

THE ROLE OF NON-STANDARD EXPERIMENTS IN IMPROVING THE COMPETENCE OF CHEMISTRY TEACHERS

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Abstract

The role of non-standard experiments in improving the competence of teachers in the process of chemistry education is extremely important. The main goal of the educational system is to provide students with theoretical knowledge and to provide the opportunity to apply this knowledge in practice. And non-standard experiments give teachers the opportunity to put their knowledge into practice, develop creative approaches and interact with students.

Keywords: Chemistry, non-standard experiments, traditional educational programs, practice, knowledge, experience, knowledge, pedagogical innovations.

Introduction

Non-standard experiments differ from traditional lessons because they are often aimed at increasing student interest. Teachers can demonstrate the theoretical aspects of chemistry in practice with the help of non-standard experiments. This process serves to attract students' attention and increase their interest in the learning process. Students can develop an understanding and interest in chemical processes by conducting experiments on their own. Another important aspect of non-standard experiments in improving the competence of teachers is the development of creative thinking skills of teachers. Teachers can develop new pedagogical methods, update their knowledge and share experience through non-standard experiments. This process helps teachers to develop themselves, acquire new knowledge and enrich their pedagogical experience. By using non-standard experiments in their lessons, teachers will have the opportunity to conduct interesting and interactive lessons for students. Non-standard experiments allow teachers to take into account the individual characteristics of students. Each student has unique abilities and interests. Teachers will have the opportunity to identify the interests of students and stimulate them with the help of non-standard experiments. This makes the educational process more effective and increases student success. Non-standard experiments also develop scientific research activities of teachers. Teachers acquire new knowledge and conduct scientific research in the process of conducting their experiments. This helps to improve their competence. Through their research, teachers explore new areas of chemistry and expand their knowledge. This process increases the scientific potential of teachers and encourages them to work more effectively in the educational process. In improving the competence of teachers, students can be given more information about the



practical application of chemistry with the help of non-standard experiments. Experiments that are interesting and useful for students will increase their interest in chemistry. This, in turn, leads to an increase in the competence of teachers and the success of students. Teachers can show students the interesting and useful aspects of chemistry by using non-standard experiments in their lessons.

The role of non-standard experiments in improving the competence of teachers is that they provide an opportunity for teachers to update their knowledge and exchange experiences. Teachers get acquainted with new ideas, methods and approaches in the process of sharing experience with each other. This process helps the professional development of teachers and increases their pedagogical competence. Teachers learn new pedagogical methods by sharing experiences and have the opportunity to apply them in their classes.

Non-standard experiments allow teachers to communicate more effectively with students. Teachers can increase students' motivation by providing interesting and interactive lessons. This helps to increase the pedagogical competence of teachers. Teachers can teach students more about the practical applications of chemistry by using non-standard experiments in their lessons.

In general, the role of non-standard experiments in improving the competence of chemistry teachers is very important. These experiments allow teachers to think creatively, develop new ideas, and communicate effectively with students. Through the use of non-standard experiments, teachers can update their knowledge, enrich their pedagogical experience and increase the interest of students. Thus, non-standard experiments are an important tool in improving the competence of teachers.

With the help of non-standard experiments, teachers can make their lessons more interesting and interactive. This helps students to develop themselves, acquire new knowledge and increase their interest in chemistry. Teachers can provide students with interesting and useful knowledge by using non-standard experiments in their lessons. This process serves to increase the competence of teachers, increase the success of students and the development of chemistry. At the same time, non-standard experiments also help to develop mutual cooperation of teachers. Teachers can help each other in the process of conducting experiments together, sharing experiences and developing new ideas. This helps the professional development of teachers and increases their pedagogical competence. Through interaction, teachers learn new pedagogical methods and have the opportunity to apply them in their classes.

Non-standard experiments have several important aspects in increasing student interest. Non-standard experiments encourage students to actively participate. Students themselves play an active role in the process of conducting experiments, observing and analyzing the results. This interactivity allows them to get not only theoretical knowledge, but also practical experiences, which increases their interest. Nonstandard experiments allow students to try new ideas and approaches. They can show their creativity and find new ways to solve problems. This process increases students' interest because they are able to make their own ideas. Non-standard experiments differ from traditional lessons and provide students with interesting, unusual situations. Instead of showing simple chemical reactions, students' interest can be increased by conducting surprising experiments. By seeing the theoretical aspects of chemistry in practice,



students will understand its importance in life. Through non-standard experiments, they can see how chemistry is used in everyday life, which increases their interest. Non-standard experiments encourage students to work together in groups. This process fosters communication and collaboration among students, which increases interest because students have the opportunity to learn from each other. Students strengthen their knowledge through experiments. In the process of experimenting, they can make mistakes and analyze them, which helps in self-development. Learning from one's own experiences further increases interest. The process of observing and evaluating the results of non-standard experiments shows students how to apply their knowledge in practice. By reviewing the results, students feel that they have acquired interesting and important knowledge. Through these aspects, non-standard experiments help to increase the interest of students and encourage them to actively participate in the educational process. This, in turn, makes the learning process of students more effective.

Conclusion:

In conclusion, the role of non-standard experiments in improving the competence of chemistry teachers is very important. These experiments allow teachers to think creatively, develop new ideas, and interact with students interactively. Through the use of non-standard experiments, teachers can update their knowledge, enrich their pedagogical experience and increase the interest of students. Thus, non-standard experiments are an important tool for improving the competence of teachers and serve to increase the effectiveness of the educational process.

References:

1. Abdurazakov, A. (2018). "Non-standard experiments and their place in the educational process." *Chemistry Education*, 5(2), 45-52.
2. Kadyrov, J. (2020). "Using non-standard experiments to improve the competence of teachers." *Education and Innovation*, 3(1), 34-39.
3. Israilov, I. (2019). "The Role of Experiments in Developing Chemistry Teachers' Creative Approaches." *Journal of Science for Teachers*, 12(4), 67-73.
4. Karimov, M. (2021). "Teacher training through non-standard experiments." *Innovations in Education*, 2(3), 12-18.
5. Tashkent, L. (2022). "Creative approaches and unconventional experiments in chemistry." *Pedagogy and Psychology*, 8(1), 25-30.
6. Muradov, A. (2023). "Increasing pedagogical competence of teachers using non-standard experiments." *Education of Uzbekistan*, 4(2), 15-22.
7. Yusupov, R. (2024). "Practical experiences and non-standard experiments for teachers." *Education and Science*, 1(1), 40-45.

