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The Role of Audio-Visual Media in Education

Abstract

The theoretical questions of the design and methodology of utilizing of audio-visual messages, which are drawn up for instruction constantly acquire major importance in the context of development of the multimedia systems. There is a question whether the possibilities of the instruction are described and investigated sufficiently in practice. This paper would like to indicate the well-arranged basic methodological roles of the use of audio-visual messages in instruction.

Keywords: *audio-visual media, audio-visual communication, audio-visual didactic message, presentative-expositional role, constructivist-opened role, design and production of videos, Web-mediated communication*

Introduction

Children's perception of the world, their experiences, values and attitudes have become increasingly determined by he technical communication means at present. This paper focuses on discussing the "audio-visual media-mediated communication" as a term that refers to the communication between different participants separated in space and/or time, mediated by all the interconnected audiovisual media. Media systems such as computer, (HD)TV, videophone, film, video, cyberspace etc. include a broad variety of technical systems that enable people to communicate by means of dynamic visual and sound information with other people. In the context of analysing of the didactic roles of videos and suitable structuring of expression elements of "audio-visual didactic messages" (Mašek, 2002), it is important to take a note of their unusual character in the present time: that even though these audio-visual communication objects have been used in the instruc-

tion for a long time, the generally accepted theoretical principles of making audio-visual programmes have not been formulated yet, and the majority of the literature results from empirical-descriptive investigations (Eraut, 1994).

From the point of view of the basic approaches to the instruction – a trial-behavioural and constructivist paradigm of structure instruction – the methodology of using audio-visual didactic messages has two basic levels in present-day technical conditions; on one hand – the presentative role of a message is usually used, on the other hand – the audiovisual communication object can perform the less customary function of the constructivist stimulus to the active solution of the complex tasks and problems by the student. Furthermore in the context of constructivist usage of audio-visual media we can also discriminate instructional project activities stimulating learner's analysis; design and production of video clips or films.

Classical presentative-expositional role

In the classic conception of instructional utilisation Mašek (2002) describes an "audio-visual didactic message" (movie, video-programme, audiovisual sequence) as a communication object which:

- can arrange instructional information only with the so-called "long-distance" sense, which goads intellectual operations, but with a stout tendency to suppress one's own activity of the recipient,
- has a relatively high capacity of the transmission of information, compared with other sorts of information aids,
- does not give a possibility of repetition of external operations depending on the recipient's requirements,
- it does not give a possibility to "manipulate" with a property so that it would be interchangeable with the didactically significant qualities.

From the point of view of the theoretical analysis and pedagogical research of the specialities of this type of communication process made by the author of this paper (Mašek, 1998), it is possible to structure the following representative dimensions and requirements for the design of the audiovisual didactic message:

- support of intellectual operations; communication depends on a recipient's concentration and its stimulation;
- objectivity of illustrated subject matter; well tested progression of "objective instruction" is recommended in praxis;
- language dimension; e.g.e, there is a probability in praxis that the types of shots specified by their own signification function have to be considered as

basic elements of didactic audiovisual communication with a second rate (but not insignificant) function with "camera" or "cutting" shots;
- suitable volume and extent of the communication theme; from the viewpoint of the possibilities of audio-visual communication, e.g., among the themes belong the actions and phenomena, which are not so telling, invisible, unrepeatable, too fast or slow to observe or these actions which are not safe enough and which are not possible to demonstrate in the instruction etc.;
- quality of the expression elements; for example, it is possible to presuppose that for didactically effective use of the abundant expression elements of visual information what is accepted is, e.g., applying superiority of figurative composition of image information emphasizing the informative role of individual figures, arranging of image elements and figures "in image frame" largely in accordance with aesthetics-composition rules, harmonizing colour implementation etc.;
- relation between visual and audio elements; it is very important to complete and to amplify the individual effects of both elements, in accordance with their specified expression possibilities, including an increment of didactic effect with its famous audio-visual information and presentation, with an adequate verb accompaniment;
- conformity between the aims of information and the instruction process; from the point of view of school praxis, conformity of the quality between the aims of the audio-visual information which are usually "encoded" by the creator and the aims of instruction defined by the teacher is very important;
- level of the activation of the student – it is the main problem; for the communication between the recipient and the classic[1)] audio-visual programme, the superiority of "the one-way flow" of information from a projection system to an addressee is characteristic.

In the classical presentative use of an audio-visual message the addressee does not have the possibility to strike, so the instruction is missing the feedback, which is the basis of a dialogue and an important premise to the successful teaching and thinking. In practice, this limited communication is improved, e.g., by the affecting of the teacher – with his/her "live" entrance to the projection, including the affecting before the projection and after it, the study of the complementary didactic material – by means of printed documents and so on. In practice, there can be also used a form of "fictitious" communication with a spectator asking "activating" questions, but without investigation of the real reaction of the recipient etc.

[1)] The author of the essay is not covering up interactive video systems. In these apparatuses a first-rate dialogue with the spectator is possible.

The constructivist-open role of audio-visual media

Audio-visual message as a stimulus of the solution of complex work and problems. For the educational process it is very important to include audiovisual messages with "concealed" and complex structured problems, which are evoking but also solving the problem (Mašek et al, 2004). These types of information mean didactically important stimulation to student's own intellectual operations. In these operations, the student is "constructing" his/her own structure of know-how. Facts "inserted" in the video-programme are "concealed" in an authentic action line of the story on purpose. The solver has to find these facts, to exercise his/her own formulation of the work and problems and consecutively to solve everything. The educational impact of these sorts of videos has been validated especially by a special research team at Vanderbilt University by means of the well-known experiment "Jasper" in the nineties. These programmes are characterized in literature (The Cognition and Technology Group at Vanderbilt, 1997), that

- they have a narrative conception with a realistic interpretation of the story,
- the presented problems are characterized by great complexity (e.g. they require 14 steps to solve) – thus, endurance and trust in one's own abilities are supported,
- the stimulation to one's own formulation of assigning the work and problems is done by means of "open" and non-answered ends of the stories; the presented theme includes conceptions and subject matter of more educational subjects and study lines,
- the projection of analogical programmes with the same substance of a solution is taking place which means the support of the transfer of seeking the principles of solution in practice,
- solvers of the work could repeat the projection of the programme or its parts.

The experiment initiated by Vanderbilt's "Cognition and Technology Group" was very interesting and successful. The influence of so-drafted instruction programmes for science education improvement, especially for math and physics, has been explored in 9 world states, including the famous programme "The Adventures of Jasper Woodburry", which gained a worldwide success thanks to its adventurous theme and practical complexity of aims.

Production of videos within instructional projects. Children's media activities based on their own production of audio-visual products, such as websites sequences or classical videos, are very engaging and generative. The latest multimedia technology could stimulate a wide range of learner's activities, especially as a topic of instructional project activities at present. The second aspect is that learner's design

of audio-visual message might be also included in a required kind of literacy to be cognizant of (mass)media communication. School production could be extremely time-consuming and often expensive, but the process of active designing and production could be seen as offering a more valuable learning experience than the passive consumption of a finished video or film.

Student's production of complex videos is also often used as an opportunity to stimulate their understanding of culture, citizenship and identity issues. As an example we can describe the interesting "VideoCulture" research project that provides a case study of the potential outcomes and limiting factors of using media production with secondary school students in Germany, Hungary, the Czech Republic, England and the USA (Niesyto and Buckingham, 2001). Students' awareness of the fact that their films were viewed by students in other countries was seen as an important element of success of the projects and was part of real experience of multicultural education – to be able to understand and accept a different culture. The young people were found to be often highly innovative and modern producers of the videos, but they were less active as audiences. The young people proved to learn very much from the production of their own materials and were critical and often dismissive reviewers of each other's audio-visual work.

Conclusion

All the above-described roles, features and examples of audio-visual media-mediated communication could be developed to a valuable supplement of existing instructional approaches in an attempt to develop a maximal (inclusive, participative, values-led) model of education and youth's development information acquisition. It is important to note the meaning and the possibilities of audio-visual communication in the context of Web-mediated communication. The role of audio-visual communication increases more and more there, but is very changeable and dependent on using technical systems plus different economic potential of schools and households. A great advantage of computer nets (including Internet) is (Mašek, 2001):

- a possibility to communicate, to introduce one's own communicates and to get audio-visual information in global scale,
- elimination of the informative "incommunicativeness" of the class – but with the weakened role of the teacher (parent),
- reduction of the traditional and satellite TV in the role of the main informative source – this situation begins with the interactive Internet (Hackbarth, 1997),

- awareness of the possibility to solve "closeness" local relations and overcoming the influence of some social and regional special interest group and organization (Roblyer and Burnette, 1996),
- application of time synchronous sort of audio-visual communication (Mašek, 2001), e.g., a classic dialogue with (video)telephone, videoconference. The communicator is forced to spontaneous reactions, because the interaction is more direct and it uncovers human personality.

It can appear that this technical audio-visual communication can lead to instructional aims and to acquire a human merit, but it could be very superficial contemplation. In comparison with the "face to face" communication, this way of information has many disadvantages, which cannot be underestimated in the educational process (Mašek, 2001):

- it takes only a limited and determined quality of the communication contents. It can be the cause of low standard of distorted perception of human problems,
- the time dependent communication without the possibility of interaction and feedback conceals the danger of overloading by the content. The teacher has to take the main position here and s/he has to introduce the communication theme during the whole process,
- it can lead to overestimation of the "audio-visual (virtual) experience" of the student because of the comfort and simplicity of "consumption" of information in school practice. Richard Louv (1991) interviewed students about their relation to nature. He found out that although the young people are interested in the ecological theme, they are not interested in the direct understanding of nature.

It is important to note that the purpose of this article is not the accurate delimitation of the role of audio-visual communication in the science educational process – this is very difficult and closely connected with the methodology of the instruction of the particular theme. For school practice, the balance of the mentioned possibilities of audio-visual communication can be certainly recommended. Similarly, excessive and inadequate use of this kind of communication may lead to weakening or suppressing of educational effects.

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