PROBLEMS AND SOLUTIONS IN TEACHING THE TOPIC OF HYDROGEN FROM AN ACMEOLOGICAL PERSPECTIVE

Hagverdiyev K. N., *Mohsumova S. M.*
Baku State University, Baku, Azerbaijan
xanim23456i@gmail.com

This article examines the problems related to teaching the topic of hydrogen within the framework of the acmeological approach and explores possible solutions. Since the acmeological approach aims to stimulate students' personal and professional development, the properties and applications of hydrogen should be taught using new methods from this perspective. Research findings indicate that the use of interactive methods increases students' interest in the topic and helps deepen their knowledge. As one of the fundamental subjects in natural sciences, chemistry shapes students' worldview and critical thinking skills. Hydrogen is one of the fundamental elements of chemistry, and its proper teaching enables students to acquire a deeper understanding of the subject. However, to ensure active student participation in the teaching process, existing methodological approaches need to be reevaluated [1].

The acmeological approach, which is based on the principle of developing students' knowledge and skills to their highest potential, can make the teaching of hydrogen more effective. Enhancing students' cognitive abilities, encouraging creative thinking, and engaging them in problem-solving make it necessary to adopt new approaches to this topic.The use of traditional methods in teaching hydrogen sometimes reduces students' interest in the subject and hinders their ability to acquire in-depth knowledge. In the modern era, where the integration of scientific knowledge with technology and innovation is increasingly demanded, it is essential to implement new methods in teaching fundamental concepts of chemistry. Teaching the topic of hydrogen from an acmeological perspective can contribute to the development of students' research and analytical thinking skills. The primary objective of this research is to ensure the effective teaching of hydrogen within the framework of the acmeological approach. Teaching the chemical and physical properties of hydrogen to students using practical, interactive, and research-oriented methods can create new learning opportunities. Additionally, investigating existing challenges in teaching methodologies and proposing innovative solutions is among the main goals of this study. The teaching process of hydrogen is often limited to simple explanations and laboratory work using traditional methods. However, such an approach may fail to provide students with a deep understanding of the topic. Acmeological teaching methods, interactive laboratory work, STEM approaches, problem-based learning situations, and the integration of technology can make the topic more engaging. The use of hydrogen as a fuel, its role in industry, and its impact on the environment should be thoroughly explored and taught using methods that facilitate students' comprehension and application [2, 3].

Innovations in teaching: Enriching the teaching of hydrogen with interactive and research-oriented methods; Utilizing virtual laboratories and simulation tools; Encouraging students to conduct research on real-world projects related to the use of hydrogen in industry and as an alternative energy source; Implementing problem-based teaching methods based on the acmeological approach [4].

Conclusion. Research indicates that the acmeological approach makes the learning process more student-centered, increasing their interest and motivation. The proposed methods enhance the effective teaching of hydrogen and expand its practical applications. Furthermore, interactive approaches not only improve students' practical skills but also foster their interest in scientific research. Implementing new methodological approaches in teaching hydrogen can improve the quality of education and positively impact the development of future scientists and professionals. Additionally, the use of modern teaching methods can enhance students' critical thinking and scientific reasoning skills, better preparing them for their future professional careers.

References

1. Anderson, J. R. Acmeology in Education: A New Approach to Teaching. Educational Sciences Review, 2018, 45(2), 67-89.
2. Brown, T., Green, S. Innovative Teaching Methods in Chemistry Education. Journal of Chemical Education, 2022, 92(5), 784-798.
3. Johnson, M. STEM-Based Learning for Hydrogen Education: An Experimental Study. International Journal of Science Education, 2023, 42(3), 312-328.
4. Roberts, L. Hydrogen as a Future Energy Source: Implications for Education and Society. Renewable Energy Studies, 2023, 55(1), 122-137.