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MODERN PROBLEM-BASED EDUCATION AS SPECIFIC EDUCATIONAL SYSTEM (THEORETICAL ASPECTS)

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Modern Problem-based Education as a Specific Educational System (Theoretical Aspects)

The article concerns problem-based education as an innovative unique educational system. Development of this system is to be based on the classic problem-based learning that can be considered as the traditional one. Realization of the problem principle in educational process requires specific logical treatment of study material and the best combination of the relevant methods, organizational forms and means of teaching/learning. Problem situation is a specific state of mental condition of students, which requires the awareness and accepting problem by students only if cognitive interest, intentions and will aimed to the solution of intellectual difficulty are present. Problem-based education as a specific educational system is to be technologically designed and developed on the basis of the theory of problem-based learning with account of the achievements of certain methodologies.

Key words: problem-based education, educational system, problem principle, study material.

Education as a process is a trinity of teaching, education and development of the student (learner). The subjects of the educational process are student and educator-teacher (student and teacher) who are responsible for the results in accordance with the objectives of education.

The main goal is the person, who is characterized by:

• awareness of the meaning of their existence (personal values);

• awareness of their belonging to their own people, its spiritual culture (national identity);

• awareness of the meaning of human existence (universal values).

At the same time national and universal values should not be abstract concepts, but should be specific to each personality, defining its position and strategy.

Orientation to the **trinity of these values** in accordance with the modern social order is the most important task of education.

Education can be traditional (based on classical pedagogical views and knowledge) and innovative (based on new pedagogical ideas which embodiment is accomplished by development of innovative educational technology in terms of development of classical pedagogical theories).

Problem-based education as a specific educational system is innovative, but the formation of such system should be based on the classic **problem learning**, which can be considered as the traditional (at least, in the pedagogical theory, if not in general practice).

Pedagogical idea, as a link of all elements of the educational problem, needs to provide a single educational process as a kind of educational system. Constituent elements of the system are; the problematic teaching, education in learning and development in learning and education.

We raise **problematics** in the educational process to the rank of **pedagogical principle**, which affects the scope, methods, organizational forms and means[1 – 5].

To teach to think and act in a new way is the main task of the educational problem in the XXI century. Theory of problem-based education in teaching science has not yet developed. Adequately the theory of problem-based learning was developed at different levels: psychological, didactic and detail-methodological (A. M. Matjushkin A. V. Brushlinskii, Z. I. Kalmikova, T. V. Kudryavtsev, V. Okon, M. I. Makhmutov, S. A. Shaporinsky, R. M. Malafeev A. I. Lyashenko, I. Y. Lerner and others) [6 – 12].

It is well known that general knowledge and pedagogical knowledge usually begin with the facts. However, knowledge of the facts is not a true scientific knowledge. Science can not be limited statement of the facts and rationale. Scientist is looking for hiding these facts essential connections, so they are scientific laws which have statistical principle in pedagogy and often appear as trends. These patterns reveal the essence of pedagogical phenomena and processes, find unity in diversity, which makes it possible not only to explain but also to predict possible

pedagogical situation. Pedagogical value of laws is in the fact that it reveals the "course of conduct" educational facilities in certain conditions.

The fact that is reflected in the "sea of facts" on the descriptive level of scientific research fixed in short, simple and impressive facts in the laws. In this sense, legitimacy is always easier than diverse (and therefore complex) empirical evidence which "is absorbed" and in some way concentrated in it.

Scientific cognition is a discovery and extraction of unknown reliable knowledge.

Learning is assimilation of this knowledge.

Educational cognition is the teaching equivalent of scientific knowledge, is a specially organized activities "obtaining" knowledge in certain controlled pedagogical conditions.

Optimal combination of learning and educational cognition can be productive in the process of problem formation. Again focus your attention on the fact that education is problematic syncretic union (rather than an eclectic mix) of problem-based teaching in education, development and learning education.

Thus, there is **problem-based learning** in the "epicenter" of the problem of education, which theoretically was developed not bad. However, it usually takes a lot of time between the formation of pedagogical ideas and putting it in consciousness and activity of the teacher-practician. The main part of the difficulties which is arising from the natural development and implementation of innovative educational technologies is an objective contradiction between generalization of theoretical knowledge and situationality of real teaching.

Pedagogical theory, on the one hand, directly may not give recipes "for all occasions", on the other hand, it is prerequisite for creative search for specific pedagogical activities. Theory of problem-based learning is not in this exception.

Acceptance of the idea of problem-based learning (and in the future – the problem-based education) depends largely on the scientific outlook of the teacher. Scientific outlook includes scientific outlook and scientific style of thinking (system-dialectical, probable-prognostic and logical-variative). Teacher's ratio to the different

pedagogical processes and phenomena (real and model) depends on the style of thinking.

It is common knowledge that a person is prone to absolutism in cognition. The system of scientific outlook is transformed into a stable scientific tradition, which eventually (at its "triumphal" application) turns into dogma (even with changed conditions). The human psyche feels more relaxed in the presence of uncertainty and consistency, which leads to dogmatic style of thinking. But the world is inherently complex, multifaceted, and temporal contradictory. All this creates problematical, including in knowledge world.

Acceptance of the idea of the problem-based education and the development of its productive technology depends on the style of thinking of the teacher, and the very problematic education is intended to form a scientific outlook and scientific style thinking of students and pupils.

In psycho-pedagogical literature holds ambiguity of terminology and conceptual apparatus in relation to problem-based learning. So, problem lecture is understood, on the one hand, as a reflection of the content of scientific problems today still outstanding. On the other hand, under problematic lectures meant those in which by create problem situations students are involved in training and search cognitive process, which is achieved by specific methodological techniques and peculiar organization of the learning process in a lecture. In The term "problem situation" also has different meanings. Some authors (V. M. Vergasov, I. G. Stockman, etc.) essentially identify problematic situation with the problem, while others (A. M. Matjushkin, Z. I. Kalmikova) understand the problem situation under special psychological state of the trainees, the creation of which (state) is largely determined by the skill of the teacher.

So, I. G. Shtokman directly writes: "The essence of the problem is the lecture in the creation of her lecturer problematic situation (problem solving) which is solved them with mental complicity students" [13, p. 93]. Topics most problematic situation is identified with the problem task. Understanding the problem situation M. I. Makhmutov otherwise: "Problem situation – is an intelligent person difficulty

that arises in the case when he does not know how to explain the phenomenon emerged, the fact the process Indeed, can not achieve the goal of way he knew action" [8, p. 30].

Thus, the problem situation, according to M. I. Makhmutov, – this is psychological state, and not challenging task.

Very contradictory interpretations of the problem situation A. V. Brushlinsky. First, he argues that "the problem situation – it rather vague, is not yet very clear, maloosoznannoe impression or experience" ... [7, p. 38], and then concludes: "Thus, occurrence of the problem situation and its subsequent conversion to original problem characterize the initial stages in the formation of thought process" [7, p. 39]. But if a problem situation – it "Experience" (and, hence, the psychological state of the individual), it is can not be converted to a problem (we can talk about conversion problems in the task or vice versa).

We note a fair comment about the problem situation, S. A. Shaporinskiy expressed: "Some didacticians and Methodists believe that is enough to put students of contradiction, difficulty to problematic situation arose. Meanwhile, there is a difficulty that is not tantamount to a problem situation" [10, p. 103].

Difficulty may arise due to ignorance of the elementary. Such difficulty can not contribute to the problem situation and is not an incentive, and the brake (even barrier) Teaching and Learning Process. If difficulty is combined with knowledge, with possession receptions mental activity, then this difficulty becomes a barrier, and "Trigger" thinking, so in this case can be problematic situation.

Analyzing and summarizing shown here and other literary sources, as well as taking into account the experience of the research, we need these following clarifications:

1) lectures on issues of science, of course, required and should be, but their "proportion" in the lecture course is relatively small;

2) problematic lectures and seminars, on which there are learning problems, problematic situations and "exits", they implement the principle of problem and, in our opinion, most lectures and seminars should be problematic in this sense;

3) training problem, challenging task, problematic issue can be delivered, formulated in the learning process and can be described in textbooks, manuals, and in this sense it can be with respect to the possible subject and his psychological condition;

4) challenging task, problematic issue, training problem can be different from routine tasks, issues and educational information in that problems have a contradiction, which is opened by a specific logical treatment of the educational material and permitted in the learning process at the problematic situations;

5) problem-based situation is a special psychological state of students, suggesting the adoption of vision and problems if they have cognitive interest, desire and volitional, which are directed by overcome of the intellectual difficulties in problem's solving;

6) problem-based situation is possible with the certain knowledge (the problem "appears through the body of knowledge") and generated methods of learning, out of teaching process (organized or independent), out of the subject a problem-based situation is impossible.

We seem that all these refinements are very necessary, the effectiveness of planned and implemented problem-based learning depends on the definition of the conceptual apparatus.

In contrast to I.G. Stockman, who believes that the problem-based situation can be formulated and solved [13, p. 94], we believe that it can be created, it can arise under certain conditions. One of such conditions is the presence of the students' background knowledge. Consequently, in this respect it is necessary to update knowledge. Using specific teaching means including technical (computer) means, for a short period in the student's memory the necessary concepts, definitions, statements, laws restored, possession of which is a prerequisite for vision and awareness of training problems, which, depending on its content, is formulated by teacher or students with the help and guidance of the teacher. There is often a need of knowledge restructure after its actualization, a need of schematization in another form indicating logical relationships between the elements of knowledge. This

particular logic processing of training material even more increases the possibility of creation of a problem-based situation. The key point of creating a problematic situation as the most optimal psychological condition of students in the process of learning should be considered the search of acceptable problems. It should attract students' attention and serve as a catalyst for mental activities. Teaching educational and vocational educational contradictions have great opportunity. Scientific problems exist and are identified on the open joints with unknown. It can be said that the scientific issues “shine” through an array of knowledge. Awareness of scientific problem and its solution passes sometimes through quite long period, and ends with the discovery of new fundamental and applied knowledge. Scientific problems are common (problems for all), and one of them may become actual for the subject-researcher or the whole research team. This is a problem that most closely matches the interests of scientific researcher, his experience and capabilities. Thus, one of potentially existing scientific issues become relevant to the researcher, as a result of its solution becomes knowledge.

Educational and cognitive problems are not scientific problems. They “are deliberately constructed” and they are problems only for students in psycho-pedagogical science. This is the feature of teaching and cognitive problems for towards research. The common thing is that in any case the problem “shine” through an array of knowledge, as well as problems are based on contradictions.

Usually decision of problems is realized after revealing contradictions and statements of teaching and cognitive problems directly in the audience (in a lecture, on seminary or practical training, in the classroom) within the allotted training time. In this case, monologically dense problematic statement of content or strictly controlled study with varying degrees of learners’ independence and, consequently, with different measure of educational assistance is inevitable. At the same time thinking of students mainly “is exploited” (is trained) and less purposefully developed. For the development of all spheres of the person of knowing subject not only “switch” of thinking, but musing is necessary when “vectors”-thoughts “are sticking out in all directions”. However, in traditional educational systems there is no

place of musing, as the learning process in a certain sense is a “cross-country race” (look forward “watch your steps”, not staring at “landscapes” around). How is it possible at least somehow to bring educational to scientific knowledge and “prevent” the musing in the learning process? In a certain extent it can be done by providing a delayed fired in time decision of teaching cognitive problems. In this case, during the lessons contradiction is opened by teaching specific “treatment” of content of training material, the problem is formulated and perceived as “food for thought”, motivated by the search for its solution. Discussion of expected variants of solutions is realized initiative in the framework of the planned individual work, and then in lecture form a generalized solution with the analysis of supposed options is considered.

With this particular teaching system teacher has a conversation with the student, discussing his decision of learning and cognitive problems. In the traditional teaching student reports to the teacher, paraphrasing the content of his lectures, and thus, the teacher has conversation “himself”.

Delayed decision of educational and cognitive helps to switch on the memory and communication with its own past (knowledge, experience), formulates in the minds of students “inside his companion”, and this is the essence of personal principle in education.

Under the existing “strip-mass” approach to the organization of learning the probability of “colored” person is minimal, but it is certainly enhanced at planned delayed problem solving and exploratory interviews.

Pondering the problem is an intensified work of thoughts (based on memory). It is a distinctive feature of “dialogue alone”. All this contributes to continuous emergence of anticipations in the process of the teacher’s explaining; the emergence of obscure knowledge in the form of guesswork overtakes the formation and development of clear knowledge that is characteristic feature of truth on active pedagogy (personal development in learning, education, as triune educational process).

So unlike a scientist, who develops a science, educator-teacher develops student’s consciousness, all areas of his personality: motivational value-sense,

intelligent, strong-willed, moral, ethical and artistic aesthetic. But problem-based education should not be absoluted, because of absolutism any good beginning can be reduced to an absurdity. We are talking about the search for the optimal combination of traditional and innovative teaching techniques in each specific teaching research discipline of the university and each teaching subject of the school. We examined the theoretical basis of these searches, pedagogical invariants.

Since the scientific content can be presented in different logical structures and used different means for transmitting information and the reflection of its essence, affecting the absorption of the training content of material, pedagogy is the science which incorporates the theory of training and personal development.

Set out theoretical basis of the problem-based education harmonically combined with the problem of "personal independence" within the pedagogical module-rating system which was considered earlier [14, p. 12 – 15].

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Проказа О. Т.

Сучасна проблемна освіта як специфічна педагогічна система (питання теорії)

У статті розглянуто проблемну освіту як інноваційну специфічну педагогічну систему. Побудова такої системи має здійснюватися на основі класичного проблемного навчання, яке можна вважати традиційним. Реалізація принципу проблемності в процесі навчання передбачає специфічну логічну обробку навчального матеріалу і оптимальне поєднання відповідних методів, організаційних форм і засобів навчання. Проблемна ситуація – це особливий психологічний стан учнів, що припускає усвідомлення і прийняття ними проблеми за умови наявності пізнавального інтересу, бажання і вольових зусиль, спрямованих на подолання інтелектуальних труднощів у вирішенні проблеми. Проблемна освіта як специфічна педагогічна система технологічно повинна „конструюватися” і розвиватися на основі теорії проблемного навчання з урахуванням досягнень окремих методик.

Ключові слова: проблемна освіта, педагогічна система, принцип проблемності, процес навчання, навчальний матеріал.

Проказа А. Т.

Современное проблемное образование как специфическая педагогическая система (вопросы теории)

В статье рассмотрено проблемное образование как инновационная специфическая педагогическая система. Построение такой системы должно осуществляться на основе классического проблемного обучения, которое можно считать традиционным. Реализация принципа проблемности в процессе обучения предполагает специфическую логическую обработку учебного материала и оптимальное сочетание соответствующих методов, организационных форм и средств обучения. Проблемная ситуация – это особое психологическое состояние обучаемых, предполагающее осознание и принятие ними проблемы при условии наличия познавательного интереса, желания и волевых усилий, направленных на преодоление интеллектуального затруднения в решении проблемы. Проблемное образование как специфическая педагогическая система технологически должно „конструироваться” и развиваться на основе теории проблемного обучения с учетом достижений частных методик.

Ключевые слова: проблемное образование, педагогическая система, принцип проблемности, процесс обучения, учебный материал.

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