

DEVELOPING TEACHERS' DIGITAL COMPETENCES: INSTITUTIONAL APPROACHES (29)

Sandra Kučina Softić, & Tona Radobolja

University of Zagreb University Computing Centre (Croatia)

Abstract

The rapid expansion of digital technologies has made the digital transformation of education a necessity, placing new demands on teachers and educational institutions. One of the key steps in the digital transformation of education is developing teachers' digital competencies. As knowledge and skills evolve quickly, particularly in the context of digitisation, teachers are required to engage in continuous professional development and lifelong learning to maintain relevant competencies. Developing digital competences in the education system requires integrating ICT into teaching effectively and ensuring teachers receive the training and education to acquire these competences. The latter is probably the most important factor for the development of a digital culture in education. Educational institutions often face challenges in organising teacher training in digital competencies, as various internal and external factors influence these efforts. If an institution's strategy is more declarative than operational, the development of teachers' digital competences can be just a task on paper, while in practice, some concrete steps will be absent. Usually, to realise a strategy, a combination of top-down and bottom-up approaches is needed. Often, if there is no determination from the institution's management, the results will not reach their full potential. Every strategy needs an action plan and stakeholders responsible for its realisation; therefore, if an institution plans teachers' training in digital competencies, the best approach is to implement it through the strategy or a similar document. Teachers' training in digital competences is an ongoing process, as institutions must provide ongoing professional training for teachers. Such a process requires analysing the current situation, planning, a production phase, and reflecting on the achieved results, which will serve as the basis for continuing the process. During the pandemic, awareness of the need for teachers' digital competences has increased, while AI has additionally emphasised the need for teachers to have digital skills to design, develop, and organise innovative, learner-centred, competency-based, flexible and inclusive teaching, learning, and assessment activities. This paper highlights the importance of systematic and institutionally supported approaches to developing teachers' digital competences, emphasising strategic planning, structured training, and ongoing evaluation. Based on SRCE's long-term experience and expertise in providing sustainable, high-quality support and involvement in the national project e-Universities, SRCE analyses institutional approaches to teacher training. The findings underscore that the sustainable development of teachers' digital competences requires coherent strategies, adequate resources, and continuous support to ensure the effective integration of ICT into teaching and learning.

Keywords: *Digital competences, teachers, institutional approach, digital transformation.*

1. Introduction

One of the key steps in the digital transformation of education is developing teachers' digital competencies. They are part of educational institutions' strategies and have become a prominent topic among scholars as the teaching profession faces rapidly changing demands that require a new, broader, and more sophisticated set of competences than before.

Digital competence is "the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It is defined as a combination of knowledge, skills and attitudes." (European Union, 2018). Digital competence is an essential skill for academics and encompasses digital skills, pedagogical-didactic awareness, and the understanding of the impact of learning strategies on students' learning (Inamorato dos Santos et al., 2023). (The DigComp 3.0 framework (Cosgrove & Cachia, 2025) describes what is needed to be digitally competent in today's society, while the DigiCompEdu framework (Punie & Redecker, 2017) focuses on educators' digital competence across all levels of education. The OECD Digital Education Outlook 2023 (OECD, 2023)

emphasises that “digital technologies in education systems are not in themselves a transformative force: they require educators who know how to use them in ways that can strengthen innovative teaching practices and improve learning outcomes”. One of two strategic priorities in the Digital Education Action Plan 2021- 2027 (European Commission, 2020) is the enhancement of digital skills and competences for the digital transformation of education.

2. Institutional approaches in practice

Educational institutions often face challenges in organising teacher training in digital competencies, as various internal and external factors influence these efforts. If an institution's strategy is more declarative than operational, the development of teachers' digital competences can be just a task on paper, while in practice, some concrete steps will be absent. Usually, to realise a strategy, a combination of top-down and bottom-up approaches is needed. Often, if there is no determination from the institution's management, the results will not reach their full potential. Every strategy needs an action plan and stakeholders responsible for its realisation; therefore, if an institution plans teachers' training in digital competencies, the best approach is to implement it through the strategy or a similar document. Based on EUA research on staff development in higher education institutions in Europe (Zhang, 2025), staff development is well integrated into higher education institutions' learning and teaching strategies, with 89% reporting staff development strategies. The results show that 96% of responding higher education institutions offer formal staff development opportunities, and that, overall, most are offered as optional.

Teachers' training in digital competences is an ongoing process, as institutions must provide ongoing professional training for teachers. Such a process requires analysing the current situation, planning, a production phase, and reflecting on the achieved results, which will serve as the basis for continuing the process. During the pandemic, awareness of the need for teachers' digital competences has increased, while AI has additionally emphasised the need for teachers to have digital skills to design, develop, and organise innovative, learner-centred, competency-based, flexible and inclusive teaching, learning, and assessment activities.

2.1. The E-learning Centre at SRCE

The E-learning Centre¹ (ELC) SRCE – the University of Zagreb University Computing Centre² serves as a central unit for supporting e-learning implementation in higher education in Croatia. SRCE, a leading national ICT infrastructure and competence centre, has over 50 years of experience in delivering educational programs in digital skills, IT applications, and e-learning.

The E-learning Centre provides support to teachers in designing and maintaining online courses, offers daily support to its users, and organises various training activities specifically for teachers. The ELC advises higher education institutions on implementing digital technologies at the institutional level and supports students' learning activities in the virtual environment. The ELC particularly focuses on developing teachers' digital competencies to enable them to integrate innovative teaching methods and educational technologies into the educational process.

One more SRCE activity related to the development of digital is the SRCE Academy³, which offers specialised, high-quality programs for the professional development of participants: researchers, teachers, IT experts, and information specialists. Through expertly led courses and workshops, as well as self-study courses, participants acquire practical knowledge and skills to use digital technologies effectively and efficiently in their work.

Additionally, the SRCE is a project partner in the e-Universities project, initiated by the Ministry of Science, Technology and Youth and under Croatia's National Recovery and Resilience Plan. The SRCE ELC team is contributing to educational activities that strengthen teachers' digital competencies for teaching in a digital environment. One of the activities in this project is designing a training program to develop the digital competencies of management and teaching staff at higher education institutions. Other activities include teacher training on implementing hybrid teaching and learning in institutions, using audio-visual equipment to improve teaching and learning processes, and creating digital learning materials.

¹ <https://www.srce.unizg.hr/en/elc>

² <https://www.srce.unizg.hr/en>

³ <https://www.srce.unizg.hr/akademija>

3. Method

The paper provides reflections from SRCE and the E-learning Centre on institutional approaches to teachers' training, drawing on over 18 years of support to higher education institutions in implementing e-learning, as well as on other activities SRCE organises to raise teachers' digital competence in a systematic and long-term way.

The aim of the paper is to discuss possible scenarios for institutional approaches to organising teachers' training at the institutional level in a systematic way to help institutions better organise it.

4. How do institutions approach the development of teachers' digital competences?

In the digital transformation of education, one activity is the systematic training of teachers in digital competencies. Higher education institutions need to review how teacher training and support are currently organised, consolidate them, and make them an integral and ubiquitous part of the institution's strategies and policies. Institutions may differ in the organisation of these activities, but a model in which teacher development and systematic support are provided centrally and at the level of individual faculties/departments in a complementary manner can be an effective way forward. Continuous professional development for teachers must become an integral part of their career path, not just an option for those interested and with free time. Excellence in teaching should be highly valued among the criteria for career advancement, on a par with research. (Kučina, Lasić Lazić, Odak, 2021). Mahdavi Zargari (2026) states that universities, as institutions that train professionals and produce knowledge, have a mission to lead this process through digital literacy policies for teachers, assessment frameworks, and sustained pedagogical support programs. Therefore, teaching competencies constitute one of the central pillars of university professionalism.

The development of digital teaching skills is directly linked to the quality of university education. Research shows that teachers with higher levels of digital competencies are more eager to implement digital technologies into the educational process, to use new teaching and learning methods, to design virtual learning environments, and to enhance pedagogical innovation in higher education. Teacher training in digital competencies is not only about learning to use digital technologies, but also about designing effective teaching activities, assessing students using digital tools and fostering collaboration in a digital environment (Kučina Softić, 2022). Recent research (Vidal-Estevé, Romer-Rodrigo and Gabrada-Méndez, 2026) analysed the level of teachers' digital competencies, and results showed heterogeneity, from very low to high. The research emphasises that digital competence depends largely on organisational conditions and available infrastructure, and the need for coherent policies, stable resources, committed leadership, and educational institutions' cultures that encourage innovation and collaboration.

In this paper, we present three institutional approaches to teacher training in practice. These are the most common scenarios that institutions face in organising teacher training in digital skills.

4.1. In-house teachers training

Institutions often provide in-house training for teachers on digital competencies, using internal trainers. Although worthwhile, these attempts are usually limited in the topics and training levels (basic, advanced, expert) they can provide, as well as in the people who can lead the training session. The benefits of such initiatives are that trainers – people who volunteer to give training to teachers are enthusiasts whose spirit can inspire their colleagues to participate in the training, or people working in support services who have good insight into the situation at the institution and know where to focus training. Also, it is held on the institution's premises, which is often an important factor for teachers. Nevertheless, this can be an obstacle as well, as teachers often try to combine training with their work, leading to reduced attention and incomplete participation.

4.2. Teacher-selected external training

Another institutional approach can be one in which the institution leaves it to teachers to choose and find the training they need or want. The institution can finance such training, but it is sporadic and hardly applicable to all teachers. The benefits of such an approach are that teachers are interested and motivated to take the training they have chosen and apply the knowledge and skills they have gained in their work. If training has no cost, the issue may be that teachers do not attend them in the end, since there are no consequences.

4.3. Outsourced teachers' training programmes

The third approach is for institutions to outsource the necessary teacher training. In such situations, institutions decide which training they need and search for the provider. If provided by professional firms,

this leads to professionally organised, better-quality, and tailored training for a particular audience. They are targeted at a larger number of teachers and provide a systemic approach. Nevertheless, they can be costly for the institution. Some countries have national e-learning centres or similar centres that provide training programs for teachers, as in Croatia, where SRCE offers such training opportunities for the academic community. In such cases, training programmes for teachers can be provided at no cost or at very low cost.

4.4. Critical success factors

Teachers' professional development should be organised in an innovative way, providing high-quality content in an attractive format that encourages active teacher participation and raises awareness of the importance of innovation in teaching. Upon completing training, teachers will receive certificates and/or digital badges, which are important to institutions for evaluations such as digital maturity assessments, accreditations, or project applications.

As stated at the beginning, numerous factors influence the organisation and implementation of teachers' training. Apart from the organisation of the training, some factors influence teachers' attendance; first and foremost, their motivation. As they are already fully engaged with their work, they often lack time. Their motivation to take training can also be low if they feel their work is not recognised or rewarded. Another obstacle is that they do not feel comfortable with digital technologies and lack institutional support; as a result, they are reluctant to participate in training. The research by Smith & Wyness (2024) found that motivation has consistently been identified as a key factor influencing training outcomes, and concludes that investigating what optimally motivates participants is crucial to understanding how to constitute effective teacher training. The OECD report on Preparing teachers for digital education: Continuing professional learning on digital skills and pedagogies (OECD, 2025) also points out that teacher motivation is an important factor for their sustained and effective participation.

5. Conclusion

Digitalisation is advancing rapidly, but teacher training in digital competencies and their professional development do not always keep pace. Teachers' training in digital competencies should be part of educational institutions' strategies, if it is not already. Teachers' digital competencies have become a key concern for education as the teaching profession faces rapidly changing demands for a new, broader, and more sophisticated set of competencies.

So, what is the best way to develop teachers' digital competences on the institutional level? Above all, integrating teachers' professional development and support for the use of digital technologies into institutional strategies and policies, i.e., a strategy for the digital transformation of education with a concrete action plan and stakeholders responsible for the activities. First, an analysis of the present situation and a definition of the needs are essential. Teachers' development programs must be continuous, integrating reflection on educational practice and technological updating, so that they can implement innovative methodologies and adapt to changes in the global educational ecosystem. Tools such as SELFIE⁴ and CheckIn Higher Education⁵ enable teachers to self-assess their digital competencies. Based on these results, the institution can organise training tailored to teachers' needs. Usually, a combination of all presented approaches will serve the purpose. Even if teachers receive training and develop digital competencies, that does not guarantee they will apply them in the educational process. Along with teachers' training, the development of a supportive ecosystem is important. And last, but not least, if there is no recognition of excellence in teaching and reward for effort, there is no guarantee of success. We can say that the digital transformation of education depends on teachers' digital competencies. Overall, strengthening teachers' digital competencies can positively impact educational quality by fostering active teaching methodologies, online collaboration, personalised learning paths for students, and flexible, inclusive, and sustainable environments. Through strategic planning, appropriate training approaches, and institutional-level support, the teaching workforce needed for the digital age can be built.

⁴ <https://education.ec.europa.eu/selfie-for-teachers>

⁵ https://joint-research-centre.ec.europa.eu/digcompedu/digcompedu-self-reflection-tools_en

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