethinking of the educational process of the development of expert thinking of students in a university.

Keywords: professional pedagogical thinking, expert thinking, diagnostic and creative thinking, methodological, tactical and operational levels of expert thinking

1 Introduction

The system of education is developing in accordance with the requirements of modern society and is in search of more effective ways of innovative development. The active introduction of new approaches, technologies and the content of academic disciplines into the educational process of a school, intensification of its social functions and improvement of management system requires the creation of an organizational system that ensures the stable and innovative development of educational organization. Due to the relevance of this issue, the task arises of the development of expert thinking among future teachers during their studies at a university, which will allow them to get involved in the innovative processes of school development in a more optimal time

frame and make their creative contribution to the improvement of educational and managerial processes.

2 Problem Statement

The features of the development of professional pedagogical thinking are considered in the works of O.A. Abdullina, N.V. Kuzmina, A.I. Piskunova, V.V. Serikov. They present professional pedagogical thinking as a complex integral multilevel reflection of the main objective characteristics of pedagogical process. This process is presented as a certain model of educational system, determined by the goals and formulated tasks, taking into account the personal characteristics of the participants.

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Many researchers consider expert thinking as the ability of subjects of education to find the most effective ways for the development of an educational organization using expert methods.

S.G. Baronene, Yu.V. Dementieva, A.K. Markova, G.A. Mkrtychyan, A.N. Tubelsky note that expert activity in the field of education is formalized as the manifestation of professional activity of teachers and is introduced as the duties of specialists in school. The functions of an expert teacher include procedures for expert evaluation of a lesson, an innovative project, experimental work, author's programs, educational and methodological materials. The implementation of expert activities at school requires the development of expert thinking of students during their studies at university.

3 Research Questions

The essence of expert aspect of professional pedagogical thinking as a complex structure, including the manifestation of diagnostic, historical, critical and creative types of thinking.

The manifestation of expert thinking at the methodological, tactical and operational levels of professional pedagogical activity.

4 Purpose of the Study

The purpose of the research is to determine the theoretical approaches to the development of expert thinking of students of pedagogical training areas at university.

5 Research methods

During the research the following methods were used: theoretical analysis, classification comparison of expert and professional pedagogical thinking, hypotheses, rationale and evidence, inference and generalization, formulation of conclusions.

6 Findings

Nowadays in higher education due attention is paid to the training of master students for expert activities. Teaching master students of a psychological and pedagogical qualification includes mastering competencies and developing expert thinking at a basic level. The possibility of students mastering the basics of expert activity does not contradict the process of mastering the psychological and pedagogical profession.

The profession of a teacher and the activities of an expert in the field of education have common significant goals and functions for their implementation. The basis of views on the unity of pedagogical and expert activities is the activity approach in the definition of a profession as a type of labor. In the studies of V.A. Yadov a profession is seen as "... a type of activity that requires special knowledge and training in a fairly wide area of material and spiritual processes and imposes

responsibility on the representatives of this type of activity for the effective performance of duties in the system of division of social labor" [1].

Special personal qualities, the unity of abilities and objective activity acquire significance in the psychological aspect of the understanding of the profession.

The proximity of pedagogical and expert activities in the field of education is based on values, social guidelines, conceptually and strategically presented in state documents and scientific theories, which are preferred by society in a particular historical period.

On the other hand, the unity of pedagogical and expert activities in the field of education is determined by the unity of professional values of the community of specialists performing regulatory functions in educational field.

The axiological aspect of the professional consciousness of a teacher and an expert in the field of education is determined by professional and moral values, manifested in the worldview, culture of behavior, conscientious attitude to the performance of one's duties and moral attitudes of a specialist.

In modern pedagogical reality, the value-significant features of the personality of a teacher and an expert are the desire to improve the quality of education, the creation of conditions for the upbringing of a spiritually moral and highly educated personality. In modern historical context, moral convictions, patterns of behavior and professional actions are required from a teacher and an expert that can influence these processes and ensure their achievement.

The results of the achievement that professionals in education strive for are ideally presented in the goal system-forming component of the activity of an expert teacher. According to A.A. Angelovsky, in setting goals, the professional self-awareness of an expert teacher is manifested. According to him, it includes "a system of conscious, professionally necessary generalized and operational knowledge about the goals, means, objects and subjects of professional interaction, about the parameters and norms for the assessment of the effectiveness of professional activity" [2].

The practical aspect of the development of the expert thinking of students includes a complex of intellectual processes. The mechanism for the implementation of various types of examinations is the method of expert assessments. Under this method, we understand "a set of logical procedures aimed to obtain information, its analysis and generalization in order to prepare a management decision" [3].

The concept of expert thinking in the scientific literature does not have an unambiguous interpretation. Thus, M.O. Orlov and A.S. Gavrilova distinguish the following criteria for expert thinking: criticality, consistency, coherence, intellectual intuition [4].

The mental activity of an expert in education represents the process of sequential solution of emerging problems and searching for their solution. The tasks solved in the course of expert activity are determined by its types: problematic, didactic, psychological and pedagogical, etc. However, they are united by the

features of the organization of expert process and the leading way to obtain the information necessary for an expert.

In their works I.G. Ovsyannikov and I.I. Cherkasova identified the qualities that reflect the peculiarities of expert thinking: logic, clarity, speed, the ability to identify the main features of objects, the development of comparative, evaluative and critical, consistency, the moral right to evaluate [5, 6].

Expert activity is based on logical analysis and synthesis, which is closely related to research activities. As O.S. Anisimov notes, research activity is based on logical thinking, involving the solution of tasks through analysis and synthesis [7].

The purpose of logical analysis is to identify elements in the object being examined that have significant features. In education system these objects are: the educational environment, the processes of education, upbringing, management, etc. In these processes, the main system components are subject to analysis: goal, content, procedural-technological, productive. In the procedure of logical synthesis, the components of the systems are combined into a functioning educational system, where individual elements appear as leading, defining and significant in the development of the system and those that act as problematic, requiring in-depth research and determining the ways of their development,

Based on formal logic in the examination, a generalization is made, functional connections and relationships of the elements of the system are singled out, and further tasks for finding the identified problems are formulated.

In comparison with expert thinking, pedagogical thinking is very close in its qualities to it. Thus, Yu.N. Kulyutkin, E.I. Rogov, E.F. Zeer singled out the most significant manifestations in pedagogical thinking [8, 9, 10]. These qualities included: the ability to think systematically and consistently, readiness for proof, in-depth analysis of facts and phenomena, synthesis and generalization of phenomena in integral models of educational systems.

From these characteristics it follows that professional pedagogical thinking in its qualitative manifestations contains an expert aspect. For the purpose of in-depth analysis, we have studied the most revealing characteristics of pedagogical and expert thinking.

In the research of Russian scientists, the composition and system of functions of pedagogical thinking (I.Ya Lerner, E.V. Bondarevskaya, N.M. Borytko, I.A. Kolesnikova) [11–14] have a level characteristic.

At the methodological level, in professional pedagogical thinking and the thinking of an expert, there is a cognitive unity of knowledge of meaningful and formal meaning. This knowledge is presented in possession of the methodological level of thinking, where pedagogical scientific objects are presented at the theoretical level and act as a holistic image of professional pedagogical activity and the possibility of their research by scientific methods.

At this level, expert and pedagogical thinking approach scientific thinking and include systemic ideas

about scientific theories, laws, principles of development of educational systems, fundamental approaches to the studied object, the operational purpose of research methods and the logic of studying educational processes.

The formal aspect of the methodological level of thinking is manifested in the knowledge of the scientific language of pedagogical science, the formal structure of scientific evidence, knowledge of the methods and conditions of pedagogical research. In the hierarchical structure of the methodological level of thinking of a teacher and an expert, the ability for abstract thinking is manifested, which determines the theoretical vision of the problems of the studied issues and scientific approaches to their solution.

At the tactical level, according to E.F. Zeer [8], pedagogical and expert thinking is expressed in the functions of analysis, comparison, generalization and evaluation of educational practice. The thinking procedures of the tactical level of thinking being carried out are designed to identify the initial contradictions in the pedagogical or managerial processes carried out in education and to formulate the problem as a task.

The tactical thinking of an expert teacher is most significant in the assessment of the results of pedagogical process, creating favorable conditions for the development of an individual, the interaction of the subjects of the educational process, content and technologies. In the assessment of these phenomena, students update the knowledge gained in the course of the study of the subjects of pedagogical and psychological cycles, analyzing the educational and educational processes in pedagogical practices, defending projects and performing educational and research work.

The study of processes in the course of expert activity presupposes possession of diagnostic thinking. In their research, S.P. Elshanskaya and O.S. Efimova defined diagnostic thinking “as a complex cognitive process that involves stages, necessary diagnostic reasoning and diagnostic decision making” [15]. An integral part of diagnostic thinking is the mental operations of analysis, synthesis and generalization. In the logic of the diagnostic algorithm and the diagnostic interest for a deeper study, a teacher-expert divides the interest into more clearly visible elements in order to obtain more reliable data. With the help of diagnostic thinking, based on the synthesis of the information received, a hypothesis is formulated about the development, quality, innovativeness of the pedagogical system or activity. The analysis of diagnostic data becomes the basis for making a decision as a result of a logical generalization, selection and forecasting of a further plan of action.

The diagnostic expert thinking of a teacher is manifested in the assessment of the quality and effectiveness of the chosen conceptual framework for the activities of a teacher or educational institution, a comparison with the standards of implementation is made and the presence of an innovative or reproduction of nature of educational activity without elements of creativity are determined.

At the operational level of expert thinking, we observe the manifestations of introspection and self-evaluation of pedagogical activity, the desire to evaluate the results achieved and compare them with goal setting. The focus of mental action is focused on critical assessment of one's own success or failure.

From the point of view of M.V. Boguslavsky [16], such an analysis gives an idea of the correspondence between the traditional priority in pedagogical activity and the established historical pedagogical experience, or a conclusion about the legitimacy of the implementation of educational projects as promising for the future. In this study, critical thinking as a manifestation of expert thinking can be defined as "a teacher's reflexive thinking that allows him to work effectively with various types of professional information (compare, analyze, evaluate), noting the facts of assumptions, giving arguments in favor of his opinion, solving typical and non-standard professional tasks" [17].

The criticality of thinking in expert activity aims to identify the causes of the situation of uncertainty in pedagogical activity, denoting its boundaries, highlighting the contradictions between the real plan, its normative implementation and results [18]. This approach allows predicting the immediate and long-term consequences of the development of phenomena that are subject to examination. In such forecasts, the individual experience of an expert and a teacher is manifested. The ability to be creative in seeing both personal and social experience in education outside the stereotypes of professional thinking should be attributed to the manifestation of the creative activity of an expert teacher [19]. The creative qualities of expert thinking include the ability to generate innovative ideas and promote professional pedagogical innovations.

At the university, the study of the foundations of expert activity creates conditions for the training of future specialists in the field of education with developed expert thinking, which has similar manifestations with professional pedagogical thinking. Such thinking actualizes the personal potential of students in creative activity, the development of professional self-awareness and a systematic understanding of the prospects for modern education.

An expert teacher is capable of organizing quality improvement in an educational institution and critically reflecting on their own professional activities. The prognostic manifestation of expert thinking in the vision of actual tasks in the educational sphere creates the conditions for the advanced nature of the personal and professional development of the student during the period of study at the university.

7 Conclusion

In general, the analysis and comparison of professional pedagogical and expert thinking can be used as the basis for a system for the development of expert competencies of future teachers of secondary general education at a university and become the beginning of a holistic approach to the development of the content of university

cycle programs of psychological and pedagogical disciplines for professional training of an expert teacher with a developed expert thinking.

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