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DIDACTIC FACTORS AFFECTING IMPROVEMENT

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ABSTRACT

In this article, the author discusses the innovative approach used in conducting classes in the Department of Optics of Physics and its practical significance. It is proved that the technological development of modern physics and the use of advanced pedagogical and innovative technologies are highly effective in the implementation of laboratory work.

KEYWORDS: *Innovative Teacher, Skill, Method, Problem-Based Learning, Non-Traditional Learning, Debrifing, Formation Of Professional Competence In Students, Innovation, Technology, Approaches, Principles, Tools*

INTRODUCTION

In the world sciences of physics and pedagogy, a number of studies are being carried out aimed at developing innovative methods of teaching optical quantum generators, fiber optics, laser technology, photonics, medicine and nanotechnology. This plays an important scientific and practical role in strengthening the integration of science-education-production. In particular, there is a need to study the pedagogical, psychological, didactic and methodological possibilities of teaching physics on the basis of technological, systemic, activity-based, competence-based and integrated approaches.

In our country, the relevance of the modernization of the education system, the organization of the educational process aimed at training competitive personnel who meet the requirements of world standards, is consistently gaining relevance. Therefore, for the development of the exact sciences, such priority tasks have been identified as “further improving the system of continuing education, improving the quality of educational services and opportunities, continuing the policy of training highly qualified personnel in accordance with the modern needs of the labor market”, as well as “creating effective mechanisms for the implementation of scientific and innovative achievements into practice ". This, in turn, requires improving the teaching methods of optics

topics using innovative methods, ensuring the compliance of educational and regulatory documents with international standards. At the same time, a special place is given to targeted research, taking into account the expansion of the possibilities of educational and methodological support of physics, the improvement of the didactic capabilities of innovative methods and technologies.

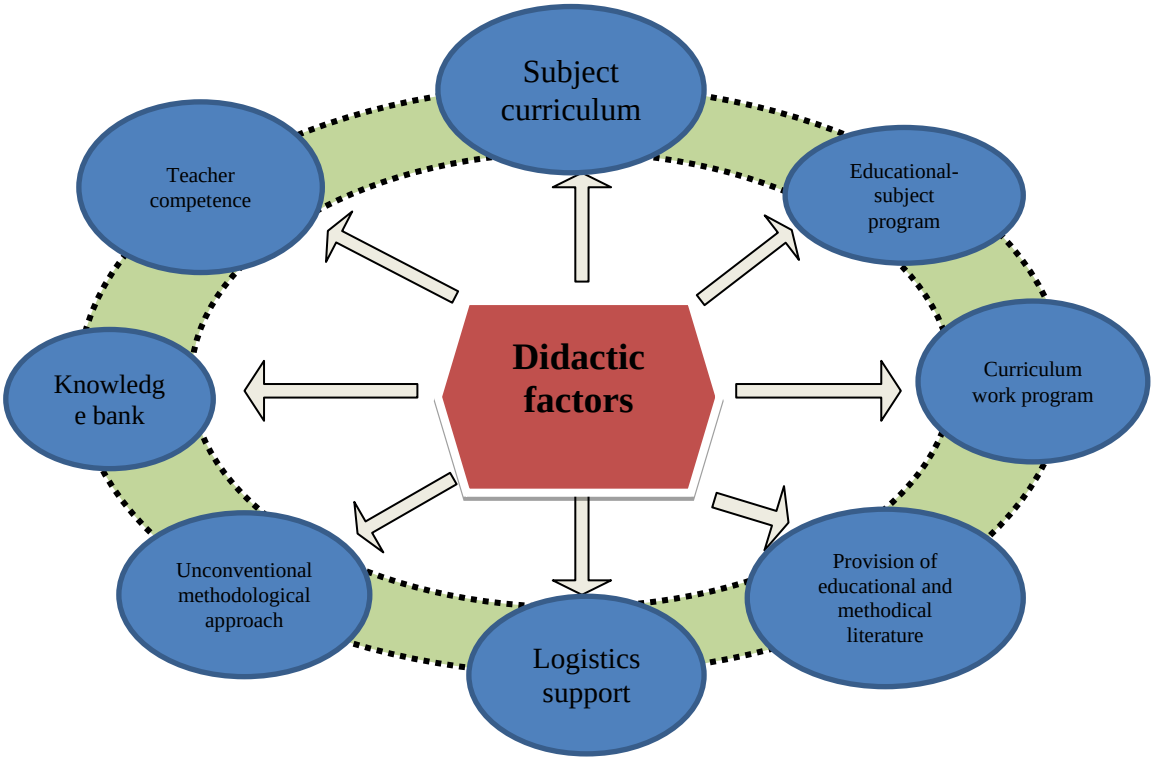
The article provides scientific and methodological works on the theoretical foundations of non-traditional teaching "Optics" of the physics section, outlines the organization, control and management of methodological planning in teaching it, improving the quality of education in order to ensure the effectiveness of this process, pedagogical and psychological foundations and didactic factors of teaching the optics section based on the use of interactive methods in education based on non-traditional learning technologies.

Research papers and literature are analyzed, an analysis of the development of mechanisms for improving non-traditional teaching methods "Optics" of the physics section is given on the basis of modern trends in innovative development, the formation of thinking through the widespread introduction of experimental methods of teaching and educating students, the presentation of optical processes, the problem of the formation of mental activity and qualifications in the course of laboratory exercises.

The psychological factors influencing the relationship between the student and the teacher are revealed, the organization of the educational process by the teacher based on the study of pedagogical and psychological characteristics of students and the development of students' assimilation abilities are theoretically substantiated through non-traditional methods of teaching optics in the physics section based on pedagogical and psychological laws.

Improving non-traditional teaching methods is an activity related to the learning process, didactic factors for the development of individual psychological characteristics of a person, motivation for learning and intellectual abilities have been developed. The didactic factor is an unconventional methodological approach that requires the formation of teaching methods based on the fundamental knowledge of the student. According to scientists-psychologists, every twenty minutes of an eighty-minute lesson, the student's attention (listening and mastering the lesson) begins to pass into a passive mode. Thus, it was found that the popularization of the use of at least four innovative methods during an eighty-minute lesson is important as an important didactic factor for improving the quality and effectiveness of education, the formation and development of the educational and cognitive process among students. Among the didactic factors, the teacher's competence is of particular importance, since the enrichment with new ideas, the constant improvement of teaching methods, control, replenishment and strengthening of students' assimilation, improving their qualifications in the process of teaching the optics section requires pedagogical skill.

The main participant in the educational process is the student, whose important task will be to independently study the innovative paradigms of the optics section in the process of research in real educational practice. The teacher must study the assignment himself and demonstrate ways to solve educational problems. Students learn to analyze and evaluate their personal actions based on the information provided, examples, can notice their own mistakes and shortcomings. The teacher establishes joint activities of the participants and motivates them for research (Fig. 1).



Rice. 1. Didactic factors influencing the improvement of non-traditional teaching methods

The results of the study of paradigms associated with the section of optics, theoretical rules and conclusions are generalized and, accordingly, reflects the content of teaching the subject to students. The process of acquiring physical knowledge by students is considered in connection with the level of development of thinking, imagination and other cognitive processes, the development of motivational-volitional and sensual (emotional) activities. Improvement of non-traditional teaching of the optics section based on the choice of forms, methods and means of teaching the subject of physics is determined based on educational goals. Consequently, the improvement of non-traditional teaching of physics lessons develops by generalizing the essence of the interaction and interdependence of physical phenomena, laws and formulas, through didactic factors of life reflection of the processes of reality in the minds of students. When improving the methodology of non-traditional teaching of the optics section, attention was paid to the following aspects: correct understanding of optical phenomena and laws, analysis of formulas and theoretical ideas appropriate for this phenomenon; determination of each optical quantity; identifying the formulas associated with this phenomenon and their relationship, that is, the desire to understand the optical formulas that reflect each law; awareness of the characteristics of the process of the course of all physical phenomena; presentation of a clear manifestation of physical laws; ensuring the uniqueness of creative development reflected in each physical phenomenon.

As a result of the study, the formation of experimental skills of future teachers of physics and astronomy of students in pedagogical higher educational institutions was studied in conjunction with the problems of developing non-traditional methods of teaching the organization of

theoretical, practical and laboratory training in the field of improving the teaching of optics and training competitive personnel. It was studied and concluded that the knowledge of didactic factors influencing the improvement of non-traditional teaching of the optics section in physics lessons and the ability to assess the level of their impact is a complex process that requires special competence.

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