



Original article

High School Students' Perspectives about Using Digital Technologies in Education: DigiSchools Project

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Abstract

This study was carried out to determine high school students' perspectives on the use of digital technologies in education. There are 17 items in the questionnaire, these items are represented by 2 themes: "To what extent do you disagree or agree with the following statements about using of digital technologies in schools" and "How often do you engage in these digital learning activities". The questionnaire questions were prepared by examining survey studies in this field. There are 17 items in the questionnaire, these items are represented by 2 themes: "What extent do you disagree or agree with the following statements about using of digital technologies in schools" (1-5 Likert) and "How often do you engage in these digital learning activities" (1-3 Likert; never-often) which were developed in order to examine students' perspectives on the use of digital technologies in education. The scale items were evaluated using mean, standard deviation, frequency, percentage and Anova analyses. Students' perspectives on the use of digital technologies differences by country and usage frequency were analyzed. It has been determined that student participation in the survey items is high. Because of the positive content of the survey items, their opinions about the use of digital technologies in education are positive.

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

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INTRODUCTION

The covid-19 pandemic process has affected all parts of our life; social life, economic life, law, collaboration, business life, family life and education life (Mulyanti et al., 2020; Simanjuntak et al., 2022; Guzzo et al, 2023); it has changed person priorities. The new EU Digital Education Action Plan (2023) outlines the European Commission's vision for high-quality, inclusive and accessible digital education in Europe. It is highlighted the need to unlock the potential of digital technologies for learning and teaching and to develop digital skills for all. Education and training are key for personal fulfilment, social cohesion, economic growth and innovation (Kaputa et al, 2022). Raising the quality and inclusiveness of education and training systems and the provision of digital skills for all during the digital is of strategic importance (Basilotta-Gómez-Pablos et al., 2022).

Teachers, students, families and organizations have the following troubles and problems that wanted to overcome and continue the education in every unexpected situation (Sari and Nayır, 2020; Oliveira et al., 2021). The problems/troubles are accessing the technology (teachers, students) (Dinh and Nguyen, 2020), communication among teachers, students, families and school administrators (Faherty et al, 2019), improving digital competences, preparing content and using the digital materials (teachers) (Darazha et al, 2021), transforming learning content and assessment into distance education (El Firdoussi et al., 2020) , motivating students to participate in the lessons (Capone and Lepore, 2022), preparing digital tools according to lessons and needs, using the digital tools to help students mental health and physiological problems (Lattie et al., 2019), helping students how to develop their skills (cooperation, critical thinking etc.) (Nahar, 2022; Plummer et al, 2022), digital ethics and security, making digitally accurate and reliable measurement, assessment and evaluation, ensuring continuity of education under all conditions. All schools and organizations have a risk management plan but this covid-19 process has proved that not known how to manage the risk successfully.

The main purpose of DigiSchools project is to enable teachers to overcome the problems they encounter both in distance education and hybrid education processes by developing the digital competencies of students and to ensure that they are ready for similar situations. The project also increased participants' awareness of the European Union. Cultural activities will increase the language and cultural awareness of the participants. In addition, participating schools increased their digital competence and be ready for unexpected situations such as pandemics. As a result of the project, 2 project outputs created as a mobile application and this web site. It is important to determine the students' knowledge of the use of digital technologies in education at the beginning of the project. In this study was carried out to determine high school students' perspectives on the use of digital technologies in education.

METHOD

Research Design

In this study, high school students' perspectives on the use of digital technologies in education using the survey method are presented. In this study, the questionnaire questions were prepared by examining survey studies in this field. They were also prepared by consulting three experts experienced in distance education. At this stage, after the draft questionnaire questions were drafted, the questionnaire was conducted face-to-face with 10 people to improve the questionnaire, to eliminate possible problems and deficiencies in the process and to reach the targeted result reliably. After this application, the errors in the survey questions have been corrected and the necessary additions and deductions have been made. The survey questions have been finalized.

Participants

The study was carried out with the participation of Liceul Gheorghe Tătărescu from Romania, Agrupamento de escolas de Fornos de Algodres from Portugal, Joniškių Aušros Gimnazija from Lithuania, Isparta Gazi Social Sciences High School from Turkey students. The participants were selected based on their availability and willingness to volunteer. The country of the participants, their class in high school, their use of technology at school and the frequency of using technology are given in Table 1.

Table 1. Demographic information of the participants

	Frequency	Percent
Country		
Turkey	86	29.4
Lithuania	87	29.7
Portugal	71	24.2
Romania	49	16.7
Class		
9	165	56.3
10	71	24.2
11	36	12.3
12	21	7.2
Usage digital technologies in school		
Yes	284	96.9
No	9	3.1
Frequency of usage digital Technologies in school		
Everyday	163	55.6
Twice a week	65	22.2
Once a week	43	14.7
Once a month	22	7.5

A total of 293 students 86 of whom from Turkey (29.4%), 87 of whom from Lithuania (29.7%), 71 of whom from Portugal (24.2%), and 49 of whom from Romania (16.7%) answered the questionnaire. "Do you use digital technologies in school?" question was asked, 284 participants answered this question as yes (96.9%). " How often do you use digital technologies in school?" 163 of the students answered as everyday (55.6%) to the question.

Data Collection and Analysis

There are 17 items in the questionnaire, these items are represented by 2 themes: "What extent do you disagree or agree with the following statements about using of digital technologies in schools" (1-5 Likert) and "How often do you engage in these digital learning activities" (1-3 Likert; never-often) which were developed in order to examine students' perspectives on the use of digital technologies in education. The scale has a Cronbach Alpha reliability coefficient of 0.891 was calculated. Average, standard deviation and t-test analyses were performed in SPSS. The responses to the scale items were evaluated using mean, standard deviation, frequency, percentage and Anova analyses.

Findings

There are 17 items in the questionnaire, these items are represented by 2 themes: "To what extent do you disagree or agree with the following statements about using of digital technologies in schools" and "How often do you engage in these digital learning activities".

Students' Perspectives on the Use of Digital Technologies

The participants were asked "what extent do you agree or disagree with the following statements about using of digital technologies in schools" for 7 questions (see Table 2). Answers to the questions with the highest mean "I enjoy it using in the class" (4.28, 0.934), "It gives me more control over my learning" (4.05, 0.928) and "It creates a more collaborative classroom environment" (4.00, 1.014).

Table 2. Usage digital technologies in school

No	Items	Mean	SD
1	I enjoy it using in the class	4.28	0.934
2	It gives me more control over my learning	4.05	0.928
3	It creates a more collaborative classroom environment	4.00	1.014
4	It creates some problems between students (e.g. bullying...)	2.33	1.273
5	It helps involve my parents in what I do at school	3.27	1.225
6	The school equipment is adequate and reliable	3.56	1.092
7	We have good technical support to deal with problems	3.73	4.277

The participants were asked "How often do you engage in these digital learning activities" for 10 questions (see Table 3). Answers to the questions with the highest mean "Research using the internet"

(2.64, 0.534), “Create documents /slideshows / presentations” (2.51, 0.553), and “Collaborate within classmate on shared learning projects” (2.39, 0.589).

Table 3. Frequency of usage digital Technologies in school

No	Items	Mean	SD
1	Practice subjects- specific skills (e.g. for practicing language skills)	2.38	0.559
2	Research using the internet	2.64	0.534
3	Create documents /slideshows /presentations	2.51	0.553
4	Create multimedia	2.12	0.657
5	Play games or simulations	2.06	0.754
6	Collect or analyze data	2.21	0.680
7	Collaborate within classmate on shared learning projects	2.39	0.589
8	Store projects you create digitally	2.30	0.636
9	Collaborate with people outside the school	2.09	0.728
10	Communicate with people outside the school	2.28	0.742

Students' Perspectives on the Use of Digital Technologies Differences by Country

When students' perspectives on the use of digital technologies in the classroom are analyzed by country, it has been determined that the participation in items “I enjoy it using in the class” ($F=8.429$, $p=0.000$), “It gives me more control over my learning” ($F=3.888$, $p=0.010$), and “It creates a more collaborative classroom environment” ($F=4.077$, $p=0.007$) are higher from Romania and Lithuania than from other countries. As for items “It helps involve my parents in what I do at school” ($F=2.893$, $p=0.036$) and “The school equipment is adequate and reliable” ($F=4.788$, $p=0.003$) it was determined that Romania, Lithuania and Turkey were more than Portugal (Table 4).

Table 4. Usage digital technologies in school differences by country

No		Country	Mean	SD	F	p
1	I enjoy it using in the class	Turkey	3.98	1.137	8.429	0.000
		Lithuania	4.48	0.729		
		Romania	4.56	0.626		
		Portugal	4.02	1.031		
2	It gives me more control over my learning	Turkey	3.87	1.104	3.888	0.010
		Lithuania	4.23	0.803		
		Romania	4.20	0.710		
		Portugal	3.82	0.993		
3	It creates a more collaborative classroom environment	Turkey	3.83	1.150	4.077	0.007
		Lithuania	4.07	0.986		
		Romania	4.30	0.725		
		Portugal	3.76	1.071		
5	It helps involve my parents in what I do at school	Turkey	3.44	1.242	2.893	0.036
		Lithuania	3.22	1.214		
		Romania	3.42	1.078		
		Portugal	2.86	1.339		
6	The school equipment is adequate and reliable	Turkey	3.67	1.152	4.788	0.003
		Lithuania	3.80	0.998		
		Romania	3.41	0.950		
		Portugal	3.14	1.208		

p<0.05

Taking into account frequency of usage digital technologies in school differences by country, “Practice subjects- specific skills (e.g. for practicing language skills)” (F=2.736, p=0.044) and “Research using the internet” (F=5.280, p=0.001), it was determined that Romania, Lithuania and Turkey were more than Portugal. For item “Create documents /slideshows / presentations” (F=3.631, p=0.013) is higher for Romania and Lithuania than from other countries. And for item “Communicate with people outside the school” (F=2.668, p=0.048) is lower for Romania than from other countries.

Table 5. Frequency of usage digital Technologies in school differences by country

No		Country	Mean	SD	F	p
1	Practice subjects- specific skills (e.g. for practicing language skills)	Turkey	2.40	0.559	2.736	0.044
		Lithuania	2.46	0.587		
		Romania	2.41	0.523		
		Portugal	2.18	0.527		
2	Research using the internet	Turkey	2.69	0.491	5.280	0.001
		Lithuania	2.64	0.528		
		Romania	2.76	0.430		
		Portugal	2.39	0.671		
3	Create documents /slideshows / presentations	Turkey	2.41	0.602	3.631	0.013
		Lithuania	2.56	0.499		
		Romania	2.65	0.481		
		Portugal	2.39	0.606		
10	Communicate with people outside the school	Turkey	2.30	0.687	2.668	0.048
		Lithuania	2.34	0.696		
		Romania	2.07	0.867		
		Portugal	2.41	0.674		

Students' Perspectives on the Use of Digital Technologies Differences by Usage Frequency

When students' perspectives on the use of digital technologies in the classroom are analyzed by usage frequency (table 6), “I enjoy it using in the class” (F=4.086, p=0.003), “It gives me more control over my learning” (F=2.476, p=0.044), “It creates some problems between students (e.g. bullying...)” (F=3.056, p=0.017), “It helps involve my parents in what I do at school” (F=4.009, p=0.004), “The school equipment is adequate and reliable” (F=4.630, p=0.001), and “We have good technical support to deal with problems” (F=4.346, p=0.002) are found. In general, while the frequency of use is decreasing, participation in survey items also decreased.

Table 6. Usage digital technologies in school differences by usage frequency

No	Usage	Mean	SD	F	p	
1	I enjoy it using in the class	Everyday	4.39	0.863	4.086	0.003
		Twice a week	4.35	0.874		
		Once a week	3.86	1.014		
		Once a month	4.24	0.970		
2	It gives me more control over my learning	Everyday	4.13	0.897	2.476	0.044
		Twice a week	4.14	0.882		
		Once a week	3.70	1.124		
		Once a month	3.76	0.752		
4	It creates some problems between students (e.g. bullying...)	Everyday	2.40	1.284	3.056	0.017
		Twice a week	2.02	1.192		
		Once a week	2.21	1.245		
		Once a month	2.76	1.251		
5	It helps involve my parents in what I do at school	Everyday	3.40	1.225	4.009	0.004
		Twice a week	3.29	1.195		
		Once a week	2.74	1.236		
		Once a month	2.94	0,899		
6	The school equipment is adequate and reliable	Everyday	3.77	1.010	4.630	0.001
		Twice a week	3.45	1.046		
		Once a week	3.14	1.207		
		Once a month	3.00	1.118		
7	We have good technical support to deal with problems	Everyday	3.88	0.980	4.346	0.002
		Twice a week	3.75	1.016		
		Once a week	3.16	1.111		
		Once a month	3.59	0.795		

p<0.05

Taking into account frequency of usage digital technologies in school differences by usage frequency (Table 7), “Practice subjects- specific skills (e.g. for practicing language skills)” (F=4.394, p=0.002), “Collect or analyze data” (F=5.123, p=0.001), “Collaborate within classmate on shared learning projects” (F=4.437, p=0.002), “Store projects you create digitally” (F=2.494, p=0.043), and “Collaborate with people outside the school” (F=5.728, p=0.000) results are found. So, while the frequency of use is decreasing, participation in survey items also decreased.

Table 7. Frequency of usage digital Technologies in school differences by usage frequency

No	Usage	Mean	SD	F	p	
1	Practice subjects- specific skills (e.g. for practicing language skills)	Everyday	2.48	0.548	4.394	0.002
		Twice a week	2.34	0.509		
		Once a week	2.12	0.586		
		Once a month	2.24	0.562		
6	Collect or analyze data	Everyday	2.30	0.649	5.123	0.001
		Twice a week	2.28	0.600		
		Once a week	1.95	0.815		
		Once a month	1.71	0.588		
7	Collaborate within classmate on shared learning projects	Everyday	2.46	0.591	4.437	0.002
		Twice a week	2.42	0.556		
		Once a week	2.21	0.638		
		Once a month	1.94	0.243		
8	Store projects you create digitally	Everyday	2.39	0.622	2.494	0.043
		Twice a week	2.25	0.587		
		Once a week	2.14	0.710		
		Once a month	2.06	0.659		
9	Collaborate with people outside the school	Everyday	2.23	0.688	5.728	0.000
		Twice a week	2.03	0.770		
		Once a week	1.74	0.727		
		Once a month	1.71	0.588		

Results

This study was carried out to determine high school students' perspectives on the use of digital technologies in education. There are 17 items in the questionnaire, these items are represented by 2 themes: "To what extent do you disagree or agree with the following statements about using of digital technologies in schools" and "How often do you engage in these digital learning activities". The questionnaire questions were prepared by examining survey studies in this field. The scale items were evaluated using mean, standard deviation, frequency, percentage and Anova analyses. It has been determined that student participation in the survey items is high. Because of the positive content of the survey items, their opinions about the use of digital technologies in education are positive, as other researches (Coman et al., 2020; Cramarenco et al., 2023) in the literature. Also, students' perspectives on the use of digital technologies in the classroom are analyzed by country, there are differences, especially between Romania and Portugal. When students' perspectives on the use of digital

technologies in the classroom are analyzed by usage frequency it is found that decreasing frequency of use causes student participation in survey items also decreased.

Suggestions

According to the results, two suggestions were put forward in this study;

- Since students' opinions about digitalization are positive, educational digital materials should be used more in the course content.
- It has been determined that increasing the frequency of digital material use will increase students' thoughts about digitalization in a more positive way.

Limitations

The participants in this research consist of students participating in the project. They received training on digitalization during the DigiSchools project.

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