

The Development of Digital Competences in Future Chemistry Teachers In Accordance With the Digcompedu Requirements

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Abstract

This paper reports on the results of the research aimed at the creation of an e-learning course to support the teaching of the compulsory course Activating Methods in Chemistry Teaching in the LMS Moodle environment. This course was subsequently implemented into university teaching to develop students' digital competences in line with the European Framework for the Digital Competence of Educators (DigCompEdu). The research sample consisted of first year Master's degree students of chemistry teaching (N=18) at the Faculty of Science, P. J. Šafárik University in Košice. The research took the form of a one-group quasi-experiment performed during the winter semester of the 2023/2024 academic year. The scope of teaching in the e-course was over 9 modules for a total of 42 hours. The research instruments included the self-assessment card filled in by the students before and after completing the e-course, and a questionnaire developed by the authors. The evaluation of the comparison of the students' self-assessment cards shows an overall improvement in the students' level of digital competences and skills in the individual topics covered by the e-course. Significant development of digital skills was evident in the topics Computer Based Laboratory Activities, Online Applications and Use of a Digital Visualizer. The results of the questionnaire showed that students realised the benefits of the e-course for their future teaching practice. To optimise the e-course, it will be necessary to adjust the amount of time required for some topics and create more opportunities to use digital technology to address specific topics in chemistry.

Keywords: activating methods in chemistry teaching; e-learning course; higher education; self-assessment; teaching students