# ELECTRONIC PRESENTATIONS IN EDUCATION

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## Abstract

*The paper briefs an outline of didactic principles and aspects necessary for quality electronic presentation applied in education. The contribution also presents the results of the survey carried out at STU MTF. Students´ attitudes to the utilization of electronic presentations in education were investigated by a questionnaire.*

## Key words

*education, material didactic means, didactic principles of presentation, PowerPoint presentation*

## Introduction

The present education calls for frequent application of didactic technology and modern teaching means. On one hand they can help both teachers and students optimize the educational process as well as make it more efficient, while sometimes bringing formalization of pedagogic activities, abstract thinking and creativity on the other hand.

Teaching aids are those material didactic means which are closely connected to the teaching material. They carry educational information and require a learning activity of students. Didactic technology provides efficient presentation of some teaching aids, especially by means of record and recall of the sound and image [1]. The verbal communication channel is the mostly utilized means in education. The research shows, however, that 87 % of information is perceived visually. Adequate utilization of visual didactic technology can: increase the students' interest and attention, bring changes, and improve the conceptualization as well as the memory enhancement [2].

The main presentation techniques are as follows: projectors of static images, flipchart, pin board, interactive/electronic whiteboard, data projector. The last mentioned one – a data projector – is implemented when designing the presentations via Word, Excel, and PowerPoint or CAD/CAM applications.

In the first part of the paper authors deal with the didactic principles that have to be followed in electronic presentations design. The next part of the contribution analyzes the results of the survey focused on the perception of PowerPoint presentations in education by STU MTF students.

## Didactic principles of electronic presentations

Current educational reform is aimed at changing the traditional and encyclopedic school system into creative and humane education, providing knowledge-based education with focus on action, personality freedom as well as the design of progressive and creative education. Together with classic presentation methods, innovated forms of study materials presentation are utilized more and more frequently. The most frequent ones are presentations via interactive whiteboards or PowerPoint presentations via data projector.

PowerPoint presentation represents a modern way how to make audience familiar with author's contribution. The program allows preparing an interesting and well arranged audiovisual presentation considerably fast and simply, increasing thus comprehensibility of the topic presented such as study material being lectured as well as complex technical drawings, including 3D effects [3].

When preparing a presentation, teachers should bear in mind that the presentation itself is a teaching aid and as such should meet also didactic principles characteristic for material didactic aids as follows:

- *Principle of scientism* – information included in the presentation should meet scientific accuracy, i.e. teacher can utilize all educational opportunities to upgrade knowledge that outdate quickly [4].
- *Principle of appropriateness* – means that in terms of the contents and way of presentation, teacher takes the age and individualism of students into consideration [3].
- *Principle of systematicness* – can be met by pedagogically modified electronic presentations [4].
- *Principle of transferring the learning material into practice* – means that the school or university is an open system connected to its surroundings by numerous relations [4].
- *Principle of awareness and activity* – the correct and appropriate utilization of material didactic means awakens students´ initiative, since they can learn by utilizing their new knowledge in creative work [3].

The contribution is not aimed at describing the procedure how to prepare a PowerPoint presentation; it rather focuses on some aspects prior to the preparation of the electronic presentation itself. To set the presentation target is a very important issue. The presentation without a clear target can be chaotic and the topic can be not clear enough, which is an inefficient procedure for both the lecturer and his/her recipients.

Setting a target should follow a so called SMART system, i.e. the presentation should be:

**S -** *specific* – clearly defined contents and purpose of the presentation,
**M -** *measurable* – length of presentation,
**A -** *acceptable* – by the students who can interactively participate,
**R -** *real* – should be credible,
**T -** *terminate* – means to monitor how the presentation target is followed not only in the time of its preparation but also in the course of the presentation [5].

When the target is set, the style of presentation should be also determined. The style depends on the presentation type, e.g. presentation for public experts, management presentation or pedagogical presentation at school. The presentation can be serious or eased by some jokes and stories. An inappropriate style can spoil the presentation.

## Utilization of electronic presentations in the teaching process

Teaching is carried out within the teaching units by means of teaching methods. The teaching process has three stages (sequences) – preparatory stage, stage of realization and diagnostic stage [1]. Material didactic means can be applied in all three stages (sequences). However, they are mostly utilized in the stage of realization which can be further divided into several interrelated phases:

- motivation phase – awakens students interest and attention,
- expository phase – primary presentation of a new study material,
- fixing phase – revision and consolidation of the study material,
- diagnostic phase – comparison of current students´ performances with the teaching objectives and their evaluation,
- applicatory phase – application of new knowledge within the solutions to theoretical and practical tasks.

Presentation technology can be utilized in all phases of the stage of realization; however, they are mostly used in the expository phase where the teacher makes the students familiar with the new study material. Electronic presentations are also frequently used in this phase.

PowerPoint presentations provide the students with better perception of the information delivered if compared to the classical explanation since the learning material is given via more channels. The student can be involved more easily in the topic, s/he can recognize the main issues, or can take notes while listening to complementary comments made by teacher. Moreover, the presentation provides to display some time consuming information, such as tables, graphs, figures, sounds or videos. The issues delivered in slides rectify as well as rationalize and ease student's preparation for the next lesson, which represents a significant advantage [6].

Nevertheless, the preparation of presentations has also some negative aspects. The perception of the new study material is sometimes skimped than by a regular presentation and note taking. To prepare an electronic presentation takes more time than the written preparation of the lecture main points. Needless to say that the preparation of an electronic presentation just for one lesson is not economical as well as the teacher has to be prepared to some technical failure (data projector, computer, etc.).

The next part comments on some results of the survey which was focused on the students´ perception of PowerPoint presentations in the teaching process.

## Description of some results gained by a survey at STU MTF

The survey was aimed at monitoring:

- what didactic technology was mostly utilized in winter semester lectures of 2009/2010 academic years,
- what type of the new learning material presentation satisfies the students mostly.

The sample of students in the survey comprised 150 students of full-time study in STU MTF, 30 students of each of the years of Bachelor and Master (Ing.) studies. The survey was carried out via anonymous questionnaire distributed to students in March 2010.

The answers of respondents from the questionnaire can be summarized as follows:

- 99 % of respondents stated that the data projector was the most frequently utilized technology at their lectures. Then a PC (76.6%), an overhead projector (51.3 %), and an interactive board (10.7 %) followed.
- Regarding the answers of students, we can assume that the presentation of a new learning material via a data projector was appreciated by 82% respondents. Then a PC (14.7 %), an interactive whiteboard (1.3 %) and finally an overhead projector (0.7 %) followed.

We were interested how the students perceive electronic presentations regarding the didactic principles application. The questions given in a questionnaire offered a rating scale of answers.

Most of students agreed (68.66 %, Table 1) that they could remember the study material more easily if an electronic presentation was used.

- The study material lectured seems to be better arranged in an electronic presentation to 84 % of students (Table 2).
- 68.66 % of respondents (Table 3) agreed that teachers utilized electronic presentations to present the study material with reference to practice.
- 69.34 % of students (Table 4) expressed that electronic presentation did not motivate them to independent learning.

QUESTION: CAN YOU REMEMBER THE STUDY MATERIAL PRESENTED VIA ELECTRONIC PRESENTATION MORE EASILY? Table 1

| alternatives | Bc. Year 1 | Bc. Year 2 | Bc. Year 3 | Ing.Year 1 | Ing. Year 2 | Total | % |
|---|---|---|---|---|---|---|---|
| I strongly agree | 1 | 7 | 4 | 3 | 2 | 17 | 11.33 |
| I agree | 15 | 13 | 20 | 18 | 20 | 86 | 57.33 |
| I do not know | 6 | 5 | 4 | 2 | 4 | 21 | 14.00 |
| I disagree | 6 | 5 | 2 | 7 | 3 | 23 | 15.34 |
| I strongly disagree | 2 | 0 | 0 | 0 | 1 | 3 | 2.00 |
| Total | 30 | 30 | 30 | 30 | 30 | 150 | 100 |

QUESTION: IF THE TEACHER UTILIZES A POWERPOINT PRESENTATION, DO YOU CONSIDER THE STUDY MATERIAL LECTURED TO BE BETTER ARRANGED?

Table 2

| alternatives | Bc. Year 1 | Bc. Year 2 | Bc. Year 3 | Ing.Year 1 | Ing.Year 2 | Total | % |
|---|---|---|---|---|---|---|---|
| I strongly agree | 14 | 8 | 14 | 10 | 11 | 57 | 38.00 |
| I agree | 10 | 15 | 12 | 16 | 16 | 69 | 46.00 |
| I do not know | 3 | 5 | 3 | 2 | 2 | 15 | 10.00 |
| I disagree | 3 | 1 | 1 | 1 | 1 | 7 | 4.66 |
| I strongly disagree | 0 | 1 | 0 | 1 | 0 | 2 | 1.34 |
| Total | 30 | 30 | 30 | 30 | 30 | 150 | 100 |

QUESTION: DOES YOUR TEACHER MAKE YOU FAMILIAR WITH THE APPLICATION OF RELATED KNOWLEDGE IN PRACTICE; DOES S/HE REFER TO THE PRACTICAL IMPORTANCE OF KNOWLEDGE ACQUIRED VIA ELECTRONIC PRESENTATIONS? Table 3

| alternatives | Bc. Year 1 | Bc. Year 2 | Bc. Year 3 | Ing.Year 1 | Ing.Year 2 | Total | % |
|---|---|---|---|---|---|---|---|
| I strongly agree | 1 | 7 | 4 | 3 | 2 | 17 | 11.33 |
| I agree | 15 | 13 | 20 | 18 | 20 | 86 | 57.33 |
| I do not know | 6 | 5 | 4 | 2 | 4 | 21 | 14.00 |
| I disagree | 6 | 5 | 2 | 7 | 3 | 23 | 15.34 |
| I strongly disagree | 2 | 0 | 0 | 0 | 1 | 3 | 2.00 |
| Total | 30 | 30 | 30 | 30 | 30 | 150 | 100 |

QUESTION: IF AN ELECTRONIC PRESENTATION IS USED FOR A NEW STUDY MATERIAL INTERPRETATION, DO YOU TRY TO SUPPLEMENT YOUR KNOWLEDGE BY ANY INFORMATION FROM OTHER SOURCES WITHIN YOUR SELF-STUDY? Table 4

| alternatives | Bc. Year 1 | Bc. Year 2 | Bc. Year 3 | Ing.Year 1 | Ing.Year 2 | Total | % |
|---|---|---|---|---|---|---|---|
| I strongly agree | 8 | 3 | 3 | 0 | 2 | 16 | 10.66 |
| I agree | 4 | 2 | 1 | 1 | 1 | 9 | 6.00 |
| I do not know | 6 | 5 | 4 | 2 | 4 | 21 | 14.00 |
| I disagree | 14 | 13 | 19 | 17 | 19 | 82 | 54.67 |
| I strongly disagree | 4 | 3 | 7 | 5 | 3 | 22 | 14.67 |
| Total | 30 | 30 | 30 | 30 | 30 | 150 | 100 |

## Conclusions

Electronic presentations in the teaching process can be understood as a teaching aid utilized by teachers and determined for students. Then, they can also help in students´ independent learning. In the preparation of presentations and their utilization in the teaching process, it is necessary to apply all aspects and didactic principles afore-mentioned.

Regarding the survey results, we can assume that the principles of clarity, systematicness, appropriateness and scientism are the most applied ones and they are implemented prevailingly only in the motivation and expository phases of the teaching process stage of realization.

We can assume that almost in all the subjects and all study years electronic presentations are utilized. They are a suitable complement of an oral explanation and if used only in a part of the lecture or lesson. Unfortunately, sometimes all the lecture or lesson is presented via an electronic presentation and then its perception is skimped by students who do not take any notes from the complementary comments made by their teacher. The presentations should comprise tasks as well as questions, leading thus the students to their own activity not only in the course of the presentation (e.g. asking questions), but they should motivate the students to their own activities within their independent learning.

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