



# ICT and Art Education

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**Abstract:** *Information and communication technologies have become an integral part of our lives. They have changed our social habits and changed our perception of ourselves and the world around us - affecting human behavior. Art works the same, even more, because it can provide unexpected performances of the world and thus provoke new insights. By utilizing new media resources, students can expand their creativity through digitally simulated information. Flexibility of digital data is what makes new media of vital importance for the teaching of fine arts. By using automated media tools and graphic software, students can quickly see the results of their ideas. By applying ICT, the amount of work in creating visual information is minimized, so students will have more time for creativity, collaboration, research and assessment.*

**Keywords:** *Information and communication technologies, art, art education*

## 1. INTRODUCTION

Communication and information exchange is one of the cornerstones of the human community. From the first attempts of a man to address the environment, the development of techniques that a person serves to communicate begins. "However, the first words that a man uttered and the first drawings he made on the walls of the caves were at the same time the means of communication and means of expression, which we will later call artistic" [15](Todorović, 2009: 13).

Information and communication technology has become an irreplaceable tool in many professions, even in the arts. Work in any branch of applied art is inconceivable without a computer: architecture, interior, graphic design, multi-media design, industrial design, advertising are just some of the tasks that involve two-dimensional and three-dimensional design techniques with the help of computers. In classical art disciplines, painting, graphics, drawing and sculptures of ICT can be directly involved in the process of creating a piece of art or indirectly.

One of the driving forces of modern media is their ability to connect people through multiple sensory experiences, and this new ability of the media to connect their users has led to a change in the way people communicate. Communications in today's world increasingly emphasize interconnected multimedia messages for both personal and professional use, students should learn to critically interpret media messages, transfer their ideas through multimedia art forms in a collaborative environment, show creativity and innovative ideas,

possess information and communication skills media literacy, use ICT, be flexible and adaptable, productive and responsible with interdisciplinary and multicultural education.

Boro Drašković, thinking about our world says; "We live in the civilization of sound images, contemporary media are syncretic, they contain all the art, science, and form of the game; not only the rhythm and harmony, through them, the united energy, knowledge and achievements of all these areas of human research are penetrated in the soul, so that the strong consequences of this compressed influence on the mental circuits and emotions of man can hardly be followed. By giving a more attractive look, the media cowered the world, and formed the human being into a mass communication par excellence." [6](Drašković, 2012: 147)

## 2. IN EDUCATION AND ART EDUCATION

Digital technology has triggered one of the most important changes in education from the invention of the printing press: students are expected to think and communicate as artists and designers in order to create multimedia products. Art has become one of the four pillars of literacy, as important as the three original ones - reading, writing and calculating. It became important at school because it is so important in the world of work. Worldwide works have accepted multimedia as the primary form of communication, as well as the international language of the Internet. In addition, millions of television channels, CDs, DVDs and web portals and other new media that have not

yet appeared require musicians, storytellers, web designers, choreographers, video artists, graphic designers, creative consultants and many other professionals from the field of "art".

The prevalence and availability and use of the media and participatory tools with all the available Internet have led to profound changes in the way people communicate, work, play, buy, learn. Newer versions of Web users become producers of their own content and media products, and this process includes educational, economic, and political institutions. Participatory media tools provide links to outside content, and learners and teachers can access them online for learning and creation. This does not mean that conventional media such as pens, dyes, clay, paper, etc. forgetting and replacing, but increasing opportunities for learning and creating in the classroom. All modern media technologies have a place in school, provided they can help promote the goals of teaching arts culture. Newer educational technologies deserve special attention because they allow students to engage in an innovative form of communication, learning and expression, using modern media that they use in everyday life.

The development of new expressive means of communication, the discovery of new media, especially the development of photography, film and television, new means of reproduction and modern technology have contributed to the visual and communication expression in our century of completely new forms and dimensions. Due to the interweaving, complementing and joint action of all these areas in this development, it was understood, understandably, that enriching the expressive possibilities. Visual communications, as an irreplaceable medium for communication and expression, have become an integral part of our everyday life, as they complement and accelerate the linguistic way of communication, and have the ability to express those relationships and values in spatial coordinates that the living or written word will never be able to express. All previous experiences in any of the mentioned fields have contributed to the gradual formation of a new, expanded, or integrated area that explores and explains a universal way of understanding and shaping space.

### 3. POSSIBILITIES FOR TEACHING ART

Teaching of art culture is important in our educational system. The art and teaching of fine arts should also be seen as a field of literacy, and not only as a subject area. The visual form of communication is the primary form of communication in the modern world, and art should be absorbed in all subject areas, just as it is with other types of literacy. In order for students to be successful in school and work, as well as in their

community and their private life, they will need artistic and designer skills that require a digital age.

The media through which pupils learned about art were mainly lecturers, textbooks, reproductions of works of art, various monographs about artists or encyclopaedias and rare visits to museums by the end of the twentieth century. Today, using information and communication technology in teaching, there are available world museums, databases of works of art, various software that can be used for artistic purposes, and, more broadly speaking, any data that can be useful to students and teachers.

Art teachers have been trying to understand and master the tools and media of their crafts through history, and to transfer that knowledge to their students. Today, this same desire can be seen through teachers' aspirations to integrate traditional and contemporary media into their teaching. On the other hand, students do not come to school as blank pages of paper that teachers write, they come with a rich experience that can be used in teaching. Their experience in the use of ICT outside the school is high and should be taken into account when planning and conducting teaching. [9](Ilić, 2015)

Computers came to schools in the eighties of the last century, and some schools then began to use computers to help students in learning. Different authors, here we will mention only individual ones, then notice the possibilities of using computers in the teaching of arts (or fine arts, as this subject is called here). Diane Gregory insisted that art pedagogues soon adopt interactive digital technologies as important for the future of teaching art. [8](Gregory, 2009) Crowe Bruce commented that ICT can help research design issues, improve decision-making, and provide new learning opportunities. "The incredibly exciting time for the teaching of fine arts brings new opportunities through the use of ICT." [5](Crowe, 1998: 7)

ICT is a unique opportunity to support and extend visual arts outside of classical fine arts. Computers create new aesthetic experiences, with their enormous potential as a visualization tool for ideas. (China & Duthie, 1994)

Phelps and Maddison, based on a research conducted in Australia, emphasize the benefits of integrating ICT in fine arts education and state that technology provides great opportunities for enriching the teaching of fine arts, enabling students and teachers to use new tools with the support of multimedia. ICT is a unique opportunity to support and extend visual arts outside of classical fine arts. Computers create new aesthetic experiences, with their enormous potential as a visualization tool for ideas. [13](Phelps & Maddison, 2008)

Art teachers, and all those who were interested in the interaction of ICT in teaching, began to think

about the use of computers in the teaching of fine arts at a time when computers began to be used in art, in fact when it was possible for computers to display a large number of colors in quality resolution. This contributed to the development of a graphical user interface and art software, and this situation was also significantly contributed by the fall in computer prices on the market. The rapid advancement of ICT has offered significant opportunities to use in teaching fine arts, interactive and dynamic learning with the availability of global resources.

German Association of Art Teachers (Bund Deutscher Kunstlerzieher) recognized the potential of ICT for use in the teaching of fine arts and published the document "Digital Media in the Art of Learning" (Digitale Medien im Kunstunterricht) in which, among other things, it says: "Communications in the information society are done with the help of digitally generated images. This fact puts the school ahead of new demands, primarily the teaching of fine arts, which is the only subject that explicitly deals with the creation and understanding of visual messages, which puts it in a special place among teaching subjects [1](BDK, 2004: 2).

Nikolaj Selivanov (Николай Селиванов) he made conclusions based on his research in Russia, that ICT can be used in teaching the arts differently depending on the type of activity. Multimedia of ICT provides a comprehensive impact on the user; ICT possesses expressive possibilities of various means, including the illusion of three-dimensionality, enabling the creation of an illusion of movement, as well as creation and virtual modeling; ICTs enable interactivity including digitized video, animated objects and movies; ICT provides non-linear interaction between users and interactive elements; ICT encompasses various communication models among users; ICT provides users with the opportunity to use information at their own pace with personal motivation. Selivanov particularly highlights multi-media ICT, 3D animation software and virtual reality, interactive capability including database, video conferencing, communication among users and the ability to explore the Internet. [14](Selivanov, 2003)

Georg Peez and Michael Schacht paid attention in the project "Multisensible learning of art by including computer technologies" (Multisensueller Kunstunterricht unter Einbeziehung der Computertechnologie - MuSe-Computer) aimed at creating situations for increasing creative behavior through ICT. The main question was: "How can we integrate computers and their components into the teaching of art through more multisensational shaped processes between reality and the digital world." They believe that creative skills are necessary for life in today's daily work, as one of the so-called "key qualifications in all sectors of life, although the

development of creativity can be integrated into all school subjects, the teaching of fine arts is a central place for creative behavior. [12](Peez & Schacht, 2004)

#### 4. CHARACTERISTICS OF THE USE OF ICT IN ART EDUCATION

Multimedia in education has not been created by the emergence of computer multimedia systems, but today these systems are the most accessible, making them necessary in education as well. It is still Jan Amos Komenský, recommending that students learn what they learn, "see, hear, touch or taste", give the idea of using more media in teaching, so that they are complemented and enriched each other. In the present conditions, the richness of the media can easily and consistently be exploited in the teaching, using the possibilities provided by modern computerized multimedia systems.

Computers possess characteristics that differ from other visual media, and these characteristics determine the way users think, access the problem, and how to solve the task. Zolt Gyenes, lists some of the characteristics of computers in the teaching of fine arts: Using computer software can make countless copies of works without loss of quality, can be much experimented with ideas, it is easy to get variations of works and works can be saved and automatically in different states, and many programs have automated steps with different effects. Unlike analog media, adding or subtracting elements is not a problem and work can be increased or decreased. Different variations of work can be seen at the same time. Of all variations of work, the best ones can be selected and the others deleted at a time. The whole history of creation is available. [7](Gyenes, 2002)

Jonathan Matthews noted that the characteristics of contemporary media and ICT in the teaching of fine arts are close to students, easy to use, varied, attractive, they are a creative tool, and a large number of variations can be given in the process of creating artistic work. [11](Matthews, 1997).

Avril Loveless says that ICTs in the teaching of fine arts feature the following characteristics:

- Ease of use. The user communicates with the software through icons representing different software installed on the computer. Clicking the mouse runs various software that can have graphic tools displayed with icons: pencil, shower, oily colors, spray paint, pastel, watercolor and a simple mouse click selected tool is ready to work.
- Practicality. Creative possibilities of computer art far exceed the possibilities of traditional media. Without much knowledge, surprising works can quickly be created. Better software

knowledge, of course, gives even better results.

- Attractiveness. Works created with computers are interesting and teachers can attract a large number of students who are not otherwise interested in art. Computers can be a tempting door to students in the art world and the opportunity to create works.
  - Interdisciplinarity. Computers and teaching of fine arts can connect different subjects and can increase interest in interdisciplinary collaboration of colleagues and students of different subjects.
- A creative tool suitable for experimentation. Creating work with a computer is easier than working in traditional media. The computer is a great tool for experimentation and research, the original drawing can be saved, and then all its variations in the process of operation. In order to achieve this in traditional media, the process can be complicated and time-consuming. Computers can easily connect photos, video works with computer images and drawings. With all this, there is the possibility of canceling the last steps. Although there are many types of artwork that can not be created with the help of computers, they are without competition in creating two-dimensional works.
- Applicability in life. Knowledge acquired through the use of computers in the teaching of fine arts can be applied in various occupations in life. Knowledge in using ICT can be described as being actively used, and includes understanding, selection, critical evaluation, openness to novelties that are susceptible to further development. [10](Loveless, 2005)

Pupils and teachers, with the help of the Internet, gain access to thousands of sites with artistic content: museums, various tutorials and other resources that can be interesting for the teaching of fine arts. Many museums, collections, software companies and various publishers publish material, exhibitions, paintings, specialized monographs of artists, educational software on CDs, DVDs or the Internet - and they are a wealth of additional information and use in teaching.

Konol and Dajk cite the characteristics of the use of ICT, such as: accessibility, speed of achieving results, possible large number of variations, communication and cooperation, multimodality and non-linearity, uncertainty and immediacy. [2](Conole & Dyke, 2004)

ICTs bring a recognizable contribution to the active, enable users to do things that can not be done effectively, or in general, using traditional tools in art. This potential, which includes: interactivity, capability, great choice, speed and automated functions are a significant element of ICT capabilities and enable learners and teachers to use

them in the learning and process of creating a piece of art when appropriate.

When considering ICTs and their impact on teaching and learning in the teaching of fine arts, it is important to define the nature of these media in order to better utilize their resources. There are five characteristics that define the nature of modern media. These features include: integration, interaction, hypermedia, and experience in the use.

Integration suggests that arts and sciences are mixed up to create a unique experience. Integration can be seen on television, the Internet, the movie. For example, the creation of a TV show requires several people of different talents, writers, actors, artists, technicians, engineers ... The result is the collaboration of science and art, all working for the same goal, but approaching the problem from different perspectives. If this concept applied to the time of art culture, it would have multidisciplinary collaboration through an integrative teaching model.

Interactivity. Interactivity suggests a dialogue between a person and a computer, a computer, a person, and a computer with a computer. Working in the isolation of other students represents educational practice from the past. The ability of students to communicate with other students through ICTs will play an important role in their learning success. Digital resources by themselves do not bring creativity, but allow an overview of artistic practice, participation and active demonstration of works of art or practices that can be an inspiration for their own creation. They participate in the development of ideas, making connections, creating and creating works of visual arts with cooperation and communication, and ultimately evaluating artwork.

Hypermedia. Hypermedia is an upgrade to multimedia, which means multimedia content that is interconnected. The network is most often built with hyperlink, although it can be created in some other way. In the teaching of art culture hypermedia can be used as a research tool in the classroom. Students may ask for direct and indirect, relevant information related to a particular topic on any issue in the classroom.

The last characteristic is related to the experience in the use of ICT. The use of ICT in the teaching of fine arts requires specific knowledge in the use of different software. Initially, they are not the best users but are more exploring the possibilities. Over time, as students gain more confidence in the use of ICT, they become less and less focused software, and are increasingly concentrated on their work and thinking about their work. Over time, students find ways to adapt contemporary media with their own creative intentions. [9](Ilić, 2015)

Roland Craig on the possibilities of ICT in the teaching of fine arts is presented in the document „The Art Education 2.0 Manifesto“:

The Internet looks beyond the simple place to search for images and information, it is seen as a place to use participatory media and tools for sharing ideas and resources actively working with others, presentations of creativity and learning to the world audience, and a critical view of the ideas and work of others;

By using technologies, building a rich environment in a classroom where the teacher and pupils follow the curriculum goals. Focusing on results, and less on tools.

Technology can be used throughout the curriculum. Insist on building a stronger link between content, didactics, learning goals, and the use of curriculum technologies, and not technology treatment as an add-on. ICT should be viewed as something that is composed both in art studios and classrooms.

Conscientious use of technologies, recognize the advantages and limitations of new and conventional media technologies, and the decision to use is for one goal, which is what is better for the student. Sometimes the use of Internet resources makes sense, and there are times when books and textbooks will better suit the needs of students. Students should be encouraged to combine digital media with conventional artistic media.

Establishing global connections. From sharing students' experiences with students from other cities, countries, participating in a global art project with other schools or students, exchanging lessons and experiences. Participating media offer a variety of ways to connect, communicate and collaborate with peers and colleagues around the world.

Using free tools and open source software to support teaching and learning activities in the classroom. The availability of free online application tools along with open source software distributed at little or no cost and offering a wide range of alternatives to commercial software.

Pupils and teachers are partners who need to learn together in a way that everyone can learn and anyone can be a teacher. Feedback should help teachers build more effective pedagogical approaches to the Internet for future students.

Encourage personal expression, but also cooperation and community. Nurturing and participating in creativity and knowledge sharing communities. The introduction of social media of participatory art into the curriculum draws attention to social aspects of learning by offering projects and activities in which students work together to achieve common artistic and educational goals. In this way, a richer, more diverse classroom and environment is created, in which students actively learn from each other as well as themselves.

Sharing experiences and works of students with the world audience. Art teachers have long used the

recognition that comes with public display of work as a way of motivating students. The Internet adds a new possibility in this practice, instead of just the teacher being responsible for presenting student work, students can use participative media tools themselves to show the world what they know and can do. (Craig, 2009)

## 5. CONCLUSION

The incidence of images in the lives of young people has transformed the way in which they learn and experience the world, their use of visual messages has created the need for new skills in order to actively engage young people in life. Today, most theoreticians believe that the education of visual arts and that art itself should be integrated into other areas of learning to ensure that all young people become visually literate in the visual age. However, there are some shortcuts of countries that have reduced classes of visual arts education, and the emphasis is on mathematics and science.

The school, and art education, should be adapted to the current social and educational needs. With constant changes in our environment, today's childhood changes, not just habits. Types of media, various social conditions, have led to new ways of life and changed childhood experiences. Today's students live in a time that works hard on them: with a little free time, often emotionally neglected, in a fast pace of life, parents torn apart in uncertain life conditions, a collision of different cultures and various media influences, all of which characterize the heterogeneous conditions of life of today's students. Teaching is under the strong influence of competencies and standards, on the one hand, and works of contemporary visual arts, works of different cultures and everyday visual information for which technical and visual requirements are to be met, on the other.

Throughout history, artists have sought to improve the tools and media of their trades, experimented with new technologies, whether they themselves explored and experimented or used the inventions of others in their work, always sought to use new media, new innovations for their work. According to Giorgio Vasari, Jan van Eyck found an oil technique, and with him a kind of revolution began in painting, Leonardo da Vinci experimented with Camera Obscura - the predecessor of the modern camera, David Hockney accepted the new technology at the exhibition at the Royal Academy in London, 2012 he showed 50 drawings making on the iPad.

The importance of the teaching of fine arts is increasingly recognized in the world and in Europe, it offers students a useful guide to developing their creativity, imagination, sensitivity towards themselves and the world around them in mutual relation. In addition, the teaching of fine arts enables students to develop the ability to express themselves in a wide range of visual techniques.

Teaching of art culture enables students to understand art, also enhances the critical skills needed to think and move freely and consciously in our society with full stimulation and information. In addition, the teaching of fine arts has the responsibility to bring students closer to different cultural heritage and cultural diversity.

Using the computer is interesting, but it is also challenging to understand the wide range of applications that are available. It is therefore important that students learn skills in using and managing computers and creatively explore a range of software tools in order to understand their values in much the same way as we learned using traditional tools and the media. The use of ICT in the teaching of fine arts is a new field of experience for both students and teachers, and ICT provides students with access to a wide range of processes and tools that until recently were available only to professionals.

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