

The problem of professional competence formation of future teachers in regard to development of cognitive activity of school children

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Abstract: The article studies the problem of professional competence of future teachers in regard to development of cognitive activity of schoolchildren. The analysis of modern pedagogical literature allowed defining the essence of the concept of professional competence formation of future teachers. Designed model of professional competence of future teachers in regard to development of cognitive activity of schoolchildren was experimentally implemented in university educational process. The authors developed the training technique to form professional competence of future teachers in regard to development of cognitive activity of schoolchildren, as well as identified pedagogical conditions promoting professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren.

Key words: *Problem; Professional competence; Formation; Future teachers; Development; Cognitive activity; School children*

1. Introduction

The cognitive formation process of schoolchildren continues throughout their life and activity, it is influenced by the totality of external and internal factors. The content of the cognitive attitude of adults features the diversity of their social and personal relations, while these areas are certainly substantially restricted in schoolchildren. However, worldview foundations and spiritual wealth laid down during these years form human qualities that provide cognitive activity in schoolchildren even during studying at school. Focusing of university education during a long time on knowledge as the main indicator of vocational education has resulted in the lack of integrated connection between theoretical and practical activities, the incompleteness and fragmentation in training of specialists that in turn resulted in the decline of interest in students to learning and mastering future profession. One of possible ways to overcome the existing problems in the educational process at university is its target reorientation to the professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren, the aspiration of their personality to implement their knowledge, experience, and capabilities in the field of chosen profession. The studied problem of professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren involves comprehension and acceptance of the proper goals, appropriate ideals, attitudes, beliefs

and views. Domestic and foreign pedagogy have accumulated some experience in studying the problem of professional competence of future teachers. Scientific papers in the field of vocational training, the socio-political and psychological-pedagogical education are quite widespread. Theoretical and practical studies of training the future specialists are carried out in different aspects in the works by Y.B. Omarov, et al. (2016), A. Makhshova, et al. (2016), and R.W. White (1959). Issues of professional competence development in future teachers are intensively studied. In this regard, we should particularly note research of S. Gifford (1994) and Zh.K. Onalbek et al. (2013). Some aspects of professional competence of future teachers are revealed in the works dealt with schoolchildren's training and education: A. Nazari (2007), J.C. Light (1997), Celce-Murcia, et al. (1995); Ch. Day. (1994), E.K. Henner (2004); V.K. Sharma, et al. (2015). However, peculiarities of professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren were beyond the scope of these studies. Based on the analysis of the practical experience of universities, it was identified that there is a contradiction between the necessities to form professional competence in future teachers in regard to development of cognitive activity of schoolchildren and the lack of sufficient theoretical substantiation and methodological support of this process in the context of university education. The need to resolve this contradiction has determined the scope of our research problem. Relevance, as well as theoretical and methodological crudity of this problem led to the selection of research objective,

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which can be formulated as theoretical substantiation and methodical support of professional competence formation in future teachers in regard to development of cognitive activity of schoolchildren.

2. Methods

The research methodology of professional competence of future teachers in regard to development of cognitive activity of schoolchildren is based on main provisions of the higher education philosophy and methodology; the theory of the higher pedagogical education; the theory of vocational education; cognitive theory; a systematic, holistic approach, management based approach, activity based approach, ability based approach in vocational education, personality oriented approach, contextual approach, methodological approach and version technologies in higher education; theories of professional education and personal development of a specialist, the theory of the competence approach in education, theoretical substantiation of "ability" concept, as well as activity theory of education. In the course of the study of the professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren we used a range of methods such as theoretical analysis, simulation, questionnaire, interview, observation, pedagogical experiment, expert evaluations, ranking, interviewing, and statistical data processing.

3. Results

Professional ability is a complex integrative personal formation, which is considered by philosophers, psychologists, and educators within the personal-activity approach. In our study, to determine the levels of professional competence formation of students, i.e. future teachers, in regard to development of cognitive activity of schoolchildren, we clarify the essential characteristics of the concept of "competence", as well as related concepts, having aspect and generic links to the basic concept. These are activity, professional occupation, personal and professional development, and professional orientation of the personality. Based on the approach of Y.B. Omarov, et al. (2016), we understand professional occupation as a process of becoming professional, which includes the choice of profession, based on individual's personal capabilities and abilities, mastering proper professional rules and norms, forming and being aware as a professional, enriching the profession by contributing personal experience, personal enhancement through profession, etc. The concept of "professionalism" is defined by Omarov as a combination of psychological, mental and personality changes in the person occurring in the course of mastering and long-running professional activities providing qualitatively new, more effective level of solving complex professional tasks in the

specific conditions. Professional-pedagogical orientation in the literature (N.G. Dairy (1966)) is defined as sustained interest to the profession in unity with social and cognitive activity, expressed in the desire and willingness to responsibly carry out pedagogical duties. This means the recognition of the significance of pedagogical work, the willingness to deal with it, the need to communicate and work with children, development of creative abilities and skills needed to teacher in his practical work. Analysis of pedagogical literature showed that the ability for teaching activities is a critical element of rapid adaptation of university graduate to the specific conditions of the work at school, as well as further enhancement of professional knowledge. The concept of "competence" with regard to implementation of any activity, despite its wide prevalence, has no unambiguous interpretation. Various authors consider it differently, interpreting as having the abilities (A. Chown (1994), quality of the person (D. Hymes (1972); C. Kramsch (2006); G. R. Vodyanenko (2014); and temporary status (F. Mahzounzadeh (2013)). There are also different types of competences: psychological, practical, professional, etc. Based on the analysis of the above approaches, we have identified professional competence of future teachers in regard to development of cognitive activity of schoolchildren as a complex integrative education, acquired through vocational training and self-training, able to act as a certain functional state of being, as well as personality trait, which implies the availability in future teacher of interest and commitment to the development of cognitive activity in schoolchildren, along with a range of pertinent knowledge and skills. The formation process of professional competence of future teachers in regard to development of cognitive activity of schoolchildren, as the desired quality, is understood as obtaining a relatively stable result.

Cognitive activity is a unity of sensory perception, theoretical thinking and practical activities. It is carried out at every step of life, in all kinds of activities and social relations of schoolchildren (productive and socially useful labor, value-orientation and artistic activities, communication), as well as by taking up different subject-practical actions in the learning process (experimentation, design, solution of research tasks, etc.). But only in the course of educational-cognitive activity or learning, the knowledge takes on a distinct form, inherent to man. Learning always takes place through communication and is based on the verbal-active approach. The word is both a means of expression and cognition of the essence of the phenomenon under study, a tool of communication and organization of practical cognitive activity of schoolchildren. Education, like any other process, is associated with motion. As a holistic pedagogical process, it has a task-based structure, and, consequently, the progress in the learning process moves from solving one educational problem to another, promoting a pupil on the path of

knowledge: from ignorance to knowledge, from incomplete knowledge to more complete and accurate knowledge. Learning is not confined to a mechanical "transfer" of knowledge, abilities and skills, because learning is a bilateral process, in which teachers and students, as well as teaching and learning closely interact with each other. Schoolchildren's attitude to teaching is usually characterized by their cognitive activity. Cognitive activity (learning, mastering, etc.) determines the degree (intensity, strength) of contact between the trainee and the subject of his activities. The structure of schoolchildren's cognitive activity consists of the following components: the willingness to complete class assignments, the pursuit of independent activities, awareness of completing assignments, systematic learning, a desire to improve personal level, etc. Teaching practice uses various ways in regard to development of cognitive activity of schoolchildren. The main ways include a variety of forms, methods, and means of teaching, as well as the choice of such combinations, which in particular situation encourage activity and independence of schoolchildren. Modern requirements to the higher education institutions determine the need for an integrated comprehensive program to form professional competence of future teachers in regard to development of cognitive activity of schoolchildren. In these conditions special attention is drawn to methods activating cognitive process (D.Zh. Sakenov, et al. (2012). Cognitive activity of schoolchildren is an act of will, an active state that characterizes the enhanced cognitive activity of the individual. Cognitive activity of schoolchildren is manifested in various practices; it can be external and internal. The external (motor) cognitive activity can be easily identified by the teacher, because its symptoms are clearly pronounced: the schoolchild is busy making notes on the lecture, reciting a lesson, solving tasks at practical studies, and carrying out tests at laboratory practicals. Internal (mental) cognitive activity is characterized by the fact that besides involving an external activity, it has in addition its own specific features, such as the tension of the mental powers, mental actions and operations including analysis, synthesis, comparison, and generalization. The highest level of cognitive activity is a creative activity, aspiration to penetrate into the essence of the studied objects and phenomena, the ability to introduce novelty elements into solution of the learning task (A. Leontiev (2008); D.Zh. Sakenov, et al. (2012); R.S. Safin, et al. (2014). The development of creative cognitive activity is associated with the enhancement of learning activities of a schoolchild, which is conducted by the teacher, who must have the professional ability in the development of cognitive activity of schoolchildren, i.e. strong leadership over schoolchildren's cognitive activities. Teacher must understand the feasibility of used education forms, methods and means. With regard to development of techniques and methods that facilitate active learning activities, teacher must be able to create

conditions for active educational work, scientific search of schoolchildren, providing them methods and techniques of active thinking. Cognitive activity of schoolchildren is not short-time, it is not sporadic. Therefore, we can compare timeframe of schoolchildren's active work at the lesson and the timeframe of teacher's active work at the same lesson. Cognitive activity, as a quality of schoolchild's activity, is an indispensable condition and indicator of the implementation of any principle of education.

Having studied the capabilities of the educational process at the university, preparing future teachers, as well as students' satisfaction with training for development of cognitive activity of schoolchildren and their attitude toward the possibility of implementing special training in the respective field, we came to the following conclusions: the content of academic disciplines having some opportunities to form professional competence of future teachers in regard to development of cognitive activity of schoolchildren are not focused on the object of professional activity of school teacher; the university curriculum lacks subjects directly reflecting the essence of teacher's professional efforts in the development of cognitive activity of schoolchildren; it is necessary to make some changes in the educational and training process as well as in the content of training courses, so that they could contribute to efficient formation of the studied professional competence of future teachers in regard to development of cognitive activity of schoolchildren. Correction of these deficiencies was carried out based on the preliminary experimental work.

4. Discussion

Based on the indicators and criteria of professional competence of future teachers in regard to development of cognitive activity of schoolchildren, we identified three levels: high, medium, and low. High level is characterized by a high degree of acquirement of knowledge and skills in the field of schoolchildren's cognitive activity development. Students, who have reached this level are initiative, show a responsible attitude to the acquisition of knowledge and practical skills. In the course of implementation of practical actions they are committed to achieving high results, have pronounced positive motives of action; constantly evaluate their actions in the context of social importance. They have high personal activity.

Under average level students possess the knowledge necessary for future teacher to develop cognitive activity of schoolchildren. They are quite responsible for acquiring knowledge and skills; able to diagnose the real level of cognitive activity of schoolchildren, and work individually with children. A low level is characterized by insufficient knowledge and skills required for the given activity. The pursuit to acquire practical skills in low level students is quite weak. There is no control over own actions. They lack initiative and usually are in

leading strings, don't know how to use the potential of school subjects and extracurricular activities for the development of cognitive activity of schoolchildren. The above levels are used to carry out diagnostics and self-diagnostics of formation levels of the required professional competence of future teachers in regard to development of cognitive activity of schoolchildren. The result of our process model, which focuses on the research objective, is the formedness of professional competence of future teachers in regard to development of cognitive activity of schoolchildren. The developed model was tested and implemented in the educational process at the university. The experiment was conducted under natural modalities of psycho-pedagogical faculty. This required careful alignment of the objectives and content of research programs with objectives of the educational process during the academic year that determined its long-term format.

The aim of our experimental work was to identify pedagogical conditions promoting professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren, as well as to evolve a new methodology for the development of desired professional competence of future teachers based on implementation of developed and presented model. The experimental work consisted of ascertaining, forming and control stages of the experiment. On ascertaining stage we focused on the following research tasks: study of university educational system capabilities for the formation of the desired professional competence of future teachers in regard to development of cognitive activity of schoolchildren; study of teachers' and students' attitude to the problem under research; study of the employers' and schoolmasters' views concerning the quality of professional training of university graduates; analysis of data on diagnostic measurements of the

level of formedness of professional competence of future teachers in regard to development of cognitive activity of schoolchildren. Forming and control experiments involved testing and implementation into the university educational process of the developed model. On the basis of developed system of requirements to the studied research object, i.e. formation of the required professional competence of future teachers in regard to development of cognitive activity of schoolchildren, taking into account experimental work organization principles required to test the developed model, we determined the implementation methodology of the formation process. To ensure experimental validity in the research process we implemented science-based set of measures and tools, which include techniques, methodologies, and methods of data collection and analysis, as well as methods of interpretation of obtained results. The organizational structure was represented by a variety of research methods: empirical (natural experiment methods); survey methods (questionnaires, standardized interviews, and mini-essays); test methods for the evaluation of the level of knowledge and skills (the observation method; organizational methods (cross-sectional method (comparative method)); constructive methods (formal logical method, causal method); special methods (interpretive methods (structural method, classification, classification); description method; content analysis; qualitative method; mathematical-statistical methods of data processing and analysis: descriptive statistics, estimation of attributes distribution parameters; statistical criteria (χ^2 - the Pearson criterion; φ^* - Fisher's angle-transformation; Student's t -test); Spearman's rank correlation coefficient; qualitative traits correlation analysis with multiple Pearson grouping. Diagnostic results are presented in Fig. 1.

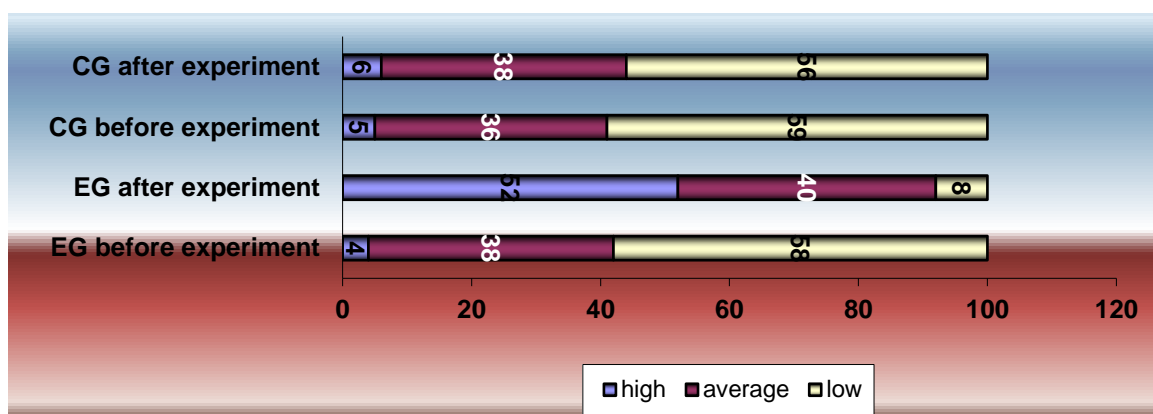


Fig. 1: The distribution of testees in experimental and control groups according to levels of professional competence of future teachers in regard to development of cognitive activity of schoolchildren

These histograms show that after carrying out experimental work, students of experimental group are positively disposed to the development of cognitive activity of schoolchildren, they show an interest in this problem, and appreciate this process. In addition, future teachers need to improve the

professional competence in developing cognitive activity of schoolchildren as well as need proper training. Students of experimental group got quite a holistic view about a certain methodological system for development of cognitive activity of schoolchildren. Having mastered this methodological

system, teachers can further independently improve their skills, acquiring the necessary experience. Overall, in the experimental group, the knowledge of the trainees in this area after carrying out the experimental work, became more systematic and meaningful, while their level, as well as the level of students' self-esteem, has significantly increased.

5. Conclusion

Professional competences of future teachers in regard to development of cognitive activity of schoolchildren, in their essence are capable acting as both functional status and personal quality, suggesting the availability in future teacher of professional interest and commitment to the development of cognitive activity of schoolchildren. Besides, professional competences of future teachers in regard to development of cognitive activity of schoolchildren represent a range of relevant professional knowledge and skills. The authors have developed and implemented into university educational process the model of professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren. The model of professional competence formation of future teachers in regard to development of cognitive activity of schoolchildren can be used in training and education standards development as well as other university curriculums. The authors have identified and proved in practice pedagogical conditions conducive to the formation of the studied professional competence of future teachers in regard to development of cognitive activity of schoolchildren.

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