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DEVELOPING STUDENT COMPETENCIES THROUGH A CREATIVE APPROACH TO TEACHING ELEMENTARY PROGRAMMING

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Abstract
This article presents suggestions and recommendations for teaching students programming languages and forming their programming competence based on the competency approach.

Keywords: Programming, competence, competence, practical program, computer.

Introduction

The process of developing professional competencies in future specialists is very complex and lengthy, affecting a large number of areas of the student's personality and is associated with various types of activity, which makes it difficult to control it and evaluate it. The complexity of assessing competencies is noted in the "Concept", "Strategy ", etc. [1]. The above state documents focus on the need to use complex characteristics when organizing competence assessment. The authors of the Concept report on the need to create interdisciplinary (complex) meters that require the use of multidimensional scaling methods, special methods for integrating assessments of individual characteristics of future specialists when assessing learning outcomes, but do not offer specific implementations. On the basis of which it can be argued that this issue is open and proposed by Russian scientists for a solution. The answer to it was the work of such scientists as V. A. Adolf, B. E. Andyusev, T. Kh. Kazaritskaya, N. V. Kuzmina, V. A. Slastenin, L. F. and others.

The analysis of the scientific literature made it possible to identify the features of assessing competence. V.I. Teslenko and H.A. Evert [3] note that professional competence is formed in the process of mastering the complex of strategic, tactical, operational skills of a specialist and giving them a professional orientation in relation to oneself as an actor, object and subject of professional activity, therefore, the assessment process should be systemic, integrated and take into account the multifactorial nature of the process of developing competence; a special role is also assigned by the authors to professional self-assessment.

A similar position is taken by V. A. Adolf and I. Yu. Stepanova. The authors believe that professional competence as an integrative personal characteristic is manifested in various activities of a specialist who knows how to live comfortably in society and earn a living through activities that can be carried out in the mode of self-employment, hired labor, entrepreneurial activity and manifests itself after graduation. at the university [3]. V.A. Adolf also argues that the indicators of the competence of a future specialist should act as elements of an integral system that provides a clear focus for all training. When developing indicators, he proposes to

proceed from the following principles:

1) the focus of readiness indicators on the preservation of a single educational space of the Russian Federation;

2) assessment both from the standpoint of the real goals of education at the current moment, and from the standpoint of the future development of the educational sphere;

3) it is advisable to assess the level of readiness on the basis of specially developed professional tasks;

4) assessment of readiness is carried out according to the ability to implement the main functions of professional pedagogical activity;

5) readiness indicators reflect both the result of professional training and the process of becoming a specialist at various stages of his training [3].

The work of V.A. Adolf echoes the work of the team of developers T.Kh. The following principles were put in the basis of the assessment system developed by them.

Systematic. The authors propose to start collecting data about students from the moment of admission and accumulate them as professional competencies are formed and developed; assessment should take place regularly, cyclically (each cycle corresponds to a certain stage in the formation of a specialist).

Complexity, versatility. It is proposed to assess professional competencies on the basis of a holistic structure that takes into account all the main components of future professional activity: knowledge of the subject of teaching, knowledge of teaching methods, planning, management of the educational process, etc.

relative objectivity. This feature is due not only to the complex nature of the assessment and the presence of clear differentiated criteria, but also to the ability to assess competence quantitatively (assessment formats are equipped with appropriate scales that allow you to quickly and relatively easily calculate the results due to a standardized form).

Transparency. The student is not only an object of assessment, but is himself involved in the assessment process. This is achieved both through the availability, openness of the criteria and assessment materials, and through regular self-assessment of the results of their activities. The proposed assessment method is not exclusively controllable, but is aimed at developing objectivity.

In the scientific literature devoted to identifying criteria for teachers' competencies, the key ones are considered by researchers in conjunction with pedagogical ones [3], which is explained by the penetrating nature of some of them. Separate requirements apply to subject competencies.

Consider the criteria and indicators of teacher competencies.

V.A. Adolf [3] defines the aggregate criteria for the competence of a future teacher as follows:

1. Understanding the social role and functions of the teacher in modern society.

2. The presence of socially significant motives for choosing the profession of a teacher and the pedagogical ideal.

3. The depth of mastery of the concepts of professional honor, professional duty, a sense of belonging to teaching and pride in one's profession.

4. Striving for a high professional level of mastering: psychological and pedagogical knowledge; special knowledge; professional skills and abilities; the degree of real possession of them at different levels of education and their correspondence to the professiogram.

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5. The presence of a need for pedagogical communication with children, the level of communication culture, the development of real forms of manifestation of this need.
6. The degree of ownership of active forms and types of educational activities and practical participation in it.
7. The presence and dynamics of personal professionally significant qualities: exactingness, pedagogical dignity, professional responsibility, etc.
8. The degree of manifestation and the level of practical knowledge of the system-forming function of pedagogical work - organizational.
9. The presence and dynamics of the need for professional self-education and self-education.

I.O. Kononenko, using the criteria for the formation of professional and personal competence and the culture of professional and pedagogical interaction, singles out: a) the presence of a developed pedagogical thinking of the future teacher, his focus on practical work with students of different age groups and individual characteristics, a positive attitude to communication and interaction with them; b) the development of personal components of professional activity (general and pedagogical culture, erudition, empathy, creative mindset, tolerance, justice and self-criticism, observation and resourcefulness, initiative, ability to improvise, independence in solving educational problems, emotional stability, etc.) [4].

L.V. Shkerina developed a criteria model for the quality of professional and pedagogical training of a teacher. This model is based on four approaches to learning: axiological, ontological, praxeological and morphological [2]. The system-forming element of this model is the teacher's professional and pedagogical competence. The quality criteria in this model are: the values of the goal (worldview component) as the logical basis of the meaning of pedagogical activity, consisting in the culture of forecasting, goal-setting, designing, modeling one's own development, the development of other subjects of the educational process; value-means (technological component), representing a system of pedagogical techniques, technologies, educational and methodological complexes, technical teaching aids, etc.; values-relationships (communicative component), revealing the totality of relations between the participants in the pedagogical process, the internal position of the teacher in relation to himself, to the student and his parents, to his own professional and pedagogical activity; values-qualities (functional component), represented by a variety of interrelated and complementary individual, status, professional and pedagogical qualities of a person; values-knowledge (cognitive component) that determine the competence of the personality of the future teacher in the subject, psychological, pedagogical and general cultural areas.

Taking into account the conditions known in pedagogical psychology for the use of reproductive or productive actions in solving a learning problem, the author identified three successive levels of the formation of professional and pedagogical training of future teachers: basic, normative-productive, and competency-based.

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