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METHODOLOGICAL ASPECTS OF FORMING THE TECHNOLOGIES TEACHERS' TO-BE ARTISTIC-PROJECTIVE KNOWLEDGE AND SKILLS

ASPEKTY METODOLOGICZNE KSZTALTOWANIA U PRZYSZŁYCH NAUCZYCIELI TECHNOLOGII ARTYSTYCZNO-PROJEKCYJNEJ WIEDZY I UMIEJĘTNOŚCI

Problem statement. The problems of method and methodology of scientific cognition drew attention of scientists and philosophers since the classical epoch (Socrates, Plato, Aristotle) and for rather a long time were considered to be a doctrine about the methods of activity (Galileo, R. Descartes, G. Leibnitz et al.)[1]. A substantial analysis of methods and means of science and education, however, began to be accomplished actively only in the middle of the 20th century. In general encyclopedic definitions of „methodologies" prevail the following – 1) the aggregate of the research ways used in any science[2]; 2) a doctrine about the methods of cognition and transforming the world[3]; 3) a doctrine about the structure, logical organization, methods and ways of activity[4]; 4) a system of principles and means of organization and structure of theoretical and practical activity as well as a doctrine about this system[5] etc.

Taking into consideration a variety of approaches towards the category of „methodology", its significance and universality, the question of detecting methodological aspects of a complete research of technologies teachers' to-be artistic-projective training arises as quite an actual one.

While keeping in mind the above mentioned statements we define the research objective of this article as a presentation of the definition and argumentation of the main methodological aspects of forming the technologies teachers' to-be artistic-projective knowledge and skills.

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[1] Kraievski V. V., *Methodology of Scientific Research: manual* [for students and post-graduate students of liberal arts universities] / V. V. Kraievski. – SPb. SUP, 2001. – 148 p.

[2] Methodology [Electronic resources). – Regime of access: http://uk.wikipedia.org/wiki/.

[3] Tverezovs'ka N. K., *Methodology of Pedagogical Research: manual* / N. K.Tverezovs'ka, V. K. Sydorenko. – K.: *Center of training literature*, 2014. – 440 p.

[4] *Soviet Encyclopedic Dictionary* / The editor A. M. Prokhorova. – The 4th edition. – M.: *Soviet Encyclopedia*, 1988. – 1600 p. – p. 227.

[5] *Philosophical Encyclopedic Dictionary* / Chief ed. Ilyichev L. F., Fedoseiev P. N. et al. – M.: *Sov. Encyclopedia*, 1983. – 836 p. – p. 366.

The scientific papers analysis. In the process of thorough analysis of approaches formed in a definition of methodology of pedagogy, education, psycho pedagogical studies, etc., we have found that the fundamental works in a versatile way revealing the mentioned category are the works by M. Bilukha, M. Danylov, V. Zahviazyns'kiy, O. Klymenyuk, V. Kraievskiy, O. Novikov, M. Skatkin, N. Tverezovs'ka.

V. Kraievskiy[6] and O. Novikov[7], for instance, speak about methodology of education, methodology of pedagogy as systems of scientific knowledge. V. Zahviazyns'kiy[8], O. Klymenyuk[9], M. Skatkin[10] and N. Tverezovs'ka[11] consider also the pedagogy of a pedagogical, instructional research, what, of course, somewhat narrows the object of the above-mentioned general definitions of methodology in which the activity is dwelt upon only in general.

From the formal logical viewpoint the most substantial definition was put forward by V. Zahviazyns'kiy who understands this category as a system of „theoretical knowledge, which perform the role of the leading principles, instruments of a scientific research and concrete means of realizing the demands of a scientific analysis"[12].

As it is known, a scientific or a scientific pedagogical activity alongside with artistic, theological, philosophic etc. is one of rather specific types of human activity. All other types of human activity belong to a practical sphere of a human being upon which the notion of methodology is also spread including the notion of methodology of practical pedagogical activity.

In connection with this we do share V. Zahviazyns'kiy's views upon the connection of methodology and practice, the realization of its transforming function provided by a mediated way. A principal designation of methodology is accomplished by its leading function i.e. the improvement of theory, its apparatus and methods[13].

Basic text. Taking into account the above mentioned statements the methodology in a broad sense is defined and understood as a system of principles and methods of forming discrete-logical, category notional apparatus, the higher form of generalization which reveals the interaction of the object and the subject of cognition, finds out their common elements and at the same time solves the discrepancies in this very system.

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[6] Kraievski V. V., op. cit.

[7] Novikov A. M., *Methodology of Education*. The 2nd edition / A. M. Novikov. – M.: „Egves", 2006. – 488 p.

[8] Zagviazinsky V. I., *Methodology and Methods of Didactic Research* / V. I. Zagviazinsky. – M.: Pedagogy, 1982. – 160 p.

[9] Klymeniuk O. V., *Methodology and Methods of Scientific Research: educational accessory* / O. V. Klymeniuk; APS of Ukraine; Central institute of post-diploma pedagogical education; Association of the adult continuing education. – K.: Milenium, 2005. – 186 p.

[10] Skatkin M. N., *Methodology and Methods of Pedagogical Research: As an assistance for research beginners* / M. N. Skatkin . – M. : Pedagogy, 1986. – 152 p.

[11] Tverezovs'ka N. K. op. cit.

[12] Zagviazinsky V. I. op.cit. – P. 7.

[13] Idem. *The Mediated Influence of Methodology Upon Practice* / Idem. // *Soviet Pedagogy*. – 1990. – No. 3. – P. 66.

We almost share O. Novikov's point of view amounting mainly to the idea that „the main contradiction in teaching process may exist exactly at every settled moment: either in pupils' cognitive activity or in teacher's activity or between the activities of both of them[14].

While interpreting the gist of the main discrepancy in the teaching process of a pedagogical higher educational establishment (HEE) revealed by the author mentioned above one may state that at the contemporary period the objective discrepancies may be considered those existing between: a) the demands of society (in a form of state assignment) towards teacher's professional qualities and the existing level of professional training at HEE; b) natural conservatism of state norms of education and the objective necessity of constant accumulation and concretization of knowledge, novelty of which is caused by a dynamism and a variety of up-to-date socio-economic, mass media and information progress; c) the necessity of a profound teacher's methodological and general theoretical training together with the need for strengthening practical applied direction of this training.

To the group of discrepancies which are conditionally attributed to subjective ones in relation to professional training of technologies teachers to-be also belong the contradictions between: a) the requirements to the indispensible minimum of the education content according to professionally-orientated subjects which are included into a Branch state standard direction of training „Technological education" and into an educational professional curriculum and a content of education which is determined by a State standard of basic and a complete general secondary education (an educational branch „Technologies") as well as typical teaching curricula of industrial training for fundamental school and senior school classes; b) a really formed level of student's knowledge, skills and habits of artistic-projective, technical-technological, psycho-pedagogical, methodical aspect and criteria as well as the data of assessment of their readability; c) the existing artistic-projective, technical-technological, didactic, methodical and other possibilities of professional training of technologies teachers to-be and the orientation of a Branch state standard upon a narrow professional training for work at the educational establishments only.

Distinguishing of these discrepancies into separate groups (objective and subjective) on a philosophic level of methodology allows to determine the strategy and stages of perfection the educational space at a HEE the aim of which is the creation of mechanisms of solving these discrepancies and elimination of drawbacks coming to surface in the process of professional (in this very case-artistic-projective) training of technologies teachers to-be.

Besides that the subject of consideration of the artistic-projective training optimization upon a general scientific level is the so-called *methodological approaches* used in scientific research papers and in particular: a system, more effective, personality-oriented, technological, etc. As we do believe, it is exactly the knowledge about methodological approaches and skills of their effective use

[14] Novikov A. M. op. cit. – P. 113.

in a pedagogical practice that make a sense and form a foundation of methodological knowledge. To prove all that we need to put forward the grounds of these approaches concerning the problem of the research.

First of all, let us endeavor a consideration of a system approach which is a methodological basis settling the landmarks, making the basics of disposition and a philosophic foundation of a pedagogical research.

A system approach is characterized by main notions and constituent statements; the central of them is „system". System is a meta scientific, fundamental notion, the sources of which reach ancient times. The Old Greek (σνστημα) means *something whole consisting of some parts or the linkage and connection of some elements into the whole*[15]. In other words, as L. von Bertalanfi puts it, a system is that whole which consists of a complex of interactive components[16].

Thus, the realization of a systemic approach concerning the problem of a research is to be accomplished with taking into account the following statements:

1) a process of forming the students' artistic-projective knowledge and skills in its nature remains to be a system and an open organizational-pedagogical structure capable of self-development and self-improvement;
2) a process of forming and developing the artistic-projective knowledge and skills makes a subsystem of a general system of technologies teachers' to-be professional pedagogical training;
3) structure of the process of forming and developing the artistic-projective knowledge and skills includes structural (an aim, a content of educational information, means of communication, students, instructors) and functional (gnostic, projective, constructive, communicative, organizational) components.

Thus, the forming and developing the students' artistic-projective knowledge and skills in the context of realization of a system approach allows us to make a conclusion that, firstly, this process is a pedagogical system since it has a well-arranged aggregate of functionally homogeneous interlinked components composing quite specific educational surroundings in the conditions of which the technologies teachers to-be form new, professionally significant qualities; secondly, this process is a complicated phenomenon involving organizational, pedagogical and professionally-oriented components each of which is provided with a specific set of system features.

In spite of the important methodological meaning of a system approach allowing the abstract system properties of a pedagogical phenomenon investigation without taking into account their substratum specificity that attitude turns out to be insufficient for the elaboration of a complete theory or conception. Therefore we amplify it with an effective approach regarding the process of forming and developing students' artistic-projective knowledge and skills as a specific kind

[15] *Soviet Encyclopedic Dictionary* op. cit. – P. 989.

[16] Bertalanfi K. L. The General Theory of System – critical review / Karl Liudvig von Bertalanfi // The Investigation in the General Theory of System: The collection of translations / Gen. ed. and intr. art. by V. N. Sadovs'kiy and E. G. Yudina. – M.: Progress, 1969. – P. 23–82.

of a creative productive activity of the subjects' professional pedagogical training which are mastering a variety of profiles and specializations pertaining to „Technological education".

It is worth underlining the fact that an effective approach presents a methodological strategy of our research and allows studying the content of technologies teachers' to-be artistic-projective training to optimize the means of forming the students' artistic-projective knowledge and skills, to determine the ways of practical improvement of the corresponding pedagogical system.

Leontiev's states that „in order to master a product of human activity one needs to perform the activity which is equal to that one embodied in this very product itself"[17]. The product for the mastering of which the students' activity is directed in the process of learning at a pedagogical HEE is a professional activity of technologies teacher who possesses among anything else a high level of artistic-projective knowledge and skills. The accomplishment of an effective approach before the acquirement by students of the artistic-projective knowledge and skills envisages the consideration of psychological aspects of activity cognition.

One more aspect is really significant for the organization of instructive activity cognition. It is well-known that in the activity, in an artistic-projective in particular, not everything is verbalized and can be verbalized therefore in the process of transmitting the normative knowledge from an instructor to a student we need not only verbal constructions but also some non-verbal images, sensory-motive actions. It is caused by the fact that the student even in the best conditions of a simultaneous demonstration and explanation cannot adequately reproduce the observed sample or paragon of action and understand the verbal description immediately and at once. It causes the fact that while perceiving and reproducing the activity a student inserts some changes which may be erroneous. After a number of attempts the norm of activity studied is being consolidated and mastered step by step and more often than not in an individually changed form by the way, that is why it composes an element of an individual style in the mastered activity.

On the ground of above presented statements it is quite possible to determine the role of an effective approach in the process of forming the technologies teachers' to-be knowledge and skills. The argumentation of an effective approach in this research is provided by the fact that it allows using the aggregation of different approaches, methods and integration principles of subjects pertaining to psycho-pedagogical, methodical, technical technological and artistic-projective cycles.

While being a universal methodological basis of a pedagogical process organization the effective approach at the same time does not allow revealing the content of the technologies teachers' to-be artistic-projective training result. We do surmise that this drawback is easily eliminated by using a personality-oriented approach in the process of teaching activity.

A personality-oriented approach nowadays is considered to be the main paradigm, the leading methodological direction of a contemporary professional

[17] Leontiev A. N., *Activity. Consciousness. Personality*. / Idem. – M.: MSU Publishing House, 1977. – 304 p. – P. 71.

pedagogical education and occupies a conceptual position in a theory and practice of the technologies teachers' to-be training. In a State standard of a basic and a complete general secondary school a personality-oriented approach is considered as an „educational-educative process direction at an interaction and a successful personality development of a teacher and his/her pupils on the grounds of equality in communication and partnership in teaching[18].

A conceptual ground of a personality-oriented approach is composed of the items of numerous conceptions and theories from the past and contemporary life, in particular: B. Sukhomlyns'kiy's conceptions of humanism embodied in his pedagogical inheritance; M. Bakhtin's and V. Bibler's conception of culture dialogues; Shamo Amonashvili's personality-humanistic conception; I. Ziaziun's conception of pedagogical activity; O. Gazman's conception of a pedagogical support etc.

A. Maslou, as a founder of a humanistic psychology, considered that a foundation of a personality-oriented approach in pedagogy is humanism which envisages: a free personality up-bringing and a development of its independence; an individualization of up-bringing and an acceptance of priority of personal as compared with social on the grounds of certain unity of social, psychological and biological needs; a detection and realization of the pupils' personality capability; a child's inner world development. In this connection it is indispensible to distinguish the following main features of a personality-oriented approach: organizing a subject-subjective interaction; creating conditions for self-actualization; activating a subject of learning; providing outer and inner reasons for a subject of learning; getting satisfaction because of solving the educational tasks and cooperation with the subjects of learning; providing the conditions for self-assessment, self-regulation and self-actualization; shifting the accent in teacher's functions upon the position of a facilitator[19].

Thus, a personality-oriented approach arises as a theoretical methodological strategy for technologies teachers to-be dealing with the forming of a system of artistic-projective knowledge and skills which allow organizing and accomplishing of a creative artistic-projective activity. This basic value orientation of a pedagogical system in general and an educator in particular determines the positions in interaction with subjects of a pedagogical process. Within the bounds of the research conception, a personality-oriented approach arises as a fundamental element of a whole pedagogical system, the construction of which foresees a problematic character, a complexity of influence upon a student's personality with the support of knowledge dealing with the individual, age and personality peculiarities of the subjects of learning and is based upon the principles of nature-correspondence, benevolence and humaneness, development, creative activity, self-determination, self-realization etc.

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[18] State Standard of Basic and Complete General Secondary School / Decision of Cabinet of Ministers of Ukraine, No. 1392 of November 23 2011 –Electronic resources]. – Regime of access: http: // zakon2.rada.gov.ua/laws/show/ 1392–2011-п#n9.

[19] Maslou A. G., *The Distant Limits of Human Psychology* / Translated from English by A. M. Taldyieva; Scientific editor N. N. Akulina. – SPb. Eurasia, 1997. – 430 p. – P. 305.

It is worth while mentioning that a personality-oriented approach is also considered as a practice-orientated tactics which envisages the detecting of applied aspects of solving any problem on the grounds of the amount of a scientific experience.

From the point of view of methodology a personality-oriented approach allows detecting the specificity of the participants of a learning process activity organization on the basis of an esteem of personality and a confidence towards it, finding out the role and place of subjects of the learning process and providing the conditions for uncovering and maximum use of a subject experience.

Nowadays the key elements of organizing the mechanism of a personality-orientated process of technologies teachers' to-be artistic-projective knowledge and skills formation are: 1) endowing of a personality sense of knowledge value in a field of an artistic projection and the skills to use it in a creative subject-transforming and pedagogical activity; 2) forming creative educational surroundings for revealing the students' subjective abilities, inner resources and a creative potential; 3) organizing a cooperation and an associate creative work between the subjects of educational process in a field of artistic designing and its teaching methods at school.

Thus, on the one hand, a personality-oriented approach provides the development of those personality's qualities which will help a student to occupy an active, responsible, „author" attitude on a basis of sensible purposeful self-development in a process of vital activity"[20]. On the other hand, a personality-oriented approach in education is not only molding of personality with settled characteristics but also creating conditions for a full value manifestation and a development of student's personality functions correspondingly, which, in fact, do realize the phenomenon of „being oneself", as it was worded by I. Bekh[21].

So, a personality-oriented approach puts forward the main task before the instructors; to ensure personality positive characteristics growth, intellectual development and molding a student's creative individuality.

A separate consideration of a technological approach is also proved to be justified since a technology of transmitting the experience accumulated by mankind, on the one hand, is next to impossible without modern methods of information dispersion, its interpretation, analysis of the results obtained. On the other hand, in the most general aspect any creative activity (an artistic-projective including) contains in itself a certain algorithmic succession, i. e. a creation technology.

A technological approach also finds its personified expression in pedagogical technology (on the subject correlation level) and teaching technology (within the bounds of concrete subjects studied).

A subjective definition of a „technology" notion in relation to educational process has not been settled as the objective of this research because a definition design is an extremely complicated matter and is worth attempting only in the case when that newly-formed definition objectively reveals quite a new cogni-

[20] Berulava M. N., *Modern Models of Education in the Light of the Humanization of Education Conception* / M. N. Berulava // Humanization of Education. – 2004. – No. 2. – P. 3

[21] Bekh I. D., *Bringing-Up of Personality: textbook* [for stud. of HEE] / I. D. Bekh. – K.: Lybid', 2008. – 848 p. – P. 4.

tion aspect. That is why we prefer rather a generalized definition which, as we believe, reveals the gist of the category mentioned to the best advantage. Thus, *a pedagogical technology* is defined as a nature-relating and culture-corresponding, complete system of forms, methods and means of education as well as a projecting theory and a mechanism of a practical use of this system with a purpose of getting a guaranteed result while realizing a scientifically-grounded instructional process regardless of the peculiarities of the subject studied. We do believe that pedagogical technology is the technology built on the basis of realizing the system, effective and personality-oriented approaches.

A guaranteed result of a pedagogical technology implementation is not only a successful mastering by the students of the so-called „compressed" human experience, its self-actualization and creative abilities development but also a self-actualization and a creative perfection of the experience-carrier i.e. the instructor, and this experience acquires quite a new quality as a result of it. On the basis of settled regularities of a complete pedagogical process projecting the teaching technology is being worked out.

Only while taking into consideration the hierarchy of technologies (education technology – pedagogical technology – teaching technology) we have formulated the characteristic principles one should base oneself upon in projecting pedagogical technologies of teaching the technologies teachers to-be the niceties of artistic designing:

1) fundamentality and a practice-oriented character of educational information concerning the structure, content and the course of a creative artistic-projective activity and determining the conditions providing the optimum correlation of verbal and non-verbal means of information delivery;
2) providing the optimal combination of reproductive, research and creative methods in the students' educational activity on a basis of gradual increase in the degree of problem character and the objective assessment of an individual level of the students' artistic-projective, technical-technological and methodical training;
3) gradual introduction of information technologies taking into consideration the existing curriculum and computer software, instructors' qualifications and didactic equipment of the teaching process;
4) equivalence of forms in the teaching process organization to the content and a leading method of artistic projecting teaching that is „method of projects";
5) a use of rating control system as a stimulus for activating the students' independent artistic-projective activity.

Conclusions

On a basis of a scientific analysis of methodological aspects of the technologies teachers' to-be artistic-projective knowledge and skills formation we have detected and substantiated that the nucleus of the technologies teachers' to-be methodological knowledge on a concrete-scientific level is composed of the methodology of

artistic-projective activity that is comprehended as the system of principles and methods of a category-conceptual set formation which is able to describe subject's and object's artistic projecting interaction, envisages the students' educational and creative activity development from the lower forms of (mastering knowledge and skills system dealing with artistic-projective tasks of reproductive character solving) to the higher ones (a dexterity to apply the knowledge obtained in quite new conditions in the process of complex artistic projecting accomplishment) as well as a doctrine about this system.

It should be noted in this summary that the methodological foundations of the technologies teachers' to-be knowledge and skills formation rely upon the universal categories, laws, regularities and principles within a paradigm of the system, effective, personality-oriented and technological approaches which perform a role of general scientific foundation, allow determining the content of an artistic-projective activity, optimizing means of its realization, suggesting the ways of practical improvement, disclosing the structure and detecting the main motive forces influencing the effectiveness of the process mentioned.

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SUMMARY
The article reveals the gist of methodology in scientific cognition, its role in education and practice of training the teachers. The need of a definition of methodological aspects of technologies teachers' to-be artistic-projective training is stressed upon in the article. The system approach is considered to be a methodological basis of the complete learning of theoretic and methodical foundations of forming the technologies teachers' to-be artistic-projective knowledge and skills. The attention is stressed upon the role of the effective personality-oriented and technological approaches concerning the ensuring of an artistic-projective component of training the students at the higher educational establishments.

Keywords: technologies teachers to-be, artistic-projective training, methodology of education, system approach, effective approach, personality-oriented approach, technological approach, forming of knowledge and skills.

STRESZCZENIE
Wyjaśnia się istota metodologii w poznaniu naukowym, jej roli w edukacji oraz praktyce kształcenia nauczycieli. Dokonano próby ustalenia aspektów metodologicznych artystyczno-projekcyjnego przygotowania w kształceniu nauczycieli technologicznego ukierunkowania.

Słowa kluczowe: nauczyciele technologii, artystyczno-projekcyjne nauczanie, metodologia edukacji, systemowe podejście, kształtowanie wiedzy i umiejętności.