

INTERACTIVE TEACHING OF THE TOPIC 'CHEMICAL BONDING'

Nagiyev K. J., Pashayeva A. A., Manafzade S. A.

Baku State University, Baku, Azerbaijan

manafzadesefeq@gmail.com

This article is dedicated to the interactive teaching of the topic "Chemical Bonding" within the framework of chemistry education. The article examines the impact of interactive teaching methods on students' active participation in the learning process and the development of their critical and creative thinking skills. Modern pedagogical technologies and innovative approaches are applied to present the topic in a more comprehensible and engaging manner.

The concept of chemical bonding is one of the fundamental notions in chemistry and plays a crucial role in explaining the structure and properties of substances. The types of chemical bonds, their formation mechanisms, and characteristics are closely related to the fundamental branches of chemistry, such as atomic and molecular theory. Alongside traditional teaching methods, interactive approaches enable a more effective understanding of this topic. By implementing interactive teaching methods, students gain a deeper understanding of chemical bonding structures, comprehend their real-life applications, and acquire new knowledge through experimentation. This article explores the significance of interactive methods, their impact on students' motivation and cognitive levels, and the necessity of using visualization, experiments, simulations, and other interactive techniques in modern chemistry education [1–2].

One of the most challenging topics in chemistry education is chemical bonding. In-depth comprehension of this topic requires visualization, experiments, simulations, and other interactive techniques. The integration of interactive teaching methods in modern education allows students to better understand the subject and acquire practical knowledge. The main objective of this study is to investigate the effectiveness of interactive methods in teaching the topic of "Chemical Bonding" and to propose optimal methodological approaches in this direction. Additionally, the goal is to increase students' interest in chemistry, ensure their active participation, and develop their independent thinking skills. The methods obtained as a result of this research can be practically applied by chemistry teachers in the teaching process. The proposed interactive methods will be useful for teachers to conduct more effective lessons, enhance students' knowledge and skills, and increase their interest in the subject. Furthermore, these approaches can contribute to the development of new educational methodologies such as STEAM and problem-based learning in modern education systems. Utilization of digital resources for the visual explanation of chemical bonding; Virtual modeling of laboratory experiments; Implementation of interactive games and simulations to ensure students' active participation in the lesson; Application of problem-based learning approaches to connect the topic with real-life scenarios [3].

Conclusion. Research shows that using interactive methods allows for a more effective and engaging teaching of the topic "Chemical Bonding". Students acquire a better understanding of the subject, increase their interest in lessons, and form an active learning process. The implementation of the proposed approaches improves the quality of chemistry education and facilitates the widespread adoption of innovative teaching methods. Moreover, the use of interactive teaching methods is not limited to chemistry; they can also be successfully applied in other natural sciences. Through this approach, students develop the ability to conduct research, propose hypotheses, and analytically evaluate results. Thus, the application of interactive teaching methods contributes to the implementation of innovations in the overall education system.

References

1. Jonassen, D. H. *Learning to Solve Problems: A Handbook for Designing Problem-Solving Learning Environments*. Routledge, 2021, p.34-49
2. Mayer, R. E. *The Cambridge Handbook of Multimedia Learning*. Cambridge University Press, 2023, 115p
3. Bransford, J. D., Brown, A. L., Cocking, R. R. *How People Learn: Brain, Mind, Experience, and School*. National Academies Press, 2022, 220 p.