

MULTIMEDIA RECOURSES AS AN INDISPENSIBLE TOOL FOR FOREIGN LANGUAGE TEACHING

M. Tyschenko

викладач кафедри англійської мови гуманітарного спрямування №3

National technical university of Ukraine

The paper describes the advantages and disadvantages of using modern multimedia recourses in the foreign language studying process. Special attention is devoted to the online resources used by students. These resources can increase the level of motivation to learn foreign languages.

Key words: multimedia, learning environment, graphics, animation, tool, computing platform, hardware, software, storage, transmission, drawings, spreadsheet, support, resources, applications, network

Educational technology tools provide enhancement and innovation for the delivery of course material. This is especially important in designing resources for the teaching. Teaching for the digital age must incorporate an understanding of educational technology to augment instruction in the classroom. Teaching and learning can be facilitated by multimedia resources and provide motivation and interest to study. Multimedia in education has the potential to go beyond the boundaries of interaction and explorative learning. The fusion of all types of media in a digital world captures the ethos of the new technological age. A critical element is for teachers to be familiar with multimedia technologies in order for them to know how to use innovative technologies within their curriculum areas. Multimedia brings a new dimension to reading and writing, and the need for students to develop basic skills in information retrieval in multimedia environments. Education at all levels primary, secondary, and higher education has been challenged to develop digital resources for the enhancement of teaching and learning.

The elements used in multimedia have all existed before. Multimedia simply combines these elements into a powerful new tool, especially in the hands of teachers and students. Interactive multimedia weaves five basic types of media into the learning environment: text, video, sound, graphics and animation. Since the mode of learning is interactive and not linear, a student or teacher can choose what to investigate next. For example, one does not start on the first page of a linear document and read to the end. Interactive multimedia learning mode is more like constructing a network, with one idea linked to another, allowing choices in the learner's path [1].

The multimedia technologies that have had the greatest impact in education are those that augment the existing curriculum, allowing both immediate enhancement and encouraging further curriculum development. For example, the World

Wide Web serves as a storehouse of information that individual learners can search for subject matter content that specifically fits their learning agendas [3]. Multimedia applications for computers have been developed for multiple computing platforms such as IBM and Apple Macintosh computers.

It is very tempting to use the latest computer wizardry to represent information and develop computer enhanced learning materials. However, the instructional design of these systems should be based on a careful examination and analysis of the many factors, both human and technical, relating to visual learning. This allows students to test all their skills gained in every subject area. Students must be able to select appropriate multimedia tools and apply them to the learning task within the learning environment in order for effective learning to take place [4].

A multimedia learning environment involves a number of components or elements in order to enable learning to take place. Hardware and software are only part of the requirement. As mentioned earlier, multimedia learning integrates five types of media to provide flexibility in expressing the creativity of a student and in exchanging ideas.

Out of all of the elements, text has the most impact on the quality of the multimedia interaction. Generally, text provides the important information. Text acts as the keystone tying all of the other media elements together. It is well written text that makes a multimedia communication wonderful.

Sound is used to provide emphasis or highlight a transition from one page to another. Sound synchronized to screen display, enables teachers to present lots of information at once. In this case teachers can use Microsoft PowerPoint environment. This approach is used in a variety of ways, all based on visual display of a complex image paired with a spoken explanation (for example, art – pictures are 'glossed' by the voiceover; or

math – a proof fills the screen while the spoken explanation plays in the background). Sound used creatively, becomes a stimulus to the imagination; used inappropriately it becomes a hindrance or an annoyance [2]. For instance, a script, some still images and a sound track, allow students to utilize their own power of imagination without being biased and influenced by the inappropriate use of video footage. A great advantage is that the sound file can be stopped and started easily.

The representation of information by using the visualization capabilities of video can be immediate and powerful. While this is not in doubt, it is the ability to choose how we view and interact with the content of digital video that provides new and exciting possibilities for the use of digital video in education. There are many instances where students, studying particular processes, may find themselves faced with a scenario that

seems highly complex when conveyed in purely text form, or by the use of diagrams and images. In such situations the representational qualities of video help in placing a theoretical concept into the context. Video can stimulate interest if it is relevant to the rest of the information on the page, and is not 'overdone' [5]. Video can be used to give examples of phenomena or issues referred to in the text. For example, while students are reading notes about a particular issue, a video showing a short clip of the teacher emphasizing the key points can be inserted at a key moment; alternatively, the video clips can be used to tell readers what to do next. On the other hand, it is unlikely that video can completely replace the face-to-face lecture: rather, video needs to be used to supplement textual information. Figure 1 is an illustration of the cognitive structure of learning from multimedia.

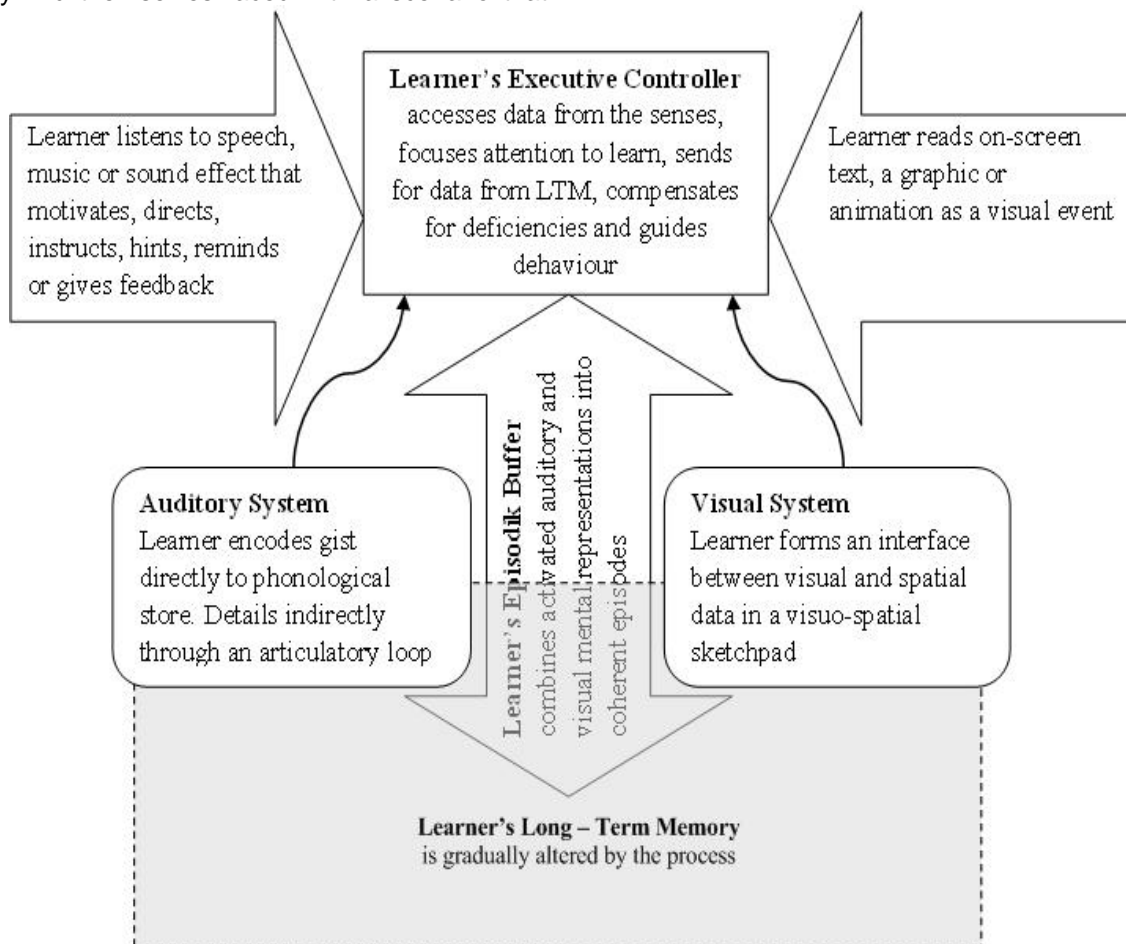


Figure 1. The structure and process of learning from multimedia according to the attentional control definition of multimedia learning

One of the most compelling justifications for video may be its dramatic ability to elicit an emotional response from an individual. Such a reaction can provide a strong motivational incentive to choose and persist in a task [12]. The use of video is appropriate to convey information about environments that can be either dangerous or too

costly to consider, or recreate, in real life. For example: video images used to demonstrate particular chemical reactions without exposing students to highly volatile chemicals, or medical education, where real-life situations can be better understood via video.

Animation is used to show changes in state over time, or to present information slowly to students so they have time to assimilate it in smaller chunks. Animations, when combined with user input, enable students to view different versions of change over time depending on different variables. Animations are primarily used to demonstrate an idea or illustrate a concept [8]. Video is usually taken from life, whereas animations are based on drawings. There are two types of animation: cel based and object based. Cel based animation consists of multiple drawings, each one a little different from the others. When shown in rapid sequence, for example, the operation of an engine's crankshaft, the drawings appear to move. Object based animation (also called slide or path animation) simply moves an object across a screen [6]. The object itself does not change. Students can use object animation to illustrate a point – imagine a battle map of Kyiv where troop movement is represented by sliding arrows.

Graphics provide the most creative possibilities for a learning session. They can be photographs, drawings, graphs from a spreadsheet and pictures from the Internet. With a scanner, hand-drawn work can be included.

Employing multimedia tools into the learning environment is a rewarding, but complex and challenging task. All of the multimedia formats available: text, sound, video, animation and graphics, already exist in one form or another in most libraries. Students can explore an almost infinite variety of information. All these explorations can certainly lead to new discoveries, but unless consumption is followed by production, the story ends. Without a chance to use their new discoveries and demonstrate what they have learned, the knowledge gained soon becomes the knowledge forgotten [7].

Giving students an opportunity to produce multimedia documents of their own provides several educational advantages. Students work with the same information from four perspectives:

1) as a researcher, they must locate and select the information needed to understand the chosen topic;

2) as authors, they must consider their intended audience and decide what amount of information is required to give their readers an understanding of the topic;

3) as designers, they must select the appropriate media to share the concepts selected;

4) as writers, they must find a way to fit the information to the container including the manner of linking the information for others to retrieve.

When defining the appropriate medium to use it is vital to 'know' the audience and the technical specification of users' machines. There may be technical reasons for choosing which multimedia element will best communicate certain concepts. Whatever medium is chosen, to apply a principle mentioned above to all digital media elements, visuals must be congruent, relevant,

and consistent with other information presented in order to be effective. Whatever the latest technological advance, instructional design principles apply. For example, care needs to be taken when using visuals for aesthetic reasons. The misuse of a single visual element can cause misrepresentation of information and become a barrier to content and impede learning, even if the program overall may, in all other aspects, follow the principles of instructional design. It is important to bear in mind the nature of the audience, especially their age group and culture mix.

Multimedia applications like any other application, appliance or tool, benefit from being easy to use, with minimal training or self-learning. The need for a well designed human – computer interface, which may be screen or audio based is well accepted. The standards for computer-based publications are defined by multimedia designers. With the development of high definition television and beyond, it is likely that there will be a continual increase in the demands placed on computer based multimedia systems [10].

On demand access times to computer information need to be below one second to be usable in real time. Alternatively the delivery of information at a later time is acceptable if it can be scheduled, as in a TV broadcast schedule. Scheduling can have advantages for users over on demand delivery. In open learning situations learners can control their program by requesting a multimedia unit at a convenient time. Computer users will wish to record a film, session, or learning experience for future reference.

Computer based multimedia needs the same degree of interactivity that a university exercise book. But the technology needed to support classroom teaching has increased in complexity. Until only a few years ago all that a lecture room needed were some seats for the students, and a blackboard and a lectern or table for the teacher. Now there is the computer, networks and related display equipment. From having a next to zero maintenance cost, the teaching room is becoming not only costly to equip, but costly to run and maintain, including the escalating costs of security. The ways in which students and teachers in multimedia sessions access multimedia or connect with others have important consequences for the storage and transmission systems. For instance multimedia learning material can be accessed directly from a server during a class or downloaded to student personal computer prior to a session. The demands on a connecting network are very different in each access mode. Students learn to make use of multimedia as an aid to retrieving information from multiple sources such as digital libraries and multimedia servers that could support computer-assisted learning environments. Students learn to develop multimedia materials, especially as a component of project-based learning. Multimedia offers the lecturer many benefits including: satisfying educa-

tional objectives, increasing students understanding, demonstrating events, showing places, conducting experiments which would otherwise be impossible [11].

Many educational establishments in Ukraine reform teaching models and focus on a significant restructuring of the classroom. They propose a shift from a teacher-centered didactic model to a learner-centered constructivist model. While details of these constructivist models vary, they typically include an emphasis on cooperative learning and on the use of project-based learning.

Of course all of these teaching innovations require a new methodology to support the technology. It requires a change of direction in terms of academic planning and lessons need to be carefully structured to maximize the benefits that interactive systems bring to teaching. The installation of any new technology inevitably brings with it the need for staff development courses. The availability of standards for multimedia networking, particularly for inter-working between applications, the development of networked applications, and interworking between networks are essential to reduce the complexity and level of skill required in using multimedia.

The Internet was created to support remote collaborative research, but it also can be used as a mean of providing information that is linked to other information sources. It is an essential me-

dium for accessing, delivering and exchanging information. The Internet provides a number of opportunities for teachers and students. Teaching programs can be accessed and used by students as part of their modules [9]. The freedom of the Internet has some disadvantages. There is too much information on the Internet. Students must decide what information they need and what they do not need. The quality of the information can also be misleading. Students must be taught how to distinguish between quality and unimportant information. Since no rules exist on the Internet in terms of what can and cannot be disclosed, anyone can put any material on the Internet.

The growth in use of multimedia within the education sector has accelerated in recent years, and looks set for continued expansion in the future. Teachers primarily require access to learning resources, which can support concept development by learners in a variety of ways to meet individual learning needs. The development of multimedia technologies for learning offers new ways in which learning can take place at universities. Enabling teachers to have access to multimedia learning resources, which support constructive concept development, allows the teacher to focus more on being a facilitator of learning while working with individual students. Extending the use of multimedia learning resources to the home represents an educational opportunity with the potential to improve student learning.

ЛІТЕРАТУРА

1. *Adams S., Mann B.L., Schulz H.* Selected styles in web-based educational research. – Hershey, PA: Idea Group Publishing, 2006. – P. 332-346.
2. *Barron A., Kysilka M.* The effectiveness of digital audio in computer-based training // *Journal of Research on Computing in Education.* – 1993. – № 25(3). – P. 277-289.
3. *Bernard R.M., Abrami P.C.* (2008). How does distance education compare with classroom instruction? // *Review of Educational Research.* – 2008. – P. 379-382.
4. *Borich D., Tombari M.* Educational psychology: A contemporary approach. – NY: Harper Collins Publishers, 2005. – P. 36-38.
5. *Clark R.E.* Learning from media: Arguments, analysis, and evidence Greenwich, CT: Information Age Publishing Inc., 2010. – P. 21-25.
6. *Clark R.E., Feldon D.F.* Cambridge Handbook of Multimedia Learning. – Cambridge: Cambridge University Press, 2009. – P. 4-25.
7. *Kalyuga S., Chandler P.* Managing split-attention and redundancy in multimedia instruction // *Applied Cognitive Psychology.* – 2009. – № 13. – P. 211-218.
8. *Koroghlanian C., Klein J.* Effect of audio and animation in multimedia instruction // *Journal of Educational Multimedia and Hypermedia.* – 2008. – № 12. – P. 23-42.
9. *Mann B.L.* Perspectives in Web Course Management. Toronto, ON: Canadian Scholar's Press. – P. 135-147.
10. *Mann B.L.* Effects of temporal sound on computer-based learning. Doctoral dissertation. – University of Toronto, Canada, 2004. – P. 14-27.
11. *Mayer R.E.* Multimedia learning. – New York: Cambridge University Press, 2010. – P. 47-53.
12. *Paivio A.* Mental representations: A dual coding approach. – Oxford, UK: Oxford University Press, 2006. – P. 53-58.

Стаття надійшла до редакції 22.03.2011 р.