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Competence development through art technology

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Abstract

The purpose of this research; is to evaluate the competence development process through art technology through the eyes of students studying in the visual arts and drawing department. The study group of the research consists of 40 visual arts and drawing department students studying at various universities in Kazakhstan. Research data were collected by semi-structured interview technique. The descriptive analysis technique was used in the analysis of the interviews with the students who constitute the sample group of the research. As a result of the research; it has been determined that the majority of visual arts and drawing students have moderate technological competencies. The majority of visual arts and painting students stated that they found the education opportunities related to art technology at a moderate level in the education they received at the university. The majority of the students participating in the research stated that technology integration into art education is very necessary. The vast majority of visual arts and drawing students stated that it is possible to gain competence through art technology.

Keywords: Art technology, competence development, student opinions;

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1. Introduction

When the advent of art is examined, it is a fact that a history of humanity will emerge. Because today, a lot of information is obtained by looking at the works of art produced by past civilisations and extant (Akmara et al., 2021; Zaidel, 2018). One reason for this is that art interacts with other values created by human beings. Technology and art, one of these values, are two inseparable parts that are in constant interaction with each other (Candy & Edmonds, 2002).

1.1. Theoretical and conceptual framework

Technology has an important place in many areas of our lives. It is not possible to stay away from technology, especially in the current period (Sacramento, Ibanezr, & Magayon, 2021; Zahra, Mohammed, Khadija, Mohammed, & Abdelou, 2016; Zhang, 2021). The increase in technology-based productions in our age has made it necessary to restructure the history of art to include digital art (Alzhanov et al., 2022). From this point of view, technology has been a source of light in every aspect of human life (Maria, Persa, Ilias, & Efstathios, 2011).

The development and change of technology has led to the advancement of technology use all over the world. This progress has affected the development of societies in many ways (Soykan & Uzunboylu, 2015). As the development of technology is noticed, the usage areas are also increasing. With the proliferation of fields, technology also absorbs art. Art that develops and changes with technology reveals the understanding of technological art (Tillander, 2011).

The relationship between technology and art develops and evolves throughout history, so the effects of technology on art have undoubtedly been great (Soller, Martinez, Jermann, & Muehlenbrock, 2005). Creative thinking and new perspectives developed with technology have led to the emergence of new concepts and new trends in art (Patton & Buffington, 2016). Technological developments existed in every period and differed according to the period, and the artists of the period knew how they should benefit and benefit from the technological developments of their era (Mayo, 2007). It has become very common to see the effects of technology on art at certain times and in certain situations (Rutland, 2009). However, nowadays, technological art concepts have emerged by going beyond being influenced and technology itself has become an art medium (Mayo, 2007; Orr, 2012).

In order to fulfil the role given to digitalisation, it is necessary to benefit from digitalisation in the field of education as well as in the field of art (Colman, 2005; Quinn, 2011). Technology will not only provide efficiency and effective communication in the field of art, but also in art education, thanks to the innovations it brings, it will make learning understandable and carry creativity to another dimension (Wilks, Cutcher, & Wilks, 2012). Technology has provided the opportunity to try different methods and different styles while producing works of art. These experimentation opportunities have affected the field of art and have led to the emergence of innovations in other disciplines (Kali, Sagy, Kuflik, Mogilevsky, & Maayan-Fanar, 2014).

These new formations have started to appear both in design and physically through technology, while making new inventions, on the other hand, new types of art have emerged (Darraji & Fakhir, 2018; Lu, 2011). It is considered very important for individuals who receive art education to receive education supported by technological tools in the field of visual arts in terms of their personal development (Sweeny, 2005; Zhao, Kynäshlahti, & Sintonen, 2018). Technological tools such as computers, overhead projectors and slide machines used in art education provide a positive effect by appealing to the individual's senses (Pavlou, 2020). It is ensured that individuals make their sketches and works in a shorter time and with different creativity with digital programs in the technology environment

(Camurri & Volpe, 2016). Art education is based on the cooperation of art and technology (Hebert, 2016). The main purpose of science, technology and art is to serve people and enable them to discover the new. While emotions and mental abilities are developed in art education, it is observed that intelligence is also developed in technologically supported education systems. While art reflects the intertwined state of feelings and thoughts, technology is an effective aid in the learning and development process (Abeer, 2013).

1.2. Related research

Ozel Saglamtimur (2010), carried out a study based on the literature review on the subject in his article titled Digital Art. In this article, the development process of digital art since 1990 has been examined theoretically. In the article, which focuses on the basic characteristics and classification of digital art as a determinant, contemporary artists who produce works in the field of digital art are mentioned.

Overby (2009), in his article titled 'The New Conversation: Using Weblogs for Reflective Practice in the Studio Art Classroom', gives information about the use of blogs in art education. In his class, he shared his experiences of using blogs as a platform for students' artistic work. In the research, it was concluded that a discussion environment was created in the blogs and the students interacted with each other and supported their artistic production.

Theriault (2009) focuses on visual culture as the main subject of theoretical discussions in the field of art education in his thesis titled 'The New Age of Art Effects of Visual Culture and Technology on Students' Attitudes About Art and Aesthetics'. As a method in the research, the new age of art was tried to be explained by taking into account the limits of visual culture, art, aesthetics and technological developments in order to examine the attitudes and experiences of the students.

Liu's (2007) study titled Digital Art Teaching in Art Teacher Training: Recommendations for Taiwanese Art Teacher Candidates in the Digital Age, a study that includes four lecturers and four art teacher candidates in order to gain an in-depth understanding of computer art learning and teaching in art teacher training. Case study was carried out. This study sheds light on how the instructors in art teacher training institutions will structure content and aesthetic education in addition to technical education in computer art courses, as well as the curriculum planners in higher education to add digital technologies to the curricula of art education institutions. Saylor's (2004) study titled Digital Art Learning and Teaching Diary examines the researcher's own thinking, learning, creating and teaching processes on digital arts. Research is a personal reflection of the researcher's creation and teaching processes in digital environments.

1.3. Purpose of the research

The purpose of this research; to evaluate the competence development process through art technology through the eyes of students studying in the visual arts and drawing department. In accordance with the research purpose, the following sub-objectives were determined.

1. How do the students studying in the visual arts and drawing department evaluate their technological competencies?

2. How do the students studying in the visual arts and drawing department evaluate the educational opportunities related to art technology in the education they receive at the university?

3. How do students studying in the visual arts and drawing department evaluate the integration of technology into art education?

4. What are the views of the students studying in the visual arts and drawing department regarding the development of competence through art technology?

2. Methods and materials

This section is the section where the research method, sample group, data collection tools, data collection process and data evaluation stages are introduced.

2.1. Research method

This study, which aims to reveal the opinions of the students studying in fine arts and drawing department about the process of developing competence through art technology, was designed with the qualitative research method. Qualitative data analysis is a process where the researcher organises the data, divides it into units of analysis, synthesises it, reveals the forms, discovers the important variables and decides which information to reflect in the report (Maxwell, 2008).

2.2. Participants

The study group of the research consists of 40 visual arts and drawing department students studying at various universities in Kazakhstan. The students participating in the research are the fall semester students of the 2022–2023 academic year. All students are in their final year. The students who made up the study group of the research voluntarily agreed to participate in the research. 27 of the students are female and 13 of them are male.

2.3. Data collection tools

Research data were collected by semi-structured interview technique. The semi-structured interview technique is slightly more flexible than the structured interview technique. In this technique, the researcher prepares the interview protocol, which includes the questions he plans to ask in advance. On the other hand, the researcher can influence the flow of the interview with different sides or sub-questions depending on the flow of the interview and enable the person to open and elaborate on their answers. If the person answered certain questions in other questions during the interview, the researcher may not ask these questions. Semi-structured interview technique gives a more appropriate technical view in educational science research due to its certain level of standardisation and flexibility (Callio, Piethylä, Johnson, & Kangasniemi, 2016).

A semi-structured interview form was prepared by the researchers for the interviews to be conducted by following these steps. The extent to which the prepared interview form serves the purpose was presented to the opinions of field experts in order to check its comprehensibility and applicability. The interview form was prepared in line with the suggestions of the experts. In the second stage, a preliminary application was made with a student studying in a visual arts and drawing department, and it was seen that there was no problem. The questions in the interview form are as follows.

1. How do you evaluate your technological competencies? Give your opinion by evaluating yourself in one of the very high, high, medium, low and very low categories.

2. How do you evaluate the educational opportunities related to art technology in the education you received at the university? Give your opinion by evaluating art technology education in one of the categories of very good, good, moderate, bad and very bad.

3. How do you evaluate technology integration into arts education? Evaluate the integration of technology into art education in one of the categories very necessary, necessary, partially necessary, unnecessary and very unnecessary.

4. What are your views on competence development through art technology? Do you think competence can be developed through art technology? Please give your opinion by choosing one of the yes, undecided and no categories.

2.4. Data collection process

Face-to-face and one-on-one interviews were conducted with the students studying in the visual arts and drawing department. During the interviews, the questions were asked to the students in the order in the semi-structured interview form. Before starting the interview, students were asked for permission to use a voice recorder. All of the students participating in the study allowed the interviews to be recorded. One interview lasted approximately 30 minutes, and all interviews took 5 weeks to complete.

2.5. Data collection analysis

The descriptive analysis technique was used in the analysis of the interviews with the students who constitute the sample group of the research. Descriptive analysis, in other words, systematic review is defined as a descriptive expression of studies on a particular subject, taking into account certain criteria and taking into account various features within itself (Greenhalgh, 1997). The research data were transformed into findings by applying descriptive analysis.

3. Results

This section is the section where the frequency and percentage tables of the research data are given by creating. In addition, direct quotations from the answers given by some students who participated in the research to the questions in the interviews were shared.

3.1. 'How do you evaluate your technological competencies? Give your opinion by evaluating yourself in one of the very high, high, medium, low and very low categories'

Table 1. Students' views on their technological competence

Category	***F***	**%**
Very high	4	10
High	7	17.5
Middle	22	55
Low	6	15
Very low	1	2.5
Total	40	100

In Table 1, the views of the visual arts and drawing department students participating in the research on their technological competencies were evaluated. 10% of the students stated that they found their technological proficiency very high, 17.5% high, 55% medium, 15% low and 2.5% very low.

3.1.1. Student opinions

Student 7 – (Very high): I have always been very interested in technology in extracurricular activities. Therefore, I do not have any problems with the use of technology. Student 19 – (High): I follow the technological developments closely and try to improve myself in the use of technology related to my field. I find myself sufficient. Student 2 – (Intermediate): I don't think that just knowing how to use a computer or being proficient in using the internet means having a good command of technology. I think there are a lot of areas where I need to improve myself. Student 39 – (Low): I think that I have a lot of deficiencies in the use of technology in my field. I am still in the learning phase of many programs and software. Student 21 – (Very low): I was not interested in technology until the last years of my education life. But after understanding the relationship between art and technology, I started to be interested. However, I feel like I'm only at the beginning of the road.

3.2. 'How do you evaluate the educational opportunities related to art technology in the education you received at the university? Give your opinion by evaluating art technology education in one of the categories of very good, good, moderate, bad and very bad'

Table 2. Evaluations of the students about the educational opportunities related to art technology in the education they received at the university

Category	***F***	**%**
Very good	-	-
Good	6	15
Middle	21	52.5
Bad	10	25
Too bad	3	7.5
Total	40	100

In Table 2, the evaluations of the visual arts and drawing department students participating in the research about the educational opportunities related to art technology in the education they received at the university are given. 15% of the students stated that they found the educational opportunities related to art technology good, 52.5% medium, 25% bad and 7.5% very bad. Among the students participating in the research, there are no students who find the educational opportunities related to art technology very well in the education they receive at the university.

3.2.1. Student opinions

Student 11 – (Good): As a student of visual arts and drawing department, I find the course content related to art technology sufficient. Student 9 – (Middle): In the courses we have taken since the first grade, an educational infrastructure for art technology in computer science and similar course contents is created. However, I don't think it's quite enough. Student 23 – (Bad): I think the basic education about technology is not enough for us to have full knowledge of art and technology. Student 40: Unfortunately, I find it very inadequate. Art and technology can no longer be considered independently of each other.

3.3. 'How do you evaluate technology integration into art education? Give your opinion by evaluating technology integration into art education in one of the categories of very necessary, necessary, partially necessary, unnecessary and very unnecessary'

Table 3. Students' evaluations regarding technology integration into arts education

Category	***F***	**%**
Very necessary	23	57.5
Necessary	11	27.5
Partially necessary	6	15
Unnecessary	-	-
So unnecessary	-	-
Total	40	100

Integration of technology into art education are given in Table 3. 57.5% of the students gave the answer as very necessary, 27.5% necessary and 15% partially necessary regarding the integration of technology into art education. Among the students participating in the research, there is no student who finds technology integration into art education unnecessary or unnecessary.

3.3.1. Student opinions

Student 10 – (Very necessary): Of course, it is no longer possible to think of a sustainable art independent of technology in the era we live in. For this reason, I would particularly like the art technology course to be given in all semesters in the education process. Student 29 – (Required): I think it is important to benefit from technology in art education. I think it should be used for research and development purposes. Student 35 – (Partly necessary): I believe that integrating art with technology too much will blunt art. That's why I find it partially necessary.

3.4. 'What are your views on competence development through art technology? Do you think competence can be developed through art technology? Please give your opinion by choosing one of the yes, undecided and no categories'

Table 4. Students' views on competence development through art technology

Category	***F***	**%**
Yes	33	82.5
I'm undecided	7	17.5
No	-	-
Total	40	100

In Table 4, the opinions of the visual arts and drawing students participating in the research on the development of competence through art technology are given. 82.5% of the students stated that competence can be developed through art technology, and 17.5% of them stated that they were

undecided on this issue. Among the students participating in the research, there is no teacher who stated that competence cannot be developed through art technology.

3.4.1. Student comments

Student 4 – (Yes): The use of technology in visual arts is actually a very broad concept. Cinema, computer-aided graphic arts, video art, space arrangements and photography can be the most important areas where visuality is fused with technology. Of course, technology is also extremely important in the field of drawing. Student 33 – (I am undecided): Actually, I am undecided whether it is necessary to have full knowledge of technology for artistic competence. Surely technology will contribute to our education in the arts, but I am not sure if it will be necessary to establish full competence.

4. Discussions

The majority of the visual arts and drawing students who participated in the research stated that they had moderate technological competencies. The majority of visual arts and painting students stated that they found the education opportunities related to art technology at a moderate level in the education they received at the university. Wilks et al. (2012), in their study on the use of digital technology in visual arts classrooms; technology and tools included in visual arts courses, the use of the Internet and information and communication technologies. In the research; despite the ease with which many arts educators adopt technologies and tools for artistic practice in their classrooms, it is stated that there are problems in maximising the use of the Internet and ICT in the visual arts classroom.

The majority of the students participating in the research stated that technology integration into art education is very necessary. The vast majority of visual arts and drawing students stated that it is possible to gain competence through art technology. In his research, Ünalan (2016) conducted an experiment and control study on the creation of internet-supported learning environments in the departments of fine arts education at the faculty of education. Students, who stated that the application was beneficial, stated that it had advantages such as being suitable for both the course content and the knowledge and skills expected from them, saving time and being compatible with the technology usage requirements of the age. Boyd (2012) evaluated student views on the use of instructional technologies in arts education. As a result of the research, attention was drawn to the importance of technology integration in art education and the sensitivity of students at this point. Namdar, Sarikaya, and Sarikaya (2017) concluded in their research that the use of technology in art education is beneficial in areas such as the speed of accessing information, permanent learning, variety of examples, and rapid learning of the subject. However, in the research; the importance of technology-assisted education has been emphasised in raising conscious individuals who can think creatively and interact with 21st century skills.

5. Conclusion

Today's students are born and raised in a world dominated by technology. Their perception of the world, problem-solving skills, critical attitudes and social relations are quite different from the previous generation. It is a necessity to benefit from technological developments in the field of art education as in every field in the century we live in. It is an inevitable fact that technological developments will always remain up-to-date, considering the advancement of technology every day. It is a necessity of the age we live in that the artistic creativity and painting skills of the students who receive art education are taken with technologically supported art education. Therefore, in this

research; it is aimed to evaluate the competence development process through art technology from the eyes of the students studying in the visual arts and drawing department. As a result of the research; it has been determined that the majority of visual arts and drawing students have moderate technological competencies. The majority of visual arts and painting students stated that they found the education opportunities related to art technology at a moderate level in the education they received at the university. The majority of the students participating in the research stated that technology integration into art education is very necessary. The vast majority of visual arts and drawing students stated that it is possible to gain competence through art technology.

6. Recommendations

In line with the results obtained from this research, in which the process of developing competence through art technology was evaluated from the perspective of students studying in the visual arts and drawing department, the following suggestions were developed: Students studying in the visual arts and drawing department stated that they had moderate technological competence. Based on this, it is necessary to increase the number of courses related to the formation of technological competencies of students receiving art education. The students stated that they found the courses they took in the department of the art technology to be moderately sufficient. For this reason, it is extremely important to increase the importance given to art technology courses by creating educational opportunities in accordance with the understanding of the art of the new age in universities.

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