

## Case technology in the active learning of chemistry future teachers

S. I. Gilmanshina, V. S. Burlakova, G. F. Valitova

Kazan (Volga region) Federal University, Kazan, Russia, e-mail: [gilmanshina@yandex.ru](mailto:gilmanshina@yandex.ru)

In recent years, among the modern technology and teaching methods special place in vocational education takes the case method.

According to the literature [1], the case method allows you to create professional skills, relevant expertise in the integration of elements of real professional activities in the learning process. In addition, the case method allows you to organize the transfer of educational knowledge in the field of professional activity.

The main purpose of case-method - an organization of independent individual or group activities of students to develop their thinking skills in the course of solving the educational and professional tasks and exercises.

For example, in the classroom for general professional disciplines case method allows for the effective cooperation of students, promotes understanding of the problem situation and its resolution.

In general, a carrying case is understood the task is a description of a specific practical situation. In this case, the situation should be sufficient for understanding and resolution inherent in it explicit or implicit problems.

Thus, the essence of this method is that the training material supplied to students in the form of problems (cases), and the knowledge acquired as a result of active creative work. In other words, the case method is a method of active learning.

Cases can be presented in various forms - from several proposals for a single page to a large number of pages. However, large in terms of cases, tend to create some difficulties for analysis pledged problem situation. A certain standard of presentation of case studies in the current literature does not occur.

We have prepared and tested in the learning process cases in analytical chemistry [2] and physical chemistry on "Thermochemistry", "Thermodynamics of chemical equilibrium", "Phase Equilibria", "adsorption equilibrium" for students enrolled in the direction of Teacher Education (chemistry profile) . A series of tests includes historical material.

For example, in the case on the thermodynamics describes the historical fact of the explosion while trying to break up compacted mixture of nitrate and ammonium sulphate [3] and is offered on the basis of thermodynamic calculations to assess the extent of danger of decomposition of ammonium nitrate.

In another carrying case raises the question of thermodynamic study is not possible spontaneous decomposition of potassium chlorate. A historical link effect of the salt purity (the presence of impurities combustible substances such as sulfur and phosphorus) on its sensitivity to friction, indicated in its application to the production of matches, it is proposed to describe the corresponding thought experiment.

In general case in chemistry can be considered as a complex integrated system of active learning.

### References

1. Sibgatova K.I., Gilmanshina S.I., Khalikova F.D., Gilmanshin I.R. , Akchurina I.R., Shchaveleva N.G., Asian Social Science (2015) Vol. 11, No. 1. P. 386-391.
2. Burlakova V. S., Gilmanshina S. I. *Nauchnye i nauchno-metodicheskie trudy V International nauchno-prakticheskoi konferencii "Innovacii v prepodavanii himii"* [Scientific and methodical works prakticheskoi V Mezhdunarodnaja Scientific Conference "Innovations in teaching chemistry"]. Kazan: Kazan. University Press (2014) 183–185.
3. Chemical catalog. [Himicheskii katalog] URL: <http://ximicat.com/> (01.11.2014)