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REFLECTIVE APPROACH TO ORGANIZING LEARNING AND COGNITIVE ACTIVITIES OF ENGINEERING STUDENTS

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Abstract. *The role of the reflective approach in higher education is examined in the article. Types of reflection in learning and cognitive activities of engineering students are considered. Reflection as a personal quality of a future engineer is viewed as a powerful tool for the formation of a creative and independent personality.*

Key words: *reflection, reflective approach, learning and cognitive activities, engineering student.*

РЕФЛЕКСИВНЫЙ ПОДХОД К ОРГАНИЗАЦИИ УЧЕБНО-ПОЗНАВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ СТУДЕНТОВ ТЕХНИЧЕСКОГО ВУЗА

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Аннотация. *Изучается роль рефлексивного подхода в высшем образовании в контексте реформации методической системы обучения. Рассматриваются типы рефлексии, а также её роль как важного элемента активной учебно-познавательной деятельности студентов технического вуза.*

Ключевые слова: *рефлексия, рефлексивный подход, учебно-познавательная деятельность.*

РЕФЛЕКСИВНИЙ ПІДХІД ДО ОРГАНІЗАЦІЇ НАВЧАЛЬНО-ПІЗНАВАЛЬНОЇ ДІЯЛЬНОСТІ СТУДЕНТІВ ТЕХНІЧНОГО ВНЗ

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Анотація. *Вивчається роль рефлексивного підходу у вищій освіті в контексті реформації методичної системи навчання. Розглядаються типи рефлексії та її роль як важливого елемента активної навчально-пізнавальної діяльності студентів технічного ВНЗ.*

Ключові слова: *рефлексія, рефлексивний підхід, навчально-пізнавальна діяльність.*

Introduction

In the context of reforming the system of vocational education in Ukraine it is important both in theoretical and practical terms to pay more attention to the problems of the reflective processes in the system of training university students as one of the factors to increase the effectiveness of the higher vocational education.

The essence of modern concepts of reflective organization of the university training process is to create conditions which ensure self-education and self-control. In this case, the problem of increasing the efficiency of vocational education of engineering students is solved by means of forming students' specific needs for self-development, self-awareness and self-assessment, as well as providing students with the ability to realize self-development, self-awareness and self-assessment in their learning and cognitive activities and in their future work.

Recent Papers Review

The problems of identifying the role and place of reflection in the learning and cognitive process are considered in the works of the follow-

ing scholars: T. Belozertseva, V. Davydov, V. Dalinger, V. Kotenko and others.

I. Semenov who was studying the process of solving creative problems identified two types of reflection: intellectual and personal [1]. The action of intellectual reflection is directed outward, to the reality that is created during a certain activity. Personal reflection is concentrated on one's own «I» of the subject, one's personal attributes and processes.

Both types of reflection can be constructive, that is, they can be focused on the analysis of the initial parameters and the current actions. Accordingly, we can distinguish the control function and the constructive function of reflection [1]. The control function of intellectual reflection is aimed at understanding the result of an action and its organization in accordance with the sample; the control function of personal reflection is aimed at understanding the internal foundations that support the activities in accordance with the decision which was made. The constructive function of intellectual reflection is aimed at the transformation of the inefficient model of an action, and the constructive function of personal reflection presupposes the transformation of the internal relations and meanings that do not meet the current situation.

Basics of personal-active approach in psychology and pedagogics were established in the works of B. Ananiev, N. Alekseev, I. Bondarevskaya, L. Vygotsky, E. Zeyer, A. Leontiev, V. Liaudis, S. Rubinstein, V. Serikov, I. Yakimanskaya and others. According to this approach, a person is considered as a subject of activity, which itself is formed during activities and communication with other people and determines the nature of these activities and communication [2].

Problem Setting

The purpose of this article is to describe the reflexive approach and define its role in organizing learning and cognitive activities of engineering students.

Reflective approach to organizing learning and cognitive activities of engineering students

We tend to consider peculiarities of reflection in the process of vocational education mainly in relation to learning and cognitive activities of engineering students. Since education presupposes interrelated activities of educational process participants, all learning and cognitive activities should be based on the realization of the «I» by both teachers and students involved in this interaction.

Currently, the attitude to the essence of education has been changed. Research and teaching practice of the last decades have shown that education is not confined to the transfer and assimilation of knowledge and skills. The process aspect of education has been already brought to the foreground, which is expressed in its very nature, an approach used, and a personal attitude of the student to the social and historical experience which he is gaining.

Today, a special role in the formation of personality and in the development of critical thinking is given to the process of formation of students' abilities to work independently with the information, to think over their actions, to carry out their analysis and to transfer this knowledge to new subject content. This idea leads to the need for new reflective technology development, the purpose and the end result of which is to give students a means of reflective thinking, cognitive skills that would later become a part of the intellectual apparatus of the individual and would be used in the process of independent search and discovery activities.

It should be mentioned that the traditional methods of teaching do not fully implement the goal to teach students to learn, and do not focus on the organization of the reflective activities in the educational and cognitive process. Besides, lack of focuses on forming methods of learning activities in the educational methodology system leads to the fact that students are not ready to learn and cannot independently perceive and process information.

We should note that the reflective approach converts the content of education into the activity-based content aimed at students' acquisition of the methods of learning activities related to each of the concepts being studied, which, in its turn, reveals one of the leading ideas of modern education – activity-based learning.

A fundamental element of reflective approach is reflection. Let us emphasize that reflection is a mechanism by which the system creates the conditions for self-realization. In our case, such a system is a learning process where reflection, being both activity-based and conscious cogni-

tive process, manifests itself as one of the most important mechanisms, which ensures the implementation of such functions of consciousness as reflection, understanding, attitude, goal setting, planning, forecasting, management. In addition, reflection allows students' self-determination in the learning and cognitive processes. In case of difficulty, it makes the student shift to the position of a new activity: he should mentally review the past activities, recognize and rethink their results, develop a strategy for his new activities [3].

At the present stage of scientific development the category of "reflection" is widely used at the general scientific level. Reflection is considered as: 1) a component of intellectual culture; 2) a mechanism for self-regulation and development; 3) an element of social and psychological competence [1]. It serves as a methodological tool of interdisciplinary research and non-classical trends of modern science (for example, the theory of reflexive games), as an explanatory principle for such social sciences and human studies as sociology, linguistics, art, pedagogics, logic, and as a separate object of study in philosophy and psychology.

From this perspective, we agree with the opinion of M. Oksa, according to which one of the main problems of modern pedagogy is to develop practical mechanisms for the integration of philosophical and pedagogical knowledge and the need for the integration of philosophical knowledge in specific educational projects [4]. First of all, in our opinion, such integration is necessary in the sphere of understanding the role of reflection in the learning process. The main conclusion about reflection at a pedagogical level is that the effectiveness of the teacher's impact on the students is greatly improved thanks to reflective processes.

Reflection as a personal quality affects the development of the human need for self-education, self-realization, and self-improvement and is closely connected with the creativity in professional activities, with the assessment of the effectiveness of your activities, with the comprehension of their significance, not only for yourself but also for others. Reflection, in our opinion, provides us with adaptability to new conditions for our activities, demonstrates that the function of reflection occurs and is realized in any activity when there is any difficulty. It is a personal reflection, which is today at the heart of psychotherapeutic and training practices. It pulls a person out of the continuous flow of their monotonous activities and can be one of the main characteristics of creativity. A person becomes for himself the object of control, so the reflection shows all the changes taking place in a person and becomes the primary method of self-development, the condition and means of personal growth that is essential for the successful work of the future engineer.

Conclusion

In conclusion, we note that the strategic goal of the modern national education system – the formation of personality which is able to think creatively and act independently – logically requires organization of purposeful teacher's work aimed at the development of students' reflection skills as an essential element of successful learning and cognitive activity.

Solving the problem of reflective organization of learning and cognitive activities of engineering students requires the development of theoretical and methodological model taking into account requirements of the modern paradigm of vocational education based on the ideas of modernization, humanization and humanitarization of education processes.

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