Original article

Teachers' Opinions on Digitalization in Education

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Abstract

This study was carried out to determine high school teachers' perspectives on the use of digital technologies in education. The participants of this research consisted of 71 teachers from four different countries. The participants of the project consist of the teachers in the schools involved in the "DigiSchools" project supported by the Erasmus+ KA220 program in 2001. The questionnaire questions were prepared by examining survey studies in this field. The opinions of teachers about digitalization in education performed in project process using the survey method are presented Data were collected with a 24-item questionnaire. The scale items were evaluated using mean, standard deviation, frequency, percentage and Anova analyses. Teachers' perspectives on the use of digital technologies differences by country and usage frequency were analyzed. According to the results of the research, differences were determined according to the country and professional seniority of the teachers.

Keywords: Digital technologies, pandemic process, students' perspectives, DigiSchools Project.

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INTRODUCTION

Educational systems are changing quickly along with the rest of the globe. As technology continues to transform every part of our life, it is not surprising that digitalization has permeated the educational system. By utilizing technology to improve learning experiences, digitalized schools, sometimes referred to as e-learning or virtual learning environments, are influencing the direction of education.

Schools that have gone digital provide their pupils with a variety of learning options that go beyond what is possible in a traditional classroom. Students can access a plethora of knowledge from all over the world by utilizing digital tools and resources, which allows them to learn at their own speed and go deeper into a variety of topics. Students can connect with complicated ideas in a more dynamic and immersive way via interactive multimedia content, simulations, and virtual reality experiences. According to Clark and Mayer (2016), the usage of multimedia technology in schools that have gone digital considerably improved student learning outcomes and retention rates.

The ability to customize instruction to meet the requirements of specific pupils is one of the key benefits of digitally transformed schools. Each student receives focused support and challenges thanks to adaptive learning platforms and intelligent algorithms, which monitor students' performance and offer individualized recommendations. This personalized approach enables students to advance at their own rate, strengthening their knowledge and skill bases. Kulkarni and Haridas's (2019) research found that individualized learning in digitally transformed classrooms boosted academic achievement and raised student engagement.

Regardless of a student's location, digitalized schools encourage connectivity and collaboration. Students can participate in group projects, have debates, and exchange ideas with classmates from around the globe via online platforms. This cross-cultural engagement fosters cultural awareness, improves cross-cultural communication abilities, and equips pupils for living in a globally connected society. According to Baran and Maskan (2020), students' understanding of cultural diversity is cultivated and their critical thinking skills are improved through collaborative learning in digitalized classrooms.

The freedom that digitalized schools offer pupils is one of their most important benefits. With online learning, there are no time or location limits and students can access educational material at any time. Students who may have other obligations or experience difficulties attending regular schools, such as those who are disabled or live in rural places, may find this flexibility to be especially helpful. Students who attend schools that use technology are empowered to take charge of their education and customize it for their needs. According to Lee et al. (2018), digitalized schools improved remote students' access to education and improved their academic outcomes.

The pandemic process has made the distance education method mandatory (Levin, 2021). In distance education, teachers use learning management systems and have to use more digital learning materials (Oliveira et al., 2016). Therefore, it can be said that digitalization in education is an unexpected and periodic necessity for teachers, so it is important for students to update themselves regarding digitalization.

Teacher face certain challenges, while digitalized schools hold immense potential. One major concern is the digital divide, where access to reliable internet connectivity and necessary devices remains limited in some regions. Addressing this issue requires collaborative efforts from governments, educational institutions, and private organizations to ensure equitable access to digital resources. Additionally, ensuring the quality of online content and effectively training educators to navigate the digital landscape are crucial for successful implementation. In this research, teachers' thoughts and experiences about digitalization in education were examined.

The research questions of this study are;

1. What is the level of teachers regarding digitalization?

2. Is there a significant difference in the level of digitalization according to the countries where teachers work?

3. Is there a significant difference in the level of digitalization according to the professional seniority of teachers?

MATERIALS and METHODS

This study was carried out to determine high school teachers' perspectives on the use of digital technologies in education. The survey method is defined as "arrangements made in the whole universe or a group of samples or samples to be taken from it in order to reach a general judgment about the universe" (Karasar, 2008). In this study, the opinions of teachers about digitalization in education performed in project process using the survey method are presented.

Participants

The participants of this research consisted of 71 teachers from four different countries. The participants of the project consist of the teachers in the schools involved in the "DigiSchools" project supported by the Erasmus+ KA220 program in 2001. Volunteering and availability principles were taken as basis in determining the participants. The distribution of the participants by country and their length of service are given in Table 1.

Table 1. Demographic Information of the Participants

		Frequency	Percentage
Country	Turkey	11	15.5
	Lithuania	27	38.0
	Romania	7	9.9
	Portugal	26	36.6
Professional seniority	1-10 years	2	2.8
	11-20 years	15	21.1
	21-30 years	40	56.3
	31-40 years	14	19.7

Data Analysis

Data were collected with a 24-item questionnaire titled as "Digitalization in Education", within the scope of the research. 8 teachers and 2 academicians who are expert project partners worked in the creation of the survey items. In order to refine the questionnaire, get rid of any potential issues and flaws in the procedure, and reliably attain the desired results, the questionnaire was administered face-to-face to 8 people once the draft questionnaire questions were developed. The survey questions have been finalized after the errors in the survey questions were fixed, the appropriate additions and deductions were made, and this application.

The mean, standard deviation and Anova analyzes of the survey data were made in the spss program. Teachers' opinions on the questionnaire items were explained according to the intervals specified in Table 2 (Kaptan, 1991).

Tablo 2. Score ranges

Options	Scale options	Score ranges
strongly agree	5	4.20–5.00
agree	4	3.40–4.19
undecided	3	2.60–3.39
disagree	2	1.80–2.59
strongly disagree	1	1.00–1.79

RESULTS

When the survey results were examined, the teachers said that they did not agree with the item "I have trouble finding the right digital material to use" ($\bar{x}$=2.56, Sd=1.038). "I experience technical problems and security problems when trying to use digital resources)" ($\bar{x}$=2.86, Sd=1.060), "I get help from my students to find digital resources" ($\bar{x}$=2.99, Sd=1.177) and "I received adequate training in

using digital resources" ($\bar{x}$=3.25, Sd=1.065) are items that participants said undecided. Participants stated that they agreed with other survey items (see Table 3).

Table 3. Questionnaire items

No		Mean	SD
1	I am successful in matching digital resources with learning goals.	3.79	0.791
2	I know how to use digital resources creatively.	3.75	0.769
3	I can organize digital resources according to my classroom needs.	3.82	0.780
4	How digital materials are used can change our relationship with my students.	3.85	0.822
5	I feel I will be more beneficial to my students if I get education on the use of technology in the classroom.	3.97	0.845
6	I have trouble finding the right digital material to use. **	2.56	1.038
7	I use digital resources to reinforce the subject I will teach.	3.92	0.770
8	I experience technical problems and security problems when trying to use digital resources. *	2.86	1.060
9	I spend enough time planning lessons to use digital resources.	3.82	0.883
10	I received adequate training in using digital resources. *	3.25	1.065
11	I need foreign language knowledge to incorporate digital materials into teaching.	3.62	1.138
12	I use digital resources and online tools to keep students motivated.	3.94	0.876
13	I support my students to use the internet to do their homework and repeat lessons.	3.80	0.995
14	I know my students' online habits and can adjust digital resources accordingly.	3.49	0.791
15	My students use websites and various Apps better than me.	3.66	1.068
16	I receive online training to learn to use digital resources.	3.52	0.954
17	I use my school's technology to determine which digital resource to use.	3.55	0.858
18	I use social media accounts to find digital resources.	3.56	1,065
19	I get help from my students to find digital resources. *	2.99	1.177
20	I get help from my fellow teachers to find digital resources.	3.63	0.797
21	I can use digital resources for my students' specific learn9ing needs.	3.54	0.790
22	I can realize the students who are under the risk of social discrimination	3.45	0.842
23	I support my students in using digital resources.	4.04	0.836
24	I frequently use digital resources in my classroom	3.86	0.930

* undecided, ** disagree

As a result of examining the significant difference between the teachers according to the country difference, a significant difference was found in 2 items (Table 4). It has been determined that teachers in Portugal participate less in these survey items, than other teachers.

Table 4. Anova test analysis results by country

No		Country	Mean	SD	F	p
15	My students use websites and various Apps better than me.	Turkey	4.09	0.944	10.026	0.000
		Lithuania	4.22	0.847		
		Romania	3.57	0.976		
		Portugal*	2.92	0.935		
19	I get help from my students to find digital resources.	Turkey	3.18	0.982	7.606	0.000
		Lithuania	3.44	1.121		
		Romania	3.71	0.951		
		Portugal*	2.23	0.992		

$p < 0.05$

In the study of differences according to the professional seniority of teachers, significant differences were found in 4 items. It has been determined that teachers "31-40 years" participate less in all these items. Teachers with high years of service criticize themselves in terms of digitalization.

Table 5. Anova test analysis results by professional seniority

No	Professional seniority	Professional seniority	Mean	SD	F	p
3	I can organize digital resources according to my classroom needs.	1-10 years	4.50	0.707	3.347	0.024
		11-20 years	3.93	0.799		
		21-30 years	3.93	0.764		
		31-40 years*	3.29	0.611		
7	I use digital resources to reinforce the subject I will teach.	1-10 years	4.50	0.707	3.099	0.033
		11-20 years	3.87	0.834		
		21-30 years*	4.08	0.730		
		31-40 years*	3.43	0.646		
21	I can use digital resources for my students' specific learning needs.	1-10 years	4.50	0.707	2.951	0.039
		11-20 years	3.87	0.640		
		21-30 years	3.48	0.847		
		31-40 years*	3.21	0.579		
23	I support my students in using digital resources.	1-10 years	4.00	1.414	6.216	0.001
		11-20 years	4.40	0.507		
		21-30 years	4.18	0.747		
		31-40 years*	3.29	0.914		

$p < 0.05$

Conclusion

The future of digitalized schools is promising. As technology continues to advance, we can expect further integration of artificial intelligence, augmented reality, and machine learning algorithms into educational systems. This will revolutionize the way students learn and the tools available to them. Virtual reality field trips, intelligent tutoring systems, and personalized learning assistants are just a glimpse of what the future holds. Furthermore, as digitalized schools evolve, they will continue to foster critical thinking, creativity, and digital literacy, equipping students with the skills necessary for the ever-changing workforce.

Digitalized schools represent a paradigm shift in education, offering enhanced learning opportunities, personalized learning experiences, global connectivity, and increased accessibility. While challenges exist, such as the digital divide, concerted efforts to bridge the gap and ensure quality education for all are essential. Embracing the potential of digitalized schools will allow us to shape a future where education is more inclusive, engaging, and effective in preparing students for a dynamic and interconnected world.

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