

## DEVELOPMENT OF EXPERIMENTAL COMPETENCE OF ASTRONOMY TEACHERS WILL BE IMPROVED BY IMPROVING THE PROCESS OF LABORATORY TRAINING IN ASTRONOMY

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### ANNOTATION

In the developed countries of the world, taking into account the specifics of teaching astronomy, special attention is paid to the development of experimental competence of future astronomy teachers by improving the process of conducting laboratory classes. Particular attention is paid to the use of open, flexible, individualized, modern educational technologies based on the introduction, adoption and dissemination of innovations in education. In particular, it serves to improve the understanding of the causes and content of complex physical phenomena, as well as the processes that take place during the experiment, the forms and methods of laboratory training.

**Keywords:** *laboratory, competence, experiment, individual, interactive method.*

In the study of the organizational and methodological basis of teaching astronomy in the world education system, scientific research is being conducted aimed at the introduction of interactive methods and computer pedagogical software with an integrated approach.

The results of the research are aimed at creating innovative methods of classifying the content of experiments in future astronomy teachers, developing written and oral skills, improving experimental competence. is relevant.

American Association of Physics Teachers, Belfield Pedagogical University; Competence of innovative activity of a modern teacher at the University of Freiburg (Germany), Center of increasing to pedagogical qualification on base Manchester's university (UK), Seoul of National University (South Korea, Moscow DPU, Tomsk SPU, Perm SPU, Samara SU (Russia) and research aimed at improving the experimental competence of a future astronomy teacher.

As a result of research on improving the experimental competence of future astronomy teachers through laboratories and experiments in leading universities around the world, a number of scientific results have been achieved: Strategic mechanisms for international cooperation in developing technologies to improve the experimental training of future astronomy teachers for Educational Communications and Technology – AECT); improved system of preparation of future astronomy teachers for pedagogical activity (Belfield pedagogical university; Competence of innovative activity of a modern teacher at the University of Freiburg (Germany), Center of increasing to pedagogical qualification on base Manchesters university (UK), Seoul of National University (South Korea, Moscow SPU, Tomsk SPU, Perm SPU, Samara SU (Russia) and research aimed at improving the experimental competence of a future astronomy teacher.

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Improved methods of organizing and conducting laboratories and experiments in the training of future teachers of astronomy (American Association of Physics Teachers. Collectively, a set of complex patterns, or characteristics or features of effective teacher training programs emerge, as evidenced by existing field practice, classroom experience of program developers and implementers, and policy).

Improving the experimental competence of future astronomy teachers in higher education institutions around the world, including the use of interactive software teaching aids, improving the experimental activities of future astronomy teachers, methodological training at the level of modern requirements; the application of innovative educational technologies, as well as software used in laboratory classes, remains a pressing problem in improving the experimental competence of future astronomy teachers.

Knowing the quality and level of laboratory training in the modern education system today, there are shortcomings in its organization and conduct, which, of course, inevitably affects the quality of education. The structure and structure of the laboratory classes, ie the sequence, are still outdated.

There is an opportunity to improve the quality of education through the transition to state educational standards (SES) and improved innovative models that meet the requirements of the modern education system in the organization and conduct of laboratory classes. There are the following shortcomings in the organization and conduct of laboratory classes today:

1. The purpose and scope of the work are not clearly stated in the development of laboratory work. Once the name of the laboratory work is given, it is important that its field of application is clearly indicated and the possibilities of application are described.

2. To date, control questions have been used in the development of laboratory work, but its transition to test options for laboratory training, the methodology of test use has not yet been developed, advanced technologies have not been used, the transition to automated laboratory training has not been introduced.

3. The organization and conduct of laboratory classes in astronomy for pedagogical higher education institutions was not developed after the achievement of a single SEC independence. Also, the development of laboratory work does not pay attention to the theoretical and practical aspects of the methodology used in independent learning.

4. In the training of future teachers of astronomy, a “school astronomy room” was established at the pedagogical higher education institution, which did not develop guidelines for the organization and conduct of laboratory classes. Methodical recommendations on the organization and carrying out of laboratory works as a methodical help to the future teacher of astronomy, instructions on improvement of laboratory works, developments, not formed.

5. Nowadays, with the rapid development of information and communication technologies, the methodology of organizing and conducting trainings using innovative programs for conducting laboratory classes is not in demand.

6. In the organization and conduct of laboratory classes, the conduct of related laboratory work, which can be carried out independently by the student, is not at the required level.

7. The methodological training and competence of a future astronomy teacher is insufficient to be able to use measuring instruments or devices used in the laboratory.

During the study, the improvement of the experimental competence of future astronomy teachers through laboratory classes was identified as the research topic.

The analysis of scientific research shows that pedagogical higher education institutions improve the experimental competence by changing the structure of laboratory classes in the training of future teachers of physics and astronomy, the content and form of laboratory practicum of general astronomy course, problems of teaching astronomy teaching in secondary schools. shows that it has not been studied in relation.

One of the reasons for this is that for many years the requirements and evaluation criteria for laboratory training on the basis of DTS for pedagogy and other higher education institutions have not been developed.

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