

## Artículo de investigación

**The use of educational video materials in educational process of a higher educational institution**

Использование учебных видео-материалов в образовательном процессе высшего учебного заведения

El uso de materiales de video clips en el proceso educativo de una institución de educación superior

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**Abstract**

This article is devoted to the creation and use of educational video clips in higher educational institutions. This article analyzes the results of studies on the impact of video content on listeners, which showed a large degree of positive impact, presents a theoretical analysis of the basics of developing video materials. The purpose of the article is to create a technology for developing instructional videos in a higher educational institution. The authors presented the experience of implementing video materials in the classroom on pedagogical disciplines. The stages of developing video materials were proposed, recommendations for creating video were highlighted, the conditions and tasks of using video materials in the educational process were substantiated. Experience allowed us to identify the possibilities of video materials in the modern learning process, which can significantly increase the effectiveness of the teaching activities of the teacher and increase the level of students' perception of the material.

**Keywords:** Video clip, media resources, visualization, competencies, higher education institution, content.

**Аннотация**

Данная статья посвящена вопросам создания и использования учебных видео-роликов в высших учебных заведениях. В данной статье проанализированы результаты исследований влияния видео-контента на слушателей, показавшие большую степень положительного воздействия, представлен теоретический анализ основ разработки видео-материалов. Цель статьи состоит в создании технологии разработки обучающего видео в условиях высшего образовательного учреждения. Авторами представлен опыт реализации видео-материалов на занятиях по педагогическим дисциплинам. Были предложены этапы разработки видео-материалов, выделены рекомендации к созданию видео, обоснованы условия и задачи использования видео-материалов в учебном процессе. Опыт позволил выявить возможности видео-материалов в современном процессе обучения, которые позволяют существенно повысить результативность обучающей деятельности преподавателя и увеличить уровень восприятия студентами материала.

**Ключевые слова:** видео-ролик, медиа-ресурсы, визуализация, компетенции, высшее учебное заведение, контент

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## Resumen

Este artículo está dedicado a la creación y uso de videoclips educativos en instituciones de educación superior. Este artículo analiza los resultados de estudios sobre el impacto del contenido de video en los oyentes, que mostraron un alto grado de impacto positivo, presenta un análisis teórico de los conceptos básicos del desarrollo de materiales de video. El propósito del artículo es crear una tecnología para desarrollar videos instructivos en una institución de educación superior. Los autores presentaron la experiencia de implementar materiales de video en el aula sobre disciplinas pedagógicas. Se propusieron las etapas de desarrollo de los materiales de video, se resaltaron las recomendaciones para la creación de video, se confirmaron las condiciones y las tareas de uso de materiales de video en el proceso educativo. La experiencia nos permitió identificar las posibilidades de los materiales de video en el proceso de aprendizaje moderno, lo que puede aumentar significativamente la efectividad de las actividades de enseñanza del maestro y aumentar el nivel de percepción del material por parte de los estudiantes.

**Palabras clave:** Video clip, recursos multimedia, visualización, competencias, institución de educación superior, contenido.

## Introduction

Today, electronic technology is in high demand worldwide. This is the tool that facilitates the successful dissemination of information. With the advent of various kinds of media resources, people began to perceive more and more material through visual content. Content - any type of information (texts, audio, video, images) that makes up the content of an information product. Media resources are a collection of information products that are accumulated in order to provide the general public.

According to statistics, Internet users spend 67 minutes a day watching videos in 2019, last year this indicator was lower - only 56 minutes. It is estimated that in 2020, the average user will have 84 minutes to watch the video per day (Aniskin, et al 2017). These indicators indicate that the demand for video content is growing.

In modern science, several types of video content are presented.

Podcasting (from English podcasting - broadcasting) is the process of creating and distributing audio or video files (podcasts) in the form of radio and television programs on the Internet. A podcast is a separate video file (MP3, AAC, Ogg / Vorbis (for audio)) and Flash Video b AVI for video podcasts. Screencasting (screen - screen and broadcasting - transfer). This is a type of podcasting that allows you to transfer a video stream to a wide audience with a record of what is happening on the user's computer. Screencast is a video screen capture that allows you to use several channels of information perception at once: visual, motor, auditory. Storytelling - conveying information through stories and stories that evoke emotions in a

person and induce reflection (Kutepov, et al 2017). Scribing - visualization of information using various graphic symbols and drawings. Video scribing - hand-drawn video (Filimonova, et al 2017).

And today, these types are widespread (Ilyashenko, et al 2018a).

Modern society is characterized by the presence of large flows of information. The society most actively perceives these streams through video channels, the visual way of transmitting information is much more effective than paper media (Ilyashenko, et al 2018b).

Visualization is a method of presenting information in the form of an optical image.

Video materials accompany a person for a long time and the time frame is expanding, as we established above. Therefore, modern people are accustomed to perceiving information through visual images. As practice shows, with the help of short videos, he assimilates more material and the quality of his perception is better (Kustov, et al 2017).

The trend towards the active use of media content has penetrated into modern higher educational institutions, which strive to improve learning processes through the widespread introduction of information technology, e-learning (Sazhienko, et al 2017). In our work, we will consider the creation and use of educational video clips that allow students to learn material in a short period of time (Smirnova, et al 2017a). To create such a video for students, it requires both teaching skills to develop the content of the training video, and

technical, since compiling quality content is a combination of many skills. Only in this case, students will be able to get short, but capacious and informative material that will bring real results (Vaganova, et al 2017a). Video clips are modern multimedia, creating new opportunities in the organization of the learning process.

### Theoretical basis

The introduction and use of multimedia technologies is a rather complex and capacious process, for its competent and successful construction it is necessary to prepare both from a technical point of view and a theoretical one (a strong methodological and information base is necessary) (Smirnova, et al 2017b). The theoretical basis of our work is the research of such scientists as N.G. Semenov, A.N. Nekrasov, N.M. Semchuk. They believe that the role of modern media in education is to generate new knowledge and improve existing knowledge through the assimilation of a large amount of material in a short time. Also, this process allows students not only to gain new knowledge, but also to form certain competencies in the process of perceiving information (Tsyplakova, et al 2016). In the process, we also relied on the requirements for the organization of e-learning (since the creation of video clips is part of e-learning, the videos created can be posted on

electronic educational platforms to provide students with constant access to them), the features of the organization of the educational process and the specifics of pedagogical disciplines.

### Analysis

The introduction of multimedia tools allows you to implement a blended learning system in a higher educational institution, which has special advantages compared to traditional and distance learning (Vaganova, et al 2017c). The blended model combines elements of e-learning and traditional learning (Vaganova, et al 2018). The use of multimedia in the classroom provides a variety of learning and allows students to be actively involved in the educational process.

The appropriateness of using multimedia tools in the learning process is confirmed by research scientists (Vaganova, et al 2019). One of the studies by Harvard University scientists made it possible to single out the amount of information remembered by a person presented in one form or another (Vaganova, et al 2017b). If the information is presented in such a way that it can be heard and seen, the percentage of perception increases significantly (Natalie, et al 2019). The diagram shows the results of this study.

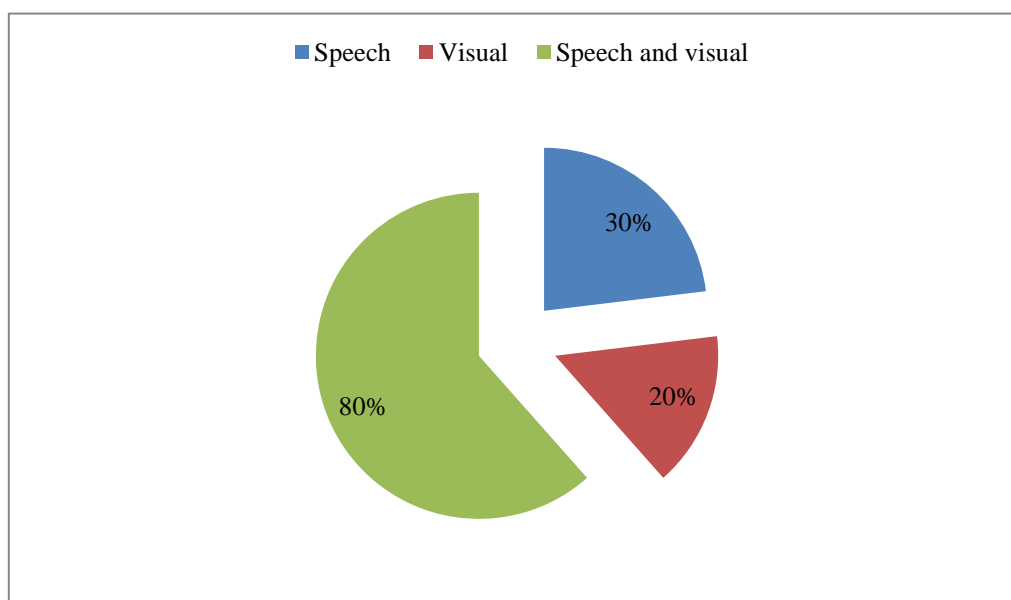


Figure 1. The results of the study of the assimilation of information when using speech, visual, as well as speech and visual methods

When studying and assimilating material, 20% of visual information, 30% of the information that is audible and 80% of the information that can be heard and seen at the same time, are remembered. For effective study of the material, it is necessary to use all channels of perception of information by students.

Video information affects the emotional level, increases the level of motivation, and as a result, new educational information is better absorbed (Lubov, et al 2019).

From the correct combination of speech and visual methods of presenting information depends on the share learned. Among the most well-known studies in the field of perception of educational information, we can also highlight the work of the American educator Edgar Dale, who proposed a diagram reflecting the dependence of the level of knowledge on the method of training. Testing of knowledge was

carried out two weeks after the subjects received educational information using various formats:

- Video lectures;
- Video illustrations with teacher comments;
- Traditional voice lecture.

And using various forms of conducting classes:

- Reading;
- Passive listening, passive viewing;
- View illustrations;
- Watching a video (monitoring the real process);
- Participation in discussions, problem situations;
- Imitation of real experience.

Diagram 2 illustrates the results obtained by the scientist.

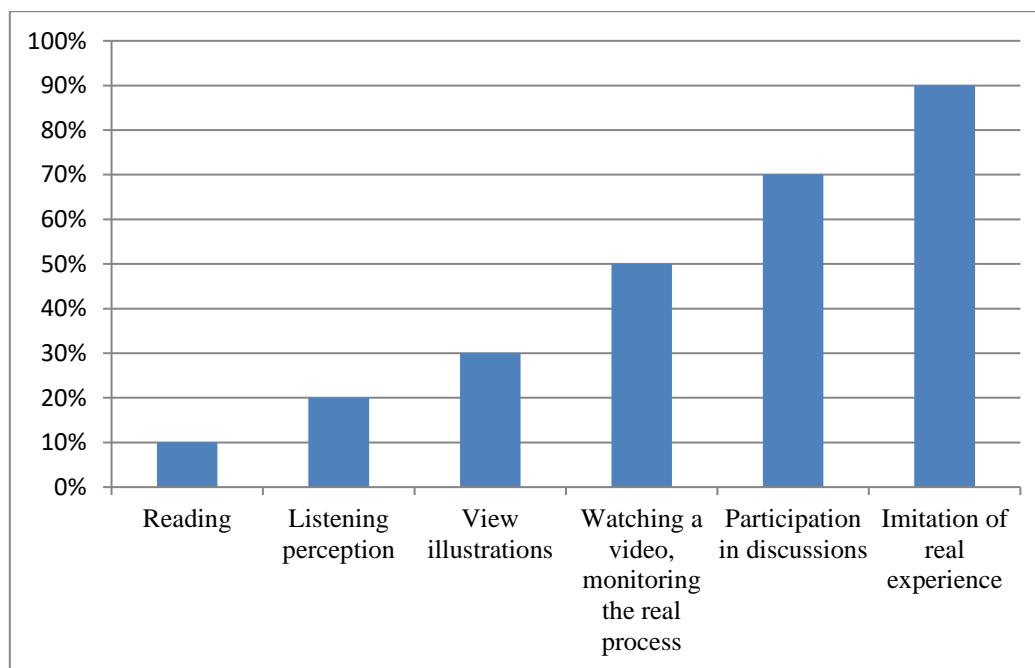


Figure 2. Assessment of the level of success in mastering knowledge depending on the type of activity in training

The diagram shows that when studying the material using video resources, approximately 50% of the information received is stored. This fact also proves the effectiveness of viewing video content for student learning. Audiovisual perception increases the level of learning materials. The development of video content in pedagogical disciplines is specific.

In order for the training video to bring a positive result, it is necessary to take into account features that are important for the pedagogical process:

- The material should be submitted in a dynamic form to enhance students' attention, sharpening interest;

- Taking into account the emotional perception of information;
- Presentation of information by means of art;
- Creating a favorable learning environment.

Table 1 presents the tasks that can be solved through the use of video materials and the main conditions that determine the effectiveness of the use of video.

Таблица 1. Tasks and conditions for using video materials in the educational process

Tasks	Conditions
Increasing student motivation to learn Proper allocation of study time	Using accessible and clear video content Metered feed of video materials
Increasing the content of educational activities	Using video content as material for analytic independent work
Creating a dynamic lesson with enhanced visibility	Embed video content in a lesson structure
Involving audio and video channels of perception of educational material by students	Development of video content in accordance with the objectives of the lesson

s a result, the inclusion of video materials in the lesson allows you to intensify educational and cognitive activities, develop visual thinking and improve the visual culture of students. Students learn to perceive quality content, process educational material faster.

Having identified the tasks and conditions for using video materials, we can consider programs that will help in creating a high-quality video clip. First, the program should be suitable for the purpose of the classes. Movie-Maker is a video editing program that is an intuitive simple editor for inexperienced users.

Movavi Video Editor is a multifunctional video editor that can work with all the most popular video formats.

Adobe Premiere Pro is a professional video editing program containing an extended list of tools to create high-quality video.

Pinnacle Studio - one of the most popular video editors, allows you to perform video clips in a professional manner.

The programs listed by us are the technical side of the development of the training video. However, the teacher must possess at a high level not only technical knowledge, but also professional and pedagogical, which will fill the video with the correct content.

In a higher educational institution, teachers, together with students, were engaged in the preparation of a training video in the disciplines

of "General and professional pedagogy", "Pedagogical technology." As a result, a technology for the development of video materials was created.

Development takes place in several stages:

- Developing a scenario for the future video (first of all, you need to understand the purpose and audience for which the video is designed (in our case, these are students of pedagogical specialties));
- The choice of the style of the training video (it can be a presentation with voice accompaniment, a full-screen video of the teacher who draws by hand on a digital tablet, a recording of the lecture class, the talking head desktop - a training video with a close-up of the teacher's torso at the desktop);
- Comprehension and processing of information necessary on the topic (thinking through the content, choosing the most important parts of a topic);
- Selection of visual material;
- Direct shooting of video (the video can also be mounted from video available on the Internet, while "cutting" the material and connecting it into a single whole);
- Further, the teacher should voice his comments, that is, "overlay" the audio on the prepared video. It's best if the video contains subtitles. Discovery Digital Networks (Internet TV)

conducted its own research on the use of subtitles. Two weeks after the inclusion of subtitles for video materials, the number of views increased by 13, 48%. The use of subtitles for the student environment is also important, as they provide additional viewing convenience.

Returning to the choice of the style of the video, it must be said that in order to attract the attention of students it is best to mix several types and use more vivid visual examples. When scoring a video, do not forget about the pace of speech. For the Russian language, the rate of 60-100 words per minute can be considered the most optimal. With the usual "speed of hearing" of 130-170 words, the student manages to remember most of the information. It is worth noting that perception is affected not only by the pace of speech, but also by emotionality and enthusiasm. The duration of the video should not exceed 10 minutes, since many studies show the effectiveness of short videos.

### Conclusions

The use of electronic learning tools by universities and the widespread adoption of information technology make it possible to use a host of programs in the educational process that make it more interesting and effective. It has been found that video clips are one of those ways that allow students to achieve positive results in a relatively small amount of time. Educational video clips are a type of educational products that is able to most effectively and efficiently convey information to students, to form the necessary skills for further training. Video content allows you to access it an unlimited number of times. The teacher's time spent on developing the video is quite large, however, if the content is really high-quality, it brings great benefits in the form of high student learning. Most studies conducted by scientists show that the use of video clips has a positive effect on the perception of information. At the same time, the video should be informative (possess sufficient educational information), easily perceived (due to well-chosen video series, speech rate, emotional load and video processing quality). The creation of a video on pedagogical disciplines is accompanied by the selection of information on each individual topic or problem. A single clip cannot cover a large amount of material, but their combination makes the perception of information deeper and more effective. Therefore, students have increased motivation to study the material,

the development of the necessary skills is more dynamic and learning is increasing.

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