

THE METHODOLOGY OF APPLYING HEURISTIC PROBLEMS AIMED AT IMPROVING GENERAL TECHNICAL TRAINING IN THE EDUCATIONAL PROCESS

Turdiev J.

Senior lecturer at Tashkent State Technical University named after Islam Karimov

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Abstract. *In this article, the content of industrial and educational practice in vocational education is described as an integral process and result, expressed in the aggregate of its basic terms and concepts. Industrial and pedagogical practice in vocational education, the main goal and function of education is to form the foundations of professional skills in the chosen profession (specialty) among students, and the future in their profession is an expression of the transition from practical training to professional labor activity. It is also emphasized that knowledge by profession (specialty) will be provided for the formation of the relevant necessary skills in the process of training in production and teaching practice.*

Keywords: *vocational education, heuristic approach, heuristics, didactic heuristics, specialization, heuristic education, general technical training, general professional, training content.*

INTRODUCTION

An important and decisive factor in improving the general technical training of the bachelors of professional education of technical higher education institutions by means of heuristic issues is its educational and didactic support and the methodology of training. These criteria are reflected in the Decree of the President of the Republic of Uzbekistan "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030". In order to improve the general technical training of students of the "Professional education" direction by means of heuristic problems, it is desirable to rapidly use innovative technologies and introduce heuristic approaches to increase the content and quality of higher education. When organizing theoretical and practical exercises and laboratory work based on the use of heuristic problems aimed at improving the general technical training of bachelors of professional education, the teacher should first of all determine at what stage of the training, in what form and with what methods they can be used. After that, it is necessary to set a specific goal and activate students' learning activity and technical thinking. At present, the well-known and widely used heuristic methods for activating students' educational activity and technical thinking, finding technical solutions are: analogy, inversion, home technologies, trial and error, testing, control questions, brainstorming, synectics. Taking into account the uniqueness of education in technical higher educational institutions, technical and engineering games are very useful in improving the general technical preparation of students in the teaching of technical subjects. But we are more interested in creative (intellectual), heuristic and role-playing games.

MATERIALS AND METHODS

The generally recognized stages of learning heuristic problem solving are as follows:
- preliminary familiarization with theoretical materials based on listening to a lecture;

- working with textbooks, instructional manuals, reference books in preparation for practical training and laboratory work, taking abstracts, drawing up logical schemes of the topic, distinguishing the main concepts, noting the definitions of concepts and terms, making classifications, filling in tables;

- to review examples of solving problems in preparation for practical training, to learn algorithms for solving typical problems;

- to study the theoretical content of laboratory work, get acquainted with programs, procedures, etc. in preparation for laboratory work;

- solving typical problems with the help of the teacher and independently in practical and laboratory sessions.

- performance of individual assignments by students. Solving non-standard, slightly more complex problems independently.

- reporting and evaluation for completing personal assignments.

The importance of solving heuristic problems in higher education institutions is that they are important not only for the general technical training of future teachers, but also for improving their creative abilities, will, accurate work, observation and many other qualities. Successful heuristic problem solving is the key to success in understanding the technique.

Solving heuristic problems plays an important role in improving the skills of independent work. It is this skill that fully characterizes the level of mastery of technical knowledge, shows the practical application of existing knowledge acquired by students. Enrico Fermi said that if a person knows how to solve technical problems, he knows technology.

A heuristic problem is a situation that requires creative thinking and practice from students based on technical laws and methods aimed at mastering technical knowledge and developing thinking. Solving a problem is a process that shows the creative activity of a person solving a given problem.

Traditional methods of solving problems are well known: logical, mathematical, experimental. The teaching methodology of these methods is based on algorithmic or semi-algorithmic models. But when solving creative problems, these methods are sometimes weak.

Pedagogical possibilities of heuristic problems are determined by:

- use of technical-technological signs, known and new technical terms in order to express and pose problems, analyze them, search for, prove, conceptual apparatus and the language of technology;

- creation of images, change of appearance and embodiment of known and new technical objects in order to enrich the forms of reflection of the world of technology;

- in order to expand and deepen the knowledge of technical laws, to obtain new interesting and still little-studied facts and information about technical objects and the peculiarities of their nature, to analyze or to solve problems; increasing interest and motivation in technical activities;

- solving heuristic problems of sketches, models, prototypes, layouts, parts and mechanisms in order to complicate and strengthen the skills of working with technical equipment, joint implementation of reproductive and creative activities;

- to expand the process of interaction with technology in the educational, training-production and production environment and to introduce solutions to issues related to the use, repair, modernization, and innovative updating of technical means of education in order to gain experience.

In conclusion, both procedural and creative qualities of the individual should be improved in improving the general technical training of the bachelors of professional education of technical higher education institutions by means of heuristic problems.

CONCLUSION

So, the general technical training of the bachelors of professional education of technical higher educational institutions is a complex structure of professional pedagogical training, which determines its activity and is a set of general cultural, general technical knowledge, skill, skills, general technical creative approach, social orientation of the person, in general, the result of general technical issues is a complex that provides solutions.

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