

Development of In-Service and Pre-Service Vocational School Teachers' Key Competencies in Accordance with the Digital and the Green Transformation of the Economy

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Abstract

The proposed paper reflects on the European Commission's recommendations targeted at accessible, more attractive, and flexible vocational training. An emphasis is placed on an active and conscious collaboration of the actors of the educational practice, and attention is paid to undergraduate teacher training and the efforts to increase the interest in developing professional and key competencies through the digital and green transformation of the economy. The paper is based on the European Commission's declared commitments, presented in the European Green Deal in 2019 (European Commission, 2019) as a challenge to eliminating existential environmental threats. For its application in practice, teachers' sufficient knowledge in developing knowledge, skills, and pro-environmental attitudes in their students is essential. Additionally, attention is paid to the document 'Council Recommendation on Key Competencies for Lifelong Learning' adopted by the European Council, which committed each Member State to implement it in its curricular documents. On the application level, the paper is focused on vocational schoolteachers' preparedness for accomplishing demanding tasks and on promoting their undergraduate training by utilising appropriate teaching methods and strategies.

Keywords: Environmental education, the European Green Deal, lifelong learning, Key competencies, Curricular documents, Undergraduate teacher training

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1 Introduction

Education in the field of environmental awareness is currently based on two major international agreements impacting both the content and the methods in the context of environmentally oriented activities in school environments. Recently, the awareness of the significance of climate change's impact on the environment and, subsequently, on human health and lives has increased in broader masses. The first important document to be mentioned is the European Green Deal (European Commission, 2019), which aims to achieve climate neutrality on the horizon of 2050. Alongside the necessary changes in all branches of the economy, as well as in the applied approaches, and taking over personal responsibility for meeting this goal, also high-quality training is essential. It must be remembered that the graduates will be the future actors in the changing world. In this context, the second crucial international agreement, 'Council Recommendation on Key Competences for Lifelong Learning' (2019) – which aims to create a system for developing critical competencies in learners – has a big role. Developing a functioning model requires numerous extensive research activities on identifying the critical knowledge, skills, abilities, and attitudes, as well as values (Zapletal et al., 2018; Zapletal, 2020), which are among the essential employers' requirements and are necessary for successfully dealing with professional tasks (Szarková & Horváth, 2016), but on the other hand, also employees consider them essential in the process of achieving personal life satisfaction. The European Commission encourages all EU Member States to implement this model in their curricular documents. It is crucial not to focus exclusively on knowledge and professional skill, but especially on interdisciplinary transferable competencies that provide a basis for further learning activities and self-realisation. It should be considered that developing teacher trainees' key competencies during undergraduate training has a significant impact on their expertise and professional preparedness for performing their jobs in schools, where they can also hold the position of a class teacher, coordinator of environmental education, or school counsellor, i.e., will become essential determinants in shaping the young generation's opinions, attitudes, and their system of values.

2 Sustainable Development as a Part of Environmental Education

People are becoming more aware of the importance and need for sustainable actions and responsible and respectful behaviour towards the environment. The requirements have been clearly defined, and information regarding the up-to-date levels of its pollution is easily accessible. Although the environmental burden is enormous, protecting the environment is on the periphery of interest within formal education in Slovakia.

Considering the environment's condition, educational systems should react to the situation more flexibly, prepare the future generation for the challenges they will face, and pay sufficient attention to environmental education. In Slovakia, in Act No. 17/1992 Coll. on Environment, it is stated that education and edification should lead learners towards thinking and acting by the principle of sustainable development, towards feeling responsibility for maintaining the quality of the environment and its components and developing respect for life in all its forms. Alongside that, in the Act on Environment, the notion of sustainable development is defined as such development which allows present and future generations to satisfy their basic needs and, at the same time, does not reduce the diversity of nature and preserves the natural functions of ecosystems. Krajňáková (2020) considers environmental education the only intentional, purposeful educational process representing the "good" in society, which intends to form ecological culture and promote the rational use of resources. It can be characterised as a sum of gained knowledge, habits, value orientation, experiences, and competencies in protecting the environment to ensure environmental security in the country and the entire planet.

The process of environmental education often comes with an increase in students' academic performance, more effective critical thinking, and soft skill development. It also comes to personal growth (Natural England, 2012, as cited in IEP, 2021). The above supports the idea of implementing environmental education in formal education.

2.1 Topics of the European Green Deal and the Proposal for Council Recommendation on Learning for Environmental Sustainability

For the above reasons, on the platform School Education Gateway, public discussions about education in the field of environmental sustainability organised by the European Commission were led. The gathered ideas resulted in the 'Proposal for a Council Recommendation on Learning for Environmental Sustainability' (European Commission, 2022). This document aims to strengthen the collaboration in environmental sustainability and education at a European level in compliance with the European Green Deal (European Commission, 2019) in the European educational environment. Based on the European Green Deal, the European Union has adopted specific measures against climate change and encourages all citizens to strive for a more ecological and sustainable Europe (School Education Gateway, 2021).

The European Green Deal aims to promote changes in the following fields:

- innovations in the industry – more ecological industry, sustainable and more ecological production cycles;
- moving towards a circular economy;
- developing clean technologies;
- more ecological and sustainable transport;
- decarbonisation of the energy sector – clean energy;
- increasing the energy efficiency of buildings – more ecological construction;
- protecting our biodiversity and ecosystems;

- ensuring fast and effective air, water, and soil pollution reduction;
- sustainable agriculture (European Commission, 2020).

The Recommendation on Learning for Environmental Sustainability can support Member States in their efforts to unify their education and vocational training systems with the changes necessary for the green transition.

2.2 Implementation of Environmental Education in Formal Education in the Slovak Republic

The Slovak national curricula and other significant educational documents include environmental education, education on sustainability and global education. However, it can be assumed that the terminology in the field is not clearly defined.

Following the national curricula for different types and levels of schools, environmental education can be realised in the form of a cross-cutting theme, as a school subject, as a theme included in the educational content of any school subject, or the form of a course or a project. It must be noted that most frequently, schools opt for implementing the content of environmental education in several school subjects in combination with participation in environmental projects and organising environmental activities. Educational standards represent a problem for schools, as these are defined only for individual subjects and not for cross-cutting themes – including environmental education. Differences between schools can be observed mainly in how much they collaborate with non-governmental organisations and participate in projects and grant projects.

The Ministry of Environment of the Slovak Republic is responsible for increasing environmental awareness in Slovakia and ensuring informal environmental education. In 2015, as a reaction to the current needs and latest challenges in the field of environmental protection in Slovakia, a new concept for environmental education by 2025 was adopted. Its main goal is to develop a functioning system of environmental education and edification in the environmental resort following several primary international documents focused on environmental education and edification (Ministry of Environment of the Slovak Republic, 2015). The currently applied system is insufficient, and there is a need for a more practical approach to environmental education.

2.3 The Inclusive Dimension of Environmental Education

Environmental education also impacts learners' personal development, which applies explicitly to socially disadvantaged groups of learners. Experiential strategies and teaching methods can significantly contribute to disadvantaged students' personal growth and increase the quality of their lives. Booth and Ainscow (2019, p. 41) claim that environmental sustainability forms the bases for inclusion, as environmental degradation, deforestation, and global warming influence the quality of our lives and even today endanger human lives

worldwide. Schools promoting inclusive education should pay attention to environmental protection in their closest neighbourhood and outside it. When developing ecological literacy, they should lead their students towards respecting nature and understanding its processes instead of emphasising the eventuality of future catastrophes. Environmental education must be associated with hope and optimism regarding overcoming threats. The critical approaches to education based on inclusive values are displayed in Figure 1.



Fig. 1: Pro-inclusive education (Booth & Ainscow, 2019)

3 Council Recommendation on Key Competences for Lifelong Learning

The Council Recommendation on Key Competences for Lifelong Learning was adopted by the European Commission in 2018 and committed to all EU Member States implementing it in their national curricular documents. As stated in the document, education aims to equip all students with a basic set of key competencies at an acceptable level, which they can achieve and allow them access to further education and finding application in society. The Council Recommendation is an essential document as it promotes increasing the quality of school education to prepare flexible and creative people equipped with key competencies necessary for living meaningful and successful lives and for understanding the importance of lifelong learning. Developing key competencies is a lifelong process and among the rights of every human being. Personal satisfaction, a healthy and sustainable lifestyle, social inclusion, active citizenship, high-quality and inclusive education, vocational training, and lifelong learning opportunities are essential (Key Competencies for Lifelong Learning, 2020).

Suppose education is perceived as an opportunity for acquiring and developing competencies regardless of the education the learners need. In that case, the need to focus

on universal, flexible, and sustainable competencies increases. So, within educational systems, opportunities for stimulating learners to further learning and gaining new knowledge, developing skills, abilities, and attitudes necessary for motivation to learn, achieving success and overall progress should be created.

The above facts led the European Council to provide a common reference framework on key competencies for all education stakeholders in May 2018 (European Council, 2018). In the adopted Recommendation, eight key competencies needed for lifelong learning are defined today and in the future. As stated in the document, eight key competencies are necessary for individuals' personal development, health, sustainable lifestyle, employability, active citizenship, and social inclusion. The reference framework also includes recommendations on effective ways of promoting the development of innovative approaches in education, methods of assessment and providing support and guidance for people working in the field of education. Its main goal is to achieve the potential of personal development in all learners. It is necessary to ensure high-quality education and care since early childhood, to improve the quality of educational systems, including the whole spectre of schools from primary to vocational education, and to modernise universities.

The eight key competencies (European Council Recommendation) are displayed in Fig. 2.



Fig. 2: Eight basic key competencies (European Commission, 2019)

4 Undergraduate Teacher Training and Preparedness for Environmental Education

From the aspect of developing students' environmental literacy and increasing their environmental awareness, teachers' competencies in the field and their development during undergraduate teacher training have a significant role to play. Teachers should be well prepared for environmental education, want to apply previous experiences and desire to search for opportunities to learn and develop in various life contexts (European Council,

2018). Based on the above, it can be assumed that students' satisfaction with various teaching methods can be predicted. The applied methods and strategies can motivate teachers to use them in their teaching practice.

Recent experience shows that in Slovakia, the content of undergraduate teacher training is insufficient for introducing the subject of environmental education. Moreover, teachers are not prepared to implement environmental topics and activities in the educational content of their subjects as a cross-cutting theme. To do so, certain environmental minimums should be developed in them during their undergraduate training. This minimum should contain indispensable thematic content, developing necessary skills and habits, examples of good practice, verified teaching methods, and recommended activities (Bilčík, Bilčíková, & Geršicová, 2021). Undergraduate teacher training programmes should focus on theoretical knowledge from profile subjects and professional didactic training, which can be considered a sum of pedagogical, psychological, and social sciences knowledge. Alongside appropriately selected methodical procedures for mediating professional knowledge, dealing with behaviour issues in the classroom, developing students' communication skills, building relationships with students, using appropriate methods of motivation, or creating a favourable classroom climate are essential parts of teachers' everyday work. In order to prepare students for sustainability and working with the above-mentioned international documents, effective methods of work should be applied during undergraduate training and opportunities for experiential learning should be provided.

5 Conclusion

Education is vital in achieving sustainable development and responsible behaviour—the twin transition of green and digital changes our ways of life, work, and communication. EU Member States' transition to a circular, digitalised, and climate-neutral economy will bring new jobs and effective use of artificial intelligence and robotics resources. Undoubtedly, schools must be prepared for such changes and react to them flexibly. Teachers' openness to innovations and new methods of teaching and their willingness to collaborate and share experiences can make their colleagues' jobs much more accessible and may lead to responsible actions in their students in a global context, independent critical thinking, and creativity, finding innovative solutions, and using new environment-friendly technologies for a healthier and safer environment. It can only be achieved by continuous lifelong learning and developing learners' competencies. Only then can schools prepare graduates to find applications in society and live happy lives.

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