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## Creating multimedia image, motion, and audio applications using Macromedia Flash 8.0

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### Abstract

This paper presents a didactic scenario for the creation of a multimedia application combining image and movement, which is intended for the course "Informatics Applications" of the Vocational High School. This is a two-hour scenario that introduces the student to the creation of a multimedia application, mobilizing the interest for the specific activity, since with simple and fast steps it leads him to the creation of

his first animation. The first hour is dedicated to the general mobilization of the student and the discovery of the basic concepts and techniques, while the second leads him to the acquaintance with the environment of "Macromedia Flash 8.0" and the creation of the first animation. The development and structure of the teaching scenario is based on the standard of level B training for IT teachers.

**Keywords:** animation, image, motion, symbols

### Introduction

Almost all age groups of students (and not just students) have watched cartoons with great interest and pleasure. The given representations are an excellent motivation for engaging with the world of animation. This paper proposes a didactic scenario that aims to bring students in contact with the basic concepts and techniques related to the animation, as well as to introduce them to a way of creating animation through an animation creation and editing software, which is "Flash". The choice of Flash, among many software for the development and processing of animation was made mainly because it is very simple to use and also free open source software, without special requirements of computing power. The proposed scenario concerns the teaching of the course "Multimedia Applications" of the 3rd grade of the Vocational High School, with, preferably, a basic knowledge of image and sound processing.

### Description of the educational scenario

According to the curricula in Informatics this didactic scenario is primarily intended for the laboratory course "Multimedia Applications" of the 1st grade of Vocational High School. It can also be taught to students of the General Lyceum in the course "Introduction to the Principles of Computer Science", but also to students of the 2nd grade of the Vocational High School, in any Orientation Group within the course "Introduction to the Principles of Computer Science" [1].

In this case, some adjustments to the structure of the goals and the distribution of time would be useful. Finally, this scenario can be taught to students of the 6th grade of primary school, according to the Unified Reformed Educational Program of Primary education, in the Thematic Units: "I play and learn with the computer-Creative use of applications of ICT ". In this case it is necessary to add at least one teaching hour with a corresponding adjustment of the schedule. It will also be important to remove targets related to concepts, as well as to plan for a more active attitude of the teacher, as the expected needs of this age group are greater [1].

The title of this scenario is "Creating a multimedia application of image, motion and sound using Macromedia Flash 8.0" and was implemented in the course "Informatics Applications" of the First grade of the Vocational high school. The estimated duration for the implementation of this course is 2 teaching hours and the course took place in the school computer lab. The students worked both individually on each computer (to complete the Worksheet activities) and in groups of two. The trainees will be able to:

- Use Macromedia flash,
- Design and create a simple animation,
- List and explain basic concepts related to the moving image,
- Name basic historical elements of the moving image.

**Required logistical infrastructure**

The implementation of this scenario required a computer lab, with internet access in order to be able to search for images from the internet, Macromedia Flash installed to create the application and the existence of a microphone and speakers (or headset) per PC. It was also suggested that a video projector be used to resolve any questions that may arise about the Macromedia Flash environment [2].

**The following teaching material was used:**

- Article published on young people in the digital age (Prensky 2004),
- Small (one page) Google search guide,
- Small manual for the basic elements of Movie Maker (two pages),
- Three page activity sheet,
- Evaluation sheet,
- Teacher observation sheet.

**Conclusions**

This educational scenario was implemented on a design basis for the most part. However, the time was not enough to complete the second activity. Only one team managed to complete it, indicating that the division of time and tasks should be reviewed.

Throughout the educational process the students' interest was lively and they had an active participation both in the intervals of the presentation with questions, which in many cases were answered by their classmates, as well as in the phases in which they worked in groups to complete the activities [3].

The cooperation between the students was exemplary throughout the teaching without problems, since the roles within the group alternated harmoniously. The main difficulty was the limitation of time, as mentioned. The students, already from the initial brainstorm, showed a willingness to participate and submit opinions, dragging the introduction to the lesson out of schedule [4].

The process of designing, implementing and reflecting a teaching scenario has a lot to offer in teaching and to each teacher individually. It is the framework that will connect the individual parts of teaching and will substantiate them in a single spiritual edifice, directly and effectively applicable. Specifically, the benefits of the teacher are summarized in the following points:

- The teaching is organized in specific phases, which are implemented in distinct steps with specific objectives and expected, evaluable results. In order to achieve the design, the teacher mentally traverses the teaching and thus predicts (as much as possible) difficulties, sensitive points, teaching needs. An important help in this is the fact that teaching-related bibliographic references are taken into account [5].
- Reflection gives the opportunity to improve both the individual teaching and the teacher, as he acquires more and more metadata both on the way of transmitting specific conceptual sets, and on the way of perception and acquisition of concepts by specific groups of trainees [6].

**Annex****Scenario title****Creating multimedia image, motion, and audio applications using Macromedia Flash 8.0****Prerequisite knowledge of students**

During the first four months and in the course "Multimedia Applications", the students were taught another program for creating multimedia applications by the same company, which was the Director, and as a result several basic terms are known to them.

**Objectives****At the level of knowledge, the trainees**

- List and explain basic concepts related to the moving image,
- Name basic historical elements of the moving image,
- Identify and classify basic animation techniques,
- Know the basics of the flash animation processing environment,
- Restore the structure and function of web exploration.

**At the skill level, the trainees**

- Use Macromedia flash,
- Design and create a simple animation,
- Become familiar with web exploration.

**At the level of attitudes, the trainees**

- Reflect on the basic concepts and techniques of animation,
- Feel that the moving image requires patience and perseverance, but it is something they can achieve,
- Are encouraged to get involved in creating animation,
- Operate web exploration platforms with ease.

**Required logistical infrastructure**

- Screen sharing software for distributing the necessary files of the instructor to the students,
- Prerequisite is the installation of Macromedia Flash 8.0 software,
- The computers will be connected to a local network as internet access is deemed necessary,
- A PC is required for the instructor connected to a video projector,
- The standard teaching will take place in a computer lab,
- Hardware: One workstation per group of students is required,
- The ability to use e-mail is essential.

**Duration**

The estimated duration for the implementation of this course is 2 teaching hours.

**Content analysis**

At the end of this scenario, students will be able to create a multimedia application on their own, combining image and movement. The aim is for the students to be able to handle and process with great patience and perseverance the objects of the application.

### Alternative perceptions of students

Students from a very young age have known and loved cartoons. The relevant representations are extremely fertile ground for this teaching and are expected to show particular interest in learning to construct something they love. With the appropriate support and guidance of the students and if the didactic noise is avoided due to lack of quality infrastructure, no particular difficulties are expected in the implementation of the scenario.

### Correlation with the Curriculum

The scenario will be implemented according to the Curriculum.

### Implementation Stage of a multimedia application

The general purpose of this section is for each student, as a member of a working group, to implement even the packaging of a multimedia application, in order to be involved in all the details of a "real" application.

### Special purposes

The student must:

- Complete the image of producing a multimedia application,
- Become familiar with the process and concepts associated with evaluating an application.

### Class organization

The lesson will take place in the school computer lab. Students will work both individually on each computer (to complete the Worksheet activities) and in groups of two.

### Teacher Role

The teacher determines the composition of the groups

- Presents the modern collaboration environment that will be used for the standard teaching,
- Summarizes the basic concepts of number systems,
- Describes the task assigned to students,
- Asks each group to be divided into subgroups of two students,
- Assists students in the implementation of the standard teaching in possible questions on topics.

**Limitations:** The teacher takes care to define groups of the same capacity, to encourage communication between group members.

### Role of a group of students

The way the team works is described below.

### Role of members of each group

Students who form a group take on specific roles. They work in pairs on the same computer. One student handles the computer while the other supervises the work and intervenes constantly. They alternate between these roles at regular intervals. Each of the two pairs of students in a group takes on a part of the design as follows:

### Limitations

The student who operates the computer each time, has increased responsibilities in relation to the other, so that he can provide solutions to any problems that arise within the group.

### Teaching approaches and strategies

Taking a conceptual approach to the term animation, we would say that it is the rapid projection of a series of images (two-dimensional or three-dimensional model) or positions of a model, so as to create the illusion of movement. It is an optical illusion of motion and this is due to the phenomenon of retaining the image in the eye for less than (or at most) 1/12 of a second (relocation). This basic principle of animation is based on the inability of our brain to perceive the transition from one image to another if it is achieved in less than 1/12 of a second.

Cinema is based on the same principle. After all, a movie is nothing more than a sequence of photos that are projected very quickly. Specifically, in the cinema, 24 images per second are projected, while in the television they are 25. Both in the film and in animation, the French word "frame" is used for the photograph of an image. One can easily understand that a 1 minute film requires  $60 \times 25 = 1,500$  images. ! That is, for a one hour movie  $60 \times 1,500 = 90,000$  images are required. The first cartoons appear two decades after the Lumiere brothers' first feature film. The difference in the process is that instead of filming (ie 24 frames per second) a live action, a series of drawings are photographed, one by one. These designs will become the frames in the movie. The first animated films (as well as the first motion pictures) were in black and white and without sound. The first animation is attributed to Emile Cohl (Fantasmagorie 1906). Typical and historical examples are the following:

- Emile Cohl: Fantasmagorie (1906)
- J. S. Blackton: Humorous Phases of Funny Faces (1906)
- Winsor McCay: Little Nemo (1911) και Gertie the Dinosaur (1914)
- Otto Messmer: Felix the Cat (1919)
- Walt Disney: Steamboat Willie (1928)

Most 20th century animated films used the traditional technique of rendering motion in the drawing. Each separate frame of a film created with the traditional technique, consists of a photo or a drawing, which is first drawn on a piece of paper. To create the illusion of movement, each design differs little from the previous one. The animator designs are captured on a transparent print slide called a blister, which is filled with colors of defined shades and tones on the back of the design. Complete character slides are photographed one-on-one on motion picture with a beak camera in front of a painted background. Today, creators' designs and backgrounds are scanned or painted directly on a computer system. Various programming software are used to color the designs and to simulate the movements and effects on the camera. The final part of the process is the export to one of the means of transport, from the traditional 35 mm film onwards, means such as digital video. From the beginnings of animation to the present day, a variety of different animation techniques have been developed.

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