

## SCTMG 2020

### International Scientific Conference «Social and Cultural Transformations in the Context of Modern Globalism»

# DEVELOPMENT OF DESCRIPTORS FOR EVALUATING EFFECTIVENESS OF USING MULTIMEDIA TOOLS IN TRAINING

Sadulaeva Bilant Sultanovna (a)\*, Gatsaeva Raisa Sayd-Akhmetovna (b), Lorsanova Zarina Mukhmadovna (c), Isaev Movladi Isaevich (d), Dzhovtkhanova Khadizhat Khuseynovna (e)

\*Corresponding author

- (a) Chechen State Pedagogical University, Grozny, Russia, sadulaeva@mail.ru
- (b) Chechen State University, Grozny, Russia, macaev\_hasmagomed76@mail.ru
- (c) Chechen State University, Grozny, Russia, lorsanova.zarina@mail.ru
- (d) Chechen State University, Grozny, Russia, movladi.isaev@mail.ru
- (e) Chechen State University, Grozny, Russia, sapna1992@mail.ru

### *Abstract*

The relevance of the use of multimedia technologies in the educational process is due to the fact that at the modern stage of social development there is an informatization of society as a whole. Widespread use of the global computer network Internet. Computer technology today has become an integral part of the life of many students and teachers. Student youth perceive these technologies for obtaining knowledge with greater interest than through a regular textbook. Multimedia technologies provide students with access to non-traditional sources of information; teachers are allowed to implement new forms and teaching methods that contribute to improving the quality of education. The problem of using multimedia teaching aids is quite well developed in theory. The introduction of multimedia teaching aids in modern education is necessary to improve its quality. It is important to correctly guide the student so that in the future it will be easier for him in any activity. Taking into account the didactic principles and methodological requirements for the quality of multimedia teaching aids, the effectiveness of using multimedia is increasing, therefore, it is necessary to take into account the main classical approaches to assessing the effectiveness of using multimedia in the educational process. Based on the study, author's descriptors of the effectiveness of multimedia training tools have been developed.

2357-1330 © 2020 Published by European Publisher.

**Keywords:** Multimedia teaching aids, educational process, quality assurance.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## 1. Introduction

Using the advantages of information and communication training tools gives educators and the students themselves the opportunity to optimally select educational resources and choose activities to develop the personal qualities of each student (Zakharova, 2009). The use of multimedia can solve didactic issues with great educational effect, can be a means of increasing the effectiveness of training, significantly reducing the time allotted for the study of compulsory educational material, will make it possible to significantly deepen and expand the range of issues and questions.

In the process of organizing the lesson, the teacher plans a program of pedagogical actions; determines the procedure for searching the information necessary for him to carry out this activity; distributes rights, duties and powers between participants in the educational process; seeks resources for the implementation of the learning process, evaluates the achieved result, analyzes and eliminates negative deviations. (Sadulaeva, Khataeva, Abdullaeva, Muradova, & Iusupova, 2019, p. 268)

The use of information technology promotes the assimilation of material by students to a greater extent. It is necessary to find out whether the use of multimedia will add experience to students and what are the criteria for evaluating the effectiveness of using multimedia tools in the educational process. To answer these questions, we used the questionnaire method and the method of determining descriptors for evaluating the effectiveness of the use of information and communication technologies (ICT) in training sessions.

The questionnaire method provides rich material for the analysis of the studied problem and conclusions for further activities to improve the problem of using multimedia teaching aids in the educational process. In particular, questionnaires are needed to taxonomically describe the relationships between facts and phenomena, as they provide material for the method of verification (verification) of statistical data and comparison with previous indicators, for heuristic methods with active and passive observation of the problem researcher during the experiment, for analysis and synthesis of the results of the study (Zenina, 2019).

The criteria are grouped into four groups:

1. Criteria for the methodological assessment of the lesson using ICT (max = 25 points).
2. The main criteria for assessing the effectiveness of ICT in the lesson (max = 25 points).
3. The effectiveness of the use of ICT in the lesson (max = 15 points).
4. Evaluation of the quality and effectiveness of electronic learning resource (hereinafter referred to as ELR) used in the lesson (max = 25 points).

When analyzing a specific lesson, it is proposed to give an assessment for each criterion, mainly based on expert assessments, as well as on the results of control testing and student self-reflection systems. The result is a comprehensive lesson assessment that comprehensively reflects the methodological level, effectiveness and efficiency of using ICT tools, which can be compared with similar lesson assessments using ICTs of other teachers.

## 2. Problem Statement

The rapid development of science leads to a constant increase in the amount of knowledge to be assimilated.

To increase the effectiveness of the educational process at school, it becomes obvious the introduction of new, constantly improving pedagogical technologies. Technologies should have a high degree of adaptability of content, in modern language, should be adaptive in a rapid stream of changes (Sadulaeva, Yusupova, Sadulaeva, Vazkaeva, & Mutsurova 2019).

In this regard, the view of modern pedagogy on what should be learned firmly changes somewhat.

The use of information tools in the educational process most effectively implement the most significant, from the standpoint of didactic principles, methodological goals. For example,

computer visualization of educational information: first, of the object being studied (visual representation on the computer screen of the object, its components or their models, and if necessary, in all kinds of perspectives, in detail, with the possibility of demonstrating the internal relationships of the components); secondly, the process being studied (visual representation on the computer screen of the process or its model, including hidden in the real world, and if necessary - in the development, in the temporal and spatial motion, the presentation of a graphical interpretation of the studied regularity of the process being studied). (Robert, 2012, p. 102)

The use of multimedia teaching aids should provide the opportunity for children, if necessary, to reproduce what they have learned and to use relevant knowledge in practical activities, i.e. provide not only deep memorization, but also the ability to use what memory has. Knowledge will be firmly acquired and will have an impact on the development of children if the teacher can arouse their interested, active attitude to cognitive activity.

Webinars, which are seminars, are becoming increasingly popular in education and training, during which participants and coordinators communicate live over the Internet via a remote geographic network (Gegenfurtnerab & Ebner, 2019).

The use of visual teaching aids with the help of multimedia teaching aids in combination with the teacher's word not only promotes the effective assimilation of relevant information, but also activates the cognitive activity of students; develops the ability to link theory with practice, with life; forms technical culture skills; brings attention and accuracy; increases interest in learning and makes it more accessible. In the use of multimedia tools in training sessions, the student adheres to the conditions of necessity and sufficiency and should be able to assess the effectiveness of the implementation of these tools in the educational process.

It is not recommended to overload classes with visual material. The abundance of impressions arising from overloading with visual aids complicates the mental processing and damages the quality of children's knowledge. The use of visualization should be to the extent that it contributes to the formation of knowledge and skills, the development of thinking, therefore, the requirement to ensure the visualization of training means the need to take into account the sensory perception of the studied objects, their layouts or models and their personal observation to students. The requirement to ensure visibility in the case of using multimedia teaching aids should be implemented at a fundamentally new, higher level,

the first moments of “enthusiasm” from multimedia teaching aids are erased and it is necessary to constantly maintain interest and motivation of students (Haddon, 2004).

### **3. Research Questions**

Subject of research – criteria for assessing the use of multimedia tools in training.

### **4. Purpose of the Study**

The purpose of the study: to develop criteria for assessing the use of multimedia in the educational process and on their basis to analyze the viability of introducing multimedia teaching aids into the educational process.

### **5. Research Methods**

The main research methods used were such methods as: description, comparative analysis, systematization and generalization method, classification, observation.

### **6. Findings**

In the course of the study, the following analysis of the results of experimental work was made, which allows us to establish how effective the use of multimedia tools in the educational process is, how teachers, students, and students relate to them, what is their role in learning, to formulate general conclusions of the study and evaluate the results.

#### **1. Questioning.**

Based on the results of the survey, it was concluded that all the pupils and students surveyed considered the use of multimedia presentations in education to be effective. Of these: 50% of respondents noted that the assimilation of material when using multimedia presentations differs from the traditional provision of information, namely, tables and graphs are more understandable from an interactive whiteboard than with a regular one, 85% of respondents noted this. Also, 60% of respondents noted that information is better written off from a slide than from a board, while 20% of respondents did not agree with them, and 20% of respondents found it difficult to answer. Most respondents believe that lecture material is easier to perceive using presentation slides than verbally.

All respondents indicated that the presentation carries positive qualities. 45% of students and pupils believe that when using multimedia presentations there is visual perception, 35% say that with the help of multimedia presentations the material is better remembered, 12% of the respondents with a presentation, the educational process is more interesting. 2% report sustained attention-grabbing; sketchiness (2%); information content (2%); ease of use (2%).

However, three respondents noted that the presentation has not only positive properties, but also negative ones, namely: it is more difficult to focus on the presentation (2%); the presentation carries only the main idea of the topic (5%); there may be problems with the equipment, and the lesson will not take

place (8%). More than half of the respondents answered that they make multimedia presentations and at the same time adhere to certain requirements (80%).

According to the results of the questionnaire on the importance of multimedia presentations in teaching among teachers, it was concluded that not all respondents are positive about their use. If the question: "Do you use audiovisual media in the classroom to provide information?" 80% of respondents answered yes, then the question: "Is their use effective?" 60 % said no. At the same time, indicating that the multimedia presentation has negative qualities (60% of respondents), such as: during the presentation of the presentation it is difficult to trace the students' thinking process (45%); distracts from the educational process (7%); impairs pupils' vision (8%).

But in addition to negative properties, it was noted that the presentation also has positive properties (70%), these include: attracting attention (43%); systematization of the material (7%); presentation allows you to build graphs in development (2%); focus on the main (18%). This suggests that teachers mostly adhere to the traditional version of the presentation of the material than with the use of multimedia technologies.

Students who participated in the experiment have a positive attitude towards multimedia teaching aids. It is noted that when they are used, the effectiveness of training increases due to time savings, imagery and visual perception of the material, convenience in their use. Teachers, in turn, note the positive impact of multimedia presentations on the educational process, but believe that their use is not entirely effective.

2. Tabular criteria for evaluating the effectiveness of the use of information and communication technologies in the lesson.

The consistency of the author's criteria for the effectiveness of the use of information and communication technologies was analyzed in the classes of 5 teachers, which are conditionally named Teacher A, Teacher B, Teacher C, Teacher D, Teacher E.

Teacher A. The methodological assessment of the lesson is quite high, consistent with sanitary standards and has consistency and accessibility in the presentation of the material. Basically, the teacher just gave new material, without any practical tasks, testing and laboratory work. There was a small variety of forms and methods of applying information and communication technologies. Despite this, the material was presented in such a way that the effectiveness of using multimedia in the lesson was high.

According to the author's criteria proposed for analysis, Teacher A scored 13 points out of 15. This was due to the fact that the material corresponded to the age and psychological characteristics of the students, there was unity and consistency of style, harmony and aesthetics of the design.

Teacher B. The teacher followed the basic didactic principles of teaching in the application of ICT. The presentation was consistent with the goals and objectives set at the beginning of the lesson. I would also like to note the high level and effectiveness of the use of pedagogical ICT tools, 5 points out of 5, when testing for the assimilation of new material the students had difficulties. In general, the information provided through multimedia was accessible, entertaining, consistent with age and psychological characteristics, despite the fact that, at times, the logic of the construction and presentation of the material was lost.

Teacher C. Methodically, the lesson was built correctly. The sequence, systematic presentation of the material was observed, the information was available to students, but it did not meet sanitary standards: a lot of information was presented on the slides, which contradicts the requirements for making presentations. Despite this, the degree of success in mastering the material was high, 5 out of 5 points according to the proposed criterion.

Teacher D. The effectiveness of ICT is not very high. A small variety of types of ELR used in the lesson had a role – students were distracted from work. But due to their active position and the formation of their desire for self-education, the quality of the educational process was high, 22 points out of 25.

Teacher E. The information provided by multimedia was consistent and scientifically reasoned. Visual aids were used, such as: presentation, video. A combination of individual and group work was also used. The principle of reasonable sufficiency, style consistency and harmony were respected. One minus was the level of students' assessment of the degree of effectiveness of learning material.

To fully assess the effectiveness of the use of ICT in the educational process, based on the results of the activities of teachers who took part in the experiment, the average indicators were summed:

$$20.8+17.6+12.4+21.4=72.2$$

Conclusion: the level of effectiveness of ICT use by teachers of school No. 56 and lyceum No. 1 in the educational process is high – 72.2.

### 3. Workflow using an interactive whiteboard.

According to a study on the use of an interactive whiteboard, it was revealed that the teaching tasks of teachers of school No. 56 and lyceum No. 1 are aimed at the active work of students with an interactive whiteboard. In the development, a set of tools is used, united by common educational goals. Some teachers use the interactive whiteboard resource library extensively in development, and some use methodologically sound authoring resources. Subject to the health-saving conditions of educational activity, dynamic pauses and a variety of cognitive activities of students are used. In general, the development of most teachers is aimed at observing the rights and duties of a citizen.

The average score for using an interactive whiteboard in the educational process was 11.4. If we compare with the standard of efficiency of using an interactive whiteboard, it follows that the efficiency of using an interactive whiteboard by teachers of school No. 56 and lyceum No. 1 in the educational process is average.

## 7. Conclusion

Analysis of the results of an experimental study to assess the effectiveness of the use of multimedia tools in teaching allows us to conclude that multimedia technologies increase the efficiency of the educational process, enhance the motivation of the learning process, and form a constant cognitive interest in education. The complex effect of various types of educational information on all the senses of students leads to its better assimilation. Pilot work has shown that increased motivation due to the interactivity of training and the right technology for building the educational process based on multimedia technologies is an effective factor that increases the effectiveness of training.

## References

- Gegenfurtnerab, A., & Ebner, C. (2019). Webinars in higher education and professional training: A meta-analysis and systematic review of randomized controlled trials. *Educational Research Review*. Volume 28, November 2019, 100293. <https://doi.org/10.1016/j.edurev.2019.100293>
- Haddon, L. (2004). *Information and communication technologies in everyday life: A concise introduction and research guide* (pp. 62-63). Oxford, UK: Berg.
- Robert, I. V. (2012). *Modern information technologies in education*. Moscow: School-Press.
- Sadulaeva, B., Yusupova, L. V., Sadulaeva, R. S., Vazkaeva, S. S-A., & Mutsurova, Z. M. (2019). Forming Information Culture of Senior Pupils While Teaching Information Technologies. *European Proceedings of Social & Behavioural Sciences*, 76, 2720-2726. <https://doi.org/10.15405/epsbs.2019.12.04.366>
- Sadulaeva, B., Khataeva, R., Abdullaeva, D., Muradova, P., & Iusupova, L. (2019). Developing Information and Communicative Competence in Organizers of School Educational Process. *European Proceedings of Social & Behavioural Sciences*, 76, 2713-2719. <https://doi.org/10.15405/epsbs.2019.12.04.365>
- Zakharova, I. G. (2009). *Information technology in education*. Textbook. allowance for students. higher ped textbook. Moscow: Publ. Center "Academy".
- Zenina, I. A. (2019). *Performance criteria for the use of information and communication technology (ICT) in an educational institution*. Retrieved from <http://www.myshared.ru>