

INTERACTIVE METHODS IN TEACHING AND ITS APPLICATION

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<https://doi.org/10.5281/zenodo.10410218>

Abstract. *The article discusses the essence and educational potential of interactive learning tools. Examples are given of the implementation of this potential when teaching computer science in multimedia interactive posters, boards and worksheets that make the learning process active and interesting, including personal meanings, discussion with each other and motivation of students. Interactive learning software tools include electronic learning resources that are designed to interact with students and allow them to manage their learning activities. The main examples of such tools are educational computer presentations, training programs, interactive multimedia textbooks and teaching aids, tests, interactive simulators.*

Key words: *interactive learning tools, computer science, multimedia, simulator, learning tools, technology, teacher, student, digital, resource, navigation, hyperlink.*

Interactive learning is a process of purposeful communication between the teacher and the student, and the interaction of the students with each other. Teaching takes place in collective, group (students-students), individual (student-tutor, student-teacher, etc.) forms, and in all cases, the student necessarily performs the teaching task in the learning process. The teacher is responsible for the exact implementation of the teaching strategy. The didactic structure of the lesson is made up of phases of understanding and thinking.

Interactive methods and their results. In recent years, interactive methods of teaching have increased the interest of teachers and are widely used by them. At the same time, the role of the teacher in educating students is also changing. Different opinions are expressed by teachers in this direction. Some think that the teacher's role is reduced when using the interactive method, others say that it is the easiest and simplest to use, and see their task only in dividing the students into groups and assigning them tasks. But when it comes to the truth, mastering each new topic, being able to use that method in working with students, and the necessary handouts and instructional materials

Actuality. Interactive educational tools are designed to organize active forms and methods of students' work aimed at introducing personal experience and independent activity into the learning process.

When using these tools in the learning process, the role of the teacher changes, he is no longer the only source of educational information. At the same time, the teacher's role is no less intense, because in his new role as a partner and consultant, he needs to guide students in the process of active transformation of educational information. In this regard, the position of the teacher is of particular importance, it should be focused on the individual psychological characteristics of students and his activity in managing the student's education, creating conditions

for him to independently discover, acquire and build new knowledge. with the help of interactive tutorials, with this management that matches its individual characteristics.

Interactive tutorials should be considered in two aspects.

Technical interactive learning aids include interactive equipment (interactive whiteboards, interactive tablets, interactive liquid crystals).

monitors with additional functions of a digital tablet, interactive election systems, etc.) and special software for it. Computers and interactive equipment allow them to add additional technical aids such as digital cameras, video cameras, microscopes, and more.

The software's interactive learning tools include electronic learning resources that are designed to interact with students and allow them to manage their learning activities. The main examples of such tools are educational computer presentations, educational programs, interactive multimedia textbooks and teaching aids, tests, interactive simulators, interactive multimedia posters, computer models, etc.

Purpose of work. Use of interactive method in teaching students.

Let's highlight the possibilities of interactive educational tools:

- due to the visibility of the used multimedia tools and the dynamics of displaying information objects on the screen, increasing the level of students' perception of difficult-to-understand processes, abstract concepts, etc.;

- to activate the learning and cognitive activity of students when using the interactive components of these tools together with pedagogical support methods (N.A. Zimnya, K. Rogers, A.F. Sirazeeva, etc.), they can work together with the teacher, to make educational and cognitive activities of students and pedagogical communication with them "easy";

- creating conditions for dividing learning material into steps, taking into account the individual characteristics of students, and gradually reducing the level of support until the next independent use, working consistently on each of these steps in the zone of immediate development of students. knowledge acquired in the process of further activity;

- conducting an interactive dialogue with flexible management of the learning process in the direct contact of the participants of the learning process in the classroom or in the process of independent work of students in virtual communication (with distance learning, mixed learning, etc.);

- integration of electronic multimedia educational materials, simulators and test tasks for them into one pedagogical tool (for example, interactive multimedia textbooks and teaching aids, interactive multimedia posters, universal virtual models of complex studied environments, etc.) and mastering their content. of an academic subject in various didactic situations.

In the literature (V.V. Guzeev, etc.) there are two main types of building learning models using interactive learning tools.

1. Extraction mode. in this mode, students are passive objects of pedagogical influence, to whom the flow of information from the teacher is directed, which is based on the passive subject-object (teacher-student) model of interaction, which assumes minimal activity of students. In this case, the teacher usually uses interactive teaching tools to support the explanatory and illustrative method of teaching in the lesson or to illustrate and visualize the learning material.

2. Interactive mode. In this mode, information flows allow to create active activity among students and create a reverse flow of information (from students to the teacher) of an exchangeable two-way nature, which is based on the interactive model of interaction and is typical for interactive

education. technologies. This model makes it possible to organize comfortable learning conditions for students and equal activity of all participants in the learning process.

Today, it is important for a teacher to be ready for changes in the models of educational activity, which include all his personal resources, knowledge, qualities, attitudes, and creative possibilities. The teacher's didactic tasks (analytical-reflective, projective-prognostic, organizational-active) through the educational and educational activity of the teacher (I.F. Nsaev, V.V. Kraevsky, T.I. Shukshina, M.N. Skatkin, etc.) , diagnostic) we understand the solution process, corrective-regulatory). Educational and educational activity of the teacher is a technological manifestation of his didactic competence.

The term educational technologies is considered as a system that reflects the planned results of training included in it through the prism of the technological approach, means of operational diagnosis of the current state of students, various models and criteria of training. for their optimal selection in specific conditions.

The structure of classes based on the use of interactive tools and information technologies includes elements of the interactive learning model called interactive technologies, which are understood as technologies that use techniques and methods for specially organized activities, including feedback for correction between all its participants. educational process based on reflective analysis.

For the development of high-quality interactive educational tools, it is necessary to note the special role of studying the mechanisms of reception, assimilation and transformation of information provided electronically. In this case, it is of particular importance for the teacher to use the features of these mechanisms in creating interactive educational tools for the lesson.

Study material in an unfinished form, in the form of "builder of knowledge" with modeling and image-conceptual properties, in a form convenient for visual, logical reception, as well as to search for the possibility of transforming the elements of knowledge and working with them. Are they:

By multimedia interactive posters we mean multifunctional multimedia educational tools that allow multi-level work with maximum visual educational information at all stages of working with it: initial presentation, processing, management etc. [4]. In this case, by interactivity we understand the interaction of the participants of the educational process directly or through an interactive poster, which implements the principles of feedback that help ensure educational dialogue, freedom of choice of educational path, and management of educational activity.

Modern multimedia posters allow using not only hyperlinks for internal navigation, but also means provided by the Internet (for example, social Internet services), which expands their educational possibilities. A computer science teacher can use presentation packages such as MS PowerPoint to create interactive posters; HTML5 along with CSS3 and JavaScript cascading style sheets; various programming languages; social Internet services.

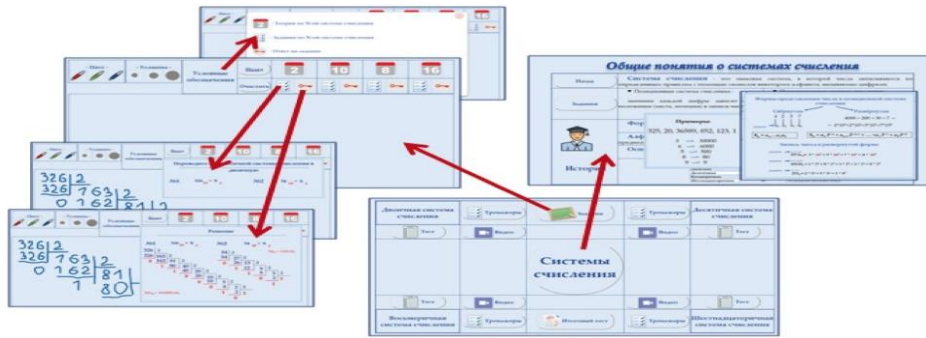


Figure 1 is an example of an interactive poster on the topic "Calculation System".

Shows an example of an interactive poster on the topic of "Computing Systems" developed using Figure 1.

I use HTML5, CSS3 Cascading Style Sheets and JavaScript. In the given example, the interactive poster consists of three main blocks:

- theoretical (key notes, interactive video, etc.);
- practical (interactive tasks, advisory system, interactive simulators, etc.);
- controller (tests).

Developing interactive posters, electronic multimedia learning materials, simulators, test and assessment tasks

a pedagogical tool aimed at learning new material, as well as strengthening skills, practicing and controlling the quality of assimilation of received information.

The structure of a multimedia interactive poster may include:

- "hidden picture" mode (turning on and off explanatory information);
- additional illustrated resume;
- multi-level problem book;
- a set of illustrations, animations, video fragments, etc.;
- designer (a tool that allows the teacher and the student to make notes, notes, and drawings on the educational material).

When developing an interactive poster, it is necessary to take into account the following condition: all components should be of one topic, one section, etc. must be integrated into a single whole. The interactive poster itself can be used both in a single lesson and in a single lesson. for several lessons. Systematization and summarization of knowledge in general lessons, analysis, synthesis, classification, etc. with students. It would be didactically reasonable to use interactive posters during operations.

Research based on the results Currently, interactive multimedia simulators have become a popular means of pedagogical support, by which we mean a software multimedia tool that allows you to conduct the learning process, repeat or consolidate the acquired knowledge, practice various skills and abilities, monitor and evaluate the work of teachers, students. The functions of interactive multimedia simulators are diagnostic (determining the level of knowledge, abilities and skills of students), educational (activity of the student in mastering the educational material) and educational (organizing the activities of students independently).

Use animation effects, hyperlinks, transparent layers (to create "active zones" on the slide), triggers, and macros (for mutual organization) when creating simulators in the MS PowerPoint presentation package.

move (Click - Shift - Click), decrease (Shift 4 - Click), increase (Shift + CapsLock + Click), rotate 45 (Shift + Tab + Click), paste text (Windows + Click).



Figure 2. An example of the simulator before students completed the task.

- Block power supply
- Optical disc
- Hard disk
- Operational memory
- Video card
- Motherboard
- Corpus
- Processor

An example. Move the names of the parts of the system unit to the appropriate place



Figure 4. An example of the simulator after the students completed the task

Today, computer science teachers increasingly use publicly available Internet services to organize the educational process. Services are constantly developing, new ones are constantly appearing, existing ones are being improved, and some are leaving because they can't be used for free. The main advantages of many services are simple and intuitive interface, ease of learning service tools and an example of using Internet services to create didactic visual learning tools is an interactive worksheet, which is a digital tool for teachers to organize independent learning activities for students using network services and web tools. The analysis of school practice shows that today interactive educational tools, in particular electronic educational resources, are created by many computer science teachers using various tools:

- interactive whiteboard software (eg: SmartBoard, StarBoard, etc.);
- MS Office and OpenOffice.org office application packages (the most popular presentation packages are MS PowerPoint and OpenOffice.org Impress);
- standard hypertext markup languages and web editors;
- object-oriented languages and programming systems;
- multimedia tools (for example, Windows Live Film Studio, Adobe Flash CS, etc.);
- Tools for the development of e-learning resources located on the Internet (various CMS, Internet services, etc.).

In order to effectively use the potential of information technologies and interactive teaching tools in the process of implementing real-time interaction with students, it is important for the teacher to be able to use these tools in lessons:

- asking students both guiding and problematic questions;
- selection of interactive means according to the content of training;
- selection of active teaching methods to ensure effective interaction of the participants of the educational process;

transfer of educational material from sign-symbolic form to active-communicative form.

Thus, the ability of a modern teacher to design the learning process in the context of using multimedia interactive educational tools helps to increase the quality of education in informatics, to individualize teaching, to organize joint learning activities, during which students acquire new knowledge. actively learn. analyze and optimize abilities and skills, their activity, consciously reflect the learning process and get new ideas for self-development through experience.

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