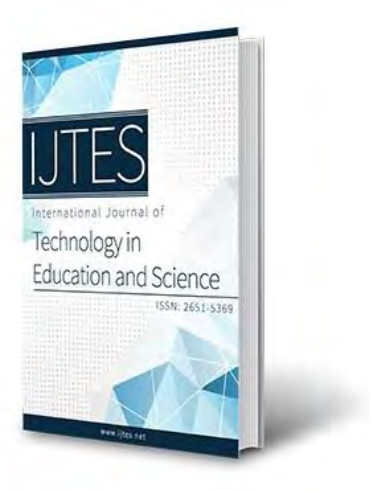

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An Investigation of the Relationship between Secondary School Students' Visual Literacy Levels and their Attitudes towards Digital Images

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Abstract

Living in a world rich in digital images requires students and educators to have more visual literacy skills. The aim of this study is to examine the attitudes and visual literacy of secondary school students towards digital images on a relational basis. 188 secondary school students from two private schools in Türkiye participated in the study conducted with the comparative relational screening model. 'Visual Literacy Scale' and 'Attitude Towards Digital Images Scale' were used to collect the research data. Descriptive statistics, Independent T test and Pearson Correlation Coefficient Techniques were used in the analysis of the study data. According to the research findings, the attitudes and visual literacy of the participating secondary school students towards digital images were found to be high. The attitudes and visual literacy of secondary school students towards digital images differ according to the gender variable. Finally, significant and positive relationships were found between the attitudes of secondary school students towards digital images and their visual literacy.

Introduction

When subjected to a traditional classification, fine arts are classified as phonetic art, rhythmic art and visual arts. Among the works of art, visual arts are among the most appealing to the eye. After the 19th century, with the development of technology, visuality became more prominent and the object of art changed. This has further increased the importance of visual arts (Brey, 2021; Cohen et al., 1997; Shiner, 2001). While the position of painting in developing technologies is being debated, the art of painting has managed to attract these technologies to its side. It has interpreted and reproduced the graphic language of the mediums of the digital world in the media. Artists interpreted the impersonal images flowing in the media by activating their individuality (personal intervention, gesture) and continued to explore the human being from where they left off (Dixon, 2015; Marcos, 2007). Regardless of one's views on the relationship between technology and art, it is inevitable that technology offers a new world to artists. By creating a space of their own, artists have seized the opportunity to push the boundaries. Media art, computer art, video art, internet art, augmented reality, virtual reality, etc. are fed by technologies from the past to the present. Different computer programs are used for digital art. Advances in technology have opened up a new field where artists can combine and present different skills and tools, and this field continues to develop and grow (Cakir et al., 2019; Candy & Edmonds, 2002; Catricalà, 2021; Ozturk & Onal, 2021; Shanken, 2002). The rapid and rapid development of digital art has brought with it certain conceptual

debates. With the emergence of digital art, after debates on whether it is art or not, it has become an artistic movement in the 21st century. The number of museums and galleries exhibiting such artworks is increasing day by day.

Digital art, which is accepted as the art of the digitalized new world, is generally defined as the art form in which virtual objects produced with digital technology are constructed with aesthetic values. According to the "Digital Art and Print Glossary" prepared by The Digital Art Practices & Terminology Task Force (DAPTTF) in 2005, digital art is defined as "art created with one or more digital processes or technologies" (Johnson & Shaw, 2005). In order to better comprehend digital art and its works, it is necessary to examine the relationship between digital technology and contemporary art, how and with which technologies the works are produced, the inner world of the digital artist and the style of expression (Kolesnyk et al., 2022).Digital art was born as a result of the computer revolution that took place with the development of computers and the increase in graphics processing software, and has attracted attention as a formation that tries to develop and establish its rules, forms of expression, characteristic features and ethical values over time, as in other art branches. Due to its proximity to sciences such as physics and mathematics, digital art changes the traditional concepts of art, artist, artwork and audience (Black & Browning, 2011; Lieser, et al., 2009; Manovich, 2015). Computer technology has not only transformed traditional forms of art such as printing, painting, photography, video, music and sculpture, but has also enabled all new forms such as internet art, software art, pixel art, digital exhibitions and virtual reality to be accepted as artistic works.

Today, the excessive production of images, their rapid circulation, and even the new meanings and forms that images acquire through digitalization, moving away from their familiar meanings, are evaluated in the context of the rise of visual culture, while the image's inherent placement in the spirit of the age is criticized from various perspectives (Beetham & Sharpe, 2007). Sanders' criticisms are especially prominent in the context of digitalization bringing about the collapse of written culture. Sanders emphasizes that writing is an important tool in the ability to analyze and abstract a subject (Sanders, 2020).

Today, the language of images dominates as an effective way of perceiving the world, and images are everywhere at any time. Today, the main factor that exposes the individual to image bombardment is digital technologies. As a result of the integration of the visual world with digital possibilities, the ways of perceiving and seeing the world have also been transformed. Today, the image is more powerful and digitized than ever before. This rise of the image is effective in the sharing of everyday life and the individual's preference for imaginative expression as a dominant form of expression in expressing himself/herself. This preference is considered as an element that weakens the individual's relationship with written cultural products (Lester, 2000; Mortensen et al., 2017).

Images have limitless powers. In essence, visual art forms contain countless and infinite narrative forms. Since meaning is conveyed through narrative forms created by codes, utilizing the science of visual narrative means becoming literate in these forms. Today, meaning is carried and distributed by images and visuality is universally positioned at the center of socio-cultural life. Images interpret the world and reveal it in quite different ways (Berger, 2008; Rose, 2001). The technologies of programming and displaying digital images have taken the

interaction with images to such a point that, as Burnett (2005) argues, beyond creating their own meaning, images are increasingly becoming thinking, intelligent elements. The dynamic and interactive nature of the digital image has given rise to a phenomenology based on embodied perception.

Digital tools have been used in the works of many artists from the moment they first started to exist in the field of art until today. Artists have used digital not only as a tool in the realization of their work (with help in sketching etc.) but also as a medium, as the work itself. Bruce Wands summarizes this in his book as follows: "Digital art can appear in the form of drawings, paintings, photographs or video frames, or it can appear as visualizations produced by a computer program, either by the artist or by commercial software. The final forms that these images take can be very different; they can resemble traditional forms, even if digital printing methods are used, or they can find a place in digital media such as DVDs, CDs or the internet (Ceran, 2022; Wands, 2006).

The screen-based visual world has become the natural environment of most of today's youth in particular. Today's technology and culture, though much debated, have created communicators with "stronger visual intuitions" than previous literate generations, that is, "visual learners" or, as Prensky (2001) calls them, "digital natives and immigrants". Mitchell (2008), who states that the era of painting is now extremely active in our contemporary culture full of visuality, underlines that the visual carnival is in every aspect of life and shows its effect with increasing diversity. The 21st century is like the "official parade of visuality" as Kanburoğlu (2003) puts it. For the young generation born into and raised in a world where digital technology and visuality have reached their final stages, image and visuality is not a new experience that enters their lives, but on the contrary, it is a natural development that affects their perception and learning. However, living in an image-rich world does not necessarily mean that students, educators or administrators have advanced visual literacy skills (Oblinger & Oblinger, 2005).

Visual elements have been used since time immemorial and very frequently. This is because visuals have many benefits in information exchange. Some of these benefits can be listed as follows (Cowie, 2016; Jones & Dwyer, 2013; Majidi & Aydinlu, 2016): (i) Visuals are more concise and short. Information can be made more condensed with the help of visuals. A picture is worth a thousand words. In other words, it is possible to share a large amount of information in a short period of time by using visuals. (ii) Visuals concretize information. They "show" the intended message in an effective and concrete way. (iii) By using visuals, disconnections between information can be eliminated. Relationships can be taught more easily and effectively with the help of a visual. (iv) Visual information becomes more integrated. (v) Visuals attract attention and increase creativity. (vi) Visuals help individuals develop aesthetic understanding.

Visual language is arguably one of the most effective forms of communication, spanning all ages, cultures and experience levels (Ynnerman et al., 2018). Using visual language as a means of communication has been an important tool throughout human history and has become an even more important factor as a result of cultural interactions, especially in the 21st century (Rodriguez Estrada & Davis, 2015; Demirci, 2021). Communication materials with visuals capture our attention and keep us motivated to participate (Cook, 2006). However, the perceptions, attitudes and usage of producers and consumers of visuals play an important role in their effectiveness

(Maddalena & O'Reilly, 2018). Moreover, in a globalizing world, giving importance to such issues has become as important as health and education.

Visuals can be considered as non-linguistic indicators that express thoughts or the relationship between objects depending on the sense of sight (Moriarty, 1994). Through visual reading, students create various images in their memory, and through these images they find solutions to the problems in their minds more easily. When concepts or information processes fall into place, students' knowledge production is activated. In this case, progress is achieved in creative and critical thinking (Callow, 2003; Werner, 2002).Visual reading skills are addressed and assessed in international studies such as PISA and PIRLS. In these studies, two types of texts are used to assess students' reading and visual reading skills. These are long (continuous) and short (discontinuous) texts. Continuous/long texts are narrative, informative, explanatory, descriptive and event texts. Discontinuous/short texts are texts containing diagrams, graphs, tables, maps and formulas (OECD, 2003).

The most well-known definition of visual literacy is that of Fransecky and Debes (1972). According to this definition, visual literacy is a group of visual competencies that can be developed by seeing and also by experiencing and integrating other sensory experiences. The development of these competencies is fundamental for non-natural learning (cited in Chauvin, 2003). Today, readers encounter many texts with visual elements that make them complex and multi-layered. Becoming literate now requires the mental processing of an increasing number of pictures, maps, diagrams, tables and text features in addition to words (Aslan, 2011; Coskie & Davis, 2008). Feinstein and Hagerty (1994) argue that visual literacy is a fourth skill of equal importance to reading, writing and arithmetic for modern world education. Depending on the changes, the meaning of the concept of visual literacy has expanded and today it is defined as a different language that includes the ability to produce, read and interpret visual messages (Bleed, 2005; Felten, 2008).

The importance of visual reading has increased considerably as literary and oral communication language has been replaced by visual language. Human beings complete a large part of the activities they perform during their daily lives through the act of visual reading. "... there is no doubt that organisms are programmed to respond to certain visual stimuli in a way that facilitates survival (Schott, 2018).

Visual literacy, which is defined as a set of visual abilities, has a major role in educational systems. Another dimension that addresses the importance of visual reading studies is that visuals increase both the effectiveness and retention of learning (Newman & Ogle, 2019; Shabiralyani et al., 2015). In the literature review on visual literacy, it is seen that the use of visual materials increases the level of education and training (Stokes, 2002; Tiemensma, 2009). Visual literacy descriptions show that visual literacy is a comprehensive skill that can effectively serve the individual's learning and teaching purposes. At every level of education, starting from preschool, environments where students can develop visual literacy skills should be created in order for them to express themselves better. It is known that children pay more attention to visual information than verbal information and retain information learned by seeing it in their memory longer (Christopherson, 1997; Guinibert, 2020; Zufelt, 2019). Lester (1995) also concluded in his research that visuals are perceived faster and easier than texts. Learning by seeing is a way of learning that most people know. While learning by listening occurs at a rate

of 10%, this rate increases to 80% in visual learning. However, individuals who can only remember 20% of what they hear can remember more than 50% of what they both see and hear (Heinich et al., 1989).

In the literature, it is seen that studies on digital images mostly focus on artistic and media-themed issues (Amorim & Teixeira, 2022; Dwivedi et al., 2023; Huang et al., 2022; Paul, 2023; Rinehart & Ippolito, 2022; Thakur & Rohilla, 2020; Young, 2021). It is seen that studies on digital image and students' educational attitudes are quite insufficient. On the other hand, it is seen that visual literacy studies focus on studies that associate the relevant variable with issues such as academic achievement, reading and learning performance (Arneson & Offerdahl, 2018; Becker,,, 2020; Dwyer, 1988; Huilcapi-Collantes et al., 2020; Krejci, et al., 2020; Stokes, 2002; Tørnby, 2020). In the literature, there is no holistic study addressing secondary school students' competencies and attitudes towards visual literacy and digital images. It is thought that investigating the competencies and attitudes of secondary school students towards visual literacy and digital images will make important contributions to their educational success, personal development, artistic skills and future careers. In this context, this study aims to examine the visual literacy and attitudes towards digital images of secondary school students in a relational way. Answers to the following questions were sought in the study:

- What are the averages of secondary school students regarding their visual literacy?
- What is the average level of secondary school students' attitudes towards digital images?
- Do students' visual literacies differ in terms of grade level?
- Do students' attitudes towards digital images differ in terms of grade level?
- Do students' visual literacies differ in terms of gender?
- Do students' attitudes towards digital images differ in terms of gender?

Method

This study, which aims to reveal the visual literacy and attitudes towards digital images of secondary school students, is a descriptive study based on comparison. As it is known, descriptive studies are studies that aim to directly convey the existing situation. The data obtained in such studies are systematically described and the results are interpreted under cause-effect relationship (Jatana et al., 2012). Accordingly, the assumptions of the descriptive research method were followed in this study.The study group of the research consists of students studying in the 5th, 6th and 7th grades of two private secondary schools in Türkiye. The selection of the classes was based on the criterion of students' ability to apply the scales, which is the determining factor in representing visual literacy. 188 secondary school students studying in the 2023-2024 academic year participated in the study. Participants were determined by simple random sampling method. In this sampling method, all units in the universe have an independent, equal right to be selected for the sample (Meng, 2013).

Data Collection Tools

Visual Literacy Scale

The data of the study were obtained from the "Visual Literacy Competencies Scale" developed by Kiper et al. (2012). This measurement tool is a five-point Likert-type measurement tool. Students are required to express their

opinions on each item by choosing one of the following options: I definitely do not, I do not, I more or less do, I do and I easily do. The "I definitely would not" option was scored as one point and the "I could do it easily" option was scored as 5 points. Low scores indicate that pre-service teachers' visual literacy competencies are low, while high scores indicate that they have high visual literacy competencies. There were no items scored in reverse order. In the 29-question measurement tool, the first 7 questions are about "giving importance to visuality by using office software"; 8-11 questions are about "identifying printed visual materials"; 12- 16 questions are about "interpreting visuals"; 17-21 questions are about "distinguishing visual messages encountered in daily life"; 22- 26 questions are about "producing visuals by using tools"; 27- 29 questions are about "perceiving messages in visuals". The internal consistency of the measurement tool was determined as .94. The measurement tool was found to be valid and reliable (Kiper et al., 2012).

Attitude Scale towards Digital Images

In order to measure students' attitudes towards digital images, a measurement tool was developed using the scales developed by Bahandri et al. (2021), Ceran (2022) and Ramadial et al. There are 14 items in total in the Likert-form 5-point scale. As a result of the explanatory factor analyses performed on the scale items, a unidimensional structure consisting of 12 items emerged. 2 items were removed from the scale because they did not fit this unidimensional structure in terms of factor loadings. This unidimensional structure explains 44.68% variance of the trait to be measured. The factor loadings of the scale items ranged between .48 and .77. The Cronbach's alpha reliability of the attitude towards digital images scale was calculated as .87. In this study, the 'Attitude Towards Digital Images Scale' was considered as average scores. High mean scores indicate that participant students' attitudes towards digital images are positive and at a high level.In both scales, students' scores are evaluated between 1 and 5. This range has a width of 4 points. This width was divided into five equal widths and the findings were interpreted as "very low" between 1.00- 1.79, "low" between 1.80- 2.59, "medium" between 2.60- 3.39, high between 3.40-4.19, and very high between 4.20-5.00.

Data Analysis Techniques

The data obtained from the research were analyzed with SPSS 22.0 statistical program. The scores of the students were calculated and descriptive statistics were presented for each dimension and scale. The skewness and kurtosis values performed on the data obtained after the application of the scales to the secondary school students showed that the data met the assumptions of normal distribution. In this context, independent samples t-test was used to compare students' attitudes towards visual literacy and digital images according to gender, and One-Way Analysis of Variance (ANOVA) test was used to compare according to grade level.

Results

In order to determine the level of visual literacy and attitudes towards digital images of secondary school students who participated in the study, the mean, standard deviation, minimum and maximum values of the data obtained from the scales used in the research were calculated and analyzed. The results obtained are presented in Table 1

and Table 2.

Table 1. Descriptive Analysis of the Scores Obtained from the Visual Literacy Scale

	N	Minimum	Maximum	Mean	Std. Deviation
Being able to give importance to visuality by using office software	188	1.00	5.00	3.56	0.76
Being able to define printed visual materials	188	1.50	5.00	3.45	0.74
Visual Interpretation	188	2.00	5.00	3.59	0.77
Distinguishing Visual Messages in Daily Life	188	2.00	5.00	3.76	0.81
Being able to produce Visuals by Using Tools	188	2.00	5.00	3.67	0.77
Being able to perceive messages in visuals	188	1.86	5.00	3.54	0.80
Visual Literacy General	188	2.52	4.88	3.59	0.58

As shown in Table 1, secondary school students who participated in the study had a high level of "giving importance to visuality using office software" (3.56 ± 0.76); a high level of "identifying printed visual materials" (3.45 ± 0.74); a high level of "interpreting visuals" (3.59 ± 0.77); a high level of "distinguishing visual messages in daily life" (3. 76 ± 0.81); high level of "producing visuals using tools" (3.67 ± 0.77); high level of "perceiving messages in visuals" (3.54 ± 0.80); and finally high level of "general visual literacy competence" in the whole scale (3.59 ± 0.58).

Table 2. Descriptive Analysis of the Scores Obtained from the Attitudes Towards Digital Images Scale

	N	Minimum	Maximum	Mean	Std. Deviation
Digital Attitude	188	1.00	5.00	3.63	0.95

The level of "attitude towards digital images" of the secondary school students participating in the study was found to be high (3.63 ± 0.95). In order to compare the levels of visual literacy and attitudes towards digital images of the secondary school students participating in the study according to their gender, 'Independent Samples t Test' values were calculated and analyzed. The results obtained are presented in Table 3 and Table 4.

Table 3 shows the analysis results performed on the visual literacy scale scores of secondary school students according to their gender. According to the T-Test results conducted to determine whether the mean scores of the students participating in the study for ‘giving importance to visuality using office software’, ‘being able to identify printed visual materials’, ‘being able to interpret visuals’, ‘being able to perceive messages in visuals’ and ‘general visual literacy’ showed a significant difference in terms of gender variable; the difference between the group means was not found significant ($p>0.05$). However, the difference between the group means was found significant in the dimensions of ‘being able to distinguish visual messages in daily life’ and ‘being able to produce

visuals using tools' ($p<0.05$). The scores of the boys in these subscales were found to be lower than the visual literacy proficiency scores of the girls.

Table 3. Comparison of Scores Obtained from Visual Literacy Scale According to Gender

	Gender	N	Mean	Std. Deviation	t	P
Being able to give importance to visuality by using office software	Female	94	3.65	0.76	1.90	0.09
	Male	94	3.47	0.71		
Being able to define printed visual materials	Female	94	3.39	0.75	-1.16	0.25
	Male	94	3.51	0.72		
Visual Interpretation	Female	94	3.51	0.73	-1.41	0.16
	Male	94	3.67	0.80		
Distinguishing Visual Messages in Daily Life	Female	94	3.88	0.81	2.15	0.03
	Male	94	3.63	0.79		
Being able to produce Visuals by Using Tools	Female	94	3.86	0.72	2.01	0.04
	Male	94	3.47	0.81		
Being able to perceive messages in visuals	Female	94	3.51	0.88	-0.41	0.68
	Male	94	3.56	0.72		
Visual Literacy General	Female	94	3.63	0.57	0.98	0.33
	Male	94	3.55	0.59		

Table 4 shows the analysis results performed on the attitude scale scores of secondary school students towards digital images according to their gender. The attitudes of the students participating in the study towards digital images were found to be significantly different according to the gender variable ($p<0.05$). When the mean scores were examined, the attitudes of female students towards digital images were found to be higher and more positive compared to their male peers.

Table 4. Comparison of the Scores Obtained from the Attitude Scale towards Digital Images by Gender

	Gender	N	Mean	Std. Deviation	t	p
Digital Attitude	Female	94	3.81	0.98	2.70	0.01
	Male	94	3.44	0.88		

In order to reveal the relationships between the visual literacy and attitude levels towards digital images of the secondary school students who participated in the study, the 'Pearson Moment Multiplication Correlation Coefficient' was calculated and examined. The results obtained are given in Table 5. Table 5 shows the results of the correlation analysis conducted between the attitudes of secondary school students towards digital images and the visual literacy scale and its sub-dimensions. According to the analysis, it is understood that there are positive and significant relationships at high and medium levels between the attitude towards digital images and 'Ability to Give Importance to Visuality Using Office Software' ($r=0.404$; $p<0.01$), 'Ability to Identify Printed Visual Materials' ($r=0.287$; $p<0.01$), 'Ability to Interpret Visuals' ($r=0.268$; $p<0.01$), 'Ability to Distinguish Visual Messages in Daily Life' ($r=0.341$; $p<0.01$), 'Ability to Produce Visuals Using Tools' ($r=0.326$; $p<0.01$), 'Ability

to Perceive Messages in Visuals' (r=0.440; p<0.01) and the whole scale with 'General Visual Literacy' (r=0.496; p<0.05), respectively. It has been observed that as secondary school students' visual reading levels increase, their attitudes towards digital images also increase.

Table 5. Coefficients of Correlations between Scores Obtained from Attitude towards Digital Images and Visual Literacy Scales

	r	p
Ability to Give Importance to Visuality Using Office Software	.404**	0.000
Being Able to Identify Printed Visual Materials	.287**	0.003
Being Able to Interpret Visuals	.368**	0.000
Being Able to Distinguish Visual Messages in Daily Life	.341**	0.000
Being Able to Produce Visuals Using Tools	.326**	0.000
Being Able to Perceive Messages in Visuals	.440**	0.000
General Visual Literacy	.496**	0.000

**. Correlation is significant at the 0.01 level (2-tailed).

Discussion

In this study, the visual literacy and attitudes of secondary school students towards digital images were examined relationally and descriptively. According to the research findings, the visual literacy of the participating students was found to be at a high level and their attitudes towards digital images were found to be positive. According to the results of the study conducted by Kocaarslan and Çeliktürk (2013), the visual literacy proficiency levels of students at different levels were generally high and this is consistent with the results obtained in this study. Similarly, the data obtained from the study conducted with students at two different state universities revealed that the visual literacy levels of the participating students were quite high, which is consistent with the findings of the current study (Kiper et al., 2014).

In addition, according to the total scores of the gifted students and their peers from the "Visual Literacy Proficiency Scale", it was concluded that the students were visually literate at a high level, which is consistent with the results of the study presented here. According to the results of the master's thesis research conducted by Kıran (2008), the visual literacy of fifth-grade teachers and students is at a sufficient level. In a study investigating the attitudes of today's youth, Generation Z, towards digital technology in this time when we are living in the digital age, it was determined that the opinion was generally expressed at the level of "I agree" and a positive attitude was exhibited. It can be considered that the excessive dependence on the internet, the close follow-up of technological developments, the uninterrupted connection with mobile phones and social networks are effective in the positive opinion of Generation Z (Ardıç and Altun, 2017). In this respect, the research results regarding attitudes towards digital images seem to be consistent with the literature.

Another finding of the study was that the visual literacy and attitudes of the participating students towards digital images were compared according to the gender variable. In general, the visual literacy and attitudes of female

students towards digital images were found to be higher than their male peers. Indeed, the findings of the studies conducted by Lüle Mert (2017) and Kiper and his colleagues are similar. Kiper and his colleagues (2014) concluded that the sub-dimensions of 'Ability to Identify Printed Visual Materials' and 'Ability to Distinguish Visual Messages Encountered in Daily Life' were higher in favor of girls in their studies on the visual literacy competencies of university students. The fact that girls' attitudes towards digital images were found to be high in this study seems quite meaningful and consistent with the literature. Indeed, in the studies conducted by Buckingham (2007), Cai and his colleagues (2017), and Rideout (2015) on children and adolescents, it was found that female students had high tendencies and attitudes towards digital images.

There may be several possible reasons for the high attitudes of female students towards digital images. In explaining this situation, social, psychological, and cultural factors should be taken into account. Female students tend to be more active on social media platforms. These platforms focus on sharing and consuming visual content. This situation may increase the importance of digital images, thus fostering female students' interest and positive attitudes towards such content (Cai et al., 2017). Gender roles may encourage girls to pay more attention to aesthetic perception and visual arrangements. Traditionally, girls are expected to be more interested in beauty and aesthetics, which may affect their attitudes towards digital images (Rideout, 2015). As female students' access to technology increases, they are more likely to interact with digital images, especially in areas such as fashion, makeup, and art (Buckingham 2007). This may lead them to develop a positive attitude towards digital images.

The final finding of this study is about the relationships between visual literacy and attitudes of secondary school students towards digital images. According to the correlation analyses, significant and positive relationships were found between the visual literacy of the participant students and their attitudes towards digital images. Visual literacy refers to the ability of individuals to understand, analyze and interpret visual messages. These skills can positively affect attitudes towards digital images because as students understand and evaluate visual content better, they develop a more positive and conscious attitude towards these contents (Avgerinou & Pettersson, 2011; Burmark, 2002). Students with high visual literacy skills tend to use and interact with digital content more effectively. This can lead to positive experiences with digital images (Kellner & Share, 2007). These students can develop positive attitudes by better comprehending the information provided by digital images and using these images in more creative and meaningful ways (Messaris, 1994). Students with advanced visual literacy tend to be more exposed to technology and digital media tools and use these tools more effectively. This allows them to encounter digital images more frequently and consciously. Increased exposure and use may have contributed to positive attitudes toward digital images.

Conclusion and Recommendations

As a result, the visual literacy levels of secondary school students and their attitudes towards digital images were found to be high. The same variables differ according to the gender factor. A significant and positive relationship was found between the visual literacy levels of secondary school students and their attitudes towards digital images. The following suggestions can be made in line with the data obtained from the study. In similar studies to be conducted, high school students can also be included and the participation of students studying in public

schools can be ensured. More participants from different grade levels can be included. By increasing the number of schools to be studied and including students from public schools in the study, different results can be obtained. Different qualitative, quantitative or art-based studies can be conducted on digital images and visual literacy. Finally, it is thought that visual literacy will encourage understanding, evaluating and using digital images creatively. This will cause students to establish more positive relationships with these images. In this context, it is recommended that visual literacy and digital images be given more place in secondary school curriculum.

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