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MULTIMEDIA COMMUNICATION IN THE LEARNING CONTEXT

Multimediális kommunikáció a tanulás kontextusában

Multimedijalna komunikacija u kontekstu učenja

*The illiterate of the 21st century will not be those
 who cannot read and write, but those who cannot
 learn, unlearn and relearn.*

Alvin Toffler

Summary

Every new activity of learning is, in a certain way, a unique process and that is the reason why there is no simple answer to the question how to learn as much as possible in the shortest possible time while putting in the least possible effort. However, some general principles, methods and techniques contribute to effective learning and better memory, while the choice of these depends on personal preferences and inclinations.

Intrinsic motivation is reflected in the student's need to learn, the satisfaction derived from the process itself and in the achievement of the set goals. Intrinsic motives include: interest, desire for knowledge, the motive of achievement, the level of aspiration (the success that the person expects to achieve), the need for developing competence, the "competition" with oneself... Despite the significance of the extrinsic stimuli such as praise, criticism, gaining of a higher qualification, a tight deadline by which the matter has to be learned, satisfying the extrinsic motives is felt as being much more difficult. A student can read the matter with comprehension even being able to repeat it, but still such learning could be mainly passive, incoherent with other knowledge he or she has. Much better results are produced when the learning is active. Active learning has to constitute five stages: 1. preview of the learning material, 2. inquiring, 3. reading, 4. retrieval, 5. final overview of the learning material.

Key words: Cognition&Perception.

1. Introduction

Every new activity of learning is, in a certain way, a unique process and that is the reason why there is no simple answer to the question how to learn as much as possible in the shortest possible time while putting in the least possible effort. However, some general principles, methods and techniques contribute to effective learning and better memory, while the choice of these depends on personal preferences and inclinations.

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1. preview of the learning material,
2. inquiring,
3. reading,
4. retrieval,
5. final overview of the learning material.

There are numerous studies in which experimental psychologists and pedagogues have shown that retention of information three days after a lecture or seminar is six times larger when information is presented both visually and orally than when information is presented only by means of spoken word.

Studies conducted with educational researchers indicate that about 83% of human learning occurs visually, while the remaining 17% is realized through other senses – 11% through conversation, 3.5 % through the sense of smell, 1% through the sense of taste and 1.5% through the sense of touch.

Research also indicates that three days after the event, people retain:

- 10% of what they have heard during oral presentation,
- 35% of the visual presentation, and
- 65% of visual-oral presentation.

This conclusion implies that using multimedia communication as a way for gaining new knowledge is better than reading a text from a course-book or a script.

The new age of information is related to the development and transformation of every segment of society, including education. Ever increasing amount of information, on the one hand, and means by which a modern man is able to obtain it, on the other hand, completely change the concept of the traditional education. The emphasis is no longer placed on acquisition of knowledge (for the reason that the quantity of knowledge is on the steady increase) but on the personal growth of a learner who should be able to obtain information by a variety of means and then put it into practice.

For these reasons, there are more and more attempts to find new methods and forms of education that will be learner-centered, catering for the learner's needs and interests while the learner's activity within the teaching process is given the first priority. A traditional approach to teaching shows more and more drawbacks and fails to keep the pace with other segments of society, especially regarding economy, which results a person who is not ready for challenges and demands of the modern society.

The concept of continual “life-long” learning has been known before, but only today does it have the true value and significance. The need for professional training and development has become a must and is reflected in the need for permanent upgrading of skills within a profession as well as in the need for acquiring computer literacy which has become the basis for any further development.

For that purpose, the multimedia lectures in online mode, in the form of e-learning, as well as in offline mode, in the form of CDs containing the learning material, are on the constant increase.

Distance learning should provide students with the following:

- the opportunity to access lectures and practice work at any time;
- the access for distant learners who are not able to attend lectures, thus making great savings for them both in terms of time and money;
- a standardized training for a large number of employees in a shorter period of time;
- fast and quality access to learning materials: scripts, multimedia presentations and other academic resources via Internet;
- instantaneous dispersion of knowledge in spatially unlimited conditions (distant places);
- dynamic interaction between a teacher and student as well as quality and active participation in the teaching process.
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The advantages of distance learning

- possibility to enroll a larger number of students
- possibility for larger profit
- possibility to control the quality of teaching process

The question that many teachers pose is whether distant learners gain the same quality of knowledge as students that study in a traditional way having their classes in classrooms. The studies comparing distance learning with traditional education indicate that distance teaching and learning can be as successful as traditional teaching provided that adequate methods and technologies are used, there is interaction among students and there is timely feedback between teachers and students.

Multimedia didactic materials in digital form provide more of dynamic as well as the possibility for students to customize the materials according to their own interests. The rapid growth of telecommunication technologies and computer systems, access to the Internet and learning based on multimedia systems have enabled more quality for application of computer technology in education.

2. What is multimedia?

*Tell me and I forget. Show me and I remember.
Involve me and I understand.
Chinese proverb*

There are various definitions of multimedia.

Richard Mayer, Professor of Psychology at the University of California, defines multimedia as a presentation of content using the combination of text and graphics.

This would be only an initial definition which does not explain the existence of the plenty of opportunity there are.

Mao Neo and T.K. Neo, *faculty at Multimedia University in Malaysia, extend this definition. They say that multimedia is “the combination of various digital media types, such as text, images, sound, and video, into an integrated multisensory interactive application or presentation to convey a message or information to an audience.”*

This definition is more precise as it explains that the combination of the mentioned elements provides more than each of the elements does separately. A coherent combination of the common file formats is more effective than the sum of its parts.

2.1. Multimedia communication

1. Multimedia communication is similar to face-to-face communication.
2. Multimedia is less limited than a written text. Many people have a better understanding of a text supported by media.
3. Multimedia facilitates presentation of abstract ideas in a specific context (for example, refraction of light in physics could be presented in a film by means of an objective and behavior of the light).
4. Multimedia provides for individual differences regarding preferable sensor channels for learning.
5. Multimedia enables coordination of different external presentations (with specific levels) for different perspectives.

We shall start with some more common notions about how people learn, the complexity of the learning process and the need for overview of multimedia research arising from this complexity.

2.2. Placement of test at the end of units in multimedia tutorials

If we return to the key stages in learning processes,

1. Presentation of information
2. Guidance about subsequent steps
3. Practice for checking and acquiring of knowledge
4. The assessment aimed at determining what else there is to be determined and what further steps are to be taken

Testing is commonly used in the majority of multimedia tutorials for stages 3 and 4. Tests are usually placed at the end of a lesson or upon the completion of one teaching unit. The purpose of tests is to check how much has been learnt and which exercises have to be repeated so that the knowledge necessary for a particular level is completed. Tests and questionnaires can be produced using several different programs:

- Flash quiz maker
- Google Docs
- Adobe Flash
- Microsoft Excel
- PHP Script or Java Script
- online test creation software
- Adobe Dreamweaver etc.

Tests can contain: image, sound, video material, animation, text etc.

All of the programs provide:

- Multiple choice (choosing one correct answer among several possible answers)
- Choice of more than one correct answer (when a student has to check more than one of the given options)
- True-false answers
- Matching questions with answers
- Inserting words in the given text

When there is a larger group of learners to be tested, and you want to avoid the uniformity of the provided answers, you can give some twenty answers that would be provided in groups of 5 by the principle of a random choice.

One of the popular tests on the Internet is online BBC English language test.

3. Key stages in making of a tutorial

1. Planning application
2. Collecting resources
3. Conversion of media materials in a digital form
4. Creating and recording of materials
5. Authorization of multimedia
6. Packing it for the end-user or uploading it to the server

This plan shows what we need for producing a multimedia tutorial.

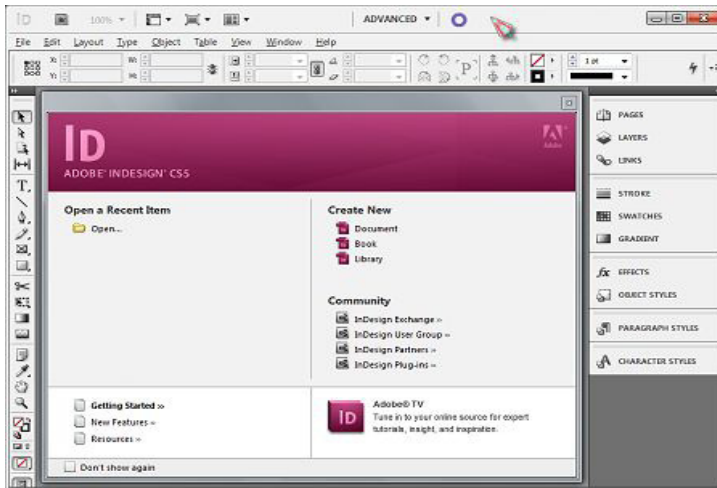
In the first place, we should make a choice of the application topic. After that we collect material in the form of text, images, video materials etc. All media materials are then converted in a digital form using corresponding programs. Finally, we record the created material. The authorization of multimedia is one of the stages that has to be done for the protection of authorship.

The conversion of material into a digital form was done by means of a scanner and Adobe Photoshop and Adobe InDesign programs. The recording of the material was performed in Camtasia Studio 7.0 program.

4. Making multimedia tutorial for InDesign

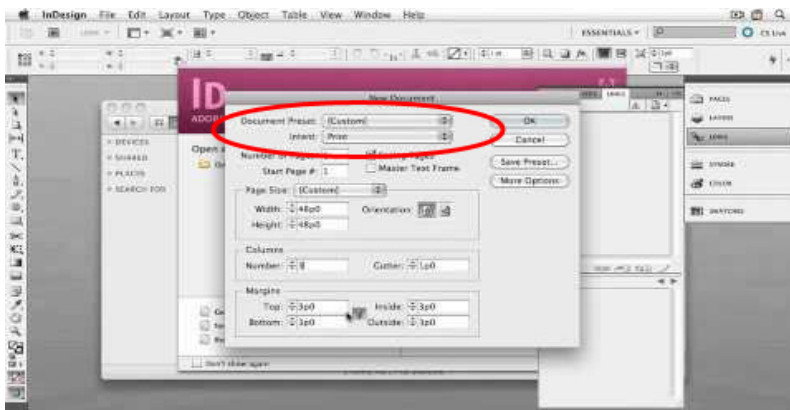
The first step in making of the multimedia tutorial was to create the opening screen (*Figure 1*) drawing on the previously mentioned examples of good practice. The opening screen includes the title and subtitles that serve as links to lessons.

Figure 1 – Opening screen



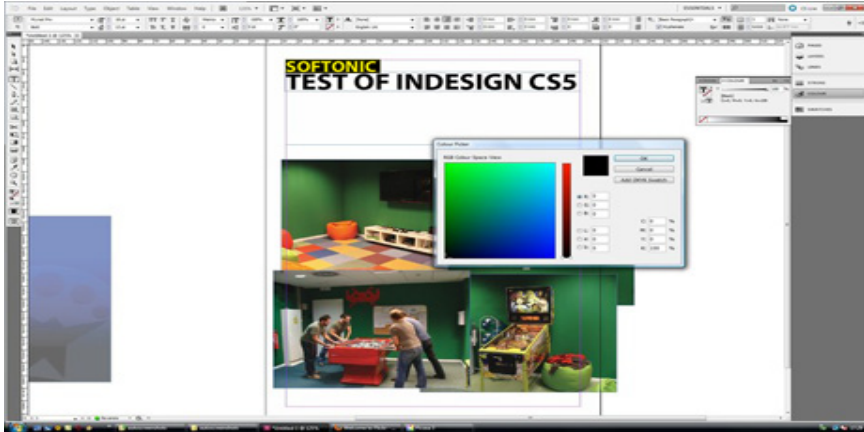
The organization in the form of lessons enables students to learn the ones that they have not managed to acquire yet, and so according to their previous knowledge they make their own assessment regarding where they want to start learning. During the narration, the mentioned elements are highlighted in red pencil (*Figure 2*)

Figure 2 – Highlighting by circling in red pencil



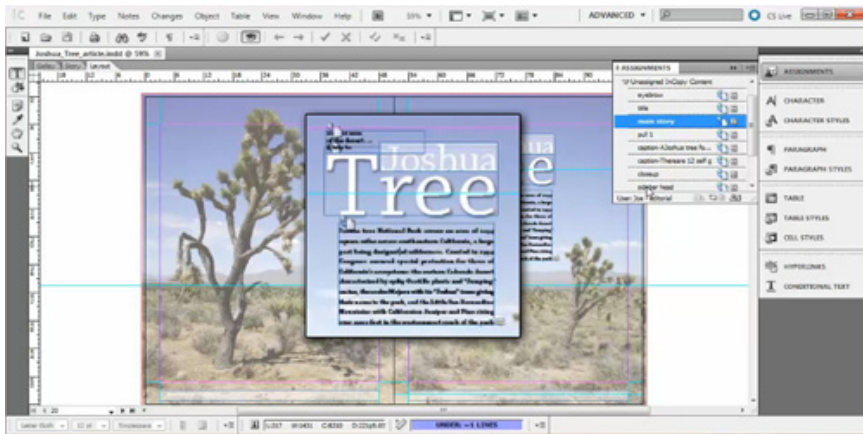
Highlighting by means of the symbols such as an arrow (*Figure 3*) is helpful for visual remembering of the tool purpose.

Figure 3 – highlighting by means of symbols



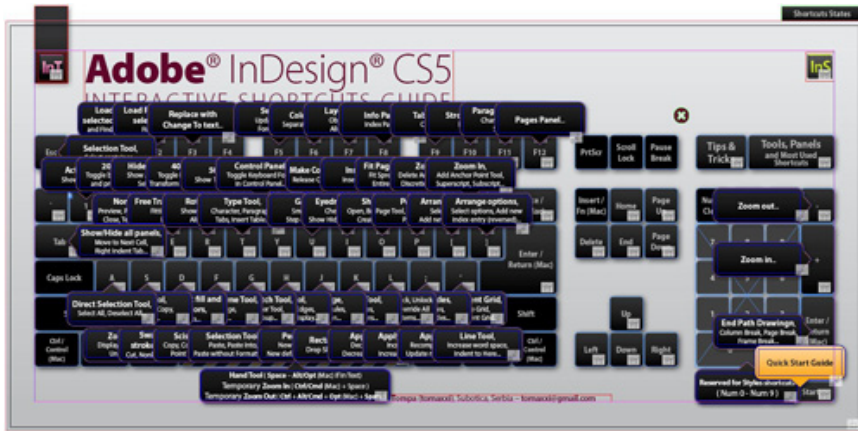
Zooming of an important detail during the narration provides a better view and easier focusing.

Figure 4 - zooming



During the narration, keyboard shortcuts are mentioned (*Figure 4*). Therefore, I highlighted the shortcuts by displaying them in the bottom-left part of the screen in the same turn as they appear on the keyboard.

Figure 5 – keyboard shortcuts



5. Conclusion

A proper use of multimedia content in learning helps learners in the following ways:

Fostering learning

Many recent studies have indicated that interactive learning provided by multimedia saves time while learners do enjoy learning and extend their knowledge. With the overview of a number of meta-analytic studies by Najjar (1996: 30), it was determined that: “learning is more effective when information is presented in computer-based multimedia systems than in traditional classroom lessons”.

Interactivity

Interaction is a two-way process occurring between a learner, way of learning and the learning material. Numerous studies have shown that interactivity has a strong and positive effect on learning (Bosko, 1986, Fletcher, 1989, 1990, Stanford, 1990). For example, Bosko (1986) has made a review of 75 studies on learning and determined that learners learn faster and have a better attitude to learning when using interactive multimedia.

Flexibility

Multimedia tutorials on CDs or on the Internet can be used whenever it is convenient for a learner:

- in class
- at work
- at home
- on a trip etc.

Modularity

Each whole within a tutorial (or a lesson) can be presented as an independent module, so that a teacher can decide which lessons he/she wants and which does not want to present to a particular group depending on the level of knowledge and course aims.

Practicality

It is the characteristic of presenting real-world situations that learners encounter. Adult learners prefer learning practical things – they learn best when faced with real problems that have real consequences. Video simulations and animations enable learners to learn by watching, to learn by doing or to learn guided by an instructor. All of these methods have proven to be successful for development of practical skills and enhancement of memory.

Consistency

All learners learn the same principles and skills. Computer-based courses usually make the tutorial designer organize the structure of lessons and learning materials in a better way, which itself provides better results of learning.

Attractiveness

Interactive learning through video, graphics, audio material, professional counseling, responding to questions, arouses learners' interest and makes the acquired skills more stable. Being challenging, exciting and amusing, it motivates learners to return to a tutorial. With continual practice, learning is absorbed and integrated in everyday performance.

Extending knowledge

Active links on the Internet could be integrated within the existing material so that a novelty regarding material can be uploaded to them; thus making learning and development a permanently active process.

Összefoglaló

Minden új tevékenység tanulása egy egyedülálló folyamat, és ez az oka annak, hogy nincs egyszerű válasz arra a kérdésre, hogyan kell tanulni a lehető legrövidebb idő alatt, a lehető legkisebb erőfeszítéssel. Azonban néhány általános elv, módszer és technika hozzájárul a hatékony tanuláshoz és a memória fejlesztéséhez, míg ezek kiválasztása a személyes preferenciák és hajlamok alapján történik. Számos kísérleti pszichológus és pedagógus tanulmánya bizonyítja, hogy a tananyag bevétele egy előadás vagy szeminárium után három nappal hatszor nagyobb, ha az információ bemutatása mind vizuálisan, mind orálisan megvalósult

Kulcsszavak: megismerés és percepció.

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