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Modern teaching aids in the educational process

Teaching aids

The learning process has always been enriched and eventful through various types of teaching aids. Sometimes they were illustrations, diagrams, various types of ready-made solutions or prepared models, charts or drawings. The concept of teaching aids is variously defined in the literature, by a group of educators. The most commonly used definition is related to interactions sensors aiding the cognitive process (by C. Kupisiewicz), or focusing more on the form of media, or any materials that will facilitate the information reception (E. Fleming) [1, 3, 5]. No matter what your definition will be, the use of the aids includes all items that have been made for educational purposes, to improve the transmission of knowledge. The process of selection teaching materials is usually done by the teacher with regard to conditions like: age of the students, teaching content, tasks, teaching cell and effectiveness in a given topic. Whether the aid can be considered as effective depends on a solid preparation. Additional teaching resources make learning more attractive, and provide the desired knowledge and insights of that knowledge. Training measures provides multiple complementary functions. According to W. Perch, functions which support learning are:

- becoming familiar with reality,
- exploring the knowledge that affects us every day,
- forming emotional attitudes to the environment,
- activity changing the reality.

Note that the teaching resources have different roles. Along with the role they perform, we can talk about their functions. These measures are shown in the table 1.

For the classification of teaching aids, one can use different criteria for incentives, the closeness and their complexity and purpose. When it comes to the distribution of funds, the most common are two types of divisions:

- natural means – which directly represent reality,
- technical measures – which shows the reality indirectly, by means of audiovisual animation or computer simulations,
- symbolic measures – shows data in a symbolic way (mock boards).

Tab. 1. Features of teaching aids and their functions

Features of didactic aids	
Educational features	resources
cognition of reality – In the natural, alternative and general form	Natural phenomena and processes, models, pictures, films, maps, globes, charts, diagrams
Understanding the knowledge of reality – Display by means of texts and equipment	Manuals, texts, printed copies, multimedia devices, computers, displays
Shaping the emotional attitudes to people – exposing the moral and aesthetic	Pictures, videos, TV recordings, multimedia programs
Activity changing the reality – The development of language skills, research skills and general technical efficiency	Multimedia, computers, audio-video studio equipment

There are also ways to breakdown due the sensory reception developed by Kupisiewicz:

- visual (natural objects, models, symbols, diagrams, formulations etc.),
- auditory (tapes, phonograph records, equipment allowing you to play these discs or tapes, musical instruments, etc.),
- visual-auditory (film and television),
- partially support the process of teaching – learning (computers, language laboratories, machine learning).

Visual measures play a major role in our perception. They allow for pupils' observations of physical phenomena. These forms help to bring the idea of reality, shaping our imagination.

Auditory measures can be assigned to a group of technical measures, which helps during music classes, or language courses for listening the conversations. Any auditory measures play an important role in the learning process. They take part in shaping the students' language, also enriching the knowledge and forming a music senses. Audio-video measures represents the quintessence of two forms of communication. Providing information and allowing you to fully stimulate emotions and arouse the interest of the viewer. High values different from audiovisual, are represented by television. It affects the intellect and has an big impact on the creation of moral attitudes. We must not forget that educational measures alone are not themselves an ingredient. They support the process of teaching and knowledge transfer. Too much information creates disorder and may affect abstract thinking. The most common disadvantages include:

- the use of illustrative means when the contents do not require it,
- too high evaluation of the measure,
- the use of different types of learning, without their interpretation,
- the use of bad, ill-prepared technical means,
- the use of audio-visual resources in halls unadjusted for their reception,
- communicating too much content of the lesson.

Technical measures are in a group of impressive materials. Educator should have in mind the tasks and objectives of individual classes. Analysis of the literature showed that using such means of teaching should be done by defining goals and choosing the method. Before the lesson can be run, the teacher must complete a series of tasks. First, he must define its goals, which can be outlined in a slightly different way because of the use of teaching aids. Having defined objectives and selected methods, the teacher prepares the teaching material. Another important issue is to try the method chosen by the teacher. Not every teacher selected by the method is suitable as well. It is therefore necessary to assess its effectiveness. If the assessment is positive, the teacher must answer the question of whether the objectives have been achieved.

Discussing educational measures alone we cannot ignore the very essence of the use of these measures without focusing on an important aspect. What value has the same multimedia presentation without any solid material preparation, gathering information and thinking how to use it. We have to remember that the equipment itself will not prepare the lesson.

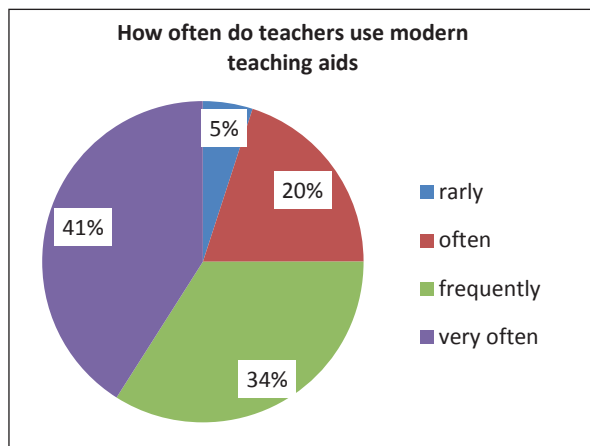
Modern teaching aids

At present, the most popular and commonly used aids are digital devices. The most interesting representatives of such modern educational measures may include, for example, digital cameras, video players, overhead projectors, interactive whiteboards, computers. Plus recognizing the use of multimedia enabling parallel provision of certain information, which is an improvement in the traditional verbal communication. Modern school places high demands on teachers and learners at school. The teacher should be adequately prepared for classes, both in terms of technical and professional preparation [2, 4, 7].

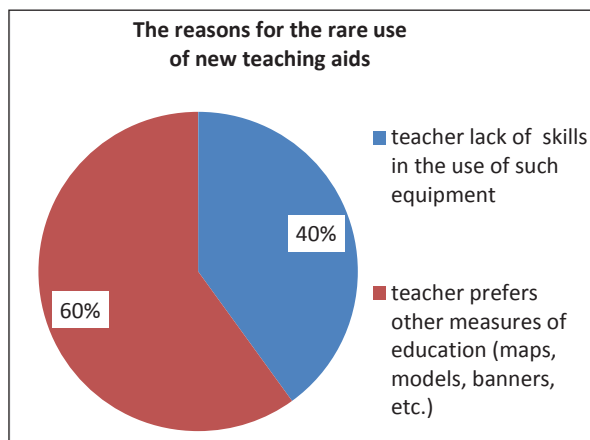
The aim of this study was to perform a fair presentation of information, analysis of the results of the use of teaching materials from both teaching and learning perspectives. The research method used was a diagnostic survey. This took the form of a questionnaire filled in by elementary school, high school and technical school students and teachers. Teachers have a wide spectrum of age, showing a different approach to the issues of technological innovations dependent on experience. The research was conducted in three different schools [6, 8, 9].

The questionnaire

The first question of the survey was addressed to students: What kind of school do they attended? It was a purely informative question for the rest of the tests. The second question was how often do teachers use the help of modern aids and multimedia. The results are shown below:



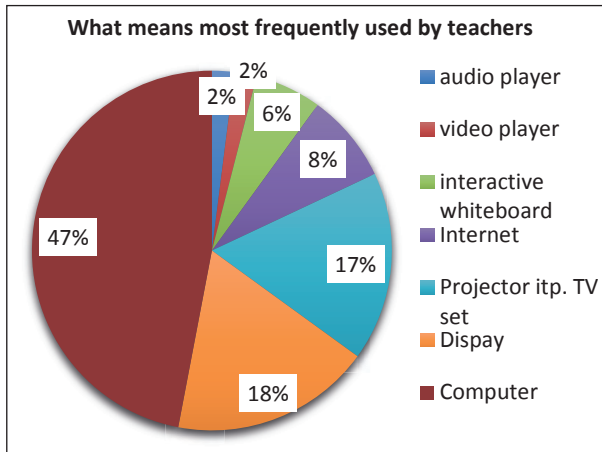
Graph 1. The frequency of use of new technologies



Graph 2. Frequency of use of modern means of teaching

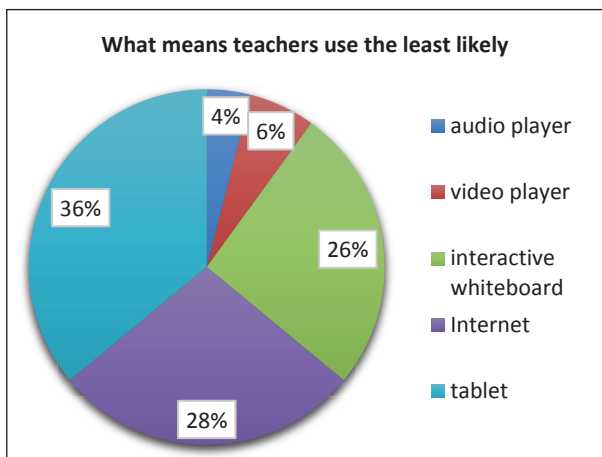
These results indicate that the technical and technology aids established themselves in the process of teaching. Another question concerned persons who believe that teachers are reluctant to use new technologies. Of those who indicated that their school teachers rarely use the new means of teaching, none considered the reason for this school missing equipment.

Another set of questions was focused on the technical devices that teachers use. In the question, respondents had to identify what resources teachers use most frequently.



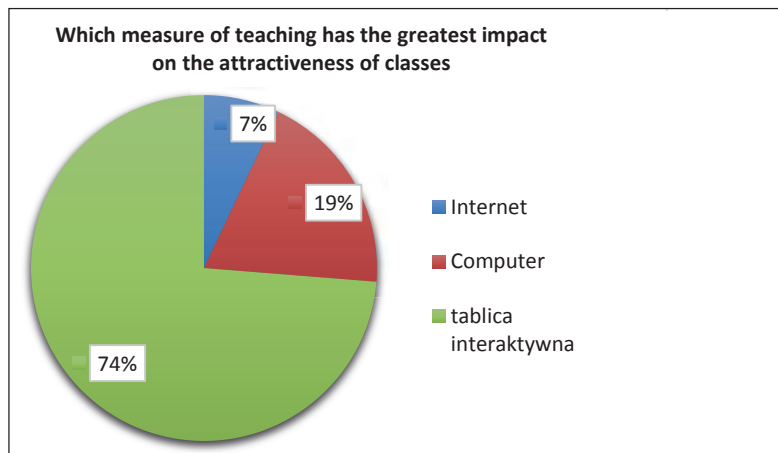
Graph 3. Involvement of aids in the educational process

Both the projector and display are elements that seem to firmly be compromised, because their winning seems to be logical. The least frequently used measure seems to be a tablet. This is due to the fact that it is quite modern technology, which is still not standard equipment for schools. It is surprising that whiteboards are rarely used. It is a very impressive technology that should significantly increase the effectiveness of teaching. The next stage of the survey was to select the most popular modern technical means by students.



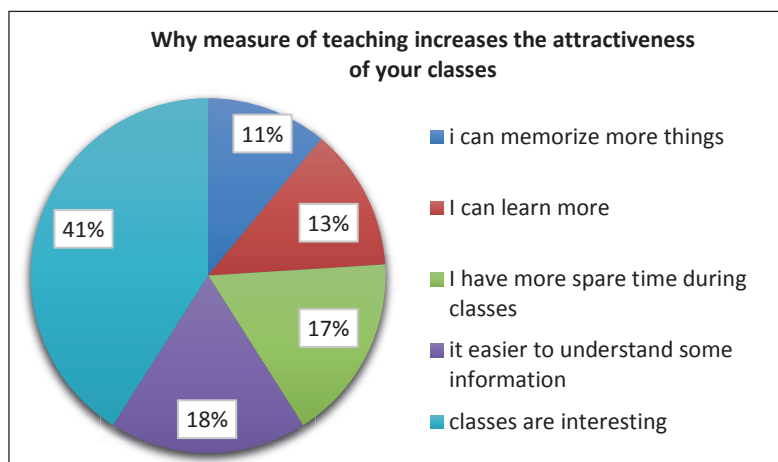
Graph 4. Most popular teaching aids

By far most of the students liked classes, during which the teacher uses interactive whiteboard (74%). The reason may be that interactive whiteboards are not common technology. The attractiveness of the course increases students interest. While the students are more focused, they are able to absorb a higher dose of knowledge and more amount of conducted lessons.



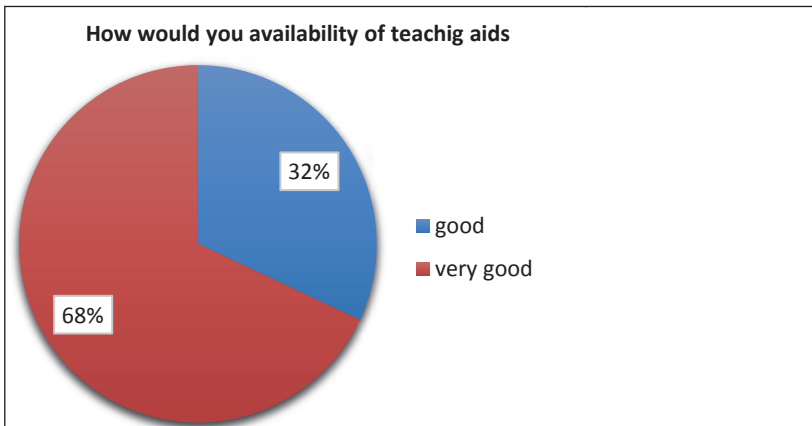
Graph 5. Teaching aids and attractiveness of classes

The last question was centred around the subjects on which modern means of education are applied. Students indicated that teachers most commonly used classes of computer science and technology. It is also noteworthy that the high proportion of subjects (14%) were humanist classes.

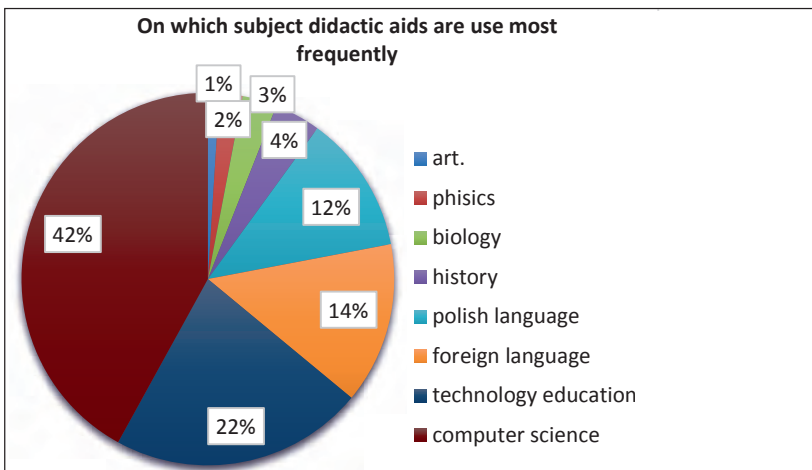


Graph 6. Importance of teaching aids in making classes more attractive

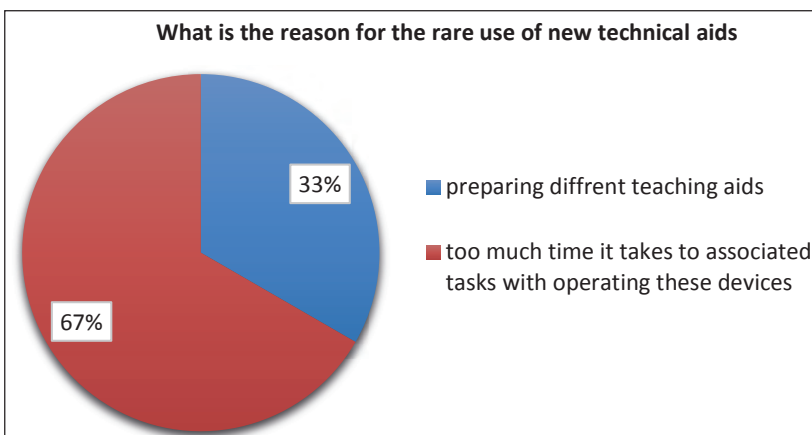
Another questionnaire was designed to test the opinion of teachers on modern teaching aids, and also indicate whether and how often they use them. The question was about the availability of new resources at school. These results confirm the observations of students who, as the reason for the rare use of such means of teaching, did not give a response to poorly equipped schools. Next question was directed just to teachers who rarely use such measures during the classes.



Graph 7. Availability of teaching materials

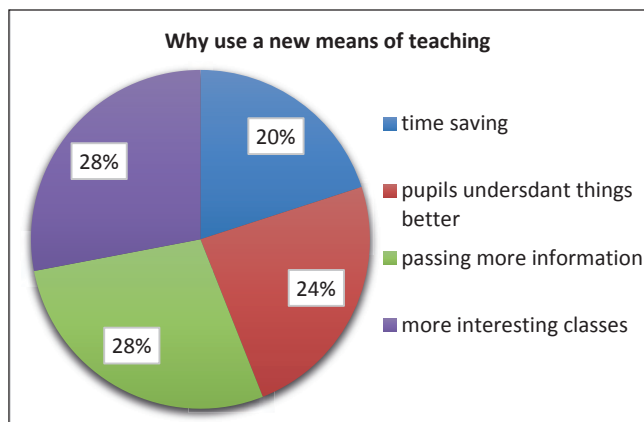


Graph 8. Application of aids for particular subjects

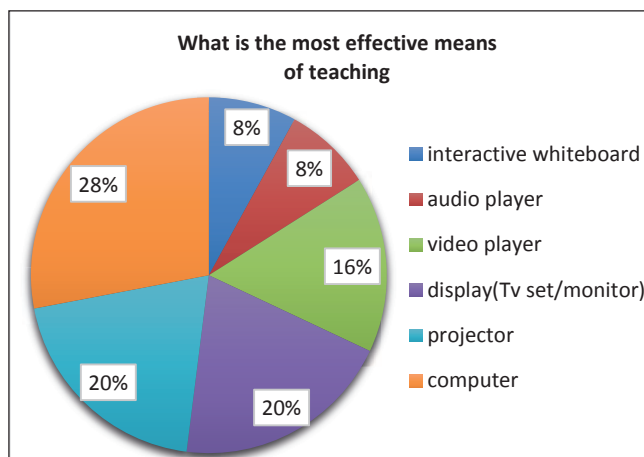


Graph 9. Reasons of rare use of teaching aids

Also it shows that teachers with more experience are also strongly tied to traditional means of teaching. Despite its potential and the ability to use modern teaching methods, they choose traditional solutions.



Graph 10. Motives of using aids



Graph 11. Efficiency of using aids according to the respondents

From the graphs we can see that the most effective tools to enhance the educational process by teachers are: computer, projector and all types of displays. Saving time by teachers in preparation for the lesson should not be a priority.

Conclusion

In an era of technological progress teaching confronts teachers with new challenges and priorities. Young people take up new possibilities in a sometimes disrespectful way, treating technologies more like entertainment than education. This article attempts to bring the issues of teaching and modern information technology [10]. The analysis of the impact of teaching materials included opinions of pupils and teachers. Studies have indicated that schools are prepared in terms of support. Teachers are often willing to reach for teaching aids. The students found that teachers are most fond of the set of computer plus projector. As the most attractive form of a transfer of knowledge, students recognize the interactive boards, although its presence in the school has not yet been firmly established, and it is not often used. We can see the relationship between the effectiveness of the measures and the teachers' opinion noticed by students during classes. What is worrying, however, is the way teachers approach preparation for classes and time they spent on it.

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Abstract

Technological progress has made it that all kinds of knowledge sharing had gained in efficiency. Teachers have the opportunity to create more interesting forms of passing the information than even 10 years ago. We are able to provide information in an interesting way and to help develop students' interest. Thanks to the global development and increase in the availability of modern ways of teaching, it became more easier and gained popularity. This article will try to bring out the impact of these measures by both tutors and the pupils who take part in the teaching process.

Key words: teaching aids, technology, supporting the education

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