

Effect of Interactive Online Learning Material Developed on Digital Rights and Responsibilities on Students' Self-efficacies

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Abstract:

This research aims to examine the impact of interactive online learning material on students' self-efficacy, prepared for achievements related to "digital rights and responsibility" in the Social Studies and Information Technologies and Software course. The study design is a quasi-experimental design with a pretest-posttest paired control group. The study group consisted of 40 students studying in the 7th grade in a secondary school affiliated with the Ministry of National Education (MEB) located in Ankara province. The working group was divided into experimental and control groups. Within the framework of the research purpose, the interactive online learning material was made available to the experimental group through Learning Management Systems (LMS). On the other hand, control group students face face training. As a data collection tool, five-point Likert-type "Digital Rights and Responsibility Scale" was used. In data analysis, Shapiro-Wilk analysis, Levene homogeneity test, independent sample T-test, and Paired sample T-test were used. According to the results of the study, the interactive online learning material planned and designed according to learner characteristics significantly increased students' self-efficacy levels.

Keywords: Digital rights and responsibilities, online learning, and self-efficacy.

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INTRODUCTION

Continuing to live as hunter-gatherers, human beings have transitioned to a settled lifestyle with the start of agricultural activities. The settled way of life made it necessary for people to live together in large masses. This necessity has brought about concepts such as the state, society, and citizenship. Thus, the roles and responsibilities of people in society as individuals have changed. Individuals have begun to be identified as citizens who are part of developed societies and are the founders of the state. While the concept of citizenship has had many meanings from the past to the present, citizenship was meant as the provision of welfare state benefits as a right in the Ancient Greek period (Heater, 2013), it was used as the region where one was born in the Middle Ages (Yarwood, 2013). In the simplest sense, citizenship is defined as being a member of a state (Cohen & Ghosh, 2019). The definition of citizenship, which continues to change over the centuries, is positively related to the sovereignty of the people (Akbasli, 2014). Democratic steps such as the French Revolution and important developments such as the Industrial Revolution brought about important and positive changes in the understanding of citizenship. In addition to these changes, especially in the last fifty years, technologies have made life easier in many ways; computers and the internet have been used extensively in social life. All these have enabled the concept of citizenship to take its place on the stage of history as digital citizenship (Cuhadar, 2021).

Because of the rapid increase in the use of the internet, the lives of all individuals, from children to young people, from young people to the elderly, who use online environments have become easier, have also caused them to become vulnerable to many dangers such as cyberbullying and cyber victimization. For this reason, the need to use the internet in an ethical framework has also emerged and hence the concept of digital citizenship. This concept, first used by Ribble (2011), generally refers to a fundamental change in the relationship between individual and state, and specifically to the perception of citizenship (Isikli, 2015). From an educational point of view, it aims to train individuals who have the awareness of using this information for reaching the information in the internet environment (Bowen, 2018).

Although the digital citizenship has various definitions and names in the literature, all have similar emphases. Park and Ribble's (2021) definition of the compliant and reliable use of digital media with empowered technologies is among the most accepted definitions. Ribble (2011) examined digital citizenship in nine sub-dimensions: digital access, digital commerce, digital communications, digital literacy, digital ethics, digital law, digital rights and responsibilities, digital health and digital security.

Of the nine subdimensions above, the most important dimension of participation in digital societies, as in the concept of citizenship, is rights and responsibilities (Alberta, 2012). It is important for individuals to know and protect their rights in the environment, to learn the media they can complain about if their rights are violated, and to use these media. Digital rights and responsibilities are the reporting of violations of an individual's digital rights to

the relevant persons/institutions. At the same time, if an individual engages in bullying, they should be held responsible for it (Aygün, 2019). Westen and Sten (2009) examine digital rights under nine titles: getting information, transparency, petition, vote, privacy, access, assembly, and freedom of expression. Digital responsibility, on the other hand, is the necessity of knowing their responsibilities toward other users and the societies they are socially and culturally connected to and to be able to act in accordance with their responsibilities. It is also important for individuals to respect the rights of other users in terms of security in digital environments. The rights of digital citizens, such as privacy and free expression of their thoughts, should be protected and respected within the framework of the law. In addition to these rights, as stated above, certain responsibilities are imposed on individuals. Digital rights and responsibilities must be in balance in order for the order of the digital society to survive properly (digitalcitizenship.net, 2023).

As in the rest of the world, there are some fundamental rights that citizens have in digital environments. These rights are expressed by Bilgi Teknolojileri ve İletişim Kurumu (BTK) (2019) as: “privacy of private life, protection of personal data, non-violation of personal rights, right to complain about cybercrimes, freedom of expression on the internet, prevention of loss of reputation on the internet and the right to complain”. BTK (2019) listed these violating information crimes under the “IT Law and IT Crime” as: “unauthorized access to information and communication technologies, digital device sabotage, digital theft, illegal use of software and programs, misuse of personal information, defrauding others with fake profiles, illegal content, disclosure of private information used for commercial purposes, acts serving terrorism, child abuse, stealing other people's accounts and other crimes (organ, prostitution, threats, drugs, etc.)”.

By 2022, nearly all the world's population of around 8 billion is projected to use digital tools and the internet (We Are Social and Hootsuite, 2022). In our country, according to the data of the Türkiye İstatistik Kurumu (TUIK) (2022), the rate of internet access reached 85% in 2022. With the increase in the rate of internet usage, the risks and threats that may be encountered in terms of rights and responsibilities in digital environments are also increasing. The reason for this is that malicious users can easily be included in the internet environment (Nawaila et al, 2021). Franklin and Smeaton (2017) state that child abuse, incitement to crime, infecting bad habits, and digital bullying are increasing nowadays. Nawaila et al. (2021) stated that children should be conscious to be able to struggle against the threat of abuse and digital bullying. Children who are familiar with some risks (such as phishing) in digital environments do not have enough education regarding the awareness and level of knowledge to deal with these risks (Bratina, 2016). Both children and adults should therefore have digital skills and competencies (Livingstone et al, 2023) because individuals are vulnerable to cyberbullying, especially at a young age, and experiencing cyber victimization negatively affects them academically, socially, and psychologically (Alleva, 2019).

Regarding their safety in online environments, individuals need to be trained on what rights and responsibilities they have against threats, so they need to be conscious of ways to avoid security threats (Macaulay et al, 2020). To have this awareness, it is important that digital citizens who make up digital societies are trained in their rights and responsibilities.

Besides the studies carried out around the world, many studies have been conducted on digital rights and responsibilities in Turkey and the necessity of training on this subject. Due to the lack of education about digital rights and responsibilities, children between the ages of 9 and 16 are vulnerable to the risks they may encounter in the internet environments (Karakus et al, 2014). According to the results of studies on cyberbullying and cyber victimization of secondary school students, there is a positive significant relationship between cyberbullying and victimization and internet usage time (Kavuk, 2011). In addition, secondary school students' self-efficacy in security, digital rights, and responsibility in the digital environment has also changed positively with these pieces of training (Akcan, 2023).

In digital societies where internet usage is increasing, distance education, online learning, and interactive learning environments have been preferred recently in order to appeal to digital natives in education-teaching processes as well as in all areas of social life. Especially secondary school-age children need online learning materials and environments. In addition, the "Ministry of National Education Regulation on Textbooks and Educational Tools" published in 2021 states that digital content associated with learning areas, supporting learning, prepared according to learner characteristics, and containing interactive questions can be used by students. (MEB, 2021).

In Turkey, the subject of digital rights and responsibility is covered in the Social Studies course and the Information Technologies and Software (ITS) course in the secondary school curriculum. The ITS course contributes to the acquisition of knowledge, skills and values related to the dimension of digital rights and responsibilities (Elci & Sari, 2016), but the achievements are insufficient in number (Peker Unal, 2017). The course benefits students in terms of information security and hence digital responsibilities by increasing their consciousness (Gokcearslan et al, 2021). When evaluated in terms of the Social Studies Course, it has been stated that the digital rights and responsibilities issues are insufficient and irregular in the curriculum and content of the course (Kara & Atasoy, 2019) and the necessity of integrating the activities to be applied with these achievements (Sari, 2019). Relevant achievements are scattered up to the 7th grade for both courses. For this reason, in this research, the issue of digital rights and responsibilities is not part-by-piece but as a whole, unlike the existing teaching methods and techniques. It is presented to the students with the developed interactive online learning material. Learners need interactive and rich-content materials supported by up-to-date environments about digital rights and responsibilities and safe internet use (Kucukali & Bulbul, 2015). Therefore, the research provided digital rights and responsibility training through a tool that uses interactive animation videos and digital visuals, gives feedback, and is self-managed by the learner.

Within the scope of the training, the online learning material developed by the researchers was presented to the students through Learning Management Systems (LMS). In the literature, various reasons for preferring LMS for material presentation in online learning are listed. The presentation of online learning materials through these systems increases students' engagement in educational processes, motivation (Navimipour & Zareie, 2015), and success (Simonson, 2017). These systems are those in which students and teachers can share and communicate about the courses, where assessment and evaluation activities can be carried out and support services are provided (Oliveira et al, 2016). In the context of all this information, the aim of this research is to measure the effect of this developed interactive online learning material on students' digital rights and responsibilities self-efficacy.

In line with the main purpose of this research, answers to the following questions were sought:

1. Is there a significant difference between the digital rights and responsibility self-efficacy pretest scores of the students in the experimental and control groups?
2. Is there a significant difference between the digital rights and responsibility self-efficacy posttest scores of the students in the experimental and control groups?
3. Is there a significant difference between the digital rights and responsibility self-efficacy pre-test and post-test scores of the students in the experimental group?
4. Is there a significant difference between the digital rights and responsibility self-efficacy pre-test and post-test scores of the students in the control group?

METHOD

Research Model

In this research, it is aimed to examine the effect of digital rights and responsibilities education given to students with interactive online learning material on digital rights and responsibilities self-efficacy. For this purpose, a quasi-experimental method, one of the quantitative research methods, was used. Fraenkel et al, (2011) state that experimental research is one of the most powerful research methodologies and that the most important feature that distinguishes it from other types of research is that researchers can manipulate the independent variable. Among the independent variables manipulated in educational research are teaching methods and learning materials. Therefore, in this study, the students in the experimental group were trained with the interactive online learning material presented through LMS, while the students in the control group were given face- to-face training. At the stage of determining experimental and control groups, the measurement tool was first applied to four groups. According to the results of the pre-test, two groups with similar self-efficacy on the subject were selected through paired sampling among the four groups. In this context, pretest-posttest paired experimental design with the control

group, which is one of the quasi-experimental design types, was used in this study. The draft is shown in Table 1.

Table 1

PreTest-Posttest Experimental Design Model with Control Group

| Group | Selection Type | Pretest | Application | Posttest |
|-------|----------------|---------|-------------|----------|
| EG | P | O1 | X | O3 |
| CG | P | O2 | - | O4 |

In the table above, EG is experimental group and CG is control group; P is assigned by matching subjects to groups; O1 and O3 are pretest and posttest measurements of the experimental group; O2 and O4 are pretest and posttest measurements of the control group; X indicates the independent variable (experimental variable) applied to the subjects in the experimental group (Buyukozturk, 2007).

Participants

The study group consisted of 7th grade students studying in a secondary school affiliated to the Ministry of National Education in Ankara. An appropriate (convenient) sampling method, which is one of the non-random sampling methods, was used to determine the study group. The appropriate (convenient) sampling method is the sampling in which a voluntary group and ready for the study is selected. Moreover, there is no need to select a sample from the population in experimental design studies as the research aims to demonstrate the effectiveness of the method (Buyukozturk et al, 2010).

The study was carried out in the spring term of the 2022–2023 academic year, and the study group consisted of 40 students in total, 20 students in the experimental group, and 20 students in the control group. Information about the study group is shown in Table 2.

Table 2.

Information about the Study Group

| Group | Existing | Percentage |
|-------------------|----------|------------|
| Experimental(7/A) | 20 | 50,0 |
| Control(7/B) | 20 | 50,0 |
| Total | 40 | 100,0 |

Data Collection Tools

In this research, a five-point Likert-type scale was used to determine the effect of interactive online learning material developed on digital rights and responsibilities on

students' self-efficacies. The reason why the Likert-type measurement tool is preferred is that the feature to be measured is the perception of self-efficacy, and the scale is suitable for measuring quantitative data. For this purpose, the "Digital Rights and Responsibility Subscale" included in the "Digital Security Self-Efficacy inventory" developed by Ustundag et al, (2022) was used for data collection. The validity and reliability studies of each subscale in this inventory were carried out separately as the scales can also be used independently of each other.

Digital Rights and Responsibility Subscale

Exploratory Factor Analysis (EFA):

In the Digital Rights and Responsibility Subscale, the KMO sample fit measure value is 0.81, in line with EFA. The Bartlett test of sphericity value is 2046.09, and this value is significant compared to 0.01 ($X^2_{21}=2046.09$). Accordingly, a sufficient sample was used for the development of the scale.

Although the Digital Rights and Responsibility Subscale consists of 7 items with a single factor, item factor load values range from 0.51 to 0.74. The items in the scale did not remain below the value of 0.45 and they were collected in a single factor; therefore, the analysis was not repeated. Since the scale has only one factor, the rotation technique was not used. The values of the item-total correlation range between 0.38 and 0.59; accordingly, item discrimination is sufficient. The eigenvalue was calculated as 3.10. In the Digital Rights and Responsibility Subscale, 44.32% of the total variance value is explained in the single-factor structure.

Confirmatory Factor Analysis (CFA)

The factor loads of the items in the scale vary between 0.43 and 0.73. In the study, two modifications were established between the error loads of some items in order to improve the fit index values of the model. CFA results were evaluated according to the fit index criteria in Table 3.

Table 3.

Criterion values used in the evaluation of fit index values in all measurement models

| Compliance index | Perfect Fit Criteria | Acceptable Compliance Criteria |
|------------------|-------------------------|--------------------------------|
| $\chi^2/ (df)=Y$ | $0 \leq Y \leq 3$ | $3 < Y \leq 5$ |
| RMSEA=Y | $0 \leq Y \leq 0.5$ | $0.05 < Y \leq 0.08$ |
| TLi/NNFi=Y | $0.97 \leq Y \leq 1.00$ | $0.95 \leq Y < 0.97$ |
| CFi=Y | $0.97 \leq Y \leq 1.00$ | $0.95 \leq Y < 0.97$ |
| NFi=Y | $0.95 \leq Y \leq 1.00$ | $0.90 \leq Y < 0.95$ |
| AGFi=Y | $0.90 \leq Y \leq 1.00$ | $0.85 \leq Y < 0.90$ |

GFi=Y

0.95≤Y≤1.00

0.90≤Y<0.95

In Table 3, $\chi^2/ (df)$ criterion values in the fit index of the measurement model are according to Byrne (2013), and RMSEA, TLI/NNFi, CFI, NFI, AGFi, and GFi are according to Schermelleh-Engel et al. (2003; cited in Pektas, 2022).

Accordingly, in the fit index values of the subscale, the $\chi^2/ (df)$ value is 3.14 and it has an acceptable fit index. RMSEA fit index value is 0.043, TLI/NNFi value is 0.98, CFI value is 0.99, NFI value is 0.98, AGFi value is 0.98, and GFi value is 0.99. Therefore, the measurement model of the Digital Rights and Responsibility Subscale is confirmed.

Reliability:

The Cronbach Alpha internal consistency coefficient was checked for the reliability of the Digital Rights and Responsibility Subscale. The Cronbach Alpha coefficient in the Digital Rights and Responsibility Subscale is 0.78. Kalayci (2009) states that 0.60 and above for the reliability coefficient is at an acceptable level.

Data Analysis

In accordance with the purpose of the research, the data collected from the students determined as the experimental and control groups were processed into the SPSS (Statistical Package for Social Sciences) 25.0 program. In order to test the normality of the pretest and posttest distribution of the two determined groups, Shapiro-Wilk analysis was used since the number of students in each group was less than 50. Levene homogeneity test was used to determine the homogeneity of the test variances of the data. The analysis results are given in Table 4.

Table 4.

Shapiro-Wilk Normality Test for Pretest and Posttest Scores

| Group | Test | Shapiro-Wilk | | |
|--------------|------|--------------|----|-------|
| | | Statistics | Sd | P |
| Experimental | Pre | .905 | 20 | 0.051 |
| | Post | .910 | 20 | 0.099 |
| Control | Pre | .945 | 20 | 0.294 |
| | Post | .935 | 20 | 0.189 |

*p<.05

As seen in Table 4, the normality assumptions of the distributions of the students in the experimental and control groups regarding the pre- and posttest were examined. It was concluded that the pre- and posttest Shapiro-Wilk statistical results of the students in both groups were not significant according to $p > .05$, and all score distributions met the assumption of normality, that is, they were normally distributed. When the Levene homogeneity test results were examined, it was concluded that the test variances according

to $p > .05$ were homogeneously distributed, that is, they met the homogeneity assumption. It is seen that the distribution of scores obtained from the pre- and post-test applications is continuous data and is at the level of the equally spaced scale. Parametric test assumptions are met when two samples (groups) are independent of each other, dependent variables are measured on an interval or ratio scale, and normality and homogeneity assumptions are met. It is difficult to assume that the scores are normally distributed when the number of groups falls below 30 according to some and 15 according to others. However, it is seen that researchers who conduct small-group experimental studies use parametric statistics if the distribution of the data they collect is appropriate (Koklu et al, 2007). In this context, the score distributions in the study meet the parametric test assumptions, and the sample sizes in the groups being less than 30 do not affect the parametric test assumption because the score distribution exhibits a normal distribution.

Parametric tests are more powerful than nonparametric tests. Therefore, parametric tests should be performed as long as the conditions are met. While the parametric test conditions are met, performing the nonparametric form of the test in question may give erroneous results (Can, 2014). In this context, the difference between the pretest scores and the post-test scores of the students in the experimental and control groups regarding the sub-problems of the research was examined by independent sample T-Test analysis. The difference between the pretest and posttest scores of the students in the experimental and control groups was examined with Paired-Sample T-Test analysis.

Interactive Online Learning Material

The interactive online learning material used in the research was created for the achievements of the Social Studies course and the "Digital Rights and Responsibility" subject in the Information Technologies and Software course by the researchers in order to examine the self-efficacy of the students in this subject. The material was finalized within the framework of the opinions received from four faculty members who are experts in the field of Computer and Instructional Technologies Education and two faculty members in the field of Social Studies Education. The material content consists of two topics. The first topic is "Digital Rights and Responsibilities" and the second topic is "The Channels We Can Complain about Inappropriate Uses in the Digital Environment". One SCORM package and interactive animation lecture videos were prepared for each topic. SCORM packages were prepared using the "Articulate Storyline" platform. The interactive animation was prepared both for subject narration purposes and for interacting with questions in its content. The SCORM package is a material in which important concepts are explained in its content, reinforcement is made with the summary section, and test questions are included for interaction at the end. The digital images used in the material were selected from "www.shutterstock.com" and "www.freepik.com" and made into 2D. The prepared scenario and 2D digital visuals were converted into interactive animated videos using the "Adobe Edge" program and voiced. The material was made available to the experimental group students through LMS.



Figure 1. Sample screenshot from the interactive animated video.

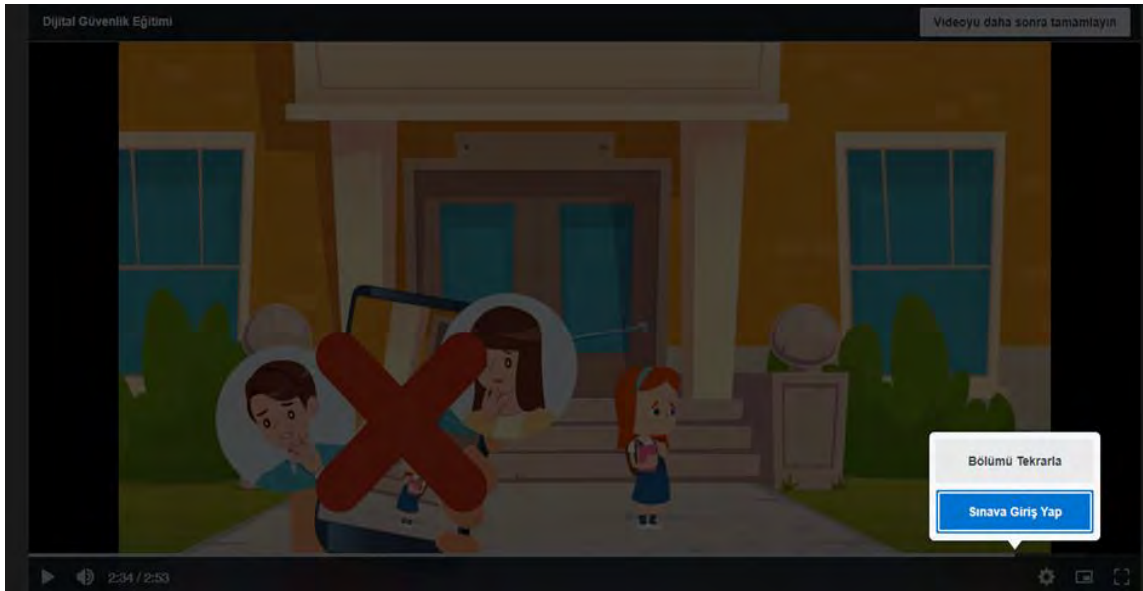


Figure 2. Sample screenshot from interactive animated video



Figure 3. Sample screenshot of interactive online learning material.

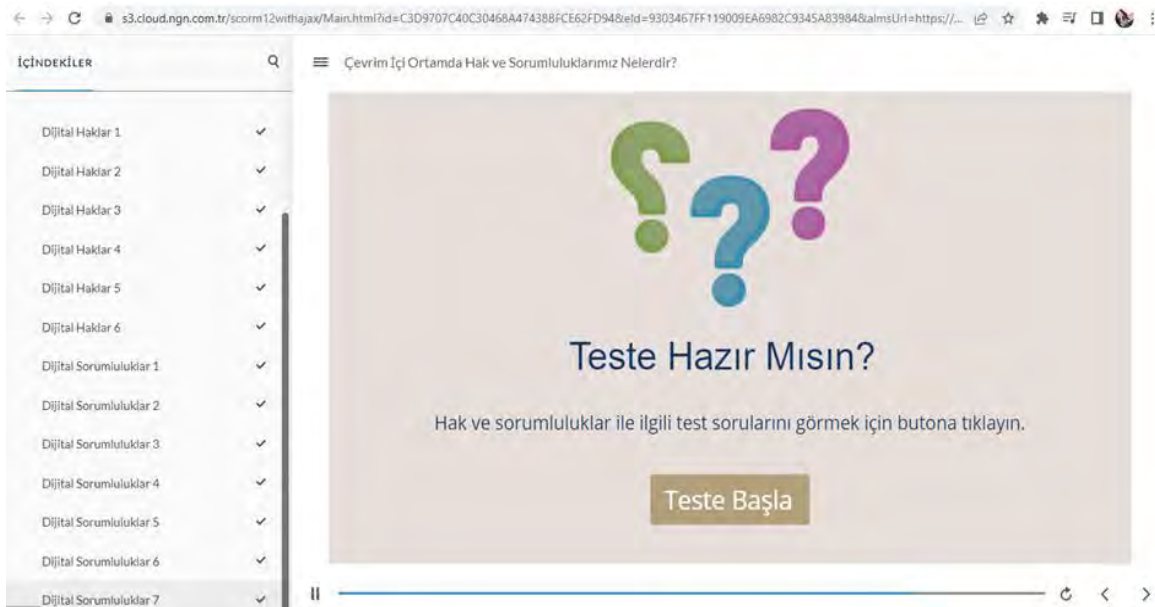


Figure 4. Sample screenshot of interactive online learning material.

Ethical considerations

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken.

Ethical review board name: Gazi University Ethics Committee

Date of ethics review decision: 31.03.2023

Ethics assessment document issue number: E-77082166-604.01.02-625604

FINDINGS

The first Subproblem: Is there a significant difference between the digital rights and responsibility self-efficacy pretest scores of the students in the experimental and control groups?

Table 5.

Independent samples on the difference between pretest points of students in the experimental and control groups t-test results

| Pretest | Group | N | Average | S | t | sd | p |
|--|--------------|----|---------|------|------|----|------|
| Digital Rights and Responsibility Subscale | Experimental | 20 | 27.00 | 5.68 | 0.21 | 38 | .837 |
| | Control | 20 | 26.65 | 4.98 | | | |

* $p < .05$

According to Table 5, the pre-experimental self-efficacy levels of students in the experimental and control groups on the subject of digital rights and responsibility were measured by the Digital Rights and Responsibility Subscale, and there was no significant difference between the scores of the two groups based on $t = 0.21$, $p = .000 < .05$. In other words, students in the experimental and control groups fulfilled the condition that their digital rights and responsibility self-efficacy levels were equivalent before the experiment.

The second Subproblem: Is there a significant difference between the digital rights and responsibility self-efficacy posttest scores of the students in the experimental and control groups?

Table 6.

Independent samples t-test results on the difference between posttest scores of students found in the experimental and control groups.

| Posttest | Group | N | Average | S | t | Sd | p |
|---|--------------|----|---------|------|------|----|-------|
| Digital Rights and Responsibility Scale | Experimental | 20 | 33.95 | 1.05 | 5.42 | 38 | .000* |
| | Control | 20 | 28.70 | 4.21 | | | |

* $p < .05$

Table 6 examines whether there is a significant difference between the post-test scores of the students in the experimental and control groups on the Digital Rights and Responsibility Subscale. Accordingly, the posttest scores of students in the experimental and control groups showed significant variation in terms of $t = 5.42$, $p = .000 < .05$. In this regard,

experimental group students trained with interactive online learning material developed by the researchers to address the topic, and digital rights and responsibility self-efficacy scores changed meaningfully after experimental implementation compared with control group students who received face- to-face training.

The third Subproblem: Is there a significant difference between the digital rights and responsibility self-efficacy pre-test and post-test scores of the students in the experimental group?

Table 7.

Paired - samples t-test results on the difference between pretest scores of students and posttest scores found in the experimental group.

| Experiment | Test | N | Average | S | t | sd | p |
|---|----------|----|---------|------|------|----|-------|
| Digital Rights and Responsibility Scale | Pretest | 20 | 27.00 | 5.68 | 5.55 | 19 | .000* |
| | Posttest | 20 | 33.95 | 1.05 | | | |

*p<.05

In Table 7, we examine whether there is a significant difference between the pretest and posttest scores of the experimental group students on the Digital Rights and Responsibility Subscale. Accordingly, the preliminary and final test scores of the students in the experimental group showed significant variation between $t = 5.55$, $p = .000 < .05$. In this regard, it may be argued that the experimental group students' self-efficacy scores changed significantly after experimental practice.

The fourth Subproblem: Is there a significant difference between the digital rights and responsibility self-efficacy pre-test and post-test scores of the students in the control group?

Table 8.

Paired- Samples T-Test results on difference between pretest scores of students in the control group and posttest scores.

| Control | Test | N | Average | S | t | Sd | P |
|---|----------|----|---------|------|------|----|------|
| Digital Rights and Responsibility Scale | Pretest | 20 | 26.65 | 4.98 | 1.90 | 19 | .072 |
| | Posttest | 20 | 28.70 | 4.21 | | | |

*p<.05

In Table 8, we examine whether there is a significant difference between the pretest scores of the control group students from the Digital Rights and Responsibility Subscale and the posttest scores. Accordingly, there was no significant difference between pretest and posttest scores of students in the control group relative to $t = 1.90$, $p = .000 < .05$. In this regard, control group students' posttest scores are higher than pretest scores. Besides, while

the posttest score is high, there is no meaningful level of difference between the pretest and posttest.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

In this research, it was aimed to examine the effect of the interactive online learning material prepared for the acquisitions related to the subject of "Digital Rights and Responsibility" in the Social Studies Curriculum and Information Technologies Curriculum on the students' self-efficacy perceptions. In this context, the interactive online learning material developed by the researchers was applied to the experimental group in the online learning method, and the same subjects were given to the control group through face-to-face training. After the experimental procedure, according to the research findings, there was a significant difference in the digital rights and responsibilities self-efficacy status of the experimental group. In the control group, where face- to-face training was given, there was an increase in the level of digital rights and responsibility self-efficacy; however, this increase was not at a meaningful level. Therefore, in general, the interactive online learning material applied in the online learning method is more successful than face- to-face education. This finding draws attention to the importance of using learning materials that are planned according to learner characteristics, prepared in a way that can increase the learner's interest, desire, and motivation level, and contain digital visuals and interactive learning materials.

According to the results of this research, when individuals receive training on their digital rights and responsibilities, their self-efficacy increases. Similar to this result, it has been observed that individuals gain awareness of being able to combat such threats when they receive training on digital rights and responsibilities (Bratina, 2016; Nawaila et al., 2021). When individuals are educated about the rights and responsibilities of individuals against security threats regarding digital rights and responsibilities of individuals in online environments, they become conscious of the ways to avoid these threats (Macaulay et al., 2020). In order for digital citizens to have this awareness, it is important that they are educated about digital rights and responsibilities. These trainings should be planned as student-centered (Mordecai, 2021) and should be started from the sub-dimension of digital rights and responsibilities (Walsh et al, 2022). Based on these results, student-centered education was pursued in this study. Similar to the results of the research, it has been observed that when children receive training on privacy, an important sub-title of digital rights and responsibilities, they are more conscious about disclosing when their privacy is violated (Desimpelaere et al, 2020). According to another study that supports the results of the research, if secondary school students receive training on digital rights and responsibilities, their usage habits and awareness levels have changed positively (Korkmaz & Kiran Esen, 2012). There are many similar studies emphasizing the importance of education in eliminating the nativities experienced (Kavuk, 2011; Mert et al, 2012; Cubukcu

& Bayzan, 2013; Karaduman & Ozturk, 2014; Sebetci et al, 2018; Sari, 2019; Golpek Sari & Seferoğlu, 2021).

In this study, it has been revealed that the interactive online learning material applied in the online learning method has a positive effect on students' self-efficacy of digital rights and responsibility. Similarly, there are studies examining the effect of the online learning environment on the perception of self-efficacy (Kaptanoglu, 2022; Oktelik, 2022; Tekinarslan, 2022; Temel, 2022; Yanc, 2022). Similar to research results, these studies emphasize the positive effect of online learning environments on learning. The presentation of digital materials to secondary school students on a different subject and digital footprint increases their academic success (Kuh Karyeli & Daghan, 2020). In this study, online learning materials were presented to students through LMS and students' self-efficacies of digital rights and responsibilities increased. The presentation of online learning materials through LMS increases students' commitment to educational processes, their motivation (Navimipour & Zareie, 2015) as well as their success (Simonson, 2017).

With the increase in the rate of internet usage in all areas in digital terms all over the world, it has become important for individuals to learn and internalize methods on how to behave in accordance with their rights and responsibilities in online environments. In recent years, it has been seen that studies on teaching digital rights and responsibilities have increased. However, in the literature, attention is drawn to the use of online learning environments and online learning materials in the education of secondary school students regarding the needs and learning characteristics of the secondary school age group. For this reason, it is thought that this research in which interactive online learning material developed according to learner characteristics on digital rights and responsibilities is presented through LMS will contribute to the literature.

Digital inequality in access to online learning environments is an important problem. In this respect, in order to find a solution to digital inequality, the problem of access can be solved through the Technology Laboratories of schools, as was done in this study. In addition, the necessary equipment can be provided to students who experience digital inequality during the research period.

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Measuring Tool

| DIGITAL RIGHTS AND RESPONSIBILITIES SCALE | Strongly Disagree | Disagree | Somewhat Agree | I agree. | Completely Agree |
|--|-------------------|----------|----------------|----------|------------------|
| 1. I can respect people's rights in the digital environment. | 1 | 2 | 3 | 4 | 5 |
| 2. I can complain about violations of personal rights in the digital environment. | 1 | 2 | 3 | 4 | 5 |
| 3. I can report harmful content and posts in the digital environment. | 1 | 2 | 3 | 4 | 5 |
| 4. I can respect value concepts (religion, homeland, flag, family, race, etc.) in the digital environment. | 1 | 2 | 3 | 4 | 5 |
| 5. I can avoid using other people's documents (video, photo, audio, etc.) in digital environment without permission. | 1 | 2 | 3 | 4 | 5 |
| 6. I can avoid making changes to other people's documents (video, photo, audio, etc.) in the digital environment. | 1 | 2 | 3 | 4 | 5 |
| 7. I can indicate in the bibliography the sources I have used from the internet in my research. | 1 | 2 | 3 | 4 | 5 |

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