

The Relationship Between Teachers' Self-Efficacy Beliefs and Their Self-Efficacy in Developing Digital Materials

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Abstract

This study was conducted to explore the relationship between teachers' self-efficacy belief levels and their self-efficacy in developing digital materials. A 26-item self-efficacy scale for creating digital materials and a 27-item teacher self-efficacy beliefs scale were administered to 266 secondary school teachers during the 2022-2023 academic year. The findings revealed that teachers demonstrated high levels of self-efficacy in both developing digital materials and their overall self-efficacy beliefs. Moreover, a statistically significant, positive, and low correlation was found between teachers' self-efficacy in developing digital materials and their self-efficacy belief levels. Specifically, a one-unit increase in teacher self-efficacy belief levels resulted in a 0.45-unit increase in self-efficacy for developing digital materials, indicating that teachers' self-efficacy for digital material development was predicted by their self-efficacy belief levels. These results demonstrate a positive relationship between teachers' self-efficacy beliefs and their self-efficacy in developing digital materials, suggesting that teachers' general self-efficacy beliefs can serve as a predictor of their confidence and competence in creating digital materials.

Keywords: Teacher self-efficacy, self-efficacy to developing digital materials, secondary school, secondary school teachers.

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Introduction

The teacher's belief in his/her skills and professional success refers to his/her self-efficacy as a teacher. Digital material development is important in innovative education because digital material enables effective learning (Nokelainen, 2006). Technological challenges encountered in the process of developing digital materials can affect a teacher's confidence (Ertmer & Ottenbreit-Leftwich, 2010). Teachers with high levels of teacher self-efficacy beliefs have the capacity to learn and acquire new skills related to technology, design and use digital materials more effectively in the classroom (Wang et al., 2004). Digital material development includes technical skills and teaching strategies. In this respect, there is an inevitable interaction between digital material development and teacher self-efficacy beliefs.

Teacher self-efficacy refers to a teacher's belief that he/she can fulfill his/her duties towards his/her students (Guskey & Passaro, 1994). Teachers with high self-efficacy are more committed to their profession than teachers with low self-efficacy. Teachers with high self-efficacy experience a greater sense of satisfaction and achievement, and as a result, they provide higher-quality education and relatively increase the achievement of their students (Zee & Koomen, 2016). Recruitment and retention of teachers are growing concerns among teachers (Skaalvik & Skaalvik, 2017). Research has shown that there is a high rate of teacher attrition (40%-50%) in the first five years of the teaching profession due to a lack of support from administrators, accountability, and dissatisfaction (Kim & Burić, 2020; Skaalvik & Skaalvik, 2017). There is a negative relationship between job burnout and teacher self-efficacy as a result of teachers' working conditions (Wang et al., 2015). That is, the teaching environment or teaching experience cannot produce high self-efficacy perceptions in teachers (Clark, 2020). In terms of completing teacher education programs, it has been observed that similar situations are valid for pre-service teachers (Ciampa & Gallagher, 2018).

Research shows that pre-service teachers' self-efficacy begins to decrease as the process progresses in teacher education programs (Ciampa & Gallagher, 2018; Clark, 2020). Bostock and Boon (2012) found that the self-efficacy level, which starts at a high level, decreases when it should increase gradually. Students' early successes and failures in their teacher education shape their feelings of self-efficacy (Washburn & Mulcahy, 2020). Pre-service teachers with more teaching experience are more successful in transferring what they have learned and have higher self-efficacy than their peers (Ciampa & Gallagher, 2018; Lipp & Helfrich, 2016; Washburn & Mulcahy, 2020). Pre-service teachers with low self-efficacy have a more realistic understanding of what they can achieve in the classroom as they accumulate classroom experience, and it is assumed that their self-efficacy decreases as they realize what they can achieve (Ciampa & Gallagher, 2021). The world is experiencing rapid growth in the development and use of new technologies, and this technological explosion is leading to rapid social changes (Mir & Parrey, 2019). The increasing use of technology in all aspects of daily life has forced

educators to integrate current technologies into their teaching environments. Therefore, teachers' integration of technology in teaching environments is important (Caner & Aydın, 2021).

The use of information technologies in education can open new opportunities for both teachers and students to develop their creativity, gain professional competencies and reinforce what they have learned. In this context, the use of information technologies can positively affect the teacher's creativity and increase self-study and professional self-efficacy (Abbitt, 2011; Paraskeva et al., 2008). New educational technologies have led to a continuous need for professional development. Curricula need to be adapted to the changing needs of employers and society. The rational use of information technology in the educational process depends on the performance in the information environment (Saienko et al., 2020). In order to facilitate the integration of educational technologies, educators should demonstrate positive perceptions of technologies and high levels of professional self-efficacy and self-confidence (Brinkerhoff, 2006; Kim et al., 2013). Teachers are afraid of making mistakes and admitting their lack of knowledge and skills. Failure to integrate technologies into education is an obstacle in facilitating students' study environment. This leads to the loss of students' interest in the lesson and, thus, their motivation to study. This gap between students' expectations and teachers' abilities can result in poor academic performance among educators. However, an adequate level of teachers' professional self-efficacy will lead to higher job satisfaction and lower job stress. This, in turn, will be effective in increasing student learning success. Therefore, a successful teacher should facilitate interaction with students through appropriate and understandable tools for students (Fackler & Malmberg, 2016).

The impact of educational technologies on teachers' personal and professional characteristics is related to digitalization. In this study, the relationship between teachers' integration skills in educational technologies and professional self-efficacy is discussed. Self-efficacy theory was developed by Bandura (1977). Bandura (1977) believes that the main factors of self-efficacy are individuals' previous experiences of success and failure, cognitive, emotional and physiological personal components, observation of others' achievements, and the ability to achieve one's personal goals. He states that the more prominent the sense of personal efficacy and identity is in a person's perception, the more intrinsically motivated the person can be and that extrinsic motivation cannot compete with intrinsic motivation in terms of personal efficacy (Bandura, 1977). "The literature suggests the adoption of non-cognitive models to measure the academic performance of college and university students, including individual factors such as educational institutions, parenting styles, students' relationships with peers, motivation, and students' academic self-efficacy" (Masud et al., 2016). Bandura (1977) believes that the expectation of success is not enough to trigger one's motivation. The concept of self-efficacy is the development of a personal ability to cope with an activity that previously seemed impossible. Self-efficacy can increase the level of motivation. Teachers' self-efficacy can be demonstrated through analytical, prognostic, projective, and reflexive cognitive skills. Bandura (1977) bases judgments about self-efficacy on four sources of knowledge. These are:

- Successful implementation of planned activities,
- People who excel and specialize in personal skills,
- The individual's approval from his/her environment,
- It is expressed as a low level of concern about current and planned actions.

Tschannen-Moran and Woolfolk Hoy (2001) argued that self-efficacy and digital competence need to be successfully combined, which can be achieved through training programs for pre-service teachers in self-efficacy development and assessment methods and in-service programs for professional development. Previous studies on teachers' self-efficacy (Zajacova et al., 2005; Skaalvik & Skaalvik, 2017) reveal that there is a strong correlation between knowledge, skills, attitudes and beliefs toward professional activities. Low levels of teacher self-efficacy lead to job stress and burnout (Schwarzer & Hallum, 2008). Teachers' inability to use and apply educational technologies may lower their self-esteem. The connection between teachers' self-efficacy perceptions and educational technology integration has also been examined by researchers studying the problem of "computer anxiety". The behavior in this case can be characterized by excessive caution when using computers or next-generation technologies, negative comments about information technologies, and attempts to prevent technologies from entering the professional domain. Howland et al. (2012) suggest the following to overcome computer anxiety:

- Creating motivation,
- Practical pre-training,
- Use of accelerators to build the necessary skills to work with technologies,
- Familiarity with technology as a tool for successful professional activity,
- Friendly and creative learning environment,
- The pedagogical task is appropriate to the nature of information technology tools.

Ertmer and Ottenbreit-Leftwich (2010), in their study on the integration of the self into technology, found that teachers' beliefs about technology integration were not sufficient. They stated that although technology knowledge is necessary, teachers do not feel competent in using this knowledge to facilitate student learning. Self-efficacy beliefs about computer use affect a teacher's ability to create a technology-friendly learning environment. Şahin et al. (2009) investigated the relationship between pre-service teachers' technological pedagogical content knowledge and their self-efficacy beliefs about classroom teaching. The results showed that a high level of knowledge in technological pedagogical content knowledge increased pre-service teachers' self-efficacy levels. Similar results, namely that technology knowledge increases self-efficacy beliefs about technology integration, have been found in other studies (Abbitt, 2011). Teachers' self-efficacy beliefs, pedagogical

beliefs and cultural contexts differentiate the use of technology in the classroom. Based on the data obtained in the above studies, this study will focus on the integration of technology into the educational process and its relationship with teachers' professional self-efficacy beliefs.

Teachers' self-efficacy beliefs are among the most significant factors influencing their professional performance, motivation, and interactions with students. As technology becomes increasingly integrated into education, the importance of self-efficacy in developing digital materials is gaining recognition. Studies examining the relationship between teachers' self-efficacy beliefs and their self-efficacy in developing digital materials are valuable for both enhancing the use of technology in the classroom and identifying strategies to improve teachers' digital material development skills.

The aim of this study is to explore the relationship between teacher self-efficacy belief levels and their self-efficacy in developing digital materials. The research problem is articulated as: "Is there a relationship between teachers' self-efficacy belief levels and their self-efficacy in developing digital materials?" Based on this problem, the study seeks to answer the following research questions:

1. What are teachers' self-efficacy levels in developing digital materials?
2. What are teachers' self-efficacy belief levels?
3. Is there a relationship between teachers' self-efficacy in developing digital materials and their self-efficacy belief levels?
4. Do teachers' self-efficacy belief levels predict their ability to develop digital materials?
5. Do teachers' self-efficacy levels in developing digital materials differ by gender?
6. Do teachers' self-efficacy levels in developing digital materials vary based on years of teaching experience?
7. Do teachers' self-efficacy levels in developing digital materials differ based on the type of school in which they teach?

Method

Research Design

This study was conducted to explore the relationship between teachers' self-efficacy belief levels and their self-efficacy in developing digital materials. A 26-item self-efficacy scale for creating digital materials and a 27-item teacher self-efficacy beliefs scale were administered to 266 secondary school teachers during the 2022-2023 academic year. The *Teacher Self-Efficacy Beliefs Scale*, developed by Çolak, Yorulmaz, and Altinkurt (2017), is a 5-point Likert-type scale consisting of 27 items, designed to assess teachers' self-efficacy belief levels. Similarly, the *Teachers' Self-Efficacy Scale for Creating Digital Materials*, developed by Uzun and Akay (2021), is a scale aimed at measuring

teachers' self-efficacy in creating digital materials. This scale also uses a 5-point Likert-type format and consists of 26 items. In this study a survey research design was utilized.

Study Group

The study group comprised actively working secondary school teachers, with a sample of 266 teachers selected through random sampling. Of these teachers, 172 were female (64.7%) and 94 were male (35.3%). The distribution of participants by years of teaching experience was as follows: 21 teachers (7.9%) had 0-5 years of experience, 47 teachers (17.7%) had 6-10 years of experience, 40 teachers (15%) had 11-15 years of experience, 60 teachers (22.6%) had 16-20 years of experience, and 98 teachers (36.8%) had 21 or more years of experience. The demographic information of the sample is presented in detail in Table 1.

Table 1. Demographic characteristics of the participants

Variable	Group	f	%
Gender	Female	172	64.7
	Male	94	35.3
Graduation Level	Undergraduate Completion	2	0.8
	License	181	68
	Master's Degree	50	18.8
	Other	33	12.4
Branch	Turkish	46	17.3
	English	37	13.9
	Guidance and Psychological Counseling	17	6.4
	Mathematics	40	15
	Religious Culture and Ethics	17	6.4
	Information Technologies	9	3.4
	Science	28	10.5
	Special Education	5	1.9
	Physical Education and Sports	20	7.5
	Social Studies	21	7.9
	Music	14	5.3
	Technology and Design	7	2.6
	German	1	0.4
Visual Arts/ Painting	3	1.1	
Arabic	1	0.4	
Seniority	0-5 years	21	7.9
	6-10 years	47	17.7
	11-15 years	40	15
	16-20 years	60	22.6
	21 years and above	98	36.8
School Type	Public Secondary School	197	74.1
	Private Secondary School	69	25.9

Data Collection Tools

In this study, the *Teacher Self-Efficacy Beliefs Scale* developed by Çolak et al. (2017) and the *Teachers' Self-Efficacy Scale for Creating Digital Materials* developed by Uzun and Akay (2021) were utilized, with permission from the original researchers.

Reliability Analysis

For the reliability analysis of the *Teacher Self-Efficacy Beliefs Scale*, an internal consistency analysis was conducted, yielding a Cronbach's Alpha value of .960. This high value indicates that the scale items are consistent with the overall scale, demonstrating a high level of reliability. Similarly, the reliability analysis of the *Teachers' Self-Efficacy Scale for Creating Digital Materials* resulted in a Cronbach's Alpha value of .986, showing that the scale items are also consistent with the overall scale and that the measurement tool is highly reliable.

Data Analysis

The data were analyzed using a quantitative data analysis program. Before the main analysis, data screening was conducted, and no null values or outliers were identified in the dataset. Additionally, there were no reverse-scored items in the measurement tools. To assess the distribution of the variables, normality tests were performed. The skewness value for the teacher self-efficacy belief variable was -2.45, and the kurtosis value was 11.46, indicating that the data for this variable did not follow a normal distribution. In contrast, the skewness value for the self-efficacy in developing digital materials variable was -0.257, and the kurtosis value was -0.290, indicating that this data was normally distributed. Descriptive statistics, including frequency and percentage values, were used to provide an overview of the data. As the teacher self-efficacy belief data were not normally distributed, median values were analyzed alongside the arithmetic mean and standard deviation. For the correlation analysis, Spearman's rho was used due to the non-normal distribution of the teacher self-efficacy belief data. A linear regression analysis was conducted to predict teacher self-efficacy belief levels and self-efficacy in developing digital materials. The analysis followed these assumptions:

- The dependent variable (self-efficacy in developing digital materials) and the independent variable (teacher self-efficacy beliefs) were continuous variables derived from total scores.
- A linear relationship exists between the two variables.
- No outliers were present in the data.
- The independence of observations was confirmed through a Durbin-Watson value of 1.75, which falls within the acceptable range of 1.5 to 2.5.
- The data demonstrated homoscedasticity.
- The dependent variable was normally distributed.

For the difference analyses, parametric tests were used as the dependent variable (self-efficacy in developing digital materials) was normally distributed and was continuous in nature. An independent samples t-test was conducted to examine differences according to gender and school type, while a one-way ANOVA was performed to analyze differences based on years of seniority. Levene's test for

equality of variances was used, and the Dunnett-C test was employed for pairwise comparisons where necessary.

Findings

In this section of the study, findings on secondary school teachers' self-efficacy beliefs and their self-efficacy in developing digital materials, derived from statistical analyses of data obtained from the applied scales, are presented and interpreted in tables.

Teachers' Self-Efficacy in Developing Digital Materials and Their Self-Efficacy Belief Levels

Table 2. Descriptive analysis results regarding teachers' self-efficacy in developing digital materials and their self-efficacy belief levels

		Very low	Low	Middle	High	Very high	Median	\bar{X}	ss
Self-efficacy level for developing digital materials	f	3	21	92	97	53	3.67	3.64	0.86
	%	1.1	7.9	34.6	36.5	19.9			
Teacher self-efficacy belief level	f	2	0	6	96	162	4.63	4.51	0.50
	%	0.8	0.0	2.3	36.1	60.8			

Mean interpretation: 1.00-1.49: Very low; 1.50-2.49: Low; 2.50-3.49: Moderate; 3.50-4.49: High; 4.50-5.00: Very high.

Note: The median value is reported due to the non-normally distributed nature of the dataset for the teacher self-efficacy level variable.

When examining Table 2, it is evident that the group mean of teachers' self-efficacy levels for developing digital materials is high ($\bar{X} = 3.64$). Considering the median value, which is partially greater than the arithmetic mean, it can be concluded that the majority of group scores are categorized as high and very high. Specifically, the percentile analysis reveals that 56.4% of teachers possess high or very high levels of self-efficacy in developing digital materials, while 34.6% demonstrate a medium level, and 9% exhibit a very low level of self-efficacy in this area.

Furthermore, the group mean of teachers' self-efficacy belief levels is notably high ($\bar{X} = 4.51$). Again, the median value supports the conclusion that most group scores fall within the very high range. In fact, 60.8% of teachers report very high levels of self-efficacy beliefs, with an additional 36.1% indicating high levels of self-efficacy.

Relationship Between Teachers' Self-Efficacy in Developing Digital Materials and Their Belief Levels

Table 3. Examination of the relationship between teachers' self-efficacy in developing digital materials and their self-efficacy belief levels: Results of Spearman Correlation Analysis

Correlation		Teacher self-efficacy beliefs	
Spearman's rho	Self-efficacy beliefs in creating digital materials	Correlation Coefficient	.327**
		Sig. (2-tailed)	.000
		N	266

According to Table 3, there is a statistically significant, positive, and low-level relationship between teachers' self-efficacy levels for developing digital materials and their self-efficacy belief levels ($r=.327$; $p<.05$). This indicates that as teachers' self-efficacy levels for developing digital materials increase, their self-efficacy belief levels also rise. Conversely, a decrease in self-efficacy for developing digital materials correlates with a decline in self-efficacy belief levels. However, it is important to note that correlation analysis does not allow for causative interpretations; thus, we cannot ascertain which variable influences the other. To address this limitation, a predictive analysis will be conducted in the following section and table.

Prediction of Teachers' Self-Efficacy in Developing Digital Materials Based on Their Self-Efficacy Belief Levels

Table 4. Prediction of teachers' self-efficacy levels in developing digital materials based on their self-efficacy belief levels: Results of Linear Regression Analysis

Dependent variable: Level of self-efficacy to develop digital materials					
Predictor	B	Standard Error	β	t	p
Constant	1.629	.464		3.514	.001
Teacher self-efficacy beliefs	.446	.102	.260	4.368	.000

$R = .260$
 $R^2 = .067$
 $Adjusted R^2 = .064$
 $F = 19.079$ $p < 0.05$

According to the ANOVA values presented in Table 4, the regression model under investigation is significant ($F = 19.079$; $p < 0.05$), indicating that the model is robust and testable. This suggests that the regression model is effective in predicting the dependent variable, which is the level of self-efficacy in developing digital materials.

The analysis demonstrates that teacher self-efficacy belief levels are a significant predictor of self-efficacy levels for developing digital materials ($p < 0.05$). The regression model equation is expressed as follows:

$$\text{Self-efficacy level for developing digital materials} = 1.6 + (0.45 \times \text{teacher self-efficacy belief})$$

This indicates that for every one-unit increase in teacher self-efficacy beliefs, there is a corresponding increase of 0.45 in the self-efficacy level for developing digital materials.

Examination of Teachers' Self-Efficacy Levels in Developing Digital Materials Based on Gender, Seniority, and School Type Variables

Table 5. Examination of teachers' self-efficacy levels in developing digital materials according to gender: Independent Samples T-Test Results

Gender	n	\bar{X}	S	sd	t	p
Female	172	3.57	.82	264	-1.947	.053
Male	94	3.78	.92			

According to Table 5, there is no statistically significant difference in teachers' self-efficacy levels for developing digital materials based on gender ($t_{(264)} = -1.947$; $p > .05$). The average self-efficacy levels for digital material development among both female and male teachers are high and statistically comparable, indicating that gender does not influence teachers' self-efficacy in this area.

Table 6. Examination of teachers' self-efficacy levels in developing digital materials according to school type: Independent Samples T-Test Results

School Type	n	\bar{X}	S	sd	t	p
Public Secondary School	197	3.53	.88	264	-3.505	.001*
Private Secondary School	69	3.95	.71			

* $p < .05$

According to Table 6, there is a statistically significant difference in teachers' self-efficacy levels for developing digital materials based on the type of school ($t_{(264)} = -3.505$; $p < .05$). Teachers in private secondary schools reported higher self-efficacy levels ($\bar{X} = 3.95$) compared to their counterparts in public secondary schools ($\bar{X} = 3.53$). While both groups exhibit high self-efficacy levels in developing digital materials, the self-efficacy of teachers in private schools is statistically higher.

Table 7. Examination of teachers' self-efficacy levels in developing digital materials according to seniority: One-Way ANOVA Results

Seniority	n	\bar{X}	ss	Source of Variance	Sum of Squares	sd	Mean Squares	F	p	Difference
0-5 years	21	3.9945	.78769	Between groups	14.037	4	3.509	5.052	.001*	21 years+ <0-5 years
6-10 years	47	3.8388	.77836							
11-15 years	40	3.8692	.72933							
16-20 years	60	3.6615	.90571							
21 years +	98	3.3650	.86088	General	195.347	265			21 years+ <6-10 years	
Total	266	3.6411	.85858							21 years+ <11-15 years

Levene: 408 $p = .803$ Dunnet-C Test results were analyzed to determine the pairwise differences.

* $p < .05$

According to Table 7, there is a significant difference in teachers' self-efficacy levels for developing digital materials based on years of seniority ($F = 5.052$; $p < .05$). Specifically, teachers with 21 years of seniority or more exhibit statistically lower levels of self-efficacy in developing digital materials compared to those with 15 years of seniority or less. While teachers with 21 or more years of experience

demonstrate a medium level of self-efficacy, those with 15 or fewer years of experience report a high level of self-efficacy in this area.

Conclusion and Discussion

The findings indicate that both teachers' self-efficacy in developing digital materials and their overall self-efficacy belief levels are high. Specifically, 56.4% of teachers reported high self-efficacy in developing digital materials, while 34.6% were at a medium level and only 9% were classified as having very low self-efficacy. As noted by Jang et al. (2023), "Teachers' effective use of strategies and actions to provide effective classroom instruction is strongly linked to the quality of instruction and students' learning outcomes."

In terms of self-efficacy beliefs, a significant majority of participants demonstrated high (36.1%) to very high (60.8%) levels. Alanoglu (2022) emphasizes that "The skills that today's students need to acquire are constantly changing," highlighting the increasing necessity for teachers with high self-efficacy to ensure that students develop essential 21st-century skills.

A statistically significant, positive, but low-level relationship exists between teachers' self-efficacy in developing digital materials and their overall self-efficacy beliefs. Specifically, a one-unit increase in teacher self-efficacy beliefs corresponds to a 0.45 increase in self-efficacy for developing digital materials. This suggests that teachers' ability to develop digital materials is influenced by their self-efficacy beliefs. Liu et al. (2018) support this notion, stating that "Self-efficacy beliefs influence thoughts and behaviors that enable individuals to achieve goals, persist when faced with challenges, and initiate actions to cope with challenges."

The analysis revealed that self-efficacy levels for developing digital materials did not vary significantly according to gender, indicating that gender does not impact self-efficacy in this context.

Additionally, self-efficacy levels for developing digital materials differed based on school type. Teachers in private secondary schools reported higher self-efficacy levels compared to their counterparts in public secondary schools. Nevertheless, it is important to note that the self-efficacy levels in both settings were qualitatively high.

Moreover, a significant difference in digital material development self-efficacy was observed according to years of seniority. Teachers with 21 or more years of experience exhibited lower self-efficacy compared to those with 15 years or fewer. While teachers with 21 or more years of experience demonstrated a medium level of self-efficacy, those with 15 years or less showed a high level. Inel Ekici (2018) argues that "Teachers with high self-efficacy show more resilience to the challenges that arise in the teaching process and put more effort into helping all their students reach their potential." In contrast, teachers with lower self-efficacy tend to exert less effort in addressing students' learning needs.

In conclusion, this study has shown a positive relationship between teacher self-efficacy beliefs and their self-efficacy in developing digital materials, demonstrating that higher self-efficacy beliefs predict enhanced capabilities in this area.

Policy Implications

The findings of this study highlight the importance of supporting teachers' self-efficacy beliefs and digital material development skills within educational processes. Teachers with high self-efficacy beliefs are better equipped to overcome challenges encountered during the teaching process and are more effective in helping students realize their potential. In this context, teacher training programs should focus not only on developing digital competencies but also on enhancing general teaching skills. These programs must equip teachers with practical and applied methods to meet the demands of 21st-century education. In today's rapidly changing educational environment, the need for teachers with high self-efficacy and digital literacy is increasingly growing (Alanoglu, 2022). Moreover, the integration of digital educational materials into the teaching process plays a critical role in the modernization of education systems. In this regard, it is essential for educational policies to prioritize strengthening technological infrastructure in schools and improving access to digital tools. Such improvements will enable teachers to use digital resources more effectively, thereby enhancing the overall quality of education and better preparing students for the demands of the 21st century.

Conflict of Interest

No potential conflict of interest was declared by the authors.

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Ethical Statement

Ethics committee approval within the scope of the research has been obtained from the Scientific Research Ethics Committee of Canakkale Onsekiz Mart University with the permission from Session No: 04/Decision No: 38, date 30.03.2023.

Credit Author Statement

The authors contributed equally to this research.

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