



| Research Article / Araştırma Makalesi |

## The Effect of Online and Face-To-Face Teaching Method on Course Outcomes and Attitudes in Secondary School 1st Grade Visual Arts Course

### Ortaokul 1. Sınıf Görsel Sanatlar Dersinde Çevrim İçi ve Yüz Yüze Öğretim Yönteminin Ders Kazanım ve Tutumlara Etkisi

Sema Kara<sup>1</sup>

#### Keywords

1. Visual Arts Education
2. Online Learning
3. Face-to-Face Teaching
4. Course Outcomes
5. Attitude towards Visual Arts Course

#### Anahtar Kelimeler

1. Görsel Sanatlar Eğitimi
2. Çevrim İçi Öğrenme
3. Yüz Yüze Öğretim
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#### Abstract

*Purpose:* In this study, the effects of effective combination of online technologies and face-to-face teaching practices on students' attitudes and course outcomes in secondary school visual arts courses were investigated.

*Design/Methodology/Approach:* This research is an experimental study based on the Pre-Test - Post-Test Trial and Control Group (Split-Plot-t Design) 2x2 factorial (two groups and two measurements) and repeated measures design. In the study, "experimental procedures" were applied to the experimental group with sessions lasting two hours a week for 6 weeks.

*Findings:* This research is an experimental study based on the Pre-Test - Post-Test Trial and Control Group (Split-Plot-t Design) 2x2 factorial (two groups and two measurements) and repeated measures design. In the study, "experimental procedures" were applied to the experimental group with sessions lasting two hours a week for 6 weeks. The research groups were divided into two separate groups. The experimental group was applied on Tuesday and the control group was applied on Wednesday.

*Highlights:* The mean scores of the subjects who participated in the 6-week online learning and face-to-face teaching sessions in the post-test of visual arts acquisitions were higher than the mean scores of the pre-test. The Wilcoxon Z test was used to determine whether the difference between the mean scores of the experimental group in the pre-test and post-test of visual arts acquisitions was significant or not, and it was found that the difference was significant at  $p < .01$  level.

#### Öz

*Çalışmanın amacı:* Bu çalışmada ortaokul Görsel Sanatlar Derslerinde çevrimiçi teknolojilerle yüz yüze öğretim uygulamalarının etkili bir şekilde bir arada uygulanmasının öğrencilerin tutum ve ders kazanımlarına etkisi araştırılmıştır.

*Materyal ve Yöntem:* Bu araştırma Ön Test - Son Test Deneme ve Kontrol Grup (Split-Plot-t Design) 2x2 faktörlü (iki grup ve iki ölçüm) ve tekrar ölçümlü desene dayalı deneysel bir çalışmadır. Araştırmada deney grubuna 6 hafta süre ile haftada iki saat süren oturumlarla "deneysel işlemler" uygulanmıştır.

*Bulgular:* Bu araştırma Ön Test - Son Test Deneme ve Kontrol Grup (Split-Plot-t Design) 2x2 faktörlü (iki grup ve iki ölçüm) ve tekrar ölçümlü desene dayalı deneysel bir çalışmadır. Araştırmada deney grubuna 6 hafta süre ile haftada iki saat süren oturumlarla "deneysel işlemler" uygulanmıştır. Araştırma grupları iki ayrı gruba ayrılmıştır. Deney grubuyla karşılaştırılarak, kontrol grubuyla çarşamba günü uygulama yapılmıştır.

*Önemli Vurgular:* 6 haftalık çevrim içi öğrenme ve yüz yüze öğretim oturumlarına katılan deneklerin görsel sanatlar kazanımları son-test uygulamasından aldıkları puanların ortalaması, ön-test uygulamasından aldıkları puan ortalamasından yüksektir. Deney grubunun görsel sanatlar kazanımları ön-test ve son-test uygulamasından aldıkları puanların ortalamaları arasındaki farkın anlamlı olduğu anlaşılmıştır.

<sup>1</sup> **Corresponded Author**, Kastamonu Üniversitesi Eğitim Fakültesi Güzel Sanatlar Eğitimi Bölümü, Resim-İş Eğitimi Anabilim Dalı, Kastamonu, TÜRKİYE semakara@kastamonu.edu.tr, <https://orcid.org/0000-0002-6482-7598>

## INTRODUCTION

The quarantine and restriction decisions taken by governments during the pandemic have to a large extent directly affected education systems at all levels. Maintaining a routine in education at the traditional level provides academic discipline, stability and a sense of security for the psychological state of teachers and students. Arrangements such as school closures, social distancing and/or confinement, unusual situations arising in teaching practices have created a real multifaceted crisis situation for teachers and students. Nationwide school closures and uncertainties for the entire school sector have also led to the emergence of new challenges in this process (Lu et al., 2020; Naser et al., 2020; Newby et al., 2020).

Especially in Turkey, the application of technology to the field of education affects not only the main disciplines such as maths, science, Turkish and English, but also art education in secondary schools. Art teachers can use online platforms to zoom in on great work and follow detailed instructions. They can also exchange ideas through online platforms that encourage students' active skills, thinking and participation. This platform can promote interactive learning experience by creating collaboration and communication among these groups of students (Alan & Sünbül, 2010; Baş et al., 2016; Hiltz, 1995; Qihan, 2020).

With the introduction of Internet and network technologies in education, it has become inevitable that the role of trainers will change. Trainers have the opportunity to learn what other colleagues are doing and what is going on in their fields in a short period of time through the internet. The internet, which was used only for communication (e-mail) in the previous years, is used for more purposes today. This is due both to the widespread use of the Internet and to the multiplicity and ease of use of the services offered on the Internet. While in previous years educators used the Internet only for text-based programmes such as e-mail, telnet, etc., it is seen that today they use this technology as a part of the educational environment, preparation of course materials, scanning and obtaining related literature, etc. for educational purposes (Yıldız et al., 2004). In education and training, computer can be used interactively more safely, quickly and easily than classical education and training methods. In environments where education and training materials are not available, multimedia programmes can be used for written, visual, audio and interactive education and training. This method of education and training will reduce the cost of education, as well as the damage that inexperienced students may cause to the materials will be eliminated. Since the interactive education and training method is used, the question or problem that the student may encounter can directly reach the trainer, the solution will be so easy and quick, which will increase the efficiency of this education (Akinbadewa & Sofowora, 2020; Şisman & Kucuk, 2019).

In recent years, emerging technologies such as tablets, smartphones, laptops and other electronic smart devices have started a new trend in the field of education and enriched teaching and learning (Huda et al., 2018). On this basis, online learning has gradually entered educational practice and research. The online learning environment is characterised by the Internet and other technologies such as telephone, videocassette, satellite transmission or computer (Zuhairi et al., 2018). It is an open and distributed learning environment that is supported by (e.g. the use of) and utilises these techniques to mediate a necessary communication (Jonassen, 2004). This type of learning can take both synchronous and asynchronous formats. The former requires learning to take place at a fixed time, similar to traditional offline learning in a fixed location; the latter is relatively flexible in timing, allowing for self-paced learning and the exchange of resources over a communication network (Khan, 1998). Regardless of the format, online learning has advantages over face-to-face learning, such as balancing educational resources and development, reducing costs and promoting equity in education (Johnson & Aragon, 2003).

Bates (1997) believes that the main reason for the widespread implementation of online learning is not only to improve education and training opportunities and learning quality, but also to reduce costs and increase effectiveness. Compared to traditional offline learning, online learning is fraught with many factors that influence online learning engagement, which requires students to be more disciplined (Montgomerie et al., 2016). Online learning can change teachers' assumptions and beliefs as well as their face-to-face teaching practices (Huppert, 2009). Another important effect is that online education programmes can change teachers' understanding of teaching. In other words, even a short online training course can influence teachers' understanding of various situations, especially for new teachers who may lack teaching experience and skills (Vilppu et al., 2019). This not only places more responsibility on online learners, but also creates more opportunities and possibilities for teaching practice and innovation.

Individual characteristics of students are the key concept in designing instruction (Koyuncuoğlu, 2021; Sünbül, 2010; Yıldız et al., 2004). Individual differences, students' interests, attitudes and psychomotor skills are important in visual arts education. In this context, while designing the online learning system, the process should be carried out by considering the individual differences of the students. The aim of online visual arts education is to design the learning environment or learning content according to the individual needs of the students and the requirements of the course. When online learning is analysed in terms of design and realisation features, it is in the common field of educational technology, computer sciences, internet and network systems and artificial intelligence disciplines (Adu & Duku, 2021; Alzboun et al., 2023; Susanto et al., 2020; Zillmer & Musmann, 2023).

In addition, when analysed in terms of art education, it is seen that today's e-learning systems are insufficient in terms of their ability to provide education according to the individual differences of individuals, personal learning and the objectives of the visual arts course (Doğru, 2020; Kaleli, 2020; Kaleli, 2021; Kara, 2021). Existing e-learning systems impose great responsibility on the student for the realisation of the learning activity. Both the difficulty of teaching the visual arts course on computer platforms and the fact that individuals have different learning styles, different learning abilities, different cognitive levels related to the subject they are trying to learn, and different individual learning goals, the teaching offered through e-learning systems can often result

in failure. In addition, in areas where there is not enough preparation and electronic resources, e-learning students may fail to realise their own learning by using e-learning systems (Martinez, 2002).

In general, art education is a discipline for developing visual ability and innovation skills in primary and secondary schools. Online learning for art education is also important as it mediates the transfer of specific contents through all kinds of information devices (Wang et al., 2021). Online learning has become an important way for teachers to improve themselves so that students can learn flexibly and independently. During the COVID-19 pandemic, this form of online learning has become more prevalent in Turkey. It can promote the integration of technology into the art discipline by helping art students and teachers go beyond the boundaries of traditional art guidelines (Kara, 2021; Kaleli, 2021). However, due to the hands-on necessity of art education, how art education can be educated in an online learning environment requires further research. This study fills this gap by assessing the relationships between the online learning environment and art students' basic psychological needs, their cognitive engagement, and their behaviour after their participation in an online education programme. This study can also help students to better understand the factors that influence their online learning performance in order to improve their own learning outcomes.

Developing and implementing successful teaching requires an understanding of how technology is related to pedagogy and content (Koehler et al., 2007; Koyuncuoğlu, 2021). Although the factors that are effective in the process of integrating educational technologies are multidimensional, the planning and implementation of teaching methods related to the use of technology, especially in visual arts education, is an important source of problems (Kara, 2021). In this context, it is thought that the effective implementation of face-to-face teaching practices with online technologies will be effective in the visual arts course achievements and attitudes of secondary school students.

**Objective:** In this study, the effects of effective combination of online technologies and face-to-face teaching practices on students' attitudes and course outcomes in secondary school visual arts courses were investigated. For this purpose, answers to the following questions were sought:

**Hypothesis 1:** There is a significant difference between the course outcomes of the experimental group in which online + face-to-face teaching practices were carried out and the control group in which traditional teaching practices were carried out in the Secondary School Visual Arts Course.

**Hypothesis 2:** There is a significant difference between the attitudes of the students in the experimental group in which online + face-to-face teaching applications were carried out and the students in the control group in which traditional teaching applications were carried out in the Secondary School Visual Arts Course.

## **METHOD/MATERIALS**

This research is an experimental study based on the Pre-Test - Post-Test Trial and Control Group (Split-Plot-t Design) 2x2 factorial (two groups and two measurements) and repeated measures design (Payton et al., 2006). In the study, "experimental procedures" were applied to the experimental group with sessions lasting two hours a week for 6 weeks. The research groups were divided into two separate groups. The experimental group was applied on Tuesday and the control group was applied on Wednesday. Experimental procedures were carried out with the online learning + face-to-face teaching programme that increases the visual arts attainment and attitudes of the students in the 1st grade visual arts course of secondary school. In this process, visual arts activities were carried out with traditional teaching in the control group. At the beginning of the research, visual arts acquisition and attitude scales were applied to the experimental and control groups simultaneously as a pretest.

In order to achieve the aims and behaviours specified in the experimental process programme, a curriculum consisting of 6 sessions was prepared. While the experimental group was given online learning + face-to-face teaching training in the form of 6 sessions of 2 class hours per week, routine course activities were carried out with the control group. In this context, they worked on realising different perspectives of an artist in the example of German painter Albert Dürer, and for this purpose, they also examined the period in which he lived in the process of understanding the artist. Students visually narrated Dürer's life in a chronological flow by using online internet resources and materials as well as the internet and library. During the storytelling, they carried out face-to-face activities. etc. In the art lesson, they explained the chronological calendar about Dürer's life through painting by using the storytelling work. They formed online groups and analysed Dürer's "Melancholia", interpreted the painting, and then marked the mathematical elements in the painting.



Figure 1. Melancholia, Albert Dürer (Wikipedia, 2021)

The students also analysed and discussed different pictures from the period. Another point on the worksheet was the magic square on the back right of the picture. They tried to find the year Dürer painted the picture in the magic square. They realised what the magic square was and how it was created. They discovered how Dürer created the magic square in his painting.



Figure 2. Magic Squares, Albert Dürer (Alkauskas, 2018)

Then, the students painted similar works of Dürer with face-to-face individual activities. Mean while, in the control group, the teacher explained Dürer's life and works through presentation, showed his works and the students tried to make these paintings. At the end of the research, visual arts acquisition and attitude scales and post-test were applied to the experimental and control groups.

## EXPERIMENT CONTROL GROUPS

The research was conducted on students in the first grade of a private secondary school in Mersin province in the autumn term of the 2021-2022 academic year. According to the research design, 36 students were divided into two groups of 18 students each, and one of these groups was determined as the experimental group and the second as the control group. In the analysis of the data obtained, it was developed in accordance with the two-part design (McLeod, 2017). The list of research groups is given in Table 1. In the selection of the research and study population, the judgemental method was preferred for "general reasons" and as required by the research.

The distribution of the students included in the groups according to gender, field of study and groups is given in the table below.

**Table 1. Distribution of the Students Included in the Research Groups**

	Girl	Male	Total
Experimental Group	9	9	18
Control Group	10	8	18
<b>TOTAL</b>	19	17	36

## DATA COLLECTION TOOLS

### Attitude Scale Towards Visual Arts Course

In this study, the attitude sub-dimension of the 'Visual Arts Affective Characteristics Scale' developed by Arslantaş (2021) was used to measure the attitudes of secondary school students towards the visual arts course. The scale consists of 13 items in Likert form with a 5-grade structure. Linear and exploratory factor analyses revealed that the attitude scale towards visual arts course has a unidimensional structure. Cronbach Alpha internal consistency analyses performed on different samples ranged between .87 and .91. According to the analyses performed on secondary school students, the Cronbach Alpha reliability coefficient of the visual arts attitude scale was found to be .89.

### Secondary School 1st Grade Visual Arts Lesson Attainment Scale

Secondary School 5th Grade Visual Arts Course Outcome Scale was developed to measure students' course outcomes. While developing the 5th Grade Visual Arts Lesson Attainment Scale, the unitised annual plans of the lesson were examined and the opinions of the lesson teachers and measurement and evaluation experts were consulted. A 5-point rating system was used in the scoring of the scale. If the student fully realised the relevant outcome, 5 points were given, and 1 point was given if the student realised it very little. In the validity process of the 5th Grade Visual Arts Lesson Acquisition Scale, item analyses were made and then Cronbach's reliability coefficient was calculated. Item-test correlations, reliability and validity analyses were performed on the results obtained from the trial application of the 5th grade Visual Arts Lesson Attainment Scale. According to the analyses, it is seen that all items in the Attainment Scale have an item-test correlation above .35. This shows that all items of the scale are consistent with all objectives of the 5th Grade Visual Arts Course in Secondary School. The coefficient of the scale calculated by Cronbach Alpha reliability technique is .93.

### Data Analysis Techniques

The effects of the methods applied in the context of the data obtained at the end of the experimental procedures on the visual arts course achievements and attitudes of the students were examined. The quantitative data obtained were entered into the SPSS package programme and analysed. Since the data did not meet the assumptions of normal distribution (Yurt & Sünbül, 2012), Mann Whitney U and Wilcoxon tests, which are non- parametric tests, were used between the pre-test and post-test scores of the experimental and control groups.

## FINDINGS

In this section, the findings obtained as a result of the statistical analysis of the data collected to test the hypotheses put forward in the research are explained, shown in tables and interpreted.

"The visual arts achievements of the group receiving online learning and face-to-face teaching increase at a significant level". The arithmetic averages, standard deviations and t- values of the pre-test and post-test acquisition scores of the experimental group for this hypothesis are given in Table 2.

**Table 2. Numerical Information and Wilcoxon Z Value of the Visual Arts Outcomes Pre-test and Post-test Scores of the Experimental Group Applied Online Learning and face-to-face Instruction**

Experimental Group	N	Mean Rank	Sum of Ranks	Wilcoxon Z	p
Negative Ranks	3	5,14	26,00	3,25	,000
Positive Ranks	13	9,50	171,00		

\*\*p< .01

As seen in Table 2, the mean scores of the subjects who participated in the 6-week online learning and face-to-face teaching sessions in the post-test of visual arts acquisitions were higher than the mean scores of the pre-test. The Wilcoxon Z test was used to determine whether the difference between the mean scores of the experimental group in the pre-test and post-test of visual arts acquisitions was significant or not, and it was found that the difference was significant at  $p < .01$  level.

The numerical information of the t-test results of the online learning and face-to-face teaching group is given in Table 3 to understand whether there is a difference between the visual arts acquisition levels of the online learning and face-to-face teaching group compared to the control group.

**Table 3. Numerical Information and Mann Whitney U/Z Value of Visual Arts Outcomes Post-test Scores of Experimental and Control Groups**

Group	N	Mean Rank	Sum of Ranks	Mann Whitney U/Z	P
Experiment	18	25,25	454,50	-3,852	,000
Control	18	11,75	211,50		

\*\*p< .01

As seen in Table 2, the Mann Whitney U test was used to determine whether the difference between the mean scores of the experimental group, which participated in 6- week online learning and face-to-face teaching practices, and the control group, which received traditional instruction, in the visual arts acquisition post-test was significant or not, and it was found that the difference was significant at  $p < .05$  level. These findings support the hypothesis that online learning and face-to-face teaching practices increase the level of visual arts acquisition at a significant level.

"Online learning and face-to-face teaching significantly increase the attitudes of the group towards the visual arts course". The arithmetic averages, standard deviations and t- values of the pre-test and post-test attitude scores of the experimental group towards the visual arts course for this hypothesis are given in Table 4.

**Table 4. Numerical Data and Wilcoxon Z Value of the Pre-test and Post-test Attitude Scores of the Experimental Group Applied Online Learning and Face-to-Face Instruction towards Visual Arts Course**

	N	Mean Rank	Sum of Ranks	Wilcoxon Z	p
Negative Ranks	1	3,20	9,10	-3,625	,000
Positive Ranks	17	9,00	153,00		

\*\*p< .01

As seen in Table 4, the mean scores of the subjects who participated in the 6-week online learning and face-to-face teaching sessions in the post-test of attitudes towards visual arts course were higher than the mean scores in the pre-test. The Wilcoxon Z test was used to determine whether the difference between the mean scores of the pre-test and post-test of the experimental group's attitudes towards the visual arts course was significant or not and it was found that the difference was significant at  $p < .05$  level.

The numerical information of the t-test results of the online learning and face-to-face teaching group is given in Table 5 to understand whether there is a difference between their attitudes towards visual arts course compared to the control group.

**Table 5. Numerical Data and t-Values of the Post-test Attitude Scores of the Experimental and Control Groups for Visual Arts Outcomes**

Group	N	Mean Rank	Sum of Ranks	Mann Whitney U/Z	P
Experiment	18	25,25	454,50	-3,853	,000
Control	18	11,75	211,50		

\*\*p< .01

As seen in Table 5, the Mann Whitney U test was used to determine whether the difference between the mean scores of the experimental group, which participated in 6- week online learning and face-to-face teaching practices, and the control group, which received traditional teaching, in the post-test of the attitude scale towards visual arts course was significant or not, and it was found that the difference was significant at  $p < .05$  level. These findings support the hypothesis that online learning and face-to-face teaching practices significantly increase attitudes towards visual arts.

## CONCLUSION-DISCUSSION

As a result of the experimental procedures, the 5th grade students in the experimental group who worked in the interaction learning environment organised according to online + face-to-face learning were more successful in the visual arts course than the students working in the control group (learning environment providing interaction design organised according to traditional teaching) and achieved a high level of achievement. While the students in the experimental group gained the target behaviours of the visual arts course with online interaction tools in the learning process, they also developed their multidimensional skills with face-to-face interactions. It can be concluded that the factor that distinguishes the activities in the control group from those in the experimental group is that the use of these two features (remote + face-to-face) together contributes to students' learning. Therefore, it can be said that the use of contemporary technological applications and different teaching approaches together makes students more successful in achieving the objectives of the course. As a result, it can be concluded that in secondary school visual arts courses, students' both synchronous and asynchronous interaction in the learning process and working individually in this process positively affect students' visual academic achievement in the process. It can be said that this result is in line with the results of the studies (Altowairiki, 2021; Demosthenous et al., 2020; Hu & Huang, 2021; Kaleli, 2021; Kibici & Sarikaya, 2021; Martin et al., 2020; Moore-Adams et al., 2016; Thompson & McDowell, 2019; Xhelili et al., 2021) that point out the importance of using both synchronous and asynchronous interaction in online interaction. According to Kizilcec et al. (2017), supporting face-to-face teaching with online learning increases students' self-regulation skills and individual competencies. In visual arts courses, it is expected that students will be more active in their lessons and exhibit high performances if their individual characteristics are taken into account in the learning-teaching processes and all activities are supported by technology. Researchers have reported increased interpersonal interactions (Cung et al., 2018), learner-learner interactions (Phirangee, 2016; Shackelford & Maxwell, 2012; Tawfik et al., 2018), peer-peer interactions (Comer et al., 2014) in online learning environments and face-to-face teaching practices. Examined student-instructor interaction (Kuo et al., 2014), learner-content interaction (Zimmerman, 2012), interaction through peer counselling (Ruane & Koku, 2014) have stated that such elements provide high gains regardless of the quality of the courses.

While the activities carried out in the face-to-face learning environment provided students with a strong teacher guidance, the online processes repeated, deepened and made meaningful the objectives and behaviours of the visual arts course with an interactive approach. In one aspect, the online learning application provided the student's independence and specialisation of learning in a free environment, while face-to-face teaching activated the social interaction process as a group activity. In this context, with these two methods, online and group learning activities came together in a multifaceted and rich environment. Many existing studies have pointed out the importance of teacher-guided online teaching activities during daily practice (Altowairiki, 2021; Kaleli, 2020; Kaleli, 2021; Pushpanadham et al., 2023). In this respect, the individual practice and repetition activities carried out both in online teaching practices and in the use of the current curriculum led to a significant increase in the visual arts skills of the students in the experimental group compared to the control group.

Another finding of this study is that the students in the experimental group who worked in the interaction learning environment organised according to online + face-to-face learning had higher attitudes towards the visual arts course than the students in the control group who worked in the learning environment providing interaction design organised according to traditional teaching. These findings are consistent with those of Anderson & Bourke (2013), Cole et al. (2014); Dziuban et al. (2015); Kim et al. (2014), Kuo et al. (2013); Lee (2014), Martin et al. (2020) is similar to the findings of the research conducted by. According to the combination of online learning and face-to-face teaching provides different affective environments in which learners express their emotions. If online learning is well planned and effectively coordinated with face-to-face teaching student satisfaction, participation and attitudes are positively affected (Cole et al., 2014; Dziuban et al., 2015).

It is seen that the use of online technologies in educational environments contributes to increasing student motivation and developing positive attitudes towards the course (Aşkar & Olkun, 2005; Kibici, 2018; Lim & Ching, 2004; Vijayavalsalan, 2018). Online technological development also changes the structure of all processes related to education and brings a different perspective to practices and approaches (Tor & Erden, 2004). Different approaches, applications, situations of being faced with active stimuli, rich content, content suitable for children's readiness, and the use of remarkable tactics and techniques in the visual arts course positively affected students' attitudes. According to Godwin-Jones (2013), the integration of online learning with courses provides experiential learning, better understanding, strong interaction between students and teachers, motivation for learning and self-study environments. In general, the combination of online learning and face-to-face teaching made the classroom and visual arts course more attractive and interesting, and increased students' active participation and attitudes towards the course. As a result, it is thought that the research has a special importance in terms of providing a road map in reaching the skills and competences required for visual arts education. One of the possible ways for art educators to successfully create this kind of learning is to apply art and art skills purposefully to the field of technology and technology knowledge and skills purposefully to art environments. In the literature, studies on the utilisation of online activities in Visual Arts courses are limited. In order to contribute to the literature, more studies can be conducted in Visual Arts courses at different school levels. In addition, qualitative studies can be conducted on Visual Arts teachers' online learning skills and self-efficacy.

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