

## PECULIARITIES OF CAREER ORIENTATION IN PHYSICS EDUCATION

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***Abstract.** This article talks about the unique aspects of physics in vocational education. Also, information about the stages of teaching physics in general secondary education is presented.*

***Keywords:** vocational training, vocational training, school education.*

The training of highly qualified specialists in accordance with international standards is largely related to the provision of professional-oriented knowledge in general education schools and the sustainable development of education. In turn, this requires the organization of the educational process on the basis of professional knowledge. This creates the need to organize the educational process taking into account the requirements of the market economy, introduce relevant teaching technologies, and improve methodological support aimed at constantly updating the educational content. It is relevant because it is aimed at developing the professional worldview, which is considered an important component of the education of a well-rounded person in harmony with modern teaching technologies, and it is aimed at researching it from a pedagogical point of view and bringing it to a new level of quality.

Abu Nasr Al-Farabi stated that “Profession is created in two ways: through education and training” [1]. According to him, education is through words and teaching. Education is learning through practical work and experience. The development of education is a criterion for the training of qualified professionals and the development of the country, considering that “the path of new independence, our own path requires great changes in education”, knowledge is created depending on the quality and method of education. determines the task of training high-level, competitive, experts in line with world standards. The current stage of the development of our society requires the performance of specific tasks, which include the improvement of quality indicators in the educational process, the improvement of the educational process, the further improvement of educational programs, the implementation of modern pedagogical technologies of teaching, and the wide use of computer technologies [2].

Considering the issue of career guidance in school education as a current topic, the task of career guidance should not be assigned only to technology science. If the application of each subject to professional fields is revealed during the educational process, it is possible to achieve an increase in the quality and efficiency of education. For this, it is required to approach each educational subject based on its tasks and goals.

The place of the school physics course among general education subjects is determined according to its position in relation to other subjects. The physics course is a theoretical science, and its basis is fundamental theories, laws and scientific concepts. Physics is developing rapidly. In particular, fundamental theories such as Newtonian mechanics, relativistic mechanics, quantum mechanics, electron theory, classical and quantum statistics were created. This, first of all, increases the number of phenomena studied by modern physics. Secondly, it increases the

importance of science. Physical theories become the basis of other natural sciences, such as chemistry, electrical engineering, radio engineering, and electronics. Many of them have become separate disciplines. The laws discovered in physics are universal and raise it to the leading level among modern natural sciences.

From the above, we can see that it is impossible to imagine a full-value secondary education without knowing physics.[3]

Career-related teaching of physics is the best career guidance tool. It can be done in the following ways:

- a) application of physical concepts, phenomena, laws in special subjects;
- b) solving physical problems with professional content;
- d) perform complex laboratory work and demonstrate physical phenomena with the help of tools intended for production;
- e) solving problems using physical concepts in subjects of technical cycle;
- f) to perform complex assignments using the knowledge of some topics and sections from the subjects of the physics course and vocational-technical cycle;
- g) solving problems that require the development of technical creative abilities of students;
- h) to give homework in physics in order to determine how they mastered the physical knowledge necessary to explain the principles of the construction of various tools and devices;
- i) organizing complex excursions to production enterprises and assigning students to prepare a report on them;
- i) performing extracurricular activities (clubs, conferences, parties, etc.);
- k) taking optional courses based on a certain program.

When the principle of orientation to the profession is followed in teaching physics, students' mastery increases.

The main tasks of teaching physics are:

1. Introduction to the basics of physics — introduction to basic concepts, laws and theories; forming a natural-scientific picture of the world around us in the minds of students; introduction to basic natural scientific research methods.
2. In the process of studying the material, while enriching the memories of students, they also develop their creative abilities.
3. Formation of students' scientific worldviews.
4. Educating students in the process of teaching the basics of physics: implementing ideological-political, military-patriotic, international, moral and labor education.
5. Providing students with basic knowledge, preparing them for social work, and making them able to consciously choose a profession.

None of these can be dealt with in isolation. All of them are integrated in the training process. Through the strengthening of physical knowledge, the student's dialectical-materialistic thinking develops, his scientific outlook is formed, and polytechnic education is realized.

Along with organizing the process of teaching physics, it is necessary to take into account the specific mental characteristics of teaching physics. They are determined primarily by the content of the subject. Getting into the essence of the studied objects requires students to abstract, build ideal models, switch from one form of abstraction to another, and perform other similar imaginative actions (operations). All these represent physical scientific thinking, all imaginative operations are formed in the process of learning and develop with increasing age.

The second special psychological feature of the physics teaching process is as follows: physics teaching uses more models and symbols in different forms (formula, symbols of electric circuit elements, ...) and students are asked to move from symbolic images to real objects. and on the contrary, it is necessary to make a transition from the perception of counter-real objects to the ideal structure and their symbolic images.

The third unique feature of the physics teaching process is the use of demonstration of experiments, organization of students' observations, their high emotionality related to independent performance of practical work.

Depending on the age of students, the process of vocational education can be divided into 4 stages, each of which has its own goals, tasks and principles of implementation.

Stage 1: Elementary school, grades 1-4. This stage includes introducing schoolchildren to specialties through games, extracurricular activities, excursions, and career guidance classes. Children are drawn to learning and cognitive forms of activity such as work, play, and research. These events create a basis for the perception of the value of work, develop interest and the need for knowledge. During this period, students are taught the science of SCIENCE (Natural Sciences), which was newly introduced into the education system. This science textbook provides information about basic and simple physical concepts. There are also practical exercises on the topic. We can see the elements of professional orientation in the presentation of information through various colorful pictures, life examples, and in the performance of some practical tasks [4,5,6]. For example: the requirement for the pilot to wear earplugs, because the plane's loud noise damages the hearing organs; the process of a parachutist's ascent to the sky; distant hearing of musical and noisy sound sources, loudspeakers and sunrays; A stethoscope can amplify sound and help diagnose certain diseases, etc.

Stage 2: Middle School, grades 5-7. Vocational orientation in high school is carried out in the form of business, psychological and vocational orientation games. This forms a deeper understanding of the characteristics of various specialties, students will have a practical opportunity to determine their future fields of activity. Pupils of this age group acquire basic knowledge about existing professions, understand their interests and development prospects in the process of career guidance. During this period, SCIENCE (Natural Sciences) is taught to students of 5-6th grade, but students of 7th grade study on the basis of the physics textbook. These textbooks contain information that guides students to the profession [7,8]. For example: The nail tip used in craftsmanship is smaller, the cylinders of heavy trucks are lighter than the cylinders of light cars due to pressure; Knowing the pressure is important in the production of knives and scissors; The seller measures the mass of something in kilograms; Scales are used to determine mass. In markets, vegetables are measured on spring scales; Meteorologists know the exact daily weather forecast; Daily weather information is given on radio or television; Knowledge of atmospheric pressure is important in meteorology; If a person does a job for a day, a machine can do it in minutes. High capacity is taken into account in the production of the machine.

Stage 3: Middle school, grades 8-9. In this period, when the first graduation exams are approaching, the work of learning about professions takes on a more focused form. Games are replaced by pedagogical activities that help students choose the next educational profile according to their interests and talents. At the same time, there is a narrowing of the spectrum of future specialty choices, which supports a more conscious attitude to study and work. In grades 8-9, the school psychologist takes an active part in the career guidance process, using tests to reveal hidden

talents, as well as the strengths and weaknesses of the student's personality. The program includes the study of responsible specialties with special requirements for employees. Such professions include, for example, medical and pedagogical specialties. The 8th-9th grade "Physics" textbook contains the following career-oriented information [9,10]: Rules for using electricity, operation of electrical appliances, household electrical appliances, rules for their proper use, safety measures for an electrician explained; Friction is important in marriage and technology; In factories that produce car cylinders, the surface of the cylinders is embossed; Biologists study which plant or animal's various organs are caught by friction; The structure of the rocket, what it is made of, the principle of operation, concepts related to the rocket that astronauts should know are given; Astronauts have information to learn; Learn about humidity measuring devices (psychrometer, hygrometer); Information about atmospheric phenomena is provided; The formation of dew, frost, fog, clouds and precipitation in nature is explained. Information is provided in the direction of meteorology.

Extracurricular clubs in various areas help students to understand their inclinations when choosing a future professional activity.

In the process of helping to choose a profession at school, it is important to conduct appropriate consultations by teachers and school psychologists. In their process, the student is helped to assess his interests, skills, talents, health status, as well as their relevance to the requirements of a particular specialty. Such consultations can be both group and individual.

Stage 4: High school students, grades 10-11. In the last years of school education, the most important stage of career orientation is carried out. Its effectiveness is largely determined by the quality of work done in primary and secondary schools. Teachers organize events to familiarize students and their parents with the main higher educational institutions of the city and their regions, and educational trips to these educational institutions are organized.

Students of 10-11th grade will have the following professional orientation-based information through the "Physics" textbook [11,12]: The return of sound is widely used in life and technology. For example, sailors use it to measure depth in seas and oceans or to identify submarines; The block is used in craftsmanship, the inclined plane is used for loading heavy loads on machines, and when the screw is used to replace the cylinder of the machine when it is punctured, it is used to use a screw jack, which is called a jack; Information about radio communication is given; About televisions, telephones, radios and the waves transmitted from them that we use in our daily life. Information needed by specialists engaged in radio communication; Night vision devices and cameras, body heat thermography, finding a target based on heat radiation, remote control of devices (used in television, tape recorder, air conditioner remote control. Used in medicine, military field.

Of course, readers should not limit themselves to this information. We have the ability to provide even more information to guide physics into professional fields. Because physical laws and physical phenomena are reflected in every aspect of our life. To what extent we organize the educational process depends more on us pedagogues. When the teacher enters the class, he should step into the classroom with new knowledge, new ideas, new methods and methods. That is why the teaching profession is recognized as an honorable profession.

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