

# Opportunities for the development of research competencies of students by means of a modern chemical experiment at school

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Central modernization carried out in Belarus in 2015-2020 made it possible to provide material and technical resources to chemistry rooms at the school. As a result, the teacher has got a learning tool (LT) combining the characteristics of a classic device and IT technologies. One such LT is the hardware and software complex with a set of sensors [1]. However, the teacher was not ready to use such LT since there was no experience with him, there were no methodological recommendations for its use, but there was a desire to work with this LT, this is due to the relevance of our scientific research. Combination of personal activity, competent, systems-structural and integrative approaches, as well as principles (science, humanization, systematics, historicism, the connection of learning with life) and the theory of personal development determined the methodological apparatus of our scientific research.

We have developed a didactic tool based on uses the hardware and software complex with a set of sensors – demonstration chemical experiment on topics: "Theory of electrolytic dissociation", "Thermodynamics", "Chemical kinetics"; heuristic tasks (cognitive, creative, organizational) for the experiment, allowing you to organize a heuristic conversation; theoretical model of development of research competencies of school students (comparison, analysis, synthesis, abstraction, generalization, systematization and others). This is the theoretical novelty of our research, practical novelty of our research is the testing of the experiment [1] and introduction of the developed experiment into the educational process of schools implemented in 2018 – 2020 at national seminars, in articles of periodicals, on the website of the National Educational Portal of the Republic of Belarus. The contradiction identified by us as a result of our scientific research has been eliminated.

## References

- [1] A.S. Berestnev (2020) from <https://adu.by/images/2020/07/vesn-adukacyi-4-2020.pdf>. Access Date: 22.02.2021.