

FORMATION OF METHODOLOGICAL COMPETENCE BY MEANS OF STIMULATING POSITIVE MOTIVATION

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Abstract. *The author has made an attempt to uncover the essence of the categories "competence", "motivation", "motive"; to describe the main structural components of motivation; to identify the conditions for the stimulation of positive motivation of future teachers of natural sciences. However, on the basis of generalization of great volume of scientific primary sources, three levels (high, medium, low) of positive motivation, which is considered as means of formation of methodical competence of students of pedagogical colleges during the studying of natural sciences, were described in the article.*

Keywords: *methodical competence, positive motivation, intrinsic and extrinsic motivation, future teachers of natural sciences, teacher training colleges.*

Defining of the problem. Integration of educational system of Ukraine according to the world and European community makes it possible to create the necessary conditions for professional and pedagogical formation of future teachers of secondary schools. It has been made the researching and testing of new approaches to teaching professional disciplines at educational establishments of different accreditation levels. In such a situation, the formation of methodical competence of students of pedagogical colleges by means of inducing positive motivation is appropriate and relevant.

Analysis of last publications on the topic. The problem of formation of methodical competence and positive motivation has been researched by prominent scientists of various branches: V.M.Behterev, L. S. Vygotskyi, I. M. Sechenov, I. P. Pavlov, A. A. Ukhtomskyi, K. D. Ushinskyi. A significant contribution to the study of the phenomenon was made by Russian scientists: A. S. Afonin, L. P. Vladimirova, I. F. Belyaeva, A. M. Kolot, V. P. Nesterchuk, V. V. Travin, O. V. Romashov. Motivation as an important component of the personality's structure was investigated by prominent scientists, such as: N. K. Baghdasaryan, N. V. Kuzmina, O. M. Leontiev, A. Maslow, A. K. Markova.

The important role of the motivational-axiological component in the structure of formation of professional competence of future teachers was stressed by the researcher L. G. Gavrylova. The means of building motivation and self-regulation learning activities of the schoolchildren, as M. V. Grynova rightly pointed out, was a game. N. S. Pavlova investigated the impact of motivation on the professional activities of teachers. Structural components of academic motivation were determined by Y. P. Il'yin and A. K. Markova. A. K.

Markova noted that professional motivation was important in professional activities, as it performed the adjusting function of [3]. The theme of our scientific research greatly complements the study of these authors, allows clarifying the effect of positive motivation for the formation of methodical competence of future primary school teachers in the process of studying the natural sciences.

The purpose of this article is to study the problem of formation of methodical competence of future teachers of the elementary school by the means of stimulating positive motivation.

Materials and methods: scientific literature analysis, generalization of advanced pedagogical experience, the comparative method, analytical method.

Results and their discussion. With the aim of providing quality guidance to the profession of teaching of disciplines of natural cycle the creation of positive motivation of students of pedagogical colleges on formation of methodical competence is one of the important pedagogical conditions.

For this approach we consider it appropriate to define the essence of key concepts used in the justification of the said phenomenon. The structure of the definition of «competence» consists of the motivational, cognitive, activity-based, value-reflective, emotional-volitional components that are interrelated. Regarding the structure of the "methodological competence" of primary school teachers, it is worth noting that the important vector is the driving force, which contains personal component, reflective component, methodological and technological mobility component. That is the motivational component determines the inner driving motive force, laid in the basis for effective teaching.

With regard to the interpretation of the terms "motive" and "motivation", in researches of domestic and foreign scientists, there are different approaches regarding the definition of their essence. In the philosophy of "motive" (from lat. motio – movement, emotion; movere – to move) talking about how everything that encourages activities, both internal cause, which causes or "justified" activity (action, behavior, act) [5]; as the internal motivation to action [6] as property, which becomes in the specific situation the object on which the activity is directed to [9].

Scientists say that the source's motives can be requirements, attitudes, ideals, instincts, emotions, all of which bears effect on a person [7]. In addition, the elements of consciousness: the interests, desires, positive, negative, altruistic and egoistic feelings; an idea of values (good-evil, beautiful-ugly, humane-inhumane, the holy-sinner); the currently existing in the society moral and legal standards of conduct that govern the relationship between people and the relationship of the individual and society [6].

The term "motive" in psychology and pedagogy is used to determine the causes, namely events, effects, needs, emotional state, ideals, values which

cause the consequences of the activity of the subject. Scientists say that the motive is related to the needs and interests and interest is a perceived need for something or lack of something. Interest is the source of activities that performs specific functions to meet needs. With this approach, the motives are conscious causes of action [4, p. 42].

As for the definition of "motivation", it is the choice of the most relevant in this situation needs (unconscious desires, aspirations and interests (conscious desires, aspirations), which can become a motive of behavior [1]. We can distinguish between different types of motivation depending on the conditions or motivations for certain actions:

- normative motivation that induces a person to a certain behavior through ideological and psychological effects (confidence, suggestion, information, psychological image);

- coercive motivation is based on the use of power, the threat of deterioration to the satisfaction of the needs of the employee in case of non-compliance;

- the stimulus – the impact on the external circumstances with the help of benefits or incentives that lead to action [2].

It is therefore quite natural that the positive motivation encourages students to develop analytical thinking. In this situation, the aim of the teachers of natural sciences of college teachers is to provide educational work on development of pedagogical needs, requests, motivations and competencies, namely:

- to encourage students in practical classes to next qualitative manifestations of thinking, such as: independence, criticality, consistency, flexibility, creativity and speed during the execution of problem-solving tasks with those or other content modules of natural sciences;

- to use deductive and inductive methods of cognition with the aim of developing the students' thinking of in the course of working out the theoretical material in lectures for natural sciences;

- to provide examples of the formation of concepts and judgments based on didactic principles using interactive methods and multimedia teaching tools in the course of lectures on natural sciences;

- to apply specific algorithms of work with prospective teachers during the lectures by means of defining the problem, or "Socratic conversations";

- to create the conditions of "temporary training ground for simulation methods, techniques, and methods of supplying scientific information on laboratory-practical lessons;

- to give preference to the creative task, project work and subsequent protection of its own position and the closed and open forms of the test task that make the presentation of their own approach to solving the problem;

- to create a favorable educational environment for the development of different types of thinking of the future teachers which will encourage the

expression of individuality and their own relationship to this or that phenomenon.

In the process of studying the disciplines of natural cycle it is necessary to create conditions for the formation of methodological mobility, to develop the reflexive abilities and skills for methodical design, methodical and teaching culture of creativity.

However, it should be noted that the latter figure is the highest level of formation of methodical competence, as it includes the ability to be innovative, creative thinking, individual vocational and educational experience, desire and self-improvement, high level of methodological culture.

But we should not forget that the purpose of the teachers of natural sciences in the pedagogical colleges should be directed to the transfer of own subject-methodical experience. During the lectures and practical lessons the students see and understand the professionalism, innovative activity, the methodological intuition, creative thinking in combination with the high ideals of the teacher. Such positive methodological experience enriches the motivation for a methodical growth, creates conditions for creative growth and teaching improvement.

The development of creative intuition, as special skills, abilities of the person deserves for a special attention. Intuition as an unconscious logic is "the ability of direct cognition of truth without substantiating it with evidence and without understanding the ways and conditions of this attainment". Unexpectedness, improbability, unawareness of the means that lead to the result, are common for the intuition characteristics. I. Platon defined intuition as a phenomenon of unexpectedness, but that requires extensive training of the mind. Z. Freud defined the unconscious as a hidden source of creativity [8].

Given the need to develop creative skills, as an important component of methodological thinking, we define the conditions to promote the positive motivation for the development of creative thinking and intuition of the students in the learning process of natural sciences:

- the possibility of future primary school teachers for freely express of thoughts, attitudes, arguments to prove their own position on a particular issue or problem;
- the selection of methods for communicating during the lessons of natural cycle that contributed most successfully to getting rid of indecision and other vices of free creative thinking;
- the support students with extraordinary vision, encourage them to adopt creative proposals;
- the exemption from stamps "appropriate – inappropriate" "right – wrong", to sharp criticism in the process of "brainstorming", "round-table ideas", "associative bush", which focus on the development of creative means of presentation;

- the application of activity approach in the framework of the sufficient intellectual activity based on reproductive thinking as the basis of the educational paradigm;

- the motivation and encouragement of students to participate in Olympiads, creative competitions on "Ecology", annual scientific student conferences "Ecochem", scientific competitions for the title of "Best naturalist of the College;

- the implementation of trainings "to learn – is fashionable", "to be smart is cool," "Want to have own opinion", "I can prove", "The picture of the world is interesting", with the aim of developing positive motivation for learning and mastery of basic methodological knowledge and skills;

- the interest and creative competition for the attempt to prove the feasibility of ideas, to explain the natural idea, to prove natural phenomena;

- the conduction of trainings of advanced predictive character: what do you expect?; what methods of delivering this information are you suggesting?; how could it be impacted by factors, in your opinion ...?; provide consequences for....

The fact that any activity can be externally and internally motivated deserves on special attention. Intrinsic motivation prevails, if the identity has the value of the activity itself. If the basis of motivation is the desire to satisfy other needs that are (external to the content of the activity itself – the prestige, material goods), in this case we speak of external motivation. External motives "are differentiated as outer positive and outer negative" [1, pp. 99-100]. External positive motives are more effective and desirable. An important source of formation of the motive is participation in a collective joint educational and research activities.

The task of the teachers of natural sciences is, through the formation of a positive motivation for educational activities, to create opportunities for students to express themselves and to realize their potential. It encourages the development of sustainable needs and motives of methodical growth and professional development. The importance here is the interest in the forms and content of the presented material.

Internal motivation is sustainable, carries a sign of interest in the future of the profession and responsibility for their own future. Stimulating intrinsic motivation of students for acquired methodological competence in the process of studying of disciplines of natural cycle involves:

- thorough preliminary training of scientists for teaching science content in an interesting way, using innovative technologies, which are dominated by interactive, problem-search and multimedia technology;

- activity approach to the selection of forms, methods and means of active learning;

– introduction of problem situations, creative tasks, identifying the means of solving the contradictions with the purpose of activation of cogitative activity and the formation of methodical thinking;

– usage of student-centered approach as a reflection of subject-subject relations and opportunities to develop professionally important qualities of future teachers of elementary classes;

– providing a positive educational environment while classroom lessons and outside classroom activities;

– demonstration the examples of their own methodological experience, which relies on moral values, ethics, humane approach by the teachers of natural sciences;

– implementation of non-standard tasks and finding works of art according to subject classes, as the basis for creative search of methodological activities;

– introduction of a system of incentives for training and participation in ecological competitions, contests, student conferences, competitions of scholars-natural scientists, natural quests, environmental clean-up;

– implementation of station of mutual aid "Student to Student" as the basis of practice skills methodical competence and the improvement of the climate in the students' team;

– establishment and development of connections of self-government in the academic group (group monitor, responsible for a specific sector, the main temporary consultants on this topic), as the basis for the development of skills of methodical competence and responsibility.

As the result of our research work, we have described three levels (high, medium, low) of positive motivation, which is considered as means of formation of methodical competence of students of pedagogical colleges during studying the natural sciences.

Students with a *high level* of positive motivation should be inherent in intrinsic motivation; positive attitude to learning disciplines of science directions; the presence of a high intellectual level and their own opinions; high creativity, the originality of the approach to decision of problem tasks of various levels of complexity; a desire to help in the preparation of natural events and to take an active part in the activities of the innovation areas; the willingness and ability to provide advisory assistance; developed personal qualities of duty, responsibility and autonomy; willingness to methodological improvisation and collaboration with the teacher in the learning process.

The average level of positive motivation is typical for students with external positive motivation. These students do not allocate to themselves the discipline of the natural direction in a priority group, they study the cycle of disciplines with a neutral interest; they have a slight interest in learning that is compensated by the need to keep up with others, to be a leader in the study; lack of initiative, but for the reward of willingness to participate in certain activities of the

scientific direction; they differ in reproductive mindset about the possibilities to explain phenomena, patterns and other natural processes; creative tasks (choose the visualization, video support to the theoretical question) are formal; incentive for quality performance is often evaluated.

For students with a low level of positive motivation the internal negative motivation is typical, the signs of which are: a complete lack of desire and interest in studying disciplines of science; lack of initiative in relation to the execution of tasks of any type. The students with external negative motivation should be include to the specified group, which shows a slight level of interest, combined with minimal effort for training, based on external demand (to avoid pressure from parents, supervisor, psychological punishment or hardship scholarships).

Conclusions. Thus, as a result of theoretical researches it was established that positive motivation determined the degree of activity and the direction of future primary school teachers during studying the natural Sciences. The motives of pedagogical college students direct their cognitive activity; affect mental processes – perception, memory and thinking. Creating a positive motivation for development of methodical thinking is the basis of formation of methodical competence of future teachers of primary school during studying the disciplines of natural science direction.

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