

Theoretical Foundations of Creating Interactive Electronic Educational Materials

Ashurova Menura Mukhiddinovna

Parkent District No. 56 general education of the school computer science and mathematics science teacher

ashurovamenura19890055@gmail.com

Abstract: The article discusses the use of audio, video, interactive electronic didactic, information techniques and technologies developed on the basis of the latest achievements of science and technology in education today. Therefore, familiarization with the theoretical foundations of the creation of didactic tools, didactic opportunities, educational didactic materials, electronic educational didactic materials and learning to use them in classes will be of great help to future teachers in their future work. Educational and didactic materials (or educational tools) are understood as any information carriers that provide knowledge that needs to be taught and learned.

Keywords: electronic educational didactic materials, audio, video, interactive electronic didactic, information, techniques, technologies, didactic tool.



This is an open-access article under the [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/) license

Introduction. In the current era, the rapid development of science and technology, the rapid influx of information, the analysis process, the theoretical foundations of the creation and use of didactic interactive electronic educational and didactic materials, the possibilities of their effective use in the educational process, the use of effective educational and didactic tools based on modern pedagogical information technologies, constitute technological training. Today, improving the quality of education through the effective use of modern educational and didactic materials, multimedia and media tools, and electronic resources in teaching subjects is one of the urgent tasks. As a result of the use of modern information technologies in the educational process, an effective opportunity is created to master complex technologies in a short time through electronic textbooks and interesting didactic materials. It is necessary to have high activity in order to use electronic textbooks and manuals in teaching. Electronic educational and didactic materials, interactive electronic materials intended for each subject must have at least three main parts: educational, practical, and control. Of the modern interactive electronic educational and didactic tools, audio, video, interactive electronic educational and didactic materials developed on the basis of the latest achievements of science and technology in the field of education, the theoretical foundations of their use in the disciplines and the application of technologies are of great importance. Therefore, getting acquainted with their didactic capabilities and learning how

to use them in classes will be of great help to future teachers in their future work. In addition to such educational and didactic materials, there are also pictorial and visual tools (photographs, pictures, drawings, graphs...). They facilitate the creation of general and comprehensive ideas.

Research object and methods used

The object of the study: The process of teaching computer science in general secondary schools using didactic games .

The role of didactic games in the process of education and upbringing has been widely studied by researchers and educators, for example, Ananyev BG, Zaparozhets AB, Levitiv ND, Leontyev AN, Lukin NS, Lyubiniskaya AA. The role of didactic games in the formation of the student's personality is reflected in the scientific works of Zhukovsky RI, Leontyev AN, Lyublinsky AA, Rubinshteny SL. Scientific research on the use of didactic games in pedagogy was conducted by Abramovoy IG, Baynkinoy ZI, Zhebrovskoy OO, Kavtaradze DN, Lerneva NY and others. Python programming language Sh . A . Mengliyev , O. A. A b d u g ' A n i e v , S. Q. S h o n a z a r o v , D. Sh . T o ' R a y e v and others conducted scientific research .

These works envisage the use of specific methods to improve the educational process on the basis of information technologies and increase its efficiency, the integration of traditional and electronic educational technologies to increase the efficiency of education, and the use of blended learning technologies. However, the experience gained in our country to date has shown that not enough research has been conducted on the development of methodologies for the use of independent education in the field of Informatics and Information Technology in the modern information technology environment.

The results obtained and their analysis

pedagogical experimentation, generalization of research results, and functional analysis methods were used.

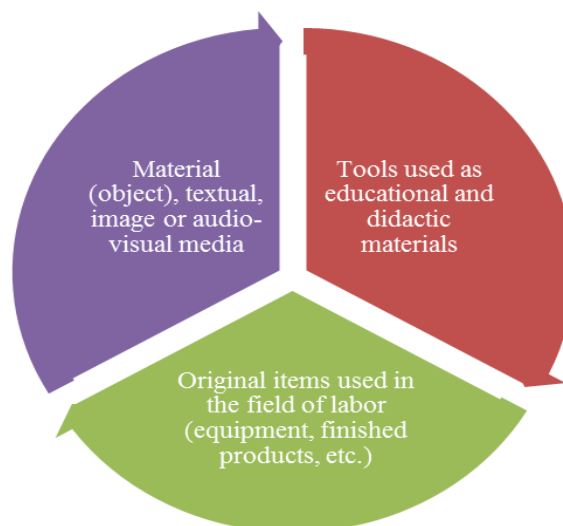
NA Muslimov, one of the scientists of our republic conducting research in this area of effective use of didactic tools in the educational process, noted that electronic textbooks must meet the requirements.

- The textbook must meet the requirements for publishing the curriculum and educational and methodological works (it must be approved by the faculty scientific and methodological committee). The textbook must be presented for the first time in a specific field or be prepared as an electronic version of a previously published methodological manual and must comply with general and special optional standards in content;
- be of sufficient size to reveal the content of a specific course (or part of it) and achieve the educational and methodological goals;
- the presence of elements of exhibitions that help achieve educational and methodological goals (the ability to make maximum use of the multimedia capabilities of the computer);
- the material was designed taking into account the nature of work from a monitor screen and placement across the network;
- the presence of hyperlinks in the text, as well as the indication of WEB sources and other information resources, where necessary;
- the presence of control questions that allow the learner to independently assess the level of mastery of the material;
- working in many languages, as well as creating special conditions for students with disabilities.

Teaching on the basis of modern educational and didactic tools has a positive effect on increasing the students' knowledge acquisition opportunities, developing their independent work skills and the level of learning practical skills. Electronic textbooks, which are most often used in the educational process, must incorporate several organizational components. In order to implement an electronic textbook in the educational system, it must have its own interface. An electronic textbook or manual has a unique appearance - an "interface". In turn, the main requirement for the interface is its intuitiveness. The interfacing controls should be convenient for the user, not distracting him from working with the text or the necessary content, and the controls used to page the book should be on each of its pages.

As a result of the organization of the modern educational process through the use of information technologies, it is possible to master electronic educational materials and virtual technologies in a short time and conduct distance learning. In the educational process, we do not limit ourselves to only verbal methods and explanations, but use all types of educational information. These can be numerical and written, audio and visual, volumetric and moving, electronic and other forms. Based on this, if we learn the capabilities of each didactic tool, we will learn which task each of them is most effective for and how to use it.

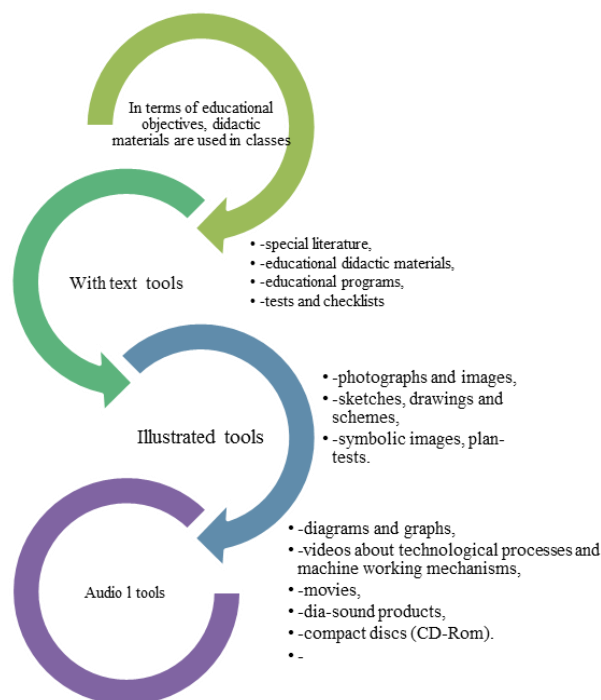
These are didactic materials, didactic tools used for their use, and complexes designed to implement education using didactic materials and tools. There are corresponding types of them for each direction. We call didactic materials all types of educational information that is given to students, demonstrated, performed, and so on during training sessions. We divide them into separate groups depending on when and for what purpose we use them. We use didactic tools in the use and preparation of these materials. For example, posters, slides, photographs, audio, television and video materials, materials based on information technologies, etc. In turn, we classify the tools according to their structure, principle of operation, and didactic capabilities. Based on this, we use one type of didactic materials during training sessions, for which we use appropriate didactic tools. Together, these are a set of didactic tools designed for this training session .



Subject tools this opposite as if image and texts writing to take and storage opportunity gives . To these blackboard , flipchart , overhead projector , camera and computers Computers with the help of most of us in appearance information again our work possible. These written , numerical , graphic, audio, photo, and video information are, they are to computers digital, i.e. 0 and 1 representation passing easily again processing possible. Such from opportunities we are very short time inside, big in size information again Does it work, different? didactic materials prepare them

application and education to give their work done our increase possible. This from work some see The issue becomes clearer as we move on :

Electronic study manuals today's on the day computer programs using prepared is simple study from manuals convenience with sharp difference does . Such from manuals in use necessary in places questions giving appeal to do and additional information or answer we get possible . To the topic related demonstrative materials voice and with effort given goes , information base , reverse communication system and again one how much to the advantages has . Virtual stents practical in training very good effect electronic is considered a didactic material Their advantage side is that different technological cars and equipment and technological in processes exercise to do opportunity gives. This work in real life done increase big requires expense , sometimes and this It 's impossible . Virtual under the circumstances and this very effective done In computers knowledge It's also very difficult to try . fast and effective are performed, especially tests for this very convenient. Tests to fix it transfer , results release, manual when done one how many equal fast and clear done In computers structured education giver programs and to students independent education in receiving the most effective method as help gives. Such programs using knowledge to take them improvement and reinforcement, qualification and skills to form, to develop knowledge assessment works complex working issued department, science in mastering this very big importance has. On computers various animations (movement) indicative (to prepare) possibility happened for , from didactic materials in preparation wide We use . Different laboratory works , virtual stands , presentations , education giver programs , tests , electronic training of manuals at the bar animation materials application as a result their educational in terms of importance further increases. In education from computers our use for technologies hand comes . Today on the day computers so programs based on works , users for this very big does not require qualification . Microsoft software products Windows and its based on it working Word, Excel , Paintbrush, PowerPoint, VisualBasic , Python, FrontPage, Flash, Delphi , Pascal, Acces and other programs we have above saying past didactic materials our preparation opportunity gives. Today on the day this programs based on being created products and again under construction information multimedia technologies using done is increasing . As a result both sound and image are the best good quality in appearance Internet technologies and of the world desired in the corner computers with information exchange opportunity is giving .



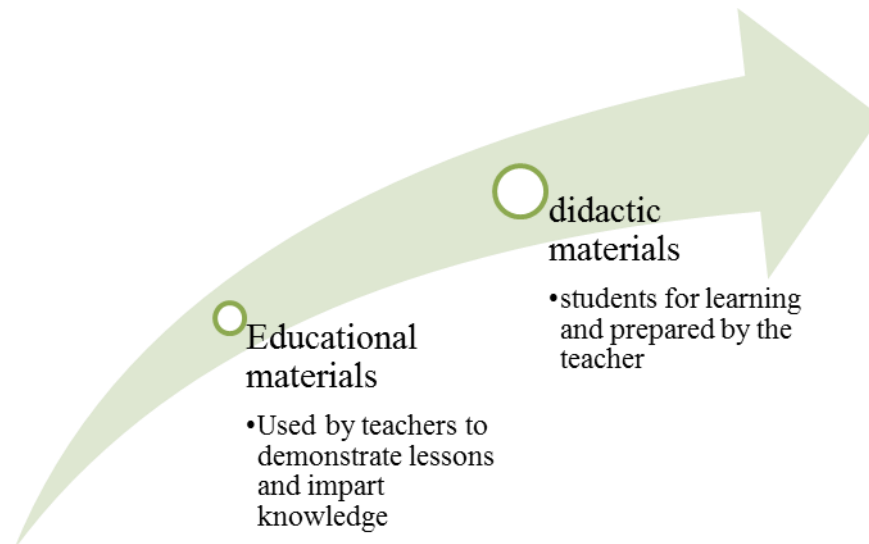
This from tools in use them certain purpose , special industry and to methods suitable without choice important place And finally practice teacher o study and demonstrative tools use to take and from them to the goal appropriate and reasonable in a way use knowledge need .

Training and didactic materials preparation

Theoretical and practical training for source material as used our tools as follows differs :

Often training materials one of the moment in itself didactic materials as , that is to teach , to learn for is used .

Training and didactic materials preparation when you say, teacher by their selection and theoretical or practical training to the purpose adaptation understood .



Educational-didactic materials preparation for practice teacher's task first on the table in libraries special to the field appropriate materials that there is check .

If the study and didactic materials there is if , then their science curriculum goals and to the contents suitable whether to come or not check , " Assimilation" condition was knowledge " and " Acquisition possible was " knowledge " levels contents to the existence attention to give need will be .

The process of teaching computer science in general secondary schools using didactic games . Development of a methodology for creating and using educational materials for students using the Python programming language . Study of problems in creating and using computerized didactic games in the educational process. Studying the problems of creating computerized didactic games and developing a methodology for using them in the educational process.

Improving the quality of education is the theoretical basis for creating and using interactive electronic educational and didactic materials to increase efficiency and effectiveness. Educational and didactic materials and their capabilities.

Interactive electronic resources as educational and didactic tools. Theoretical foundations of creating interactive electronic educational and didactic materials. Improving the methodology for creating and implementing interactive electronic educational and didactic materials.

Stages of creating interactive electronic educational and didactic materials and requirements for them. Content of interactive electronic educational and didactic materials and their implementation. Improving the methodology for implementing interactive electronic educational and didactic materials in practice.

Analysis of the sources shows that, The process of teaching computer science using didactic games in general secondary schools is becoming increasingly relevant due to the lack of basic resources for students to create educational and didactic materials using programming languages, develop methodologies for their use, and use by other teachers.

Conclusion, the theoretical foundations of creating and using modern interactive electronic educational and didactic materials for effective use in the educational process should encourage students to be active and think critically, not be limited to providing theoretical information, provide practical training, projects, exercises and assignments, have tests for students to assess their own knowledge, create opportunities for independent learning, and the educational material should be focused on specific goals and objectives. A textbook created based on modern educational requirements increases the effectiveness of teaching, ensures the systematization of students' knowledge, develops their creative abilities and increases their interest in the profession.

REFERENCES USED

Normative legal documents

1. Uzbekistan The Republic of Uzbekistan, September 23 , 2020 , “ Education Law No. 637 of the Republic of Uzbekistan " On Republic The President's "Statement for 2022-2026" dated January 28 , 2022 intended New Uzbekistan progress strategy " About " PF-60, dated April 29 , 2019, " Uzbekistan" Republic people education system by 2030 develop concept confirmation PF -5712-No . Uzbekistan Republic Presidential Decree No. PQ-2909 of April 20 , 2017 The decision of the " High education system further develop measures about "

Main literature

1. Anan'ev B.G. Chelovek kak predmet Poznaniya. L.: LGU, [1969, 339 p.]
2. Leontev A.N. Psychology obshcheniya. 2 izd. M.; Smysl, [1997. - 365p]
3. Vasilchuk Yu V 2015 Organization of independent work of students in teaching a foreign language using ICT as an example of work in the Moodle system Collection of scientific works: Modern language education: innovations, problems, solutions [80-83]
4. Python programming language [Sh . A . Mengliyev , O. A. Abdug'aniev , S. Q. Shonazarov , D. Sh . To'rayev 2021 Termez 4-11]
5. Kuzmina MA 2017 The role of independent work in teaching a foreign language of students of technical university" Bulletin of MSRU. Series : Pedagogics [108-114]
6. Ashurova M.M. (2021). Rol kompetenosti uchitelya v povyshenii kachestva obrazovaniya. Economics and society, [9(88), 975-980]
7. Ashurov M.U. (2018). Information technology and educational processes. Novaya nauka i formirovanie kultury znaniy sovremennogo cheloveka. Sbornik nauchnykh trudov, (January), [39-42]
8. Ashurov Muhiddin Olayevich , Ashurova Munisa Muhiddinovna . (2020).

Internet websites :

1. <https://lex.uz/docs/-5032128>
2. [www . python.org](http://www.python.org)
3. [ww.dasturchi.uz](http://www.dasturchi.uz)