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New approaches in art education and the use of technology

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Abstract

In order to train individuals capable of keeping pace with the information and communication age we are living in, making use of technological developments and using all the opportunities of the present age in educational field is crucial. Information Technology, which is one of the outcomes of the information age, is in constant development. Parallel to this, we can see that this technology is used in many fields. One of these fields is the educational field. Some art trainers who are aware of this situation have conducted various studies and have determined that technological developments may be used in all fields including art education. Scientific studies on various methods and models are in progress, and each day, the number of these studies increase at an enormous speed. In this study, the use of computer, which is one of the most important means of technology, in art education, its vitality and new teaching approaches have been dealt with.

Keywords: art, art education, technology, computer-assisted teaching.

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1. Introduction

When the history of mankind is considered, it is observed that there are milestones in the social lives of the societies. Development of various tools that facilitate daily life and their efficient use in the lives of the societies are important factors for the societies.

In the course of time, the primitive nomad societies learnt how to cultivate the land and how to make use of it, domesticated various animals and then settled down thus performing a revolution in the history of mankind. After centuries passed, the agricultural revolution came into life and the agricultural production increased leading to the formation of agricultural societies. With the help of the technological developments in those times, societies invented new tools and led to the industrial development. After the industrial revolution, there had been a fast transition to urban life from rural life and various specialties developed in various fields leading to a modern society model. This process gained speed especially after the World War II, and the industrialized societies slowly left their places to technology societies.

1.1. The Technology and Art Education Relation

The word "*technology*" started in Europe especially in the 20th Century and spread to the whole world. The area when human beings started to perform the work with various tools and machinery dates back to the 20th Century. Today's societies strive for not being left back in the information age by including the developments in technology in their lives. This period is called as the information age, and it will not be incorrect to suggest that the societies making use of the technological advances at a higher level will move towards the future with safe steps.

The developing technology has changed our lifestyles and has caused enormous changes in modern art, its functionality and its place within the society. All of the artistic search of the mankind is based on the vital relation and problems between the human beings and the environment (Karayagmurlar, 2000). Art has made use of this situation and it has been proven that without art, technology cannot make human beings happy. For instance, the formation and coloring of the industrial products has made it understood that the last word on materials is to be said by art. There is fifty percent of technique and fifty percent of art in every product that is produced in 21st century. Walter Gropius, who is one of the founders of the Bauhaus, which has an important place in the development of Germany, explains the relation between art and technology like this: "The transition from handcraft to industry means the transition from individual experiences to collective experiences" (Tepecik, 2002).

We can suggest that, if using new technologies in producing works of art has given new opportunities to the artists, then the debate and critics on the use of technology in art has lost its validity. The most important issue to be taken into consideration while the artists are making use of technology is to analyze the extent of the use of technology in the process of the making of the works of art. In this context, the questions like "How much should we make use of technology in education?" and "How should we handle the technology-education relation?" cross our minds.

Scientists, as it is the case in every field, has been striving to improve the education and brought technological developments into the classroom and presented the innovations to the use of instructors (Kucukahmet, 2002). With the development of technology, although there have been various innovations in communication and informatics, the use of technology in education is limited in our country (Sahin, 2003). It is considered that an educational method which does not make use of technology cannot cover the social and individual needs of today's mankind (Bolukoglu, 2003).

If today, the educational technologies, which have developed fast, are used in visual art education, they will facilitate the targets and aims stated in the curricula of art education programs. Using the educational technologies in art education is extremely important in that there are many visual materials widely used in these subjects (Ozsoy, 2004).

There are some concerns claiming that using some technological devices such as television, video, computer etc. in art education limits the free creativity of individuals. It must be stated that these concerns stem from the confusion of artistic applications and art education. Performing art and teaching art are two different things. Furthermore, some artists make use of technological devices widely. Some artists who produce "*conceptual*" works use such devices as an artistic object. In teaching visual arts, when educational technologies are used, the visual perception of the students, which is extremely important for the creativity of the students, improves; and their knowledge on art increases. This helps students' produce authentic and quality works of art (Ozsoy, 2004).

Perhaps one of the most important technological devices of today's world is the computer, and its use in educational field is increasing day by day. It can be suggested that computer facilitates the everyday issues and performs better and makes it fun for the students to learn (Seferoglu, 2003). It has become inevitable that such a device is used in the educational field. This situation led to a "*reconstruction*" in the educational field, and has brought the notion that the computer is used in the classroom as a means of presentation and presented new virtual classrooms where classes are taught with the help of computers (Agım, 1991).

It is observed that the use of technology in educational field contributes greatly to education. For instance, computers may reinforce the knowledge and skills acquired by students by making them practice the newly-encountered teaching elements (Vural, Coruh, Civitci, Agac & Cileroglu 2004). The Internet may facilitate the acquisition of the data needed by individuals in a fast and easy way. By so-doing, the new technology may decrease the dependency on one single educational source, and increases the self-learning skills and eliminates the monotonous environment of education making them become active members of the learning environment.

2. Use of Technology in Education

It is not possible for the individuals living in today's societies to stay away from science, technology and general culture of industry. It is not possible for the individuals who do not know how to use the technological devices in their living environment to achieve a quality life standard. Using technological products is necessary, even a *must* for the contemporary individual. Science and technology are considered as the values that are mutual for everyone in the society and a part of the general culture (Yavuzcan & Erden, 2004).

Educational technology and technological devices, especially the use of computers, must be spread in order to facilitate the formation of a modern society, and increase the efficiency in learning-teaching processes (Sarı, 2003). It may be claimed that the use of computers in educational field is an efficient way that will facilitate full learning and is considered among the factors that increase success.

The increase in the amount of knowledge and in the number of the students has brought with it various problems as well, and made it compulsory for the educational institutions to apply new technologies that play important roles in the development of the educational process and its quality. One of these new technologies is the computer, which is also known as "the most important means of communication and individual teaching" (Keser, 1989, Daban, 2001). As a means of education, computers offer more opportunities than any other teaching devices.

Computers belong to the 21st Century, which is also called as the *information age*. They are the excellent invention of the human mind and have the characteristics of performing every single command that is given to them (Tepecik, 2002). Computers are used at every stage of the daily life and therefore their use in educational field has also received a wide acceptance.

Computers were welcome in the educational systems and this led to a new dimension in transferring knowledge and also made it compulsory to make changes in the educational programs leading to massive changes in traditional education systems (Numanoglu, 1992). Many tasks that are difficult to perform in the traditional education medium are performed successfully with the help of computers. As a means of education, computers perform the

functions of many devices such as audio-visual teaching aids and facilitate individual learning (Askar, 1991).

Especially in subjects that require 3D imaging and that are difficult to teach with traditional teaching methods, some problems emerged in the past, and the computer simulation had facilitated learning. It has been reported in studies that the success levels are higher in computer-assisted teaching when compared with traditional teaching methods (Cekbas et al., 2003).

2.1. Using Computer in Art education

The *narrative methods*, which are among the traditional teaching-learning methods, are still dominant. The "verbal" narration is the most widely used one among these methods (Peker, 1995). The function of the teacher is limited with transferring the knowledge, the learning environment and the course-book (Alkan, 1998a). The fact that there are multi-directional functions of using the computer in education has brought the issue of making use of computers in art education into the agenda.

Computers are one of the most important acquisitions of the information age, and are one of the inevitable components of art education as well as of many other areas. Computers should be considered as the best means for bringing the creativity of the students into foreground in art education (Bolukoglu, 2003).

In order to increase the efficiency of art education with methods to be used in reaching the information sources, this type of education has a characteristics that may use technology more than the expected level (Atan, 2000). Computers are considered as a useful tool that encourage students and attract their attention. When these characteristics are considered, it is crucial that the widespread use of computers in art education in an efficient way is encouraged.

2.2. The Importance of Using Computers in Art Education

It was observed that branches of plastic art had come closer to each other, and the efficiency of photography and cinema increased within the 20th Century. The widespread use of photographs is the milestone of visual arts. In those times, the use of cameras was as important as the use of today's computers. Photograph's' being duplicable has changed the viewpoints on the uniqueness, specifity and supremeness of the works of art. Today, a similar debate has been continuing on works of art produced with computers. It can be suggested that just like photograph was accepted all over the world as a branch of art, the works produced in computers will also be regarded as works of art in the future (Ince, 2004). While the use of computer as a tool in artistic production is becoming more and more widespread in all over the world, ignoring this fact will mean no more than denying the facts of today's world in which we are living. The spiritual structure of the mankind has the characteristics of being inclined to active, colorful and audio messages. This is why television is considered in the first place in everyday life of the society. For this reason, it is a *must* to include the contents that have the elements such as action, color and sound in educational studies (Ozbudun, 2004).

Art education classes have a curriculum that require many visual elements in terms of contents. For this reason, in visual arts classes, we must make use of the opportunities that are presented to us by computer. Again, some computer software present us various opportunities to produce works of art in various fields. Today's smart phones are defined as "the skill of integrating video, sound, graphic animation, modem and written text media in one single unit". Tomak (2000), on the other hand, describes the interactive multimedia as "the social name of the programs and applications that include various communication media (text, active visual elements, sound and animations) together in one medium".

Formerly the educational programs that were prepared in floppy disks did not allow to store a lot of visual information since the memory capacity was not sufficient. Today, on the other

hand, the improved CD-DVD technology allows to store pictures in large scales, graphics, videos and sound files.

CDs and DVDs can store any types of data in a digital medium and people may carry them anywhere. In addition, the cost of such materials is much lower than that of the other materials used in educational field (Karaman, 1996). By so-doing, not only the stable pictures and texts but also the active pictures and video files may also be used in educational software. With the interactive classroom materials prepared in multimedia environment, students are given opportunities to interact with their sensory organs.

2.3. Computer-Assisted Teaching in Art education

Computer-assisted education is a method in which computer is used as a medium where learning occurs. It empowers the education process and student motivation, and ensures that the student make use of the system in accordance with his/her own learning speed in the medium where self-learning principles are merged with the computer technology (Kucukahmet, 2001).

In computer-assisted education the computer is not an option in the learning process but an empowering element which is supplementary to the system (Namlu, 1999). Computer must be considered as a tool that supports and empowers the education process. The topics to be taught to the students are given via the computers; and by doing so, the students gain a participant and active role in the teaching process.

Computer-assisted education requires that the teacher use the computer in various ways that are proper for the targets of the educational program in different places and at different times and in different styles in accordance with the structure of the topic to be taught. The teacher should also be able to perform activities with the computer such as individualizing the teaching process, guiding the students, providing exercises and repetition in the teaching-learning processes (Keser, 1989).

2.4. Multimedia and Interactive Class Software

The fast-developing computer technology contributed to the educational processes by adding new materials and replacing the old teaching tools. The developments in the graphic processing and storage of the information capacities of the computers have made it possible to use the educational software more and more with each day.

Kul (1995) describes the multimedia as “the ability of integrating the video, sound, graphic animation, modem and written texts in one single unit in using the computer technology for multiple purposes”; Tomak (2000) describes the interactive multimedia as “the social name of the program and application that host various media (text, moving images, sound and animation) together in one medium”.

The educational programs were formerly prepared in floppy disks; and due to the limited capacity of the diskettes, it was not possible to store much visual data. Today, on the other hand, the improved CD-DVD technology has made it possible to store images in great size, graphics, videos and sound files.

CD-DVDs can store any data in a digital form and make it possible to carry them. In addition, the costs are cheaper than the other materials used in the education (Karaman, 1996). With this development, the use of not only stable images and texts but also the moving images and video files have become possible in educational software. It is ensured that students participate in the learning process with more sensory organs with the interactive software that are prepared in multimedia.

2.5. Using the Internet in Education

Computer technology has taken its place in educational programs with a dynamic structure when compared with the traditional system. However, there are still various studies being conducted even in developed countries to find the better practices. Some educational institutions exchange their findings and experiences with other people online to facilitate the use of new technologies in educational programs for them.

The fast spread of the Internet in the whole world has made it possible to reach information is a quick way, and brought with it the issue of using the Internet in education to the agenda. The reason of the Internet being so widespread in education is that it is interactive as a means of communication for the users. This situation has led to the reorganization of the educational methodologies especially in developed countries.

It is provided with the help of the Internet for students that they can learn online in a time period that is proper for them in a desired frequency and on their own. This ensures that students can reach the knowledge that has a high visual quality and a permanent enjoyable study environment with presentation techniques, drawings, expression techniques, and with two or three dimensional information. The new teaching structure that can be accessed online has various elements such as being independent from place and time limitations and including multimedia characteristics thus ensuring mutual interaction in education programs (Tokman, 1999).

2.6 Web-based Teaching

It is a widely held belief that the developmental process of the Internet showed parallelism with the technology, and there is a positive effect of this. With the spread of the use of the Internet, many web-based applications have been developed. The education sector has not stayed away from these developments, and web-based educational applications have been prepared in various science branches. In order to speak of a web-based education, it is necessary that, firstly the contents that are to be taught online must be released over the Internet and via a website.

Horton (2000) defines the Web-Based Education as “the type of education which presents independent access opportunities which is independent from time and place and that are prepared to be used online in a medium with access over a network”.

A website is a multimedia system that enables the access to texts, pictures, sounds, films, and animations in a compact and interactive manner. The multimedia enables the call and addition of another file in or into a file, and addition of comments and viewpoints to a document.

The effects of the constructivism theory is visible on the web-based education. Constructivism makes it possible to develop devices that will be beneficial in evaluating the teaching, the student, and the educational materials from a different viewpoint.

According to Bruner and Vygotsky, the interactive web medium shows parallelism with the constructivism theory. Researchers recommend the use of the constructivism theory in designing the teaching environment for an effective learning. The constructivist approach ensures that multiple viewpoints are applied and includes the educational targets in the formation process of the information (Unsal, 2007).

The information is presented to the students with a web-based teaching model whose popularity is increasing day by day and which has been developed as an alternative to traditional teaching methods in which the teacher or the topic are at the very center of the teaching medium. The teaching medium is enriched by performing interactive applications.

2.7. The Constructivist Teaching in Art Education

The 21st century is an age of change and development in terms of education and teaching methods. Teaching methods are renewed in accordance with the changing education concepts. Right at this moment, we have to see this reality: The technological devices of our present age influence our thinking and creation processes directly. In other words, it seems no more possible to examine the problems of the present age with traditional methods. If we consider the issue in terms of art education, we observe that the present art education viewpoints are based on theoretical bases that were suggested in the past, and no more suit today's social and cultural status. Some didactic, methodological, and even basic viewpoints and solutions that were valid for yesterday's world, do not cover today's needs (Sahiner, 2002).

Reconstruction is necessary for art education as a necessity of the information age. However, while this "*reconstruction*" work is performed, the institutions that are open to influences and authority must not hurry. The models that will be applied in developed countries in art education as a necessity of the information age will absolutely require reconstruction in the change and development process (Atan, 2000).

Art education is not merely based on skills. It has preserved and developed its importance as parallel to the educational policies that has changed in the historical development. The programs applied in Turkey until today have not reached the aimed goal due to some missing points and some debates on "Should art education be application-based or theory-based?" (Katiranci, 2003). New approaches and teaching methods in educational field should show their effects in visual art education in Turkey. In this context, the student should be made to have a structure that does not merely receive the information given to him/her in the same concept, but question it and perform self-learning and play an active role in the learning process with the guidance of the teacher.

The new target of the education is creating a human model who knows how and when to use the knowledge, who recognizes his/her own learning methods and uses them in an efficient manner, and who makes use of the previous knowledge in producing new one. The constructional approach plays an important role in reaching this target (Abbott, 1999).

Constructivism is not a concept that is based on teaching, but is a theory related with information and learning. This theory is based on establishing the information from the very basis (Demirel 2000). In the center of this approach, there is the student who structures and practices the knowledge. Constructivism started as a theory related with how students learn the knowledge, and in time, has gained the structure of being related with how students configure the knowledge. It is not the repetition of the knowledge which is in the very center of the constructivism, but the transfer and re-construction of it (Perkins, 1999).

The basic element in constructivist learning is not the student receiving the knowledge and accepting it, but what meaning s/he deduces from the knowledge. Knowledge is produced by the existing value judgment of the student and his/her lifestyle. All the effort in constructivism is ensuring the permanency of the learning and contributing to the formation of the upper level cognitive skills. Therefore it can be suggested that constructivist learning is establishing connections between the existing learning and new learning and integrating every new knowledge with the existing ones (Sasan, 2002).

3. Conclusion

Studies conducted so far show that web-based and computer-assisted teaching methods provide new opportunities in the learning process. Art education is a field that is suitable for visual activities and using technological materials. In this context, when today's modern education methods are considered, it is possible to suggest that using technological developments together with constructivist approach in art education will be more accurate. The reasons for this is that students will not have difficulty in transferring the new knowledge that is acquired via video, sound, animation, written texts, 3D models, etc. that are the products of the

computer technology into their permanent memory because they interact with them. Since such an interaction is not possible in traditional teaching methods, the permanency of the newly-acquired knowledge in the memory is relatively lower.

When evaluated generally, it may be suggested that the constructivism has been brought to the front line in art education as a new approach, and technology must also be included in the process. Using web-based computer-assisted teaching methods provide the opportunities for students to progress, repeat and react freely. We can suggest that computer-assisted teaching methods are a more effective approach when compared with traditional teaching methods in terms of ensuring durability of knowledge in students' minds and facilitating academic success.

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