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Challenges in enhancing digital competences in the Slovenian education system

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Abstract: In this contribution we discuss the current state of digital competences among teachers in the Slovenian education system. The research shows that teachers generally demonstrate a medium level of knowledge and skills in teaching digital competences such as safe use of the internet, ethical online behaviour, and digital content creation. However, knowledge gaps were observed, especially in topics such as digital identity management, verifying the authenticity of online resources, and solving technical problems. The paper highlights the need for a holistic approach to teacher education, including professional development, support and resources to improve teachers' digital literacy. Enhancing these competences is key to successfully integrating digital technologies into the educational process and preparing students for the challenges of modern society.

Keywords: digital competences, education, digital literacy, professional development.

Introduction

Today, education is increasingly digital (Erstad, 2021). Its development and the evolution of its use in education have been gradual and depend mainly on the skills of educators (Núñez-Canal et al., 2022). Education today is no longer teacher-centred, but learner-centred. The transition is driven by the creation of innovative learning environments and new approaches in education that promote, in particular, diversity in teaching and learning. This has led to changes in the forms and methods of teaching. Today, learners are encouraged to be able to construct mindsets independently. This leads them to new insights on the basis of which they are able to own their own knowledge and skills. The changes that have been part of education in recent years present new challenges. All changes need to be assimilated into our daily lives, including in the field of education. Competences that enable individuals to have continuity and discontinuity of learned competences over time are being put at the forefront (Vičič Krabonja et al., 2024). This is why we are putting competences at the heart of education today. Competences are about three inextricably linked areas - knowledge, skills and attitudes and value. Competences include a wide range of skills that help individuals to cope with the changes we are experiencing in society as a whole. Competences help individuals to become able to take different positions in society and to adapt to different needs. Education must therefore offer learners today the knowledge and skills that they are able to develop and nurture throughout their lives. Digital technology, which has become an integral part of the education process, will also play a key role here (European Commission, 2019).

The European Parliament and the Council of the European Union adopt a report on key competences for lifelong learning, highlighting eight competences. Competences are a combination of knowledge, skills and attitudes. The competences highlighted are: communication in mother tongue, communication in foreign languages, mathematical competence and basic competences in science and technology, digital literacy, learning to learn, social and civic competences, self-initiative and entrepreneurship, and cultural awareness and expression. The order of competences is not significant, as all of them are important for a modern society (European Commission, 2019; Guitert, 2020).

The 21st century is an era that is bringing a high degree of digitalisation of information into everyday life. This involves major paradigm shifts that should change and adapt to the changes dictated by modern society (Levano-Francia et al., 2019). Digital competence means the confident, prudent and critical use of all digital technologies. In this context, digital technologies refer to all the ways or technologies for acquiring and sharing information. In a broader sense, competence refers to information skills, content creation, communication, ethical skills, problem solving, technical skills, etc. (Sánchez-Caballé et al., 2020).

Students are expected to build digital competence to meet the demands of a changing educational model and to cope with the challenges of modern society (Zhao, 2021). Therefore, learners will need to learn relevant skills related to digital competence. The education system needs to cater for the development of digital competence, which will be important for individuals to use digital technologies meaningfully in the complex life process (Sa & Serpa, 2020). Research by Zhao et al. (2021) shows that most students have a basic level of digital literacy. Given the importance of digital literacy for people's lives in modern society, it is important to focus on the development of digital literacy in the educational process. In doing so, we need to strengthen them in both teachers and learners.

Methodology

As digital competence is important, we were interested in how skilled teachers are in strengthening digital competence in the educational process in Slovenian schools. For the purpose of the research, we designed a short survey questionnaire that included 10 statements directly related to the effectiveness of technology use in education. The question asked how proficient teachers feel in teaching students in the following situations: (1) Teaching students how to use the internet safely (e.g. preventing

cyberbullying), (2) Teaching students how to create digital content, (3) Teaching students how to protect their privacy, (4) Teaching students how to manage their digital identity and reputation, (5) Teaching students how to behave ethically online, (6) Helping students take advantage of the opportunities offered by digital technologies or the web, (7) Teaching students how to check whether information found online is reliable and accurate, (8) Teaching students how to give credit for the work of others that they have found online (copyright), (9) Teaching students how to communicate using digital technologies, and (10) Teaching students how to solve technical problems when using digital technologies. Participants responded to the statements by selecting a rating level on a 5-point Likert scale, with the ratings in the following order: 1 = very poor, 2 = poor, 3 = medium, 4 = good and 5 = very good.

The questionnaire was designed in the 1ka.si annual survey application. The link to the questionnaire was posted on the Innovative Teachers' Association forum. 866 Slovenian primary and secondary school teachers responded to the invitation to participate. Participation in the survey was completely voluntary and non-obligatory. Before the start of the survey, participants were informed that the questionnaire was completely anonymous and prepared in accordance with all ethical guidelines. The data were analysed using IBM SPSS statistical analysis software. Percentages, mean and standard deviation were calculated.

Research Results

Table 1 presents the results of the survey. For each statement, percentage values are given according to a 5-point scale. For the first statement, it can be observed that teachers are quite proficient in teaching students about safe use of the Internet, with a small proportion of those who are very proficient. Teachers feel slightly less proficient in teaching pupils about creating digital technology. When asked about online safety and digital identity management, teachers expressed that they were neither very nor very proficient. The scores for the bypass statements were practically average ($M = 3.00$ and $M = 3.03$). They feel slightly more proficient on topics related to the ethics of online behaviour. Here, teachers expressed that they are well versed in this area. A slightly less encouraging result is found for the question of helping teachers to take advantage of the opportunities offered by digital technologies. Although teachers expressed that they were proficient in this area, the majority of teachers nevertheless expressed that they were moderately proficient. However, there are few who are not proficient. In the statements relating to Teaching students how to check whether information found online is reliable and accurate, how to take credit for the work of others found online (copyright) and on communicating using digital technologies, teachers show a medium level of proficiency. The proportion of teachers who are more proficient is higher than that of teachers who are not proficient. The reverse is true for the last statement, which refers to teaching students how to solve technical problems. Here, the majority of teachers consider themselves to be moderately proficient, but the proportion of those who are less proficient is higher than the proportion of those who consider themselves proficient in problem solving.

Table 1

Teachers' assessment of how proficient they are in teaching students about digital competences

	1 = very poor	2 = poor	3 = medium	4 = good	5 = very good	N%	Mean	St. Dev.
Teaching students how to use the internet safely (e.g. preventing cyberbullying)	2 %	12 %	36 %	39 %	11 %	100 %	3.45	.92
Teaching students how to create digital content	8 %	26 %	37 %	23 %	6 %	100 %	2.92	1.02
Teaching students how to protect their privacy	4 %	22 %	41 %	26 %	7 %	100 %	3.00	.96

Teaching students how to manage their digital identity and reputation	6 %	22 %	40 %	25 %	7 %	100 %	3.03	.99
Teaching students how to behave ethically online	2 %	9 %	35 %	41 %	13 %	100 %	3.55	.90
Helping students take advantage of the opportunities offered by digital technologies or the web	4 %	17 %	41 %	32 %	6 %	100 %	3.20	.93
Teaching students how to check whether information found online is reliable and accurate	4 %	17 %	40 %	31 %	8 %	100 %	3.22	.94
Teaching students how to give credit for the work of others that they have found online (copyright)	4 %	18 %	37 %	30 %	11 %	100 %	3.27	.99
Teaching students how to communicate using digital technologies	3 %	15 %	39 %	34 %	9 %	100 %	3.29	.93
Teaching students how to solve technical problems when using digital technologies	13	29	37	17	4	100	2.71	1.03

Conclusions

The research carried out shows important findings regarding the strengthening of the field that influences the development of digital competences in the Slovenian educational area. It was found that teachers generally express a medium level of proficiency in the content and activities related to digital competence development. More specific areas, such as ethical online behaviour and helping teachers to make the most of digital technologies, were rated higher, indicating an awareness of the importance of these skills in the modern world. However, the survey results point to gaps, particularly in areas relating to digital content creation, digital identity management and technical problem solving. In these statements, teachers reported lower levels of confidence and skills. The results of the survey point to an urgent need for further education and training for teachers. Teacher empowerment is particularly important to better fulfil the role that digital competence plays in the modern educational process.

Digital competences are no longer just an add-on to traditional learning content, but are becoming essential for success in all aspects of society. Contemporary teachers need to be able to provide students with the skills to use digital technologies critically, to manage information and to behave ethically and safely online. It is important that the education system responds to these needs with appropriate professional development programmes and support for teachers. This includes not only technical training, but also the development of pedagogical approaches that enable the effective use of digital tools to enhance learning. In addition, it is important to create support and resources that will enable teachers to further develop their digital competences and adapt to the rapidly changing technological environment.

Enhancing digital competences is key to the future of education. A holistic approach is needed, including teacher training and the provision of the necessary resources, so that every student can develop into a digitally literate individual, ready for the challenges of the future, and thus also strengthen an important digital competence. Digital competence is a critical competency for understanding and participating in modern society.

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