Teaching Methodologies of Art

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DISTANCE LEARNING AND E-LEARNING IN ART EDUCATION

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Summary *- The term e-learning refers to education through computer and its periphery, mostly through the Internet, but also to education in the process of which CDs, DVDs and even mobile phones are used. E-learning, as well as correspondence courses, belongs to the didactic model of distance learning. Learning through computer also belongs to the method of programmed learning, where the use of technology is aimed at making the teaching process more objective. Dividing the learning process into small steps with tasks and offering feedback helps self-education. The paper presents various examples of e-learning in the field of art education online, but also through the use of CDs and DVDs. The conclusion is that this model of teaching appeals to a greater number of users than the voice of a teacher or textbooks, and highlights art theory aspect of teaching. On the other hand, this model is not suitable for an independent study of art.*

Key words*: learning through computer, media didactics, art education pedagogy, programmed learning*

DISTANCE LEARNING

E-learning has primarily been considered a method of the Internet-based learning and is actually a type of distance learning methods. Distance learning emerged in the 18th century. It was noted that in 1728 Caleb Philips put an advertisement in the papers in which he offered a correspondence course in stenography, intend-

ed for people living outside Boston. This was the beginning of correspondence courses or correspondence education, where the teacher / instructor sends written materials and lessons, while a learner does homework and also sends it back to the teacher in written form (Pongrac, 1985). We should differentiate between these two verbs – *to teach* and *to learn*. The process of teaching is performed by a teacher, while the process of learning is carried out by learners. In Zagreb, Croatia, correspondence courses have existed since 1954 through *Birotehnika*, a journal.

In the past, correspondence courses and distance learning were considered synonymous (Holmberg, 1979, Pongrac, 1985). In the USA, *home study* method of learning has been more and more widely accepted. It started with letters, but has spread to other types of media. In the 1950s, learning through other types of media emerged, the media here including TV, radio and video. In 1958 Italian *Telescuola* started broadcasting 30-minute radio programmes in order to increase literacy among people, entitled *It is never too late*. Technology was used for studying at home, and it also marked the beginning of *andragogy*, or education of adults. The year 1962 was also significant because the first communication satellite *Telstar 1* was launched. It enabled worldwide broadcasting of radio and TV educational programmes, while in the 1970s video-tapes, cable TV and satellite programmes found their place in education.

Over time, distance learning made a break from correspondence and through the usage of the above mentioned types of media, it extended to include computers. The mere word *correspondence* meant some kind of interaction. Interaction (Latin *inter* – between, during) means a two-way communication, activities happening simultaneously; communication channel is not passive in the sense that it filters information only in one direction (such as in one-way communication). Computer interaction means that computer sends information to a user, who then sends some information to a computer which again reacts to the received information. In 1946 the first computer, called ENIAC 1 - *Electronic Numerical Integrator and Computer,* was created. Its weight was 30 tonnes, it had 17,468 electronic pipes, 1,500 relays, 10,000 condensers, and covered the area of 200m^2. It had worked up until 1955, and was programmed by entering the computer itself. It is interesting to mention that ENIAC 1 influenced the concept of computers in the movie *2001: A Space Odyssey*, directed by Stanley Kubrick in 1968 – where one had to enter the computer in order to programme it. In the second generation of computers, in which huge electronic pipes were replaced by small transistors, it was possible to reduce the size of a computer, while the third generation computers (in the 1960s) contained integrated circuits and through it a concept then called *time sharing*. *Time sharing* introduced the so-called terminals which one computer served. A multitude of users suddenly transformed a two-way communication into multiple communication and users could also communicate among themselves.

In the modern sense of the word, e-learning primarily refers to computer learning, but the Internet learning as well. 1994 marked the first wave of e-learning

with the emergence of e-mail, web browsers (programmes for watching, navigating and using web), HTML (hypertext, language used by browsers), *mediaplayers* (programmes which present audiovisual materials in special formats), *low-fidelity streamed audio/video* (a possibility of uploading and downloading, the so-called *streaming*, of audiovisual materials) and JAVA programming language. The year 2000 marked the second wave of e-learning when the broadband Internet connection appeared, which enabled the streaming of high-quality data in real time, which again brought about new standards in e-learning.

INTERACTION AND PROGRAMMED LEARNING

In the didactic sense, the term *programmed learning* should also be mentioned. In 1957 something occurred, which is nowadays called the *Sputnik effect*. It refers to the shock that the Americans experienced when the Russians gained prestige by launching an artificial satellite into space in 1957. This event increased American interest in educational issues, as well as their interest in the application of science and technology in the teaching process. At the end of the 1950s behavioural psychologists became extremely important. In order to make the teaching process as objective as possible, they referred to scientific research carried out in the field of psychology, anthropology, sociology, linguistics, communication, perception, cybernetics, psychometric procedures etc. Linking teaching to technology was supposed to make it more precise, manageable and measurable. Skinner, an American psychologist, was the first to start the so-called *programmed learning*. It aims at carrying out the teaching and learning process in controlled processes. Basically, programmed learning divides the learning process into steps in which a learner is given new information, and at the end of each step there is an exercise to check progress. A learner immediately gets the feedback on the accuracy of his answer. If the answer is incorrect, information is repeated in order to clarify the teaching material, and if the answer is correct, a learner proceeds to the next step. The steps are integrated into a programme which can be linear or which can branch. This method is considered an individual method because the number of steps and the pace of advancement depend on the pace of a learner doing the exercises (the number of steps could also be counted).

After programmed learning we should also mention machines for learning. Although machines which could read answers had existed since the 19th century, the first real machine for learning was designed by Pressey. The sheets of paper contained multiple-choice questions, with four answers being offered. If a learner's answer was wrong, the machine could not be started, and a learner could not move on to the following question until the previous question had been answered correctly. This is a feature of programmed learning. Pressey's machine was soon criticized because there was a possibility of learners guessing the right answer (although they could learn something in that way as well). The most serious critic

was Skinner, who finally designed his own machine for learning which, instead on a sheet of paper, offered the teaching content on screen. In the 1960s Crowder constructed a more powerful machine containing 10,000 recordings on the celluloid. Instructions could also be read, and if there was a wrong answer, the machine could give an additional explanation. The machine could rewind and forward the recorded material, it registered the number of steps and the time spent on them, all of which meet the conditions of individual learning.

LEARNING THROUGH COMPUTER

The first usable computers executed their educational programmes according to the principle of Pressey's machine. The first such programme was PLATO 1 with one console. PLATO 2 had two consoles, PLATO 3 more, while CLASS systems could serve dozens of users at the same time, using the *time-sharing* system. By this, computers disposed of the need for a teacher, because a learner could get the instructions himself, as well as check the pace of his answers, the number of steps and the time spent. More elaborate programmes raised the question of simulation model design. Simulations were programmed and structured in such a way so that through a simulation of a conversation or situation they created a form of a game. The term *simulators* refers to the process of creation and application of models (Šoljan, 1976). The model is actually a stylized version of certain reality, the extraction of numerous parameters and the retaining of the core. War games have been known since the 18th century, and later economic games, such as simulations of running a company appeared as well. In the 1960s there was a class simulation called *Mr. Land's Sixth Grade*, in which the sixth grade was simulated with various things happening in it. These simulations placed a learner in a problem-solving situation in which he could learn safely through his own individual engagement (it was possible to make many mistakes without taking the consequences). Through simulations learners could get better acquainted with objects, machines, conditions or processes, as well as practise the activities connected with them. In the beginning, BASIC programming language was used, with instructions *if – then and goto.* Programmes were not linear but had a branch structure, while random variables enabled surprises for players with various events in different games.

Experts in didactics started talking about *teledidactics* and *media didactics* (Rodek, 1986; p 28). *Tele* refers to distance, and didactics is closely connected with teaching, which again means the exchange of messages or communication. Each message has its own content, but also its own form – verbal or non-verbal. Teledidactics is concerned with how a message can be shaped graphically and then how to use it to clarify something further. The carrier of message form is a medium. Medium (Latin *medius*) means middle, inserted, between. It is a sort of an arbiter between the teacher and a learner. An important potential feature of a medium is its possibility of conserving information, since it has an ephemeral quality. Through

television, for example, the message is immediately lost, it disappears completely unless we manage to record it in some way. On the other hand, we can refer back to some parts whenever we wish when using a book. Computers, therefore, meet the condition of the possibility of conserving information, communication at the same time being multiple. Teaching materials (textbooks, a letter, the Internet page etc.) should contain other components besides texts – pictures, graphs, animations, films, key words written on the margins. These additions, which increase motivation, have become the standard component of Power Point Presentations, CDs, the Internet pages etc.

There is a circular didactic flow, comprising of a learner and distance learning centre, or the teacher. The aim is to reduce this circular flow as much as possible, that is, to make the transfer of information between its participants as quick as possible. A letter was a bottleneck of this flow since its writing, sending, posting, reply and posting back took a lot of time. E-mail has reduced the flow to a great deal, while chat rooms and video conferences reduced it to the minimum, just like in the face-to-face teaching process model. The behaviour of learners in the learning process is also of great importance for telededidactics, while a serious problem turned out to be the learners' mental shape. During the self-education process users often exhibit the lack of concentration and self-discipline, because they should devote some of their free time and adjust their life style to learning and testing. Research shows that adults are usually not aware of the amount of free time they actually have after their working hours and obligations have finished, or they are not motivated to give up their life style (leisure activities, watching TV, socializing with neighbours and friends, hobbies, etc.), (Matijević and Pongrac, 1978). Due to the poor efficiency that sole self-education has in motivating and controlling learners, a model of hybrid learning was introduced, which is a combination of distance learning and face-to-face learning, and is known as *blended learning*. It is frequently recommended in various resources (Tingle, 2004). The users are very different with respect to their mental shape, motivation and previous experiences. Because of these problems a model called *contract learning* was developed, where a learner has an arrangement with the teacher on when and how much he would study (Matijević, 2000). A system in which a learner learns independently also includes *teletutoring*. Andragogy suggests breaking down of the teaching content into smaller units than for children, since adults' mental shape has already been reduced, so teaching is shorter and the controlling is more frequent. Computers demand *learning by doing*.

E-LEARNING AND M-LEARNING

In its action plan The European Commission presented the following definition of e-learning (*E-Learning Action Plan: Designing Tomorrow's education* (2001)): ''The usage of new multimedia technology and the Internet for the advancement

of learning quality by making resources and services easily accessible, and by enabling distance exchange and cooperation''. To put it in a nutshell, e-learning means learning with the help of computer technology (*Information Communication Technology – ICT*). The term has a broader sense, because the *''e''* in e-learning means *electronic,* so the usage of computers here includes a broader periphery – CD ROMs, DVD ROMs, projectors, mobile phones etc. Television, for example, is not considered an e-learning medium. On the other hand, mobile phones can be considered e-learning media, although it is questionable whether they belong to the computer periphery. A special place in e-learning belongs to the use of the Internet as a multimedia means of distance communication – in this way e-learning has all features of distance learning/teaching. Virtual classrooms are also frequently used. E-learning has some objective features, that is, the transfer of some didactic functions to impersonal media.

A new term is *m-learning* (*mobile learning*) with the slogan *Any time, any place*! It is about using mobile phones which employ *WAP standard* (*Wireless Application Protocol*), a programming language which enables mobile phones an access to the Internet. Although there are more inventive programmes designed for this purpose (Prensky, 2004), a lot of problems cropped up: each mobile phone has a different screen size, decoders do not work properly, there are no standards for the screen shape and size. Besides mobile phones, other small devices are also used – laptops, Palm Pilots, Blackberry devices. There was even an issue concerning naming these devices; some people call them *hand-held devices*, while some refer to them as *the small screen Internet*. The aim is to make use of over 1.5 billion users of mobile technology in the world (data from 2004; Prensky, 2004). One big issue was ideological, because the Internet should be open to everyone and WAP standards are controlled by telecom companies. In an attempt to increase the profitability of these programmes, it became clear that young users mostly need music and games, while being afraid of learning.

Encompassed within the e-learning tools are also the Internet pages, programmes for designing Internet pages, as well as Power Point and various multimedia programmes. Multimedia quality does not mean any combination of two or more media; it is necessary that these media are complementary and that they enrich one another didactically and communicatively. Still, e-learning tools primarily include LMSs (*Learning Management System*). LMS and *courseware* tools are systems (platforms) for the learning process organization, software which makes the course administering (of lessons, seminars...) automatic. An LMS also comprises a lot of applications such as chat rooms, forums, calendars, quizzes. It registers users (requiring their password and user name, memorizes them and personalizes the pages), searches courses through catalogues, saves learners' data and makes reports. For the same reason some users do not like using an LMS since registration process does not suit them. Currently (data from 2009), the best known LMSs are Yoomla!, Moodle and WebCity. It is believed that LMSs should offer

open source architecture which enables a free access to codes and options such as integrating the language of one's nationality, for example.

Finally, we should also mention videoconferences. Programmes such as Skype, combined with a small web camera and headphones with a microphone make live conversation with people all around the world possible. Funnily, by using this kind of technology for distance learning, the teacher from another continent can even use the blackboard and chalk, so we can say that media technology has come the full circle.

E-LEARNING AND ART EDUCATION

Art education, unlike art analysis in various materials, can be approached from the point of view of learning and awareness of visual language, historical and art styles and periods, iconographic analyses, methodological suggestions on teaching topics, or, generally, from the point of view of art theory.

Among the pages regarding visual arts, there are a great number of specialized educative pages of certain world known museums. A very well known conclusion has been drawn that users should be well-trained if we expect them to use those pages commercially or in any other way. The same principle applies to the users (visitors and consumers) of museums and art in general. This is the reason why all great museums offer developed art pedagogy, both live and online.

Here are a few examples:

Artsconnected (http://www.artsconnected.org/) are pages which, besides the gallery in which collections can be chosen, contain sections such as *For your class* and *Playroom*. Their most valuable content is found in the *Toolkit* (http://www.artsconnected.org/toolkit/index.html). *Explore the toolkit* presents some fantastic animated and sound Flash sequences which explain art terms and then present them in the works of art. So, various types of lines (thick, thin, straight, wavy, dotted...) appear on the screen and each, making sounds and through the voice of ''the teacher'' draws a tiger, which in the end turns out to be a graphic /woodcut by Franz Marc. In this way terms like line, contour, primary and secondary colours, warm and cold colours, complementary colours, the natural and artificial, shadows, depth, positive and negative, linear perspective and foreshortening, geometrical and organic, symmetrical and asymmetrical, visual rhythm and repetition as a pattern are presented and explained. In *Encyclopaedia* a user can find a glossary with examples of visual elements and visual principles. These multimedia pages are obligatory when working with children.

MOMA, New York (Museum of Modern Arts, http://moma.org/destination) also has a section for children called *Destination Modern Art*, in which an animated green alien addresses the user using Flash animation and takes him on a tour through a virtual museum containing several exhibits. Each exhibit can be looked at, we can find out more about its author and the technique which was used

in its creation, and there is also an art programme which simulates creating in that particular art technique. As an addition, there is a box for textual description of the exhibit itself, for identifying some motives in it and finally, an idea for a lesson plan. This virtual museum has two floors.

National Gallery of Art, Washington D.C (http://www.nga.gov/kids) uses Shockwave technology for various games, and contains interesting detective analyses of the themes of some works of art, an animated musical story about two characters who visit a park where sculptures are exhibited, a search for things shown in the paintings, a programme designed for children of various age with which they can make their own collage, etc.

Minneapolis Institute of Arts (http://www.artsmia.org/kidsworld) has a section *Kids World* in which on the link *Treasure Hunt* children can see a fraction of a work of art and then try to guess which work of art it is. After the hunt they can learn something about it. On *Colouring Book* link, among various topics children choose one and have an option to print a certain work of art found in the museum and which they have to colour, according to the original work of art. The link *Concentration* helps children learn to concentrate and notice things by revealing pairs of pictures in order to reveal an entire work of art at the end. This game is known to us as Memory. It is interesting to note that each pair of pictures represents a clue about a work of art or an author, so children are in a way forced to read, and once the work of art has been identified, the clues make up an entire story about the work of art and its author.

Metropolitan Museum of Art, London (http://www.metmuseum.org). The section entitled *MuseumKids* offers various online materials: *Oldenburg and van Bruggen on the Roof*: Children are given an opportunity to find out about the sculptures placed on the museum roof, find out how they got there and read about their authors. *Discover a Korean Dragon, Carpet Hunt, Look for the Symbol in the Sculpture, A Look at Chinese Painting* and many other workshops are offered to children on this Internet page.

Tate Gallery, London (http://www.tate.org.uk/learning/). After entering the section *Tate Learning*, a user can choose among the following sections: *Kids and Families, Schools and Teachers, Young Tate, Independent Learning, Community & Outreach, Online Events, Learn in Galleries, Tate Collection* and *Research*. Behind these sections there are various online courses for which a user has to register and have the Flash Player installed. The courses are divided into several units, the condition for moving on to Unit 2 being passing Unit 1, etc. The first course is free of charge, while others have to be paid for, and the user is given a certificate at the end. An original and important element of the course is that, having completed each course, a user has to post his comments on what he has learned on the forum. This is how very relevant public discussions are developed in which users can sharpen their attitudes (the first course is about evaluating a work of art, so users are invited to discuss whether *beautiful* (whatever that is) is a sufficient quality to

make something a work of art. Users very quickly reached the conclusion that art deals with questioning, so it has to have a mental component. There are teaching materials which can be searched by resource type, an author, key words (such as *composition*, etc.) or children's age. There is an abundance of high-quality materials, with frequent Flash animations which are used to clarify something and require a fast internet connection.

The only Croatian museum which offers something similar on its web pages is *Museum of Contemporary Art in Zagreb* (www.msu.hr). The museum contains *the Richter Collection* and its web pages (www.richter.com.hr/flash.html) offer section *Education*, with its own sections *Creative Teaching, Art Workshops, Family Weekends, Vito and Nada* and *Playroom*. All sections offer assignments on visual art such as *Explore and think*! which employ a didactic approach to Richter's work using questions such as: *What was the artist exploring while painting these paintings*? Or *In which paintings can you recognize a warm-cold contrast?* Or *What do you think, is it possible to express a painting or a graphic through music*? There is even a forum for posting comments, such as: *What does this sculpture remind you of*? One of the answers was: *Er, it reminds me of a great skyscraper, a big building*! In addition, there are suggestions for assignments using various art techniques and dealing with the problems of visual arts. The most interesting feature is a game which was taken from the CD *The Adventures of Vito and Nada* (the CD will be discussed later) and which requires a player to name the colours in the painting, and then offers an option for mixing colours using primary colours, and in the end colours are offered in order to reconstruct the composition of one of Richter's paintings. The only objection one could have to these pages is poor navigation which takes a user into a direction from which it is difficult to go back.

Methodological syntagms and paradygms (Metodičke sintagme i paradigme) (http://infoz.ffzg.hr/msp) are pages which should certainly be mentioned. The author is Jadranka Damjanov, PhD, while a group of enthusiastic teachers called *Avangarda* volunteered in the process of their creation. The pages contain about 500 prepared exercises with the complete visual material (about 4,000 paintings) required to do the exercises. It is up to users to choose, click and print the materials, or just to project them directly from a computer. Each exercise is accompanied by a verbal description and the complete visual material. The exercises are organized by the forms of observing them (*Elementary sign*, *Perspective*, *Syntax, How we observe, What we see, How we analyse...), stylistic periods (Romanesque period, Gothic period, Renaissance...)* and, according to school grades, each of the above mentioned categories offers an option to choose among practicing in the field of drawing, painting, sculpturing, building, photography and film. A glossary has also been prepared; by clicking on any basic art term a page with verbal and visual interpretation appears. Special attention is drawn by games which are very educative and divided by their fields (drawing, painting, sculpturing, building, photography and film). The instructions for these games refer to them as to exercises-games-

puzzles because they enable getting to know the works of art from the inside, learning about them and analysing their syntax. For example, a statue has been filmed from 16 different angles from the same distance and by clicking on an arrow it is possible to turn the statue around and go around it virtually. A few contours of the statue are shown, and they are supposed to be recognized among 16 angles that have been presented. Another game presents photographs of works of architecture in which a rhythmic line of columns on one side and rhythmic series of surfaces on the other side are offered, and rhythmic surface should be connected with a corresponding rhythm of columns.

Art education – Methodological Internet Centre (http://likovna-kultura.ufzg.hr) are the Internet pages for art education which emerged in 1996. The author is Miroslav Huzjak. The pages serve three types of users: students who can get acquainted with the basics of visual language and the analysis of works of art through short lessons and games, and students and teachers for whom the pages present an additional source of information and reference in the field of methodology of art education (Žigo, 2002). The immediate incentive to creating these pages was the fact that materials and instructions needed in the teaching process were incomplete; on these pages students can find out about consultation hours, exam dates, exam bibliography, lists of seminars or materials needed for the exercises they are supposed to hand in. Teachers can use the pages to find suggestions for teaching topics, motivation, some advice on using various techniques, examples of children's work analyses or reproductions of works of art which contain art terms explained or mentioned in the teaching process. Ever since their emergence these pages have been upgraded and improved with respect to their content, navigation, design etc.

The pages have mostly been designed using editor in HTML code, a part of navigation was designed in java script, while a separate part, *Square architecture*, was designed using Flash technology. Occasional animation uses GIF format, as well as the examples of waw sounds and short mpeg films. All of these are stored on the server of the Faculty of Teacher Education in Zagreb.

The core of art education pages comprises three different sections: pages for teachers, pages for students and pages for faculty students. An additional section is comprised of links for everyone. Navigation was designed in the way that each page has a link to the home page, link to help, and a drop-down java menu with the choice of most frequently used pages.

The pages for teachers contain:

1. Teaching Topics Constructor – this is a search engine for the collection of teaching topics for primary school. The peculiarity of this search engine is that search parameters are educative for users because they show them what one should always bear in mind while doing a microprogramming of a teaching lesson. It is possible to search by a motive, art problem, artistic field and art technique. Further on, within a motive, it is possible to search by visual mo-

tives, non-visual motives, visual language as a motive, literary motives, etc. This kind of branching stretches throughout the entire search engine. Each teaching topic has a suggestion for lesson development and contains examples of students' work, reproductions and explanations of art terms.

2. Teaching topics – independent of *Constructor*, the examples of the prepared teaching topics have been grouped by artistic fields: drawing, painting, graphic, sculpturing and design. Each teaching topic offers a lesson plan, written motivational stories or poems, an instruction for using a certain art technique including its photograph, an explanation of art terms, and it also includes a reproduction of a work of art and presents children's work (which can be zoomed in order to be observed in detail) and its analysis. By using the features of the Internet, which does not have to be read linearly or like a book, chapters were made of which certain elements have been networked with the teaching topics in which they are discussed.
3. Art terms – there is a teaching unit on visual language and linguistic features in general, in which art elements and composition principles are described in detail.
4. E-galleries – on these pages there is a multitude of works of art reproductions in two resolutions – a lower resolution for quick browsing and a higher resolution for printing and enlarging; for each reproduction there are art terms illustrated by it. Reproductions are grouped by artistic fields: drawings, paintings, sculptures, graphics, photographs, design and architecture, and there are small galleries of several authors with more works of art presented, as well as links to other Internet pages which present works of art.
5. Texts – this is a collection of academic papers written by various authors and which can be read online or saved; each paper is accompanied by a short summary.
6. Calendar with significant dates – this is an annual calendar with the highlighted significant dates which are useful to take into account while planning teaching units and topics.
7. Tables for the teaching process organization – curriculum framework, syllabus, a blank lesson plan layout, as well as methodological advice on the teaching process planning have been prepared and ready to print.
8. Forum, e-mail address – the forum is a very practical way for every visitor (after registering and being given the password) to express his opinion, wishes and comments and make them public. It can also be used for discussions. The author's e-mail address enables a user to send all his questions, comments and wishes regarding the pages to the author. A lot of users have used this option so far.
9. Online tests: there are two tests (quizzes) for teachers to use: Test in art education methodology and Test in art education, each containing 25 questions

(50 questions altogether). For each question tests supply a visual illustration to which the question refers. The questions are multiple-choice questions with four offered answers, questions with yes / no options and tests where words should be supplied. Having finished the test a user gets a grade 1 to 5, with a short comment, as well as the feedback on answers to all questions. For each incorrect answer the computer presents the correct answer on the screen.

10. Links to European pages for teachers – e-learning in Europe has been around for a long time, so there is a great choice of pages for teachers as users. These pages offer a great range of services – from the choice of teaching topics to the e-portfolio layouts. A great number of scientific papers and research in the field of pedagogy have been published, and of great interest to Croatian teachers could be bulletin boards on which schools, teachers and children from all around Europe (and even the world) are looking for partners for correspondence and exchange of experiences. The lists already contain the names of some Croatian schools which use this service. Among the useful Internet pages teachers can also use a link to the Internet school register – *iŠkola* which is a free domestic product, as well as information on online materials that Croatian and world museums offer for children.
11. Link to *Learning to Look* pages for children, offering courses on art terms, quizzes on the acquired terms, online programme for painting and students' forum.

Pages for faculty students contain materials organized by semesters. Here students can find exam dates, bibliography, exercises, tables for programmes, lesson plans, lectures in Power Point with summaries, questions for checking individual progress and links to art terms glossary. Students have at their disposal a few online quizzes with which they can check their knowledge.

Pages for primary school students, entitled *Learning to Look*, offer courses in basic elements of visual language – line, surface, mass, space and colour. The course is developed by the analysis of art terms in works of art, and at certain points it exhibits the features of a programmed textbook, in that it does not allow a user to advance further until he has supplied the correct answer to the question. A student is lead through the course by a character which reacts to the *roll-over* of the mouse, and each course ends in a short quiz to check the acquired knowledge. These pages have their forum, and are also linked to *Square architecture*, a flash programme, with which users can create their own virtual paintings with animated surfaces in the collage paper technique. They can use several ways of managing building elements, and there is a users' gallery as well as a gallery of famous artists who created by employing similar principles. This programme presents a practical part of art education as a school subject, which calls for art research of the acquired terms.

In addition to everything mentioned above, users have at their disposal a library of academic papers, methodological advice, recommended reading with links to online orders, e-galleries with reproductions of works of art supplied with

the analyses of the art terms used in them, literary templates of motives, curriculum framework and syllabi, didactic materials, a small timeline and many other things.

In order to track traffic and dispersion of visits on art education pages, counters had been installed on most frequently visited pages. They showed a high volume of traffic (which was also registered on the server of these pages), approximately 100 users per page monthly. The core of these pages is the forum which reveals a great interest of all user categories. There are many posts by those asking for information and those who are grateful for finding a certain piece of information. Letters are received from other countries as well, while unknown to the public are a great number of letters which the author received on his e-mail, asking for solutions to various problems and thanking him for the published materials. All this indicates a need for projects of this kind in all teaching areas.

Apart from the Internet pages, it has been mentioned that e-learning includes CDs and DVD-ROMs.

Museum of Contemporary Art released a CD presenting one of its collections, *the Richter Collection*. The CD was released in 2008 and was entitled *The Adventures of Vito and Nada*. The project was being developed during 2007 and 2008 in cooperation with children, artists, designers and the Museum curators. The characters which take a user through the CD have been named after Richter's sculptures, and were created after a children's contest had been completed. In the contest children created the characters in their drawings. The concept author and the author of texts was Vesna Meštrić; the curator of the Richter Collection and the author of script and assignments was Jelena Bračun, while the author of the illustrations was Mirela Ivanković Bielen. The graphic design and program author was *(R)evolution,* a design studio. This is a multimedia CD in the full sense of the word. It is full of paintings, films, sounds and animation. With its brilliant animation, illustrations and voices of professional actors, the CD takes a user through its chapters: *Museum of Contemporary Art*, *How to access the Richter Collection, the Richter Collection, Exhibition Hall, The Sculptures Park, Life and Work, Glossary and Games and Assignments.* Apart from a virtual tour of the Collection exhibits, each work of art is accompanied by an additional clarification, a video clip and an assignment designed as a game in flash animation. For example, the sculpture called *The Sundial* is accompanied by the history of sundials, geometric shapes of which the sculpture consists, a game in which a user can use a slider to change time on the clock, which again starts the animation of shadows on *The Sundial*, as well as atmospheric lighting of the sculpture illustration. *Life and work* contains a text in which key words are highlighted. By clicking on these key words a user gets additional texts of clarification. *The Glossary* explains art terms such as *secondary colours, format, or surface*, with a link to corresponding games-assignments. Finally, *Games and Assignments* offers eleven games with the already mentioned explanations (in picture, text or voice), a short film and an animated game-assignment. This CD brings education into the users' homes in a technologically and aesthetically brilliant way.

In 2005 *The Croatian Museum of Naive Art* released a CD ROM which was designed as additional material to the museum's educative game *Portal* to mark The Museum Day in 2005. Its author was Mira Francetić. The CD contains a virtual hall with several works of art and a girl named Iva Naiva who is a guide through the gallery. By clicking on a work of art four links appear: *About the author* with a short biography of a particular author, *Video* containing one-minute video of an author, *About the work of art* in which Iva Naiva says a few sentences about the work by a particular author and *Questionnaire* containing a simple question about a particular work of art. A map of Croatia has been added, in which authors' birthplaces are marked. Five authors and their work have been included. The aim of the CD was well intended, but its design is very superficial and incomplete.

The Adris Gallery in Rovinj designed very concise CDs to accompany the Vladimir Becić and Milivoj Uzelac exhibitions. The CDs contain films from the opening, a speech and the tour of the gallery, an overview of the exhibited works of art and a text about the life of these authors, written by Igor Zidić. These concise CDs are mentioned here only because materials of this kind are not frequently offered.

Museum of Arts and Crafts in Zagreb, in cooperation with a publishing company *Školska knjiga* released an educative DVD called *The Permanent Collection of Museum of Arts and Crafts*. The DVD contains the following chapters: *Introduction, About Museum of Arts and Crafts in Zagreb, The Gothic period and Renaissance, The Baroque and Rococo, Classicism and Historicism*, *Art Nouveau*, *the 20th century and Study collections*. Jelena Bračun was the director and the author of the script, while a guide through the DVD explaining the exhibits was Malina Zuccon Martić. The terms such as *museum* or *curator* are explained, and the most significant exhibits of the *Museum of Arts and Crafts* are presented. The DVD was intended for art teachers and the teachers of art history.

Also published by *Školska knjiga* are art education textbooks for all eight grades of primary school, entitled *Learning to Look* by Miroslav Huzjak. Each textbook is accompanied by a free educative multimedia CD ROM. Since 2007 art education textbooks have been obligatory in all grades of primary schools, and this fact is the reason that this CD has the audience larger than any other CD that has previously been mentioned. It contains illustrations, animation and films, as well as quizzes and games. An introductory animation presenting a male or female animated character welcomes a user and invites him to enter and explore the museum. Four illustrated museums have been represented throughout eight grades. An animated character usually takes a walk along the exhibits (paintings and sculptures) which are at the same time links with the following sections: *Quiz, Learning to Look – dot and line (the title changes depending on a course material), Study and describe, Links, Paint and Games*. *Learning to Look* is a section in which a user listens to courses on art terms. Each CD contains a different course (Dot and line, Colour, Mass and Space, Composition...), a film and an animated

addition, while the lectures, following didactic principles of programmed learning, incorporate multiple-choice questions. If a user does not give a correct answer he cannot move on to the next lesson, until he has supplied the correct answer. *Quiz* offers five questions from its database, in order to offer a new set of questions whenever a user decides to do the quiz again. After finishing the quiz, the user can see the number of quiz points, his mark and get a comment. *Study and describe* is actually a virtual tour of the museum with an expert guide, who is a virtual boy or a girl and who walks and talks about the exhibits. Virtual museums are distributed by topics – in one grade they are about design, while in others they present abstract art, human act, still nature etc. *Links* contains links to various Internet pages dealing with the content in the field of e-learning in art education. *Paint* contains a programme for virtual painting. It is possible to choose an unlimited amount of surfaces in various shape, use an RGB mode to mix a colour for each, colours can be made transparent and mixed again, while surfaces can also be erased. Each surface can be rotated, stretched and shrunk in length and width. Finally, *Games* contains about eight games per CD, each of which is in a certain way connected with a certain art term. For example, an animated character catches falling butterflies and has to catch only those in secondary colours, and avoid those in primary colours. *Puzzles* enable a player to recreate the composition of a work of art, while in the game *Spot the difference* a player has to observe carefully two versions of the same work of art in order to detect five differences within a certain time limit. In addition, there are anaglyphs, three-dimensional pictures which should be looked at through special glasses, and stereograms, pictures which should be analysed in a special way in order to detect the hidden three-dimensional characters in them.

Throughout the entire CD a user can listen to music by *Modest Mussorgsky, Pictures at an Exhibition*. In the main hall *Promenade* can be heard, while each section in the game has its own musical *painting* of the composition. At any moment a user can use a hidden menu on the top of the screen by which he can turn off the music (if he is distracted by listening to characters speaking; also, the lines they speak are written down in most cases). The menu can be used to go back to the main hall, as well as to exit the CD through the impressum.

CONCLUSION

At the end of this overview of the world and Croatian attempts of including a didactic model of e-learning into the field of art education, we should not disregard the fact that it is an addition to what art education primarily presupposes – exploring. The problem of what a painting says and what we say about a painting is only a half of the interest of art pedagogues; the second half being a practical experience of introducing an *eidos* into the matter, a mental picture into a visible form, theory into practice. E-learning presupposes the use of the media, which reaches out to more people than the voice of a teacher in a classroom or lecture

room does. The media offer a more picturesque presentation of theory by using multimedia examples. Art theory should be expanded as much as possible because of the inevitable stereotypes and prejudice that art serves only aesthetic purposes and artists who paint inspired by feelings through which they can reach people. The result of this simplified concept is an expression which we unfortunately hear once too often: *I do not like this, this is not art if you ask me*. Information about an artist who actually thinks is very irritating for the ‘’sensitive’’ viewers’ worldview. Our contemporaries relate the concept of *thought* only to science, so art theory should be overemphasized in order to draw viewers’ attention to mental activities. Apart from overemphasizing theory, e-learning offers art work in small amount, within its limits, which is a valuable attempt. Getting feedback is also very useful (through forum, for example) and can be supplemented with additional explanations.

From the point of view of computer science, technology and e-learning tools have long become more advanced than their users. An LMS feature should be a greater accessibility and openness towards users than programmes and editors for web pages design. However, nowadays, LMSs offer so many options that their users have to attend courses in order to learn how to use them. A user can also attend any course to learn how to use a programme to design his own web pages.

The process of standardization in the field of e-learning is mostly connected with technology. By distributing free LMSs, CARNet does a great job for faculties and schools, but when it comes to various forms of e-schools which integrate school subjects online, there are unacceptable mistakes. In a nutshell, no one has yet integrated methodology and didactics experts online. Therefore, the creation of quality materials for e-learning (primarily in the field of art pedagogy) is left upon *lone rangers*, while most of the contemporary written resources on e-learning discuss case studies (Leask and Meadows, 2000; Lockwood and Gooley, 2001; Serim and Koch, 1996). *Lone rangers* is a term which computer scientists use for individuals who are pioneers in paving the way without waiting for help from others. These individuals can do a lot (and they really do a lot), but a more serious action requires a centralized coordination by a strong organization, such as The Ministry of Science, Education and Sports. At the end, P.K. Komosky should be cited: ‘’*A teacher who cannot offer more than a machine deserves to be replaced by a machine*’’.

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