

Competence-based approach in the training of physicists

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Abstract. Competence is the ability of an individual to solve various practical tasks, a set of knowledge, skills and abilities required to perform a specific practical activity. The use of intersubject connections during the training of physicists, in our opinion, will make it possible to prepare specialists with a broad Outlook and good qualifications. The knowledge acquired in this way will allow future physicists to compete more successfully in the labor market. This may be important if, due to certain circumstances, it is not possible to work in a previously acquired specialty, this will allow you to choose a new profession in which you will be able to maximize the use of previously acquired competencies, as well as make the choice of a new profession more consciously.

1. Introduction

Many graduates of higher educational institutions often face a problem when the skills, abilities and knowledge acquired during their studies do not allow them to solve real practical problems that they face at the beginning of their professional activity. The lack of practical experience and the lack of conformity of knowledge and skills acquired in higher education institutions cause a crisis of competence. As a result, a novice specialist often leaves his profession or remains in the profession, but he cannot achieve any success. A crisis of competence can be experienced by professionals with significant work experience. For example, if necessary, switch to computer and interactive methods of work. According to [1] currently, for an employer, it is not a qualification that is important, but a certain set of skills that include, in addition to professional skills, the ability to work in a team, the ability to self-educate and initiative.

According to [2] due to the fact that the acquired skills and abilities tend to quickly become obsolete, there is a need to develop students' skills for self-education. According To [3] education should be



result-oriented. The reference point for educational programs should be the requirements imposed by the most likely employers, which are associated with the solution of specific practical tasks.

According To [4] the student is required to master knowledge and skills in a comprehensive manner, and not just to acquire individual skills and knowledge.

According to [5] the purpose of professional training is to prepare a specialist ready for professional activity

According To [6] when training a young specialist, it is necessary to teach him the skills of working with information (collection, systematization and analysis) and stimulate interest in solving various practical problems.

According to [7] the increasing role of self-education is due to the current economic and social conditions in which modern society is located.

2. Methods

This study is based on the analytical method. This made it possible to study the issues raised in the work in their unity, development, and interrelationships. Taking into account the tasks and goals of this study, functional-structural and systematic research methods were used. This made it possible to study a number of issues related to the implementation of the competence approach in the training of physicists.

3. Results

The increasingly widespread competence approach is based on the fact that during the training period, the future is required to master a certain set of competencies that he will need in the upcoming professional activity.

Each specific competence is a set of various skills and professional skills acquired by students after the end of the educational program.

The competence approach is designed to strengthen the practical orientation of the educational process and provides for the acquisition of practical experience necessary in professional activities during the training period.

In the framework of this study, we attempted to find out what the competence approach should be in relation to the training of specialists in physical specialties.

According to [8] the competence approach has pragmatic, humanistic components.

According to [9] the competence approach is a way to make progress in the quality of education, according to which a set of skills, skills and knowledge no longer fully meets the quality of education, if these skills, skills and knowledge are not applied in practice.

According to [10] the competence approach in education should, first of all, provide for self-determination, socialization, the ability to self-study and self-improvement.

According to [11] competence is not just the sum of knowledge acquired during the training period, this knowledge should also be correlated with other skills, abilities and knowledge acquired outside the training period.

According To [12] competence is the ability of a person to implement various competencies in their practical activities.

According to [3] the formation of competence is influenced by General education, family upbringing and vocational training.

According to [4] the competence approach is an innovative process in educational activities and is the basis of educational standards used in most countries of the world. It is based on the idea of transition of the content of education to the system of competences.

According to [13] the competence approach is designed to provide a generalized level of skills and abilities of the student, and the content of the received education should have skills, knowledge and practical skills as the main components.

Based on the analysis, we came to the conclusion that competence is a property of an individual, which consists in his ability to solve various potentially possible practical tasks, it is a set of skills, knowledge and skills necessary for the implementation of certain practical activities.

According to [5], the competence approach sets the following goals for trainees:

- Learn independently acquire new knowledge and organize your educational activities.
- To acquire skills of independent orientation in various problems of our time.
- Acquire the skills of explaining the causes and essence of phenomena, using the necessary scientific apparatus.
- Learn to solve problems related to their professional activities.

In our opinion, increasing the level of competence of future physicists is to implement the principle of using intersubject connections in the educational process. It contributes to the formation of students' scientific and technical horizons, increasing motivation for obtaining new knowledge and a clearer idea of the demand for knowledge, skills and abilities acquired during study. In addition, intersubject connections contribute to the systematic assimilation of new information. Working on solving their professional problems, the future physicist should be able to track changes in other branches of knowledge, using their baggage of theoretical and practical skills. We believe that the use of intersubject connections in the training of physicists will allow us to prepare highly qualified specialists with a broader Outlook, who are able to successfully master new technologies and knowledge. The knowledge gained in this way will allow future physicists to compete more successfully in the highly competitive labor market. This is especially important if you do not have the opportunity to perform your work in the specialty obtained in a higher institution. In this case, it is very important to choose a new profession in which you can use previously acquired competencies. The use of intersubject connections in the training of physicists, in our opinion, will allow us to make this choice more consciously.

4. Discussion

Competence is the presence of skills and abilities to perform their professional activities. The competence approach in education is focused primarily on the acquisition of skills that have practical value. Society and business need specialists who do not just have a certain set of knowledge, but are able to apply this knowledge to solve specific applied problems. The application of the competence approach in the training of physicists, in our opinion, should include:

- Improving the creative potential of the student.
- Acquisition of the student's skills to solve various practical professional tasks.
- Compliance of the acquired competencies with the upcoming professional activity.

To ensure the possibility of implementing a competency-based approach in the training of physicists, we believe that the following conditions must be met:

- The student's understanding of the direction of their future professional activity.
- Availability of specific training goals.
- Determination of the list of specific competencies that the student must acquire at the end of their studies.
- The presence of teaching staff in educational institutions who have the skills to use the competence approach in teaching.

5. Conclusions

When using the competence approach in the educational process, self-education of the student is of great importance. Only if regular activities aimed at self-education are carried out, it is possible to solve the problems that the labor market and society put forward for graduates.

The construction of the learning process aimed at stimulating the student to self-educational activities allows future specialists in the field of physics to acquire the skills to independently design the trajectory of their professional activities. The competence-based approach makes it possible to prepare a future specialist for a professional activity that is characterized by constant development and variability.

In our opinion, the training of physicists should combine, along with the study of physical and mathematical disciplines, also other knowledge that expands the level of their competence.

The application of the competence approach in the training of specialists, in our opinion, will increase the competitiveness of the future in a highly competitive labor market and increase its readiness for the upcoming professional activity.

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