JEDIC Journal of Ethics and Diversity in International Communication

| e-ISSN: 2792-4017 | www.openaccessjournals.eu | Volume: 1 Issue: 3

Innovative Fundamentals of Non-Traditional Teaching (on The Example of The Optics Department)

B. N. Khushvaqtov

Doctor of philosophy in pedagogical sciences (PhD)
Navoi state pedagogical institute, Republic of Uzbekistan

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

The share of research aimed at identifying innovative methods to improve the systematic, traditional and non-traditional methods of teaching physics in world pedagogy, the development of professional competencies of future physics teachers, improving the professional and pedagogical creativity of students is growing. Effective use of innovative methods in teaching the Department of Optics, which is on the path of rapid development, allows to expand its didactic and methodological capabilities, develop creative abilities of students due to the continuity and practical orientation of physics education in pedagogical universities, develop new software tools is one of the tasks.

The Department of Physics's Optics Department explores the possibilities of using non-traditional teaching methods in lectures, methods of organizing practical classes and non-traditional approaches to conducting laboratory classes. developments were formed and methodological recommendations were developed.

As a result of the research, a number of recommendations were made to the process of innovation in the scientific and pedagogical activity of teachers:

- continuous training on the paradigms of the field of optics, independent learning;
- quick and high-quality retraining if necessary, mastering modern pedagogical technologies, interactive teaching methods, critical thinking;
- to develop the skills of mastering professional qualities, teaching, educating, evaluating knowledge;
- be able to find their place in rapidly changing socio-economic conditions;
- to engage in research throughout his professional career.

Taking into account the above recommendations, it is logical to make the following requirements for an innovative teacher:

Through the improvement of non-traditional teaching, students have a high level of knowledge and the learning process is developed on this basis; interest in a particular topic during the lesson is organized in collaboration with the student and the teacher; it is recommended to establish a relationship between the teacher and the student through the methodological guidelines used in the practice-tested training process; interesting books for students, non-traditional lessons, which include didactic games, will be the basis for determining the effectiveness of the process itself, organized by technical means. Therefore, it is a natural phenomenon that non-traditional teaching methods enter the teaching process of the Department of Physics and Optics and give effective results. On the basis of this harmony, it is important to take into account, monitor and evaluate the knowledge, skills and abilities of students, as well as to develop non-traditional teaching methods (Figure 1).

JEDIC
Journal of Ethics and Diversity in International Communication
| e-ISSN: 2792-4017 | www.openaccessjournals.eu | Volume: 1 Issue: 3

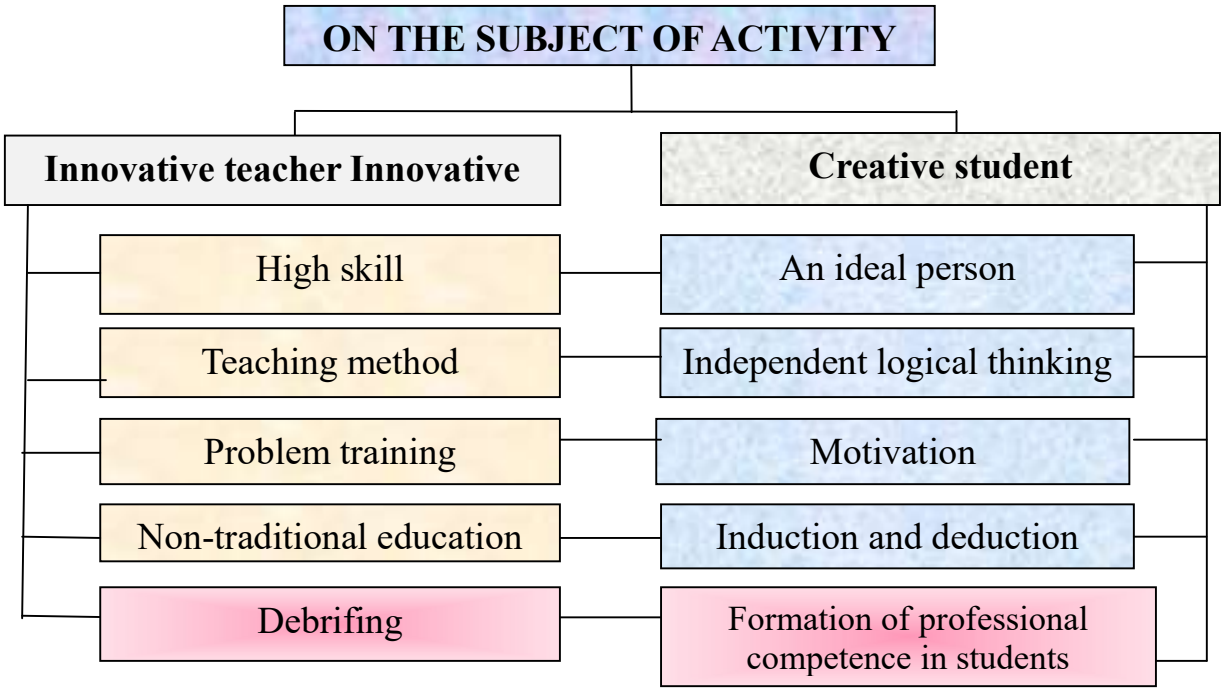

Figure 1. An unconventional combination of teaching

While the importance of ensuring the continuity and continuity of pedagogical processes in the teaching of optics in physics using non-traditional methods, the success of the teaching process depends on the design, algorithmization and predetermining of the process on the basis of innovative approaches. In the course of the research, a model covering the subjects and components of pedagogical mechanisms based on the principles of continuity and continuity in the development of professional competence of future physics teachers was improved. The components of the innovative model of a future physics teacher (professional activity, pedagogical laws, approaches, principles) have been improved in order to improve the Department of Optics for students of 5110200 - Physics and Astronomy Teaching Methods taught in pedagogical higher education institutions using non-traditional teaching methods.

Professional activity: innovative tendencies - interest, aspiration to a new direction of development; model representations - the study of physical phenomena and processes using the model; a set of knowledge and practical skills required to perform excellent experiments in real-world practice-practice (Figure 2).

JEDIC
Journal of Ethics and Diversity in International Communication
| e-ISSN: 2792-4017 | www.openaccessjournals.eu | Volume: 1 Issue: 3

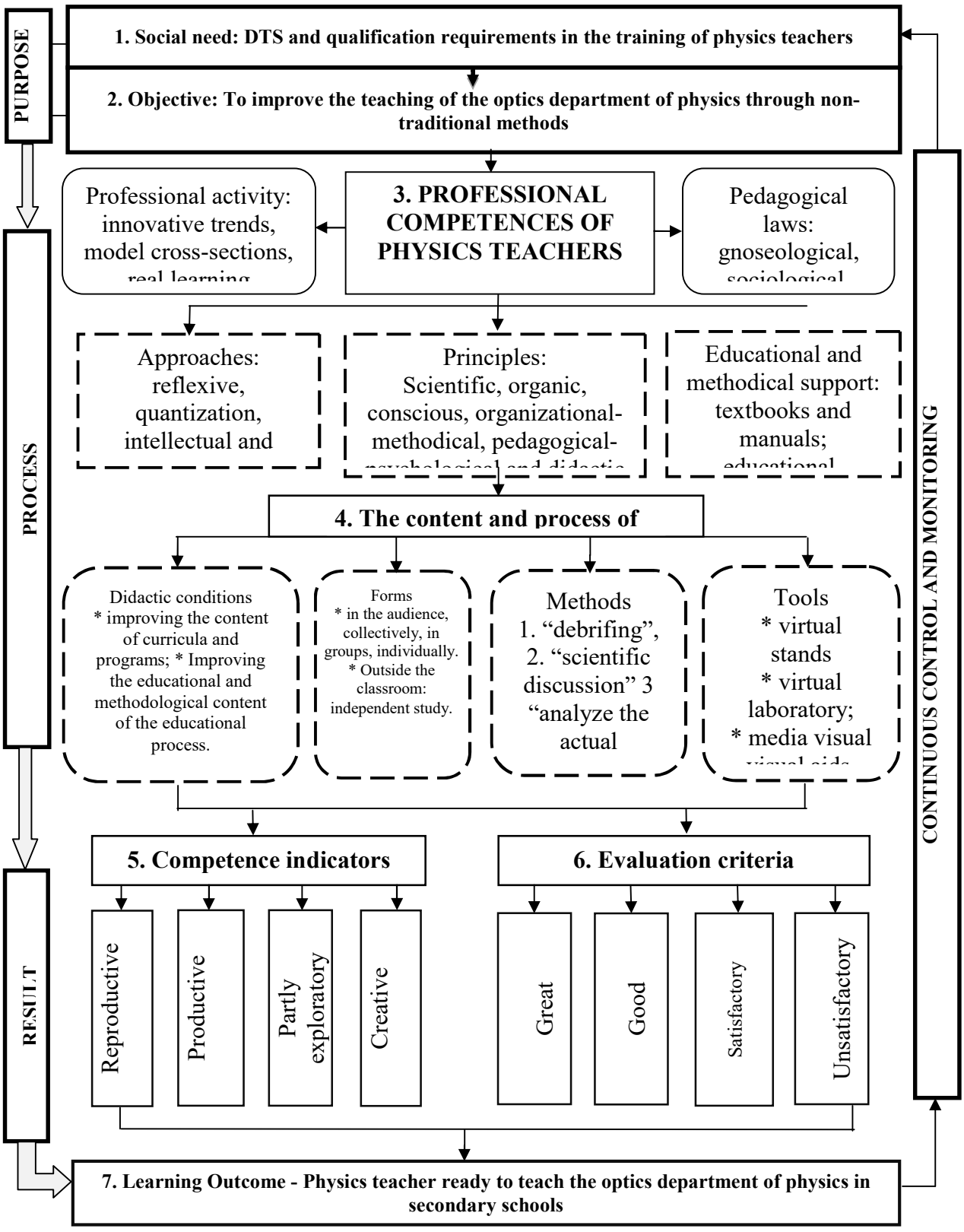

Figure 2. An improved model of teaching methods in the Department of Optics of Physics

Qualitative requirements were qualitatively analyzed in the teaching of the Department of Optics of Physics (epistemological, sociological, cybernetic and scientific-methodical) on the basis of pedagogical laws and (reflexive, motivational and creative, as well as innovative approaches to quantization, intellectual and visual). Pedagogical laws: gnoseological - pedagogical law of consciousness acting on the basis of the

theory of knowledge; sociological - pedagogical law about society as a whole system and providing for certain social procedures, processes, social groups, relations between the individual and society; cybernetics is a pedagogical law in which the principles of processing and managing information are the leading ones in the exchange of information.

Approaches: reflexive - regression, theoretical activity of a comprehensively developed person aimed at understanding their own behavior and their laws; quantization - physical theories dealing with the study of elementary particles and their interactions, quantum systems with infinitely many degrees of freedom in general; intellectual - a person's mental ability to accurately reflect and change life, the environment in the mind, to think, to read - to study, to solve various problems, to come to a decision, to act rationally; exhibition is a form of public demonstration of achievements in the field of material and spiritual activity of man.

Educational-methodical support of the competencies of the future teacher of physics (scientific, methodical, organizational, innovative and technological) (electronic textbook, textbook, electronic methodical complex) is developed, criteria of knowledge, skills and abilities in Optics are defined and improved.

Didactic conditions, including the process and content of education (recommendations for improving the content of curricula and programs, methodological support of the educational process) have been improved. Experimental training was conducted on the basis of pedagogical and information and communication technologies (virtual laboratory, virtual stands, visual aids, 3D animations). As a result of the application of the model in practice, the Department of Optics of physics on the basis of non-traditional teaching methods (debriefing, scientific discussion, analysis of actual problems) and principles (scientific, membership, consciousness, organizational-methodical, pedagogical-psychological and didactic) used in lectures, practical and laboratory classes. the priorities of the process were resolved positively. As a result, continuous control and monitoring was carried out on the basis of competencies (reproductive, productive, partial exploration, creativity) and evaluation criteria based on the knowledge acquired by students in the "Optics" department.

References

1. S.Bozorova, N.Kamolov. Physics (optics, atomic and nuclear physics). Tashkent, 2007.
2. N.N.Nematov. Interactive methods of group organization. Buxoro, 2008.
3. Khushvaqtov B.N. Textbook of laboratory work from the Department of Optics of the General Physics course. //Tashkent: 2020. 71 p.
4. Khushvaqtov B.N. Didactic factors of non-traditional improvement of the content of physics education // Scientific-methodical journal of continuous education of the teacher. Nukus, 2019. № 5. 26-30 p.
5. Khushvaqtov B.N. Integrative model of improving the content of classes in optics // European Journal of Research and Reflection in Educational sciences - Great Britain, 2019. №7 (12). 132-134 p.

