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Abstract

The aim of this study is to examine the relationship between high school students' attitudes towards contemporary and digital art, and virtual exhibitions in terms of several variables. The research employed the "Survey Model," one of the quantitative research methods, and the "Comparative Correlational Survey Model" as its basis. The research sample consisted of 350 high school students enrolled in private and public high schools in a provincial center, selected through simple random sampling. Research data were collected online using the Attitude Scale Towards Virtual Exhibitions, the Attitude Scale Towards Contemporary Arts, and the Attitude Scale Towards Digital Art. Independent Samples t-Test, One-Way ANOVA, and Scheffe Tests were used in data analysis. The research results revealed that the students' general attitudes towards these areas were positive and high-level. While positive perceptions towards digital arts and the educational role of virtual exhibitions were particularly prominent, attitudes towards the virtual exhibition experience dimension were found to be relatively lower compared to other dimensions. Female students' attitudes toward various aspects of contemporary art, digital art, and virtual exhibitions are significantly more positive than male students. Regarding grade level, upper-grade students have higher attitude scores on the variables "contemporary art attitudes," "the educational role of virtual exhibitions," and "virtual exhibition experience." Students' attitudes toward contemporary and digital arts significantly and positively predict their attitudes toward virtual exhibitions; these variables explain approximately 20% of attitudes toward virtual exhibitions. Therefore, art educators are encouraged to focus on content that enhances students' experiences with digital art and virtual exhibitions. Education policymakers are advised to develop contemporary curricula that include digital art tools and to adopt inclusive arts education policies. Researchers are encouraged to conduct studies that further examine the effects of virtual exhibition experiences on student achievement, motivation, and creativity.

Introduction

Today, the digital transformation is radically changing the ways art is produced, exhibited, and consumed. This transformation is redefining the content, methods, and learner profile of art pedagogy (Takona, 2024). Art

education supports the holistic development of individuals in affective, cognitive, and psychomotor domains (Çağlak Eker, 2023; Cakir et al., 2029; Ciddi, 2025; Kaleli, 2021; Kara, 2021; Özkan, 2024; Ozturk & Ozturk, 2022, 2024; Ünal, 2024; Ünal & Demirel, 2024). Secondary education, in particular, represents a critical phase in fostering aesthetic awareness and critical thinking. The national education vision in Turkey prioritizes the development of digital-age citizenship skills and integrates art education with technology (Oktan & Oktan, 2024). At the international level, UNESCO's cultural heritage programs strengthen the artistic dissemination function of digital platforms. Therefore, the digital dimension of art education is progressing parallel to the goals of intercultural communication and sustainable development (Ünal, & Çakır, 2023; Dignam, 2025; Hu & Li, 2025).

The Ministry of Culture and Tourism reports highlight the increasing use of virtual museums and exhibitions in Turkey. In this context, the affective tendencies of high school students toward virtual art provide strategic data for cultural policy design (Erden-Kocaarslan & Riedler Eryaman, 2024). Internationally, the UNESCO World Digital Culture Report indicates that mobile device use is a determining factor in young people's artistic participation (Pelowski et al., 2024). Digital tools expand the experiential dimension of art education, developing students' interdisciplinary thinking skills. Post-COVID-19 education models are making distance and hybrid learning permanent and paving the way for virtual exhibition experiences (Snels, 2022). Research reveals that digital art experiences positively impact students' motivation and creativity levels (Hu & Li, 2025; Özdemir, 2022). Furthermore, relevant research emphasizes the significant role of virtual exhibitions in creating interactive learning experiences (Tam & Hui, 2023). In this context, examining the relationship between art, digitalization, and education is a strategic priority for current education policies. The aim of this study is to examine the relationship between high school students' attitudes towards contemporary and digital art and virtual exhibitions in terms of some variables.

Digital Art and Its Relationship with Education

The development of digital art involves a process that redefines the relationships between artists, audiences, and production through technological tools. Andersen (2019) argues that with the "code canvas" approach, programming language has become a tool of artistic expression, and creative processes are intertwined with algorithmic logic. This approach reveals that digital art has undergone not only a formal but also a conceptual transformation. Garcia (2018), through post-internet aesthetics, argues that digital technologies transform everyday life into immersive data landscapes, and that art reinterprets this landscape. Focusing on the environmental and representational dimensions of digital art, Silvestri (2023) argues that, in digital EcoArt approaches, artificial intelligence transforms representations of nature and creates narratives that increase environmental awareness. At this point, aesthetics is not limited to visual appreciation but also transforms into a narrative tool that encompasses social and ecological sensitivities. Mishra et al. (2024) adds a new dimension to intellectual property debates by stating that the uniqueness of digital art objects is secured through cryptographic signatures. In the same context, Mukhopadhyay (2025) demonstrates that virtual marketplaces are transforming traditional gallery systems and redefining the spatial presentation of art. The ethical and theoretical dimensions of digital art are evolving simultaneously with these developments. Jones (2023) argues that algorithmic production processes have reopened the concepts of ownership and authenticity; Khan and Iqbal (2023) emphasize that while

aesthetic criteria have become blurred in digital environments, this opens the door to new creative possibilities. This demonstrates that digital art encourages new forms of expression without adhering to traditional aesthetic norms. Goenaga (2020) argues that AI-based productions have triggered discussions about originality, and in this context, the meaning of art is being reconstructed. Rossi and Bernardini's (2022) analyses of blockchain and NFTs highlight the economic dimension of digital art, highlighting radical transformations that decentralize the concept of ownership. This transformation brings about a fundamental disruption in the value, circulation, and ownership of artworks.

The increasing importance of digital art applications in education contributes to the development of visual literacy in learning processes and to students' more critical approach to media content. In this context, the integration model presented by Erişti and Freedman (2024) reveals that teachers effectively integrate digital art projects into their course content by improving their pedagogical competencies. Such approaches highlight the educational potential of visual narratives, making lessons more interactive and meaningful. The interactive dimensions of digital art, especially when supported by technologies such as augmented reality, further increase student engagement. Indeed, Shawarangkoon et al. (2024) stated that augmented reality-supported museum applications significantly increase students' attention and motivation levels. Smanov et al. (2023) demonstrate that course continuity continues uninterrupted in distance education thanks to the flexibility offered by digital platforms. These findings demonstrate that digital environments offer significant advantages not only in terms of content delivery but also in terms of learning continuity.

Digital art applications also contribute to students' identity construction processes. Villanueva (2022), in her research on feminist illustration practices, demonstrates that social media-based presentations have become an important tool for students in the digital identity development process. An (2024) argues that virtual space curation can be transformed to serve pedagogical purposes, thereby incorporating innovation and creativity into student projects. Digital art applications supported by immersive technologies strengthen students' cognitive and emotional engagement. Smith's (2023) study on virtual reality demonstrates that such environments stimulate mental imagery and deepen student engagement. Trezise et al. (2024) indicate that online digital art applications contribute to the development of flexible learning ecosystems. The proliferation of digital art in education is also transforming students' perceptions and engagement levels in this field. In particular, the accessibility of digital tools appears to be directly related to attitudes. Hu and Li's (2025) experimental study reveals that students who use digital drawing software have higher self-confidence levels. This suggests that exposure to digital tools positively impacts students' self-perception.

Technology acceptance models also significantly shape students' attitudes. Shen, Mo, and Xia (2025) indicate that positive attitudes toward technology and intentions to use technology increase through these models. Khan and Iqbal (2023) emphasize that the novelty experience strengthens students' self-efficacy beliefs. These findings demonstrate that participation in digital arts is supported cognitively and emotionally. Na et al. (2024) indicate that developing digital tool skills facilitates students' orientation to project-based learning. This suggests that students engage in more independent and productive learning processes. Smanov et al. (2023) highlight the positive effects of digital arts courses on self-regulation skills. Furthermore, social interaction mechanisms such

as peer feedback in digital arts practices also increase motivation. Le's (2023) model suggests that such feedback processes reinforce interest in the learning content. Kim (2022) notes that students' increasing interest in hybrid forms of expression points to the flexibility offered by digital art. Villanueva (2022) demonstrates that this process can also foster sensitivity to social justice.

Examining students' risk-taking tendencies through digital art aesthetics, Taylor (2022) argues that experimental approaches like glitch art encourage innovative thinking. Scifo (2023) argues that the uncertainties that arise during the application process stimulate curiosity and increase learning motivation. All these studies demonstrate that participation in digital art is shaped by a multidimensional structure and, when supported by self-efficacy, transforms into sustainable learning profiles. Comparing digital art education with traditional art education, it is clear that both approaches offer distinct advantages and are preferred based on pedagogical objectives. For example, Erbay (2024) states that digital art provides a multisensory experience by reconstructing spatial memory. In contrast, Wiratno and Callula (2024) argue that while digital art transforms aesthetic concepts, traditional art preserves historical references.

The Place of Contemporary Art in Education and the Attitudes of High School Students towards Contemporary Art

Contemporary art emerges as a form of artistic production that supports individuals' efforts to make sense of and critique the contemporary world. This understanding of art plays a significant role in education as a form of expression that transcends aesthetic concerns and generates immediate and critical responses to the social, political, and technological transformations encountered in the contemporary world. This approach, grounded in interdisciplinarity and transcending the restrictive disciplinary definitions of traditional art, simultaneously activates students' capacities for both creative and critical thinking (Smith, 2019; Solik, 2023).

Contemporary art practices enable students to actively participate in artistic production processes while also increasing their social and cultural awareness (Bailey, 2023). Vuk and Bosnar's (2021) research on process-based art education demonstrates that students' creative perceptions are strengthened by contemporary art and that they begin to reflect more deeply on aesthetic, ethical, and social issues. Similarly, Çaylı's (2021) study, focusing on the geopolitical context of contemporary art, reveals that students develop empathic attitudes in intercultural dialogue environments.

Integrating contemporary art into learning processes not only leads students to question product-focused assessment criteria but also to view the process itself as a learning tool. Pelowski et al. (2024) argue that students who interact with contemporary art exhibitions engage in long-term learning using multiple sensory channels, and that this experience reinforces prosocial attitudes. Furthermore, Gaiţă's (2022) analysis of temporary urban interventions reveals that site-related contemporary art practices enhance spatial awareness and civic consciousness. These practices enhance pedagogical outcomes by engaging students with contemporary themes such as social justice, global citizenship, and cultural pluralism. Loustau (2021) demonstrates that multilayered symbol analyses focusing on religious rituals enhance students' cultural literacy and encourage them to adopt a

more sensitive approach to symbolic language. Kwiatkowska-Tybulewicz's (2022) research with prospective teachers emphasizes that contemporary art transforms teachers' pedagogical competencies and encourages mutual learning in the classroom environment.

Contemporary art-based workshops and projects implemented in high schools positively affect student success not only academically but also in affective areas such as self-efficacy and self-esteem. Bailey (2023) states that inclusive contemporary art content increases students' self-confidence and increases classroom participation rates. In their study on creative pedagogies, De Arriba et al. (2019) state that interdisciplinary contemporary art projects increase students' learning motivation and strengthen their sense of social responsibility. Existing literature strongly suggests that students' attitudes towards contemporary art are shaped interactively by factors such as experience quality, pedagogical design, and social interaction, and that pedagogical interventions that support positive attitudes are necessary (Davis et al., 2018; Ren, 2021; Garrido Castellano & Raposo, 2024).

Use of Virtual Exhibitions in Education

Virtual exhibitions are new media environments that emerged through the digital transformation of traditional exhibitions. These platforms provide inclusive and flexible learning opportunities, particularly in educational settings, by making museum and gallery experiences accessible regardless of location (Manista, 2022). Advanced virtual exhibition software integrates augmented reality (AR) and virtual reality (VR) technologies, allowing students to interactively navigate three-dimensional spaces. These technologies allow students to personalize exhibition routes and explore information at their own pace (Snels, 2022). Virtual exhibitions, through the opportunities offered by digital technologies, increase students' interaction with the artwork and develop visual literacy skills (Tam & Hui, 2023). Balzani et al. (2024) emphasize the importance of preserving temporary exhibitions in virtual environments for the sustainable management of cultural heritage and state that such exhibitions contribute to the permanence of educational content.

User interfaces in virtual exhibitions are supported by guiding iconography and audiovisual synchronization mechanisms, reducing students' cognitive load and enabling them to access information more effectively. Authentic audio narratives developed for each work stimulate students' multisensory learning processes and increase retention rates (Shawarangkoon et al., 2024). Cloud-based data storage systems also provide uninterrupted access, while blockchain-supported authentication systems enable copyright protection (Chen et al., 2024).

Virtual exhibitions have played a central role in ensuring the continuity of educational content, particularly during the post-pandemic period when distance learning became widespread. Snels (2022) notes that online art events during the pandemic increased critical media awareness and digital culture awareness. Hrynyschyn et al. (2024) report that health-themed VR experiences fostered behavioral awareness in students, and this awareness increased interest in social issues. These findings demonstrate that the pedagogical benefits of virtual exhibitions extend not only to artistic but also to social and ethical learning.

The immersive design of virtual exhibitions extends the attention span of young visitors in particular, enabling them to engage with information for longer periods of time (Jo et al., 2024). In this context, immersion is considered not only a technical design element but also a pedagogical tool. Binowo et al. (2024) show that virtual education fairs positively impact students' career planning processes and increase their self-confidence in self-expression. Attitude studies reveal that students' perceptions of virtual exhibitions vary. Chen et al. (2024) state that authentic narrative intensity plays a decisive role in shaping student attitudes. Positive attitudes toward virtual exhibitions are directly influenced by factors such as high-resolution content quality (Balzani et al., 2024), cultural familiarity (Raykovska et al., 2024), and spatial transition design (Redyantanu et al., 2023). However, mismatch with the learning objective increases the risk of negative attitudes (Hrynyschyn et al., 2024).

Pedagogical adaptations aligned with learning objectives are a key factor in enhancing the educational effectiveness of virtual exhibitions. Tam and Hui (2023) report that teacher-curated virtual exhibition experiences strengthen students' visual literacy and support their meaning-making processes. Snels (2022) demonstrates that social media integration allows students to participate in a broader learning community by sharing virtual exhibition content. This reinforces motivation to participate and a sense of belonging (Manista, 2022).

In Turkey, high school students' access to contemporary and digital art is limited due to the unequal distribution of infrastructure. In rural areas, inadequate internet speeds cause virtual exhibition experiences to be intermittent. While some schools in urban centers have advantages in terms of digital workshop equipment, disadvantaged schools experience technical deficiencies. This situation exacerbates inequality of opportunity in education and negatively impacts motivation for artistic learning (Uzun and Kalyoncu, 2022). Similar problems are observed internationally, with access to digital culture limited in low-income countries (Manista, 2022). The rapid transition to online platforms during the pandemic has made the digital divide more visible. Students struggle to attend VR exhibitions that require high data consumption (Jo et al., 2024).

Issues such as financial constraints and licensed programs hinder access. Students lack sufficient knowledge of copyright issues and face ethical challenges in digital art production (Mishra et al., 2024). It has been reported that female students, in particular, face gender-based prejudices when using technology (Bailey, 2023). A review of the relevant literature reveals that studies on high school students' attitudes toward virtual exhibition experiences are limited. Most studies use limited samples of higher education participants (Tam & Hui, 2023; Shen et al., 2025). The purpose of this study is to examine the relationship between high school students' attitudes toward contemporary and digital art and virtual exhibitions in terms of several variables. For this purpose, answers to the following sub-problems were sought within the scope of the study:

- What are the attitudes of high school students toward contemporary and digital art and virtual exhibitions?
- Do their attitudes toward contemporary and digital art and virtual exhibitions differ by gender?
- Do their attitudes toward contemporary and digital art and virtual exhibitions differ by grade level?
- Is there a significant relationship between attitudes toward contemporary and digital art and virtual exhibitions?

Method

Research Model

In the study, based on the "Survey Model," one of the quantitative research methods, the "Comparative Relational Survey Model" was employed. The primary purpose of the Quantitative Research Design is to express the findings obtained as numerical values and to concretely measure the desired characteristic. This allows phenomena and events to be clearly objectified, observable, measurable, and numerically expressible (Bowling & Ebrahim, 2005). Frequently used data collection tools in the survey model are scales and questionnaires. The validity and reliability of the research were influenced by the ability to reach a large number of people in a short time, providing participants with sufficient time and a free environment for reflection, and providing the opportunity to access more precise and clear information.

Population and Sample of the Study

In any research, population refers to all individuals who constitute the reflection of the problem. A sample is a set of a certain size and objectively taken from the universe (Umar & Usman, 2015). The population of this research is the students attending high school in Turkey in the 2024-2025 academic year. The research sample consists of 350 high school students enrolled in private and public high schools in a provincial center, selected through simple random sampling. It was calculated that a total of 338 individuals were needed to ensure a heterogeneous distribution and representative sample at a 95% confidence interval (Yazıcıoğlu & Erdoğan, 2004). Although online survey scales were sent to 400 students, students who did not agree to participate in the research process or did not fully complete the online scales were excluded from the analysis.

Data Collection Tools

Attitude Scale Towards Virtual Exhibitions

A Likert-type measurement tool developed by Akkaya Ocak (2024) was used to measure the attitudes of high school students towards virtual exhibitions. Akkaya Ocak (2024) tested the construct validity of the measurement tool through exploratory and confirmatory factor analysis. Based on two different factor analyses, the scale was found to have a 23-item, 4-factor structure. The subscales of this attitude scale were determined as ‘educational role of virtual exhibitions’, ‘virtual exhibition and physical exhibition’, ‘access to virtual exhibitions’ and ‘virtual exhibition experience’, respectively. The total variance values of the scale consisting of four factors explain 49.022% of the total scale. The internal consistency Cronbach's Alpha coefficient of the attitude scale towards virtual exhibitions was calculated as 0.896. In the analyses performed for this research, the reliability coefficients of the sub-dimensions of the scale ranged from 0.81 to 0.90.

Attitude Scale Towards Contemporary Arts

In order to measure the attitudes of high school students towards contemporary arts, a five-point Likert-type measurement tool consisting of 28 questions developed by Uzun (2021) was used. As a result of the exploratory

factor analyses, the KMO value of the scale was calculated as .94, and the Bartlett's Sphericity test values were (□2 = 6250.270, sd= 378, p<0.01). As a result of the factor analysis, it was tested and proven that the 'Contemporary Art Attitude Scale' has a one-dimensional structure. The Cronbach Alpha internal consistency coefficient of the scale, consisting of a total of 28 items, was found to be .93. The reliability coefficient obtained by dividing the number of items in the scale into two parts was calculated as .90. As a result of the analyses carried out on the high school sample of this study, the Cronbach Alpha coefficient of the 'Contemporary Art Attitude Scale' was calculated as 0.88.

Attitude Scale Towards Digital Art

A scale developed by Yavaşca (2024) was used to measure high school students' attitudes toward digital arts. The digital arts attitude scale for high school students has a single-factor structure consisting of nine items. The Likert-type, 5-point scale measures participants' attitudes toward digital, new media, and art. In the analyses conducted on this study's sample, the Cronbach's alpha coefficient for the digital arts attitude scale was calculated as 0.88.

Data Collection and Data Analysis

Research data were collected online in May and June 2025. During the data collection process, participants were included in the study on a voluntary basis. In this context, the necessary approvals were obtained from the school administration and participants within the framework of ethical procedures. First, the purpose of the research was stated, and information was provided regarding the absence of any risks, participants could withdraw from the study at any time, and data security. SPSS 27.0 (IBM SPSS Corp; Armonk, NY, USA) was used in data analysis. Normal distribution analyses performed on the scale data of the study revealed that the skewness and kurtosis values were between +1 and -1. In this context, in the second stage of the research, the scores obtained from the scale and demographic variables were analyzed using *the Independent Samples t-Test, One Way ANOVA, Regression Analysis*, and *Scheffe Tests*. The significance level of the study was accepted as p<0.05.

Findings

This section of the research presents the findings obtained from the data analysis. The findings from the descriptive analysis of high school students' attitude scores toward contemporary art, digital art, and virtual exhibitions are presented in Table 1. The table shows the means and standard deviations regarding the scores obtained by high school students from the attitude scales towards contemporary art, attitude scale towards digital art, and attitude scale towards virtual exhibitions. According to the analysis, the mean score of the students' attitude scale towards contemporary art is 3.52±0.75; the mean score of the attitude scale towards digital arts is 3.69±0.71. The mean score of the 'Educational Role of Virtual Exhibitions' subscale of the attitude scale towards virtual exhibitions is 3.91±0.90; the mean score of the 'Virtual Exhibition and Physical Exhibition' subscale is 3.60±0.76; the mean score of the 'Virtual Exhibition Experience' subscale is 3.19±0.74; the mean score of the 'Access to Virtual Exhibition' subscale is 3.67±0.79 and the total mean score of the attitude towards virtual exhibitions is 3.59±0.54. According to these findings, the participants' attitudes towards contemporary arts, digital arts, and virtual

exhibitions were found to be high and positive. However, students' virtual exhibition experiences are at a moderate level.

Table 1. Descriptive Analysis of High School Students' Attitude Scores Towards Contemporary Art, Digital Art Attitude, and Virtual Exhibitions

Scale	N	Minimum	Maximum	Mean	Std. Deviation
Contemporary Art Attitudes	350	1.80	5.00	3.52	0.75
Digital Art Attitudes	350	2.18	5.00	3.69	0.70
The Educational Role of Virtual Exhibitions	350	1.50	5.00	3.91	0.90
Virtual Exhibitions and Physical Exhibitions	350	1.50	5.00	3.60	0.76
Virtual Exhibition Experience	350	1.50	5.00	3.19	0.74
Virtual Exhibition Access	350	2.00	5.00	3.67	0.79
Virtual Exhibition Attitudes (Total)	350	2.25	5.00	3.59	0.54

The results of the independent groups t-test for comparing high school students' attitude scores towards contemporary art, digital art attitudes and attitudes towards virtual exhibitions by gender are presented in Table 2.

Table 2. Comparison of High School Students' Attitude Scores Towards Contemporary Art, Digital Art Attitude, and Virtual Exhibitions by Gender

Scale	Gender	N	Mean	Std. Deviation	t	p
Contemporary Art Attitudes	Female	163	3.63	0.72	2.53	0.01*
	Male	187	3.42	0.76		
Digital Art Attitudes	Female	163	3.82	0.71	3.14	0.00*
	Male	187	3.59	0.67		
The Educational Role of Virtual Exhibitions	Female	163	4.18	0.84	5.52	0.00*
	Male	187	3.67	0.88		
Virtual Exhibitions and Physical Exhibitions	Female	163	3.76	0.74	3.96	0.00*
	Male	187	3.45	0.74		
Virtual Exhibition Experience	Female	163	3.29	0.79	2.57	0.01*
	Male	187	3.09	0.67		
Virtual Exhibition Access	Female	163	3.72	0.83	1.12	0.26
	Male	187	3.63	0.76		
Virtual Exhibition Attitudes (Total)	Female	163	3.74	0.54	4.97	0.00*
	Male	187	3.46	0.52		

*p<0,05

Table 2 shows the results of the t-test analysis of the scores obtained by high school students from the attitude

scales towards contemporary art, digital art attitude and attitude towards virtual exhibitions by gender. When the attitude scores of high school students towards contemporary art, digital art and virtual exhibitions were compared by gender, significant differences were obtained. In terms of attitude scores towards contemporary art, female students (3.63±0.72) had statistically significantly higher scores than male students (3.42±0.76) ($t(348)=2.53$; $p=0.01$). Similarly, it was observed that female students (3.82±0.71) had higher attitudes than male students (3.59±0.67) in terms of attitudes towards digital art and this difference was significant ($t(348)=3.14$; $p<0.001$).

In terms of attitudes towards the educational role of virtual exhibitions, female students (4.18±0.84) scored significantly higher than male students (3.67±0.88) ($t(348)=5.52$; $p<0.001$). In terms of the attitude scale comparing physical and virtual exhibitions, female students (3.76±0.74) scored significantly higher than male students (3.45±0.74) ($t(348)=3.96$; $p<0.001$). In the virtual exhibition experience variable, female students (3.29±0.79) had a higher mean than male students (3.09±0.67) and this difference was significant ($t(348)=2.57$; $p=0.01$). On the other hand, no statistically significant difference was found between female (3.72±0.83) and male (3.63±0.76) students' virtual exhibition access scores ($t(348)=1.12$; $p=0.26$). A significant gender difference also emerged in terms of the overall virtual exhibition attitude score. The female students' overall attitude score (3.74±0.54) was found to be higher than that of male students (3.46±0.52), and this difference was statistically significant ($t(348)=4.97$; $p<0.001$). These findings indicate that female students developed more positive attitudes towards art and virtual exhibitions.

ANOVA results for comparing high school students' attitude scores towards contemporary art, digital art attitudes and attitudes towards virtual exhibitions according to grade level are presented in Table 3.

Table 3. Comparison of High School Students' Attitude Scores Towards Contemporary Art, Digital Art, and Virtual Exhibitions by Grade Level

Variables	**Grade Level**	**N**	**Mean**	**Std. Deviation**	**F**	**p**
Contemporary Art Attitudes	1st Grade	86	3.39	0.63	4.90	0.00*
	2nd Grade	91	3.37	0.64		
	3rd Grade	96	3.60	0.87		
	4th Grade	77	3.74	0.77		
	Total	350	3.52	0.75		
Digital Art Attitudes	1st Grade	86	3.57	0.68	1.97	0.12
	2nd Grade	91	3.69	0.74		
	3rd Grade	96	3.71	0.69		
	4th Grade	77	3.83	0.64		
	Total	350	3.69	0.70		
The Educational Role of Virtual Exhibitions	1st Grade	86	3.67	1.00	3.17	0.02*
	2nd Grade	91	4.07	0.84		
	3rd Grade	96	3.93	0.86		
	4th Grade	77	3.95	0.86		

Variables	Grade Level	N	Mean	Std. Deviation	F	p
	Total	350	3.91	0.90		
Virtual Exhibitions and Physical Exhibitions	1st Grade	86	3.52	0.75	0.57	0.64
	2nd Grade	91	3.59	0.69		
	3rd Grade	96	3.61	0.81		
	4th Grade	77	3.67	0.76		
	Total	350	3.60	0.76		
Virtual Exhibition Experience	1st Grade	86	3.16	0.55	3.10	0.03*
	2nd Grade	91	3.06	0.72		
	3rd Grade	96	3.17	0.84		
	4th Grade	77	3.40	0.77		
	Total	350	3.19	0.74		
Virtual Exhibition Access	1st Grade	86	3.60	0.77	1.48	0.22
	2nd Grade	91	3.81	0.76		
	3rd Grade	96	3.67	0.80		
	4th Grade	77	3.59	0.83		
	Total	350	3.67	0.79		
Virtual Exhibition Attitudes (Total)	1st Grade	86	3.49	0.56	1.59	0.19
	2nd Grade	91	3.63	0.50		
	3rd Grade	96	3.60	0.57		
	4th Grade	77	3.65	0.54		
	Total	350	3.59	0.54		

*p<0,05

In the virtual exhibition experience dimension, a significant difference was found according to grade level (F(3, 346)=3.10; p=0.03). 4th grade students had the highest mean in this area (3.40±0.77), while 2nd grade students had the lowest score (3.06±0.72). This shows that experiential interaction was experienced more intensely at upper grade levels. No significant difference was found between grade levels in terms of the virtual exhibition access variable (F(3, 346)=1.48; p=0.22). Means were close across all grade levels, with 2nd grade students having the highest mean (3.81±0.76). When the total virtual exhibition attitude scores were examined, no significant difference was observed according to grade level (F(3, 346)=1.59; p=0.19). First-grade students had a mean of (3.49±0.56), while fourth-grade students had a mean of (3.65±0.54). This finding suggests that general attitudes do not vary significantly by grade level. Further analysis using the Scheffe test revealed that 12th-grade students' attitudes toward contemporary art, the educational role of virtual exhibitions, and virtual exhibition experiences were higher and more positive than those of lower-grade students.

The regression analysis findings regarding high school students' attitudes towards contemporary art, attitudes towards digital art and attitudes towards virtual exhibitions are presented in Table 4.

Table 4. Regression Analysis Findings Regarding High School Students' Attitudes Towards Contemporary Art, Digital Art Attitudes, and Virtual Exhibitions

Variables	B	Std. Deviation	Beta	t	p	R^2	F; p value
(Constant)	2.54	0.18		14.22	0.00*	0.20	19.54; p=0.00
Contemporary Art Attitude	0.09	0.04	0.10	1.99	0.04*		
Digital Art Attitude	0.22	0.04	0.28	5.42	0.00*		

*p<0,05; Dependent Variable: Attitude Towards Virtual Exhibitions, R= 0,40

Table 4 shows the findings of the regression analysis conducted to reveal the impact of high school students' attitudes toward contemporary art and digital arts on their use of ready-made images. According to the findings, the linear regression model between the variables of contemporary art attitudes and digital arts, and attitudes toward virtual exhibitions was found to be highly significant (F=19.54; p<0.05). Attitudes toward contemporary art and digital arts significantly explained approximately 20% of the change in participants' attitudes toward virtual exhibitions. According to beta values, both contemporary art attitudes and digital arts attitudes positively and significantly influenced the participant students' attitudes toward virtual exhibitions.

Discussion

This study examined high school students' attitudes toward contemporary art, digital art, and virtual exhibitions. The findings related to the first research question indicate that high school students generally adopt a positive and critical attitude toward contemporary art. Students stated that they perceive contemporary art works as opportunities to discuss social issues. High scores on the attitude scale reveal a strong sense of curiosity and aesthetic sensitivity among students. The data also indicate a high level of student willingness to visit contemporary art exhibitions. Participants emphasized that contemporary art offers multiple perspectives and encourages critical thinking. Students reported that they find it easier to express themselves thanks to the interactivity of contemporary art practices with digital media. These results suggest that the level of acceptance of contemporary art among high school students increases their sense of artistic confidence.

Exposure to contemporary art increases students' ability to interpret social issues through art. This trend suggests that including contemporary art examples in the curriculum can reduce motivational decline. Furthermore, the findings indicate that school-museum collaborations offer strategic opportunities to enrich students' cultural capital. Bailey (2023) stated that inclusive contemporary art practices strengthen students' self-esteem, a finding consistent with the current study. Johanson et al. (2025) stated that contemporary art experiences produce different affective outcomes depending on age, and the data obtained support this finding. Aliyev (2022) argued that digital tools diversify contemporary art interpretations, and students' adoption of these tools aligns with research findings. Pelowski et al. (2024) found that contemporary art exhibitions lead to prosocial attitudinal changes, and students' willingness to collaborate confirms this finding. Therefore, the study reaffirms findings in the literature regarding the affective and cognitive benefits of contemporary art in the high school context.

The findings of the second research question reveal that high school students' attitudes toward digital art are innovative and positive. Students define AI-assisted art production as a space for aesthetic exploration. Most participants view creating with digital tools as an opportunity for career development. The data indicate that students have a high intention to actively participate in digital art platforms. The interactive nature of digital art offers students customized learning experiences. Students report developing problem-solving skills in projects combining coding and visual design. The high attitude scores demonstrate that digital technologies support artistic creativity. The significance of these findings stems from the fact that digital art projects embody the STEAM approach and encourage interdisciplinary learning. Engaging in digital art strengthens the bridge between algorithmic thinking and aesthetic decision-making. This also enhances students' digital literacy and media critique skills. Digital art projects also support students' productive participation in online communities. Hu and Li (2025) reported that digital drawing software accelerates technical skills and increases motivation, and the current findings support this conclusion. Shen et al. (2025) demonstrated that perceived usefulness and enjoyment dimensions influence attitudes in their technology acceptance model. Erişti and Freedman (2024) emphasized that digital culture requires new competencies in art pedagogy, and this study provides evidence of this need.

Findings related to another research question reveal that high school students generally develop positive attitudes toward virtual exhibitions, but this attitude varies according to demographic variables. Gender analysis indicates that female students find virtual exhibitions more inspiring. While male students appreciate technological innovations, they are more cautious in their affective engagement. Examining grade levels reveals that students in higher grades interpret virtual exhibition experiences more critically. This suggests that accumulated experience increases the depth of artistic appreciation. Students report that they find virtual exhibition platforms easy to navigate. However, some students note that a lack of technological infrastructure creates access limitations. The significance of these findings lies in the need to adapt the potential of virtual exhibitions to support cultural equality in line with gender and developmental variables. The higher level of inspiration among female students highlights the relationship between the diversity of representation in virtual exhibitions and motivation. The increased critical depth across grades demonstrates the importance of content design that provides tiered literature support. The impact of infrastructure constraints necessitates policy measures to minimize the impact of the digital divide on artistic participation. Accessible interfaces in virtual exhibitions offer flexible solutions to accommodate different learning styles. The findings necessitate teachers to develop gender-sensitive and developmentally appropriate guide materials. Jo et al. (2024) noted that female participants exhibited greater sensory engagement in virtual environments, and the current result confirms this trend. Manista (2022) reported that visitors to virtual museums in Poland deepened their artistic engagement with age, and grade-level findings are consistent with this. Tam and Hui (2023) emphasized that virtual exhibitions increase learning achievement and student attitudes, and the obtained attitude scores reinforce this finding. Raykovska et al. (2024) noted that exhibitions based on digital documentation increase user engagement. Therefore, the study demonstrates that attitudes towards virtual exhibitions are shaped by demographic factors and reaffirms trends reported in the literature in the high school context.

Findings regarding the fourth research question reveal that contemporary art and digital art attitudes significantly predict virtual exhibition attitudes. Students' critical interest in contemporary art enriches their search for content

in virtual exhibitions. The novelty of digital art attitudes, in turn, increases their willingness to experiment with virtual exhibition platforms. Multivariate analyses indicate that both attitude domains, together, strengthen positive tendencies toward virtual exhibitions. This suggests cross-pollination between the domains of attitude theory. When students' aesthetic and technological interests converge, their subjective appreciation of the virtual exhibition experience increases. The results suggest that holistic art pedagogy can increase digital platform participation. The findings suggest that attitude clusters operate together in the digitalizing art ecosystem, strengthening cultural engagement. This interaction suggests that teachers should develop a strategy for presenting contemporary and digital art content together in their course designs.

This study's sample was limited to high school students in a single province within a single geographic region. The fact that the sample did not fully reflect cultural diversity limits the generalizability of the findings. Because the data were collected via self-report surveys, there is a risk of social desirability bias. Factors such as participants' artistic background and family cultural capital were not measured. The lack of original measurement tools for attitudes toward NFT and AI-based content limits data interpretation. Focusing on the post-pandemic period may reduce the ability to reflect behavioral patterns under normal circumstances. Online access restrictions during the data collection period may have influenced participation rates, but this factor was not controlled for. Therefore, these limitations should be considered in the interpretation of the findings.

Conclusion and Recommendations

This study examined high school students' attitudes toward contemporary art, digital art, and virtual exhibitions, revealing the multidimensional impact of digitalization in the context of art education. The research results indicated that high school students' overall attitudes toward contemporary art, digital art, and virtual exhibitions were high and positive. The average scores indicate that students have developed a particularly positive perception of digital art and the educational role of virtual exhibitions. However, the relatively lower level of attitudes regarding the virtual exhibition experience dimension suggests that students' one-on-one interaction with such activities may be limited.

Analyses conducted in terms of gender revealed that female students' attitudes toward various aspects of contemporary art, digital art, and virtual exhibitions were significantly more positive than male students. This finding suggests that female students tend to engage more with artistic and digital culture. In particular, female students' higher awareness of the educational role of virtual exhibitions suggests that this student group benefits more from art experiences offered in the virtual environment. Comparisons based on grade level revealed significant differences in contemporary art attitudes, the educational role of virtual exhibitions, and virtual exhibition experience variables. The higher mean scores of upper-grade students on these dimensions suggest that students' interest in and awareness of artistic and digital content increases as their grade level increases. In contrast, digital art attitudes and total virtual exhibition attitude scores did not differ significantly by grade level. This suggests that students' overall perception of virtual exhibitions remains positive, regardless of grade level. Regression analysis revealed that students' attitudes toward contemporary and digital arts significantly and positively influence their attitudes toward virtual exhibitions. This finding suggests that art perception and digital

art experience play a decisive role in the development of positive attitudes toward virtual exhibitions. The model's explanatory power of 20% suggests that other individual or environmental factors may also influence these attitudes.

Based on the findings, several recommendations are offered for art educators, educational policymakers, and researchers. First, it may be beneficial for art educators to prioritize practices that enhance students' digital art and virtual exhibition experiences. Students' positive attitudes toward contemporary and digital arts appear to support their virtual exhibition experiences. Therefore, updating course content to include contemporary art and digital production techniques can contribute to the development of students' artistic awareness. Integrating virtual exhibitions into classroom activities both supports the educational use of technological tools and can enrich students' aesthetic perceptions.

From the perspective of education policymakers, it is crucial that arts education be structured not only to foster technical skills but also to embrace contemporary and digital trends. In this context, including content that encourages the use of digital art tools in education policies can contribute to aligning curricula with technological advancements. Furthermore, considering that girls develop more positive attitudes toward art and virtual exhibitions, integrating gender-sensitive approaches into arts education policies may be beneficial. Providing arts education in an accessible and inclusive manner for all students can increase participation and interest in the arts.

Researchers should further examine the findings in this area, particularly focusing on studies that examine the effects of virtual exhibition experiences on student achievement, motivation, and creativity. Furthermore, comprehensively investigating variables such as the relationship between access to virtual exhibitions and socioeconomic status, as well as differences in attitudes across school types, will further enhance knowledge in the field. Blended-method studies that combine qualitative and quantitative data can allow for a better understanding of the underlying reasons behind student attitudes. This can provide concrete data that will contribute to the development of art education in line with the digitalization process.

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