



Original article

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

Fatih Ermez ^a, Vahap Çetin ^a, Ebru Yılmaz İnce ^{b,*} & Murat İnce ^b

^aIsparta Social Science High School, Isparta, Türkiye

^bDepartment of Computer Programming, Isparta University of Applied Sciences, Isparta, Türkiye

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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* Corresponding author:

Yılmaz İnce Ebru is an associate prof in the Department of Computer Programming at Isparta University of Applied Sciences in Isparta, Türkiye. Her research interests include distance education, computer programming and artificial intelligences. He has lived, worked, and studied in Isparta, Türkiye. Email: eburince@isparta.edu.tr

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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