

# EFFECTIVE USE OF VIDEO LECTURES: GUIDELINES AND CRITERIA

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## Abstract

The production of video lectures for e-learning courses are becoming irreplaceable component of distance courses and getting more popular. The key feature of using video lectures is flexible opportunities to make learning independent from time and location. Moreover, video lectures promote to the better comprehension of learning material and motivate self-education of students.

The purpose of using video lectures for e-learning courses is to increase the effectiveness of learning through visualization. Visualization of learning process minimizes cognitive difficulties of students. Synthesis of body language, verbal, and visual elements (multimedia, abstract signs, visual schemes, specific objects, etc.) within the limits of one e-learning course unit is an instrument of optimization of the process of semantic perception and understanding text information.

Thus, the aim of the study is to develop the system of criteria to be considered when developing video lectures for e-learning courses and to give guidelines to teaching staff how to design and to implement video lectures within different training courses.

After analysis the number of multimedia educational content of leading Russian and foreign universities, we develop the system of criteria for defining the recommendations of video lectures usage in teaching process: recommendations for clothing, external appearance, recommendations on the language of lectures and style of behavior.

Keywords: distance learning, e-learning, video lectures, video production.

## 1 INTRODUCTION

The relevance of the study is influenced by the spreading of the technologies in society life. The increasing role of information promotes lifelong learning, where digital educational sources are widely used.

A learning system based on teaching with the help of computer hardware, software and network (e.g., the Internet) is known as e-learning. While traditional teaching can be based in or out of the classrooms, the use of computers, multimedia and the Internet defines the major component of e-learning. Thus, e-learning involves specially designed courses, consisting of digital educational resources presumed to provide online learning in several forms: individual, group learning etc. According to E. Polat [14] the key features of the modern e-learning courses are the following:

- Flexibility. E-learning students can work at a convenient time, place and pace, which is a great advantage for those who cannot or do not want to change their normal way of life.
- Modularity. E-learning programs are based on the modular principle. Each individual course creates a holistic view of a particular subject area. This allows a set of independent course modules to form a curriculum that meets the individual needs of the trainees.
- Economic efficiency. An average assessment of foreign and national e-learning systems shows that they cost approximately 10-50% cheaper than traditional forms of education. This is the result of efficient use of existing educational spaces and information technologies, as well as the presentation of more concentrated and unified content of educational materials and orientation of distance learning technologies to a large number of students.

The development of the Internet led to emergence of radically new educational technology – “network technologies”, which defines the significant role of the Internet and media in the process of training (E. Polat, M. Moiseeva, E. Dmitrieva and etc.) [14]. This technology has become synonymous with the term distance learning over time.

Video lectures are essential component of most e-learning courses. Despite the advantages of using video lectures in the learning, the developing of high-quality training materials assume a great number of technically difficult and time-consuming stages (including, script-writing, recording, montage etc.) [2], [3]. In order to assist future developers, it's become necessary to design methodological guidelines for creating video lectures and the system of criteria for defining the effectiveness of video lectures usage in teaching process.

## 2 METHODOLOGY

The theoretical basis of e-learning throughout its existence causes heated debate. Abroad, the most productive in the theoretical understanding of e-learning has become the period of the late 60's - early 70's of the 20<sup>th</sup> century. During these years, the foundations of the main concepts of e-learning were developed. Subsequently they has become methodological background for number of theories, such as the theory of industrialization (O. Peters) [11], the theory of autonomy and independence of education (R. M. Delling, C. A. Wedemeyer, M.J. Moore) [8], [10], the theory of interaction and communication (B. Holmberg, A. Bates, D. Sewart, A. Smith, V.I. Ovsyannikov) [10], [13]. The authors of these theories consider distance learning as a specific didactic system consisting of several components, but component framework in theories are different from each other. Despite the distinguishes, there's common idea: e-learning system is different from the of traditional educational system, and that's why traditional pedagogical concepts can be applied in e-learning only partially. Therefore, for e-learning should be developed own methodology. For example, M.J. Moore identifies only three elements (the student, teacher and media) and analyzes e-learning based on these categories. The main achievement of these theories was the final consolidation of the social function of e-learning to provide educational services to wide audience who wish to study, but who do not have opportunity to visit university regularly and change their usual way of life.

Interest of Russian researchers in problems of online education arose a little later and is closely connected with informatization of education and use of the Internet and media in teaching. The results of scientific research are reflected in the works of A.A. Andreev, N.Y.Volova, I.A.Megalova, E. A. Moiseyeva, E.S. Polat, T.L.Shaposhnikov, etc [14].

The development of our guidelines is based on the theory of interaction and communication of B. Holmberg [3], [4], [5]. B. Holmberg developed a concept aimed at researching the specifics of the process of obtaining knowledge by "online student". The scientist's main contribution to the theoretical base of e-learning is the concept of managed didactic communication, which allows solving the problem of isolation of the "online student" due to the lack of dialogue between the subjects of the educational process: the student and the tutor, students among themselves, the tutor and the audience, etc. This "vacuum" can cause issues, since the feeling of personal interaction between the tutor and the student contributes to the pleasure of learning new things and increases motivation, and its absence, accordingly, reduces the motivation for learning. Therefore, it is necessary to develop a system of measures to avoid the loss of interest in student learning activities.

For this purpose, it is proposed to create the "illusion of teacher presence" through "purposeful didactic communication". According to Holmberg [3], purposeful didactic communication is based on following seven principles:

- The sense of personal interaction between the teacher and the student helps to get satisfaction from the training and increase motivation.
- The feeling of satisfaction can be enhanced by well-designed material for independent work and communication at a distance.
- Intellectual pleasure and motivation tends to the achievement of learning goals and involve the use of appropriate methods.
- Atmosphere, language and conditions of "friendly conversation" are conducive to creating a sense of real communication.
- Information transmitted and received in spoken, informal form is easily digested.
- The concept of "spoken communication" can be successfully implemented by any technology in distance education;
- A well-organized learning process with explicit or implicit objectives is not possible without careful planning and management by either the learning organization or the student himself.

### 3 RESULTS

After analyzing worldwide experience of implementing e-learning courses with integrated video lectures in the cases of Boston University (USA), Pennsylvania State University (USA), University of Liverpool (UK), Synergy University (Russia), MISiS National Research Technological University (Russia), St. Petersburg State University (Russia), we came to the following conclusion – the video lecture should be focused on the content learning: reveal and summarize the main idea of content.

From this point of view, the pedagogical design of the video lecture is determined by the rational distribution of the time of the video lecture, screen space and the methodology for the presentation of educational content.

Using the criterion of “video lecture time” we came to the following conclusions.

The video lecture should be devoted to one, relatively small topic. The optimal length of the video lecture is 7- 10 minutes, during which time the student actively perceives and assimilates the information. If the video lecture is devoted to a large and complex topic, it should be divided into separate parts, with the possibility to view them again in any order. The number of images should depend on the duration of the video lecture and their information value. The more items on the slide, the more time it takes a learner to understand and understand the information presented. The number of slides with graphic images and large text should not exceed 7-9 per video lecture of 7-10 minutes duration.

As for the criterion “screen space” the video and spoken text should not contradict each other, but should not completely duplicate. Slides should display a graphical representation of the relationships between concepts, hard-to-use terms, and statistical and analytical information. The main part of the screen 75-100% of the area should be allocated for video. The appearance of the image of the lecturer should occupy from 25% to 50% of the screen area depending on the plot (Fig.1).

The image of the lecturer in the information unit, the introductory and the final part is mandatory.



*Fig.1 Screenshot of video lecture*

The method of presentation of the video lecture content should comply with the principles of logic, evidence and reasoning. The rate of presentation should be slow, ensuring maximum learning of the lecture during one viewing. The lecturer should present the content in a convincing, free and sufficiently emotional manner, creating the effect of presence and live communication with students. Monotonic audio support of the video line significantly reduces the perception and assimilation of the content. The main positions and conclusions and the most important information are emphasized visually (magnification and delay of the image, highlighting, frames, font size) and audially (intonation of voice, use of pauses). At the end of each question under consideration, interim results are summed up, at the end of the lecture - final conclusions.



*Fig.2 Screenshot of video lecturer*

Ergonomics of video-lecture perception depends on its design and quality of sound support. It is important to take into account the psychophysical impact of the color range on slides: red - attracts attention and excites the nervous system, orange - helps maintain sustained attention, yellow - awakens curiosity, blue - promotes calm contemplation, purple - concentrates attention and promotes internal activity. Do not overload slides with color diversity. The perception of text on the slide is improved if it is printed in chopped font without ticks and is presented in 5 to 7 lines, not more than 6 words in each line, i.e. not more than 36 words on the slide (Fig.2). Use a maximum of 3 fonts per slide. A maximum of 30 numbers is recommended for slide table materials. The background in the background of the lecturer should be one-tone and immobile so as not to distract the attention of the listener (Fig. 1,2). The sound have to be uniform volume, without noises, the lecturer's dictation is especially important, so, the pronunciation must be clear, distinct, and legible.

#### **4 CONCLUSIONS**

We defined the concept of "e-learning", and then highlighted the peculiarities of modern e-learning (flexibility, modularity, economic efficiency). Theories related to the development of e-learning at different time periods (theory of industrialization, autonomy and independence of learning, interaction and communication) were analyzed.

Video lectures are a key component of most courses implemented in e-learning. General recommendations for creating video lectures were developed:

- It is recommended to come in clothes of flat tones, it is not necessary to wear things in a strip (first of all thin), in a cage, pesky clothes (in a nettle, small peas), clothes of white and black colors, clothes whose color is merged with the color of skin and things that have lost their appearance;
- Lectures should be given in simple, understandable, spoken but literary language. Adaptation of complex scientific texts written to scientific-popular style is welcomed. It is desirable to avoid complex phrases and terms. If special terms are used and they are difficult to do without in lectures, it is necessary to think about their available interpretation. It is desirable to avoid compound long sentences: it is better to break them into simple ones. It is considerable to avoid complex involved and de-private turnover in speech: it is difficult to pronounce both to the teacher himself when reading on camera, and it is difficult to perceive the listeners. These are lectures that are perceived to be heard, so language must be as simple as possible.
- It is necessary to feel as free as possible. Recording the first lectures on camera can cause stress, thus it is necessary to rehearsal and primary trial.
- It is necessary to conduct dialogue with the listeners, dialogue is permissible, to say hello, to say goodbye, to indicate what you will talk about in lectures further or this particular lecture, to sum up the results;
- Enrich lectures with illustrative content of mass culture (footage from films, illustrations, etc.), as it contributes to better perception of the material.

At the Kazan Federal University, the Institute of Philology and Intercultural Communication recorded more than 1000 video lectures in the modern Jalinga studio software, which are available in digital educational resources in various disciplines. The purpose of further research is to study the students' opinions on whether video lectures can solve the problem of isolation of the "online student".

## ACKNOWLEDGEMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

## REFERENCES

- [1] Akerlind G. Enhancing self-directed learning through educational technology. When students resist the change / G. Akerlind, A. Trevitt // *Innovation in Education and Training International*. - Birmingham, 1999. - V.36.- № 2. - P.96-105.
- [2] Delling R.M. Distant study as an opportunity for learning / R.M. Delling // *The system of distance education*. - Malmö, Kesmods, 1975.- P.58-59.
- [3] Holmberg B. Growth and structure of distance education / B. Holmberg. - L.: Croom Helm, 2004, - p. 163.
- [4] Holmberg B. Status and trends of distance education / B. Holmberg. - L.: Kogan Page, 2006. - p. 200.
- [5] Holmberg B. *The Evolution, Principles and Practices of Distance Education*. Oldenburg: library and Information System of the University Oldenburg, 2005. 171 P.
- [6] Keegan D. Distance education: the world's first choice for lifelong learning / D. Keegan // <http://homepage.tinet.ie/~dei/desshanghai.htm>
- [7] Keegan D. *Foundations of distance education* / D.Keegan. -2nd revised edition. - London: Routledge, 2014. - 218 p.
- [8] Keegan D. *Foundations of distance education* / D.Keegan. -2nd revised edition. - London: Routledge, 1996. - 218 p.
- [9] Maslow A. *Motivation and personality* / A. Maslow. - New York: Harper and Row, 1970.-369 p.
- [10] Moore, M. G. *Handbook of Distance Education*. Die Pennsylvania State University, 2007. 690 p.
- [11] Peters O. *Learning and Teaching in Distance Education*. London: Kogan Page, 1998. 204 p.
- [12] Rogers C. A. *Client Zentrierte Therapie*. Boston: Houghton Mifflin Company, 1965. 225 p
- [13] Willis B. *Distance Education - Strategies and Tools and Distance Education -A Practical Guide* / B. Willis<http://www.uidaho.edu/evo/distgla.html>
- [14] Polat E. S. Basic models of distance learning / E. S. Polat // *Informatics and education*.- 1996.- No. 4.- P. 42-44.