

## Advanced Experiences In The Use Of Digital Technologies In Teaching Fine Arts (On The Example Of Finland And South Korea)

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**Abstract:** The global spread of digital technologies in the 21st century has also had an impact on the education system, including the methods of teaching fine arts in schools. Some countries with the most advanced education systems in the world have begun to use digital technologies not only as a teaching tool, but also as a key skill of the future. The education system in Uzbekistan has also been developing steadily in recent years, and in this process, the adoption of world best practices is of great importance. In this article, we studied the experience of using digital technologies in the teaching of fine arts in two leading countries, Finland and South Korea, in order to increase the effectiveness of art education in schools of Uzbekistan. The results have shown that the integration of digital technologies into art education leads to the improvement of students' readiness for the future and helps them to explore a new world of art as well as save the traditional approaches.

**Keywords:** Art, education, digital technologies, future skills, art curriculum, design.

### Introduction

Digital technologies began to be founded about 100 years ago with the use of wireless electronic means of communication. Telegraph and radio transmitters are examples of this. Since then, technology has evolved rapidly, resulting in radio recordings, movies, television, computers, CDs, and the Internet. (Wikramanayake, 2005) Digital technology has become a very useful tool for instant messaging and keeping people informed of local and international news. Hence, this has penetrated into the education system, as well as all spheres of society, and had a great impact on its formation and development. From the second half of the twentieth century, the foundation was laid for the formation of new - Digital technologies that eliminate transmission errors by converting analog signals to digital and perform the same function effectively.

Digital technology has been around for more than 50 years and is widely used in computers and other electronic equipment. From the early 1960s, teachers and computer scientists began using computers for educational purposes. Initially, it was only used for reading and writing to give instructions on how to use the computer and later to solve problems that would take some time, as there is no high interaction between users and the computer. However, with the invention of inexpensive microcomputers and the combination of text, graphics, and color, computers quickly spread to businesses, schools, and homes. (Alessi, 2001) As a result, the possibilities of using digital technologies in education have expanded.

Today, digital technologies are becoming an integral part of development in many countries around the world, and their role in increasing the effectiveness of the educational process as part of ensuring a sustainable future. This is also emphasized in the Education for Sustainable Development Program, adopted by UNESCO in 2015 as part of Education 2030. In particular, Irina Bokova says about the educational process aimed at achieving the goals set in the program: "A fundamental change is needed in the way we think about education's role in global development, because it has a catalytic impact on the well-being of individuals and the future of our planet. ... Now, more than ever, education has a responsibility to be in gear with 21st century challenges and aspirations, and foster the right types of values and skills that will lead to sustainable and inclusive growth, and peaceful living together." (UNESCO, 2017)

At this point, if we look at the education system and its composition in the most developed countries in the field of education, we can see that one of the greatest achievements of the XXI century is the widespread use of digital technologies. For example, in 2020, in Finland, South Korea and Denmark, (Humphries, 2020) which have the highest rankings in the world with the most effective education system, digital technologies will play a significant role in the education system.

### Methodology

The method of data collection and analysis has been used in our research on the use of digital technologies in the education system of foreign countries, including fine arts classes. In particular, many scientific sources were read.

In terms of content, we classified them as follows:

- Dissertations and theses;
- Articles published in scientific journals;

- Conference and meeting packages;  
websites and internet information.

Of these sources, doctoral and master's dissertations are of particular importance, primarily in terms of their broader coverage of the importance of technology in art education.

Particularly, Kathryn Tracy Farley in her dissertation on "Teaching Performance in the Digital Age: Computerized Technologies, Improvisational Play Techniques and Interactive Learning Processes" specializes in the formation of skills through practical implementation in the teaching process focused on effective ways to use digital technology. In particular, she said, "I argue that combining technology tools and improvisation techniques together leads to more egalitarian classroom operations, greater efficiency and unity among members of working groups and a more student-initiated style of teaching, one based on empowerment, autonomy and self-regulation." (Farley, 2007)

Lauren E. Knight in his thesis on "Art Education in Finland and the United States: A Qualitative Inquiry into Teacher Perceptions" analyzed the teaching of art in the two countries and noted the high value of art education in Finland. (Knight, 2014)

Noof Yusri Faisal in his maters' thesis on "Impact of technology on developing drawing skills in preschool children in Saudi Arabia" focused on increasing the effectiveness of art education through the use of technology in preschool education. In particular, in his opinion, "Technological achievements can be considered as another important stage in the development of art education." (Faisal, 2014).

Also, Judybeth Greene in her thesis on "Recognizing the "Muchness" in Art Education: a Historical Analysis of Developments in Education and Art Education Since the 1950s and the Finding Your Muchness Photoshop Curriculum" tried to explain the importance of digital technology in teaching visual arts by offering an innovative eighteen-textbook innovative curriculum that will help high school students discover their "Muchness" by learning Photoshop (Greene, 2017).

Collection of meetings and conferences served as the best source for finding statistics on the topic. Particularly, in the analitic review of "Digital transformation of school education. International experience, trends, global recommendations" by Edmond Gaible, includes the experiences of countries that have demonstrated significant achievements and effective projects in school education in recent years. Moreover, it covers the work done in the Republic of Finland, the Republic of South Korea, Singapore, Vietnam and Kenya. The uniqueness of the review is that it highlights the importance of the digital transformation of schools not only in terms of the achievements of modern education, but also in terms of supporting person-centered and empirical educational technologies as digital technologies integrate with modern pedagogical approaches.

The collection "Education, art and ICTs: Integration for the development of one's personality", based on the close and selected materials of the meeting of experts organized by UNESCO in Moscow in May 2003, also provides information on the use of ICT in education in the field of art and design. analyzes the state and evolution and summarizes ideas about their impact on personality development.

Scientific articles also provided information on a narrow range of topics. Prticularly, we introduced with articles such as "Impact of Digital Technology on Education" by Gihan Wikramanayake, "The Question of Creativity in the Finnish Elementary School Curriculum" by Taru Konst, "The Application of Entertainment Design And Digital Technology in Children's Educational Exhibition Space-Take the "Art Education in Fun" exhibition as an example" by Cheng Si-hang and Wang Yun-Long, "ICTs and Media Arts: The new digital age in the inclusive school" by Diego Bernaschina Kuadra, "Drawing in the Digital Age: Observations and Implications for Education" by Seymour Simmons, "Four approaches to implementing digital media in art education" by Andres Marnar and Hans O'rtregren. Through these scientific articles, we reviewed the results of international experiments and analyzes on the use of digital technologies in the organization of fine arts classes.

In addition, the necessary statistics on the subject were obtained through the official websites of the Ministries of Education of several foreign countries and international organizations.

The study of sources revealed that the use of digital technologies in the education system of the three foreign countries, ultimately increased the quality of education. Based on this, we have tried to highlight the role and importance of the use of digital technologies in the organization of education, especially in the arts, in Finland and South Korea.

#### **Analysis of the use of digital technologies in the Finnish education system.**

Finnish schools have been famous for their achievements since about 2000. Finnish school students have shown good results in PISA surveys during this period, despite lower scores in 2012 and 2015.

The Finnish system is distinguished by:

- Primary education does not start at the age of five or six, as in most countries-children go to school at the age of seven;

- Students are not given many homework assignments-homework is usually given the least amount of compared to other developed countries (Gross-Loh, 2014);

• with small classroom hours - Finnish students spend 300 hours less per year at school than U.S. school students;

• No need to pass the Final State Tests - students are assessed differently during the learning process.

The use of digital technology in education in Finland is not related to the appearance of the Finnish system as an international model. It is necessary to support the importance of the education system, which helps students prepare for modern life in civil society.

The increased focus on digital technology in Finnish schools serves two purposes:

-first, to support the development of students in programming, data analysis, design and other competencies that are in high demand in relation to the technology itself;

-secondly, maintaining pedagogical approaches that receive many benefits from open access to information and the use of learning productivity tools such as student-centred learning, interdisciplinary learning, research learning, project-oriented learning, etc. (Gaible, 2019)

The Ministry of Education believes that the potential of digital technologies can motivate students to engage in independent research, interact and work together, and independently use educational resources. In an interview, Pasi Silander, the digital leader of the City of Helsinki and an experienced digital education specialist, comments on their introduction in Finnish schools as a means of mastering 21st century skills through student-centered learning: “In the modern education system, we must promote the development of the competencies of the future, the so-called skills of the 21st century, that is, critical thinking, teamwork, creativity and skills to acquire new knowledge. It is precisely these communication skills that are needed, while purely technical skills (for example, memorizing facts, counting) will be taken over by machines to some extent in the future ... The process of traditional contact teaching was created mainly on the basis of the teacher's activities and the teaching process, while in the process of digital education, the starting point is the learning process of the student himself.” (Silander, 2017)

The country's policy has focused on two areas when developing education development plans: - increasing the qualification competencies of students in accordance with the requirements of the XXI century and the potential requirements of the employer; -increasing the level of literacy and skills of Finnish students in connection with the need to use new technologies. (Gaible, 2019)

In order to develop these competencies in students, the Finnish National Education Council (Finnish National Education Agency since 2017) developed the latest national fundamental curriculum for education in 2014 and put it into practice in 2017. According to it, in all school subjects, including fine arts classes, a great deal of attention has been paid to competencies in solving general and future problems. Such competencies are a combination of knowledge, skills, values, attitudes and aspirations. Competence also means the ability to apply knowledge and skills in a particular situation.

Thus, according to the new program, basic education covers grades 1-9 and includes 18 subjects with a minimum of 224 hours. Fine arts classes total 9 hours under this program. (Table 1)

Table 1. Distribution of hours of visual arts in Finland according to the Finnish National Curriculum (2014). (National Core Curriculum for Basic Education 2014)

<b>Grades</b>	<b>1-2</b>	<b>3-4-5-6</b>	<b>7-8-9</b>	<b>Total</b>
Visual arts	2	5	2	9

The Finnish education system does not have a single national curriculum for teaching subjects, including the fine arts. However, there are requirements for the competencies that should be formed in all students in science. The local government system may add to or clarify these objectives.

In particular, the topics identified in the curriculum for all grades should be related to the four main objectives of teaching the fine arts:

- visual perception and thinking
- image production
- be able to interpret the visual arts
- formation of aesthetic, ecological and moral qualities.

In addition, the curriculum focuses on the development of relevant competencies in students. The development of competencies in the field of fine arts is seen as an enhancer of learning activities in the basic educational process. Provides a foundation for students to become familiar with the visual arts and other visual cultures in the first grades of primary education. In grades 1-2, students are helped to develop the ability to express their thoughts and develop their aesthetic abilities by teaching them to describe based on the interaction of emotions and the whole body. Functionality and games are widely used in the lessons. Students are allowed to practice art for extended periods of time.

Digital technology topics will be introduced in grades 3-6. In these classes, students are introduced to traditional visual arts as well as other methods of depiction. Students experiment, practice, and develop their skills in a variety of expressive ways in a purposeful way. In the process of learning, they learn how the visual

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arts affect thinking, relationships, and work. They also learn different ways to work with images. they improve their ability to express and interpret images through the targeted use of information and communication technologies and the online environment. (Kuvataideopetuksen lähtökohtia)

According to the National Curriculum adopted in 2014, there are 7 main competencies in Finnish schools. (Table 2)

Table 2. Seven important competencies that need to be developed in students in Finnish schools. (Kallio-Tavin)

	<b>Competences</b>	<b>Target</b>
<b>T1</b>	Thinking and learning	It encourages students to understand that information can be constructed in a variety of ways
<b>T2</b>	Cultural competencies	Cultural, linguistic, religious and philosophical diversity are considered to be an important part of social and personal development.
<b>T3</b>	Self-care and organization of daily activities	Students will be taught that they need more skills to manage their daily lives and that they need to be prepared for that.
<b>T4</b>	Versatility	Helping students interpret, create, and value through a variety of texts, identify cultural diversity, and develop their own identities
<b>T5</b>	IT	Part of a vital social skill and multifaceted competence
<b>T6</b>	Labor and business competencies	Includes issues of technological change and globalization
<b>T7</b>	Ishtirok etish, jalb etish va barqaror kelajak qurish	Participate, engage and build a sustainable future

These competencies also form the basis of the Fine Arts curriculum. As an example, Table 3 shows that the purpose and content of art education in grades 3-6 in schools in the Joensuu region of Finland correspond to the competencies listed. (Kuvataiteen opetuksen tavoitteet, sisällöt ja arviointi vuosiluokilla 3-6 Joensuun seudun opetussuunnitelmassa)

Table 3. The purpose of art education in grades 3-6, the relevance of the content to the competencies.

T1, T2	The student is inspired to explore art, the environment, and other visual cultures through a variety of observations and many personal experiences. Students are encouraged to discuss their observations and opinions and substantiate their opinions. Image differentiation and thinking are enhanced by visual images, similarities, and lines.
T3, T4, T5	The student uses a variety of materials, methods, and forms of expression to create an art. they learn more about the different ways to create a work of art and enjoy learning through individual work. The student learns the ways of visual communication and the means of influence.
T6, T7	The student discusses aesthetic, ecological, and moral values in the environment, art, and visual culture. The student makes choices about a sustainable future in choosing tools and ways to create an image. Considers cultural diversity and learns to appreciate that diversity.

Based on the above, it is recommended that the content of the subject for grades 3-6 be as follows:

### **Visual perception.**

Exploring the visual environment. Private room, school and home architecture, historical monuments, natural environment and hobbies serve as a starting point for visual expression. Students talk about their photography and its content. Art history and contemporary art topics are reflected in the photos taken by the students.

### **Ecological culture.**

It should be noted that the Finnish economy is mainly dependent on forests and other natural environments, so special attention is paid to environmental protection. In particular, in this section of the science of fine arts, the focus on the environment will be the main focus of students. The content of education covers a wide range of topics. Examples include buildings and natural environments, objects (such as design, meaning, processing, history) and media products (photos, advertisements, cartoons, mobile phones). During the study

tours will be conducted to observe the history of construction and its preservation, the architectural significance of the surrounding areas and the design suitable for its use. It would also introduce various space experiments, innovations and building works.

**Interpretation of fine arts.**

Students explore the world of fine arts (through art history and contemporary art) by exploring various works of art and exploring the artist’s role in society. If possible, visits to art museums, meetings with artists or exhibitions (virtual) would be organized in the 3rd grade. The school organizes art exhibitions with students, for example, in nursing homes. Children will be given the opportunity to see art at urban and rural exhibitions, social media and (international) communication. Through art, artists of different cultural backgrounds can be invited to promote tolerance, hospitality, and understanding of different cultures.

They will also learn about foundry techniques, sculpture, ceramics, natural materials, painting and pencil techniques, and colour optics. They will learn about architectural photography, landscape art, material processing, architecture, mobile technology, and robotics design (PS). They study the tools of visual arts, such as symmetry, rhythm, composition, proportions, and perspective. They also learn about photography, film, electronic media, image editing, image publishing, and copyright. In addition, topics such as children and animal rights, friendship, and environmental integrity can be included.

In addition to the core topics covered in the curriculum, students in grades 3-6 will have the opportunity to choose additional visual aids, production and interpretation, and topics related to information and communication technologies and the Internet environment.

**Analysis of the use of digital technologies in the education system of the Republic of Korea.**

South Korea has excelled in PISA in recent years in terms of cognitive skills. (PISA, 2019) These results are achieved due to reforms in the country's education system. The country's education system has ample opportunities to improve areas such as creativity, collaboration, and emotional intelligence. According to Forbes “Korea has historically focused on cognitive skills at the expense perhaps of what Lee called “connective” skills that focus on character or creative education. ... Korean textbooks began to be digitized. Although the move has been slow since the administration changed in 2012” (Horn, 2014)

The Korean education system is mainly governed by the Ministry of Education, Science and Technology, is subject to government laws and regulations, and is organized on the basis of national standards and curricula. Many education policies and strategies are implemented from high to low.

In addition to simple standardized teaching and learning, the Korean government has begun to reform the education system, including curricula, teacher policies, and professional programs. Government began to teach students on the basis of competence. The use and widespread use of information and communication technologies in the Korean education system began in 2005 (Grzybowski, 2013) and the government sees digital technology as one of the key tools for developing education. In particular, Education Minister Li Ju-ho said in the first phase of SMART education in the country: “I am confident that the results of the reforms will reflect our policy of developing the digital infrastructure of schools and applying them in life and teaching.” (Lee, 2011)

Korean schools consist of a system of Primary (Grades 1-6), Middle (Grades 7-9) and High (Grades 10-12) schools, in which a total of 10 compulsory subjects are taught according to the Korean National Basic Program. (National Basic Curriculum) Of these, the number of subjects in grades 1-2 is only 5-6 (Table 4) Table 4. The Korean school system is a subject taught in grades 1-2.

Primary school		
Subjects	1	2
Korean	210	238
Mathematics	120	136
Morality	60	68
Smart life	90	102
Prosperous life	180	204
We are in 1st grade	90	-

The number of subjects will increase as they move to higher grades. (Table 5)

Table 5. Korean school system and classification of subjects taught.

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Schools and grades	Primary school				Middle school			High school		
Subjects	3	4	5	6	7	8	9	10	11	12
Korean	238	204	204	204	170	136	136	136	Optional	Optional
Morality	34	34	34	34	68	68	34	34		
Humanities	102	102	102	102	102	102	136	170 (Korean history 68)		
Mathematics	136	136	136	136	136	136	102	136		
Science	102	120	102	102	102	136	136	102		
Practical courses			68	68	Technical education/Home economics					
					68	102	102	102		
Physical culture	102	102	102	102	102	102	68	68		
Music	68	68	68	68	68	34	34	34		
Visual art	68	68	68	68	34	34	68	34		
Foreghn languages (English)	34	34	68	68	102	102	136	136		

Note: The number of hours is calculated as an academic hour, and 1 academic hour is 40 minutes in primary school, 45 minutes in middle school, and 50 minutes in high school.

In defining the content and goals of teaching fine arts in Korea, the 2005 Arts and Culture Support Program is taken into account. (Hong, 2019)

Today, the Korean high school's art curriculum includes topics such as sculpture, calligraphy, appreciation of art, crafts, traditional Korean art, design, printing, and art history. (Kean, 2006)

In elementary school, students spend 2 hours a week in fine arts classes according to the South Korean National Curriculum. (Kim, 2014). Classes at the school are taught by a special teacher. One of the goals of the South Korean National Curriculum for Fine Arts (2009) is to understand the need to use art in everyday life. The curriculum also includes aesthetic and cultural sensibilities, the expression of ideas based on visual culture, critical thinking and reflection, as well as contributing to globalized artistic cultures and a deeper understanding of South Korea's own visual and cultural heritage. The active use of digital technologies in the teaching of fine arts, as in all disciplines, and the formation of appropriate skills in students are directly related to the six core competencies identified in the National Program approved by the Ministry of Education of South Korea.

They are

- "self-management";
- "knowledge and data processing";
- "creative thinking";
- "aesthetic sensitivity";
- "communication skills";
- "civil powers".

These core competencies serve as key guidelines for teachers in both teaching and student assessment. (Jimin Cho, 2017)

It should be noted that in Korean schools, the main focus is on the study of national culture and art in the teaching process of fine arts. However, there is also a focus on developing skills in contemporary fine arts and design. In particular, we can see that Jeonnam High School's fine arts curriculum includes themes, which aimed at shaping designing skills of students, such as animation, design (in a variety of fields), along with topics related to traditional painting, drawing, and applied arts (working with clay). (Art Department Teaching-Learning Course Plan, 2005). For example, a textbook prepared for the Animation theme by Park Mi, an expert at Jodo High School, suggests that a special software specializing in animation preparation should be used to master the subject. (Mi, 2005)

In addition, the opportunities created for the electronic presentation of topics and related materials mean that the role and importance of digital technologies in the teaching of science is high.

Digital technologies play an important role in teaching design and animation. Therefore, the classrooms in South Korea are technologically well equipped. Teachers make extensive use of computers, the Internet, graphic design, video art, and PowerPoint in all instructional classes, including fine arts classes. (Kean, 2006)

### The results of the analysis

Diane Gregory, who has written many articles on art education technologies, believes the use of technology in art education has declined. (Joanna Black, Kathy Browing, 2011). However, if we do not integrate current technologies into art education, it will harm our students. Not using technology in our lessons can lead to differences between the experiences of our schools and our youth. (Joanna Black and Karen E. Smith, 2006). Also, the lack of use of digital technology can lead to differences between artists and fine arts teachers who are unable to quickly master the technology, the rapid means of integrating and presenting works of art. Consequently, teachers who ignore new technologies are unable to ensure that students are adequately prepared for the modern art world. (Jackson, 1999). In addition, working on new technologies develops students' problem-solving, visual thinking skills, and the ability to search and express creative ideas. (Adele Flood and Anne Bamford, 2007)

Therefore, we have seen in the study that today many countries with developed education system focuses on the adoption of digital technologies aimed at the formation of modern competencies, along with traditional technologies of fine arts in the teaching of fine arts. In particular, as a result of our research on the role of digital technologies in the teaching of fine arts in Finland and South Korea, modern information technology is used as a leading educational tool in the teaching of the subject as well as in the formation of skills to be mastered in the lessons of fine arts.

While the development of skills in sustainable design materials using digital technologies is a priority in Finnish art education, skills in animation and industrial design are essential in South Korea. It is shaped by the infrastructure of both countries.

### Discussion

The development of future skills in the teaching of fine arts should, of course, include digital technology. Because these technologies are becoming an integral part of our daily activities. In addition, art teachers will be able to use the multimodal digital world of their students, teach traditional art, which is the foundation of digital art, and they need to provide 21st century education to teachers through the development of effective pedagogical approaches independently. However, the question of what digital technologies should be used in education, their role in the development of teaching methods, and what technologies and applications should be used to develop design and animation skills of students remains open. Proper resolution of these issues will have a positive effect on the formation of equal competencies not only for students of art education in Uzbekistan, but also around the world.

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