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Digital Resources in Teaching as Part of Chemistry Teachers' Digital Competence

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Abstract

This paper presents research examining the impact of the innovative educational program "Teaching Chemistry in Secondary Schools: Fostering Digital and Scientific Literacy" on the development of chemistry teachers' digital competence in accordance with the DigCompEdu framework. The training was organised within "The Digital Transformation of Education and Schools" national project (DiTEdu). Its goal was to develop teachers' digital competence necessary to apply activating teaching methods, integrate digital technology and AI tools in chemistry teaching, use digital educational resources, and conduct digitally supported student assessment. The 50-hour programe comprised six modules delivered in a blended learning format. The sample consisted of 15 secondary school chemistry teachers. Research was conducted during the first semester of the 2024/2025 school year and took the form of a one-group pre-test and post-test design. The instrument was the self-assessment DigCompEdu Check-In questionnaire completed by the teachers before and after training. The findings in the Digital Resources area showed that across all three competences observed, the number of teachers at the A2 (Explorer) level decreased and the number of teachers at the B1 (Integrator) level increased. Upon completing the training, teachers were able to select and verify digital resources in accordance with educational goals and students' needs, create digital content, and share it using online platforms. Based on the teachers' opinions, further training should focus on critical evaluation of digital resources and AI outputs, creation of interactive digital content promoting active learning, safe management of digital resources, and collaboration among teachers in creating and sharing digital materials.

Keywords: DigCompEdu; Educational Technology; In-Service Education; Self-Assessment