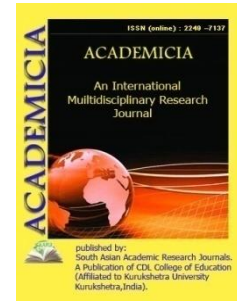




**ACADEMICIA**  
**An International  
 Multidisciplinary  
 Research Journal**  
 (Double Blind Refereed & Peer Reviewed Journal)



**DOI: 10.5958/2249-7137.2021.01748.1**

## THEORETICAL BASIS OF ACTIVE TEACHING TECHNOLOGY ON THE BASIS OF COMPUTER IMITATION MODELS

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### ABSTRACT

*The article analyzes the research work of foreign and CIS scientists on the creation of multimedia textbooks based on computer imitation models and their application in the educational process. Teaching using computer imitation models is based on increasing the efficiency of the learning process.*

**KEYWORDS:** *Imitation Modeling, Global, Technology, Digital Device, Models, E-Learning Technology, Virtual Reading.*

### INTRODUCTION

At the current stage of information development in Uzbekistan, the competence of a modern specialist directly depends on the level of his readiness to use information technology in the information society. The above determines the relevance of highly qualified training of modern educators. The most effective, appropriate “pedagogical technologies should be selected as a series of interconnected systems of teacher action aimed at solving pedagogical problems or as a planned and consistent implementation in a pre-designed pedagogical process practice”.

In the modern pedagogical literature, active forms and methods of teaching through activities or active learning technologies (ALT) based not only on the processes of cognition, memory, attention, but also on the above processes have a special place. The strategic direction of strengthening education is not to increase the amount of information transmitted, but to increase and increase the number of control activities, but to create didactic and psychological conditions for meaningful teaching, to add students to it.

One approach to classifying active learning technologies is to divide occupations into two categories:

1. A non-imitative, characteristic feature is the absence of the process or activity model being studied.
2. An imitative, distinctive feature is the presence of a model of the process or event being studied

Imitation models can be focused on playful and non-playful types. Training of teachers of vocational specialties (computer science, computer technology and computer technology) using computer imitation models is carried out mainly on the basis of imitation methods of knowledge in various fields, except for games. Computer imitation is understood as an official (ie, performed in some official languages) description of the operating logic of the system under study and the interaction of its individual elements, taking into account the most important causes and effects.

## LITERATURE REVIEW AND METHODOLOGY

The following can be seen when analyzing the research work of foreign and CIS scientists on the creation and implementation of multimedia textbooks based on computer imitation models (CIM).

In IV Maximey's article "Imitatsionnoe modelirovanie na EVM" the term imitation means working with mathematical models, using which the result can not be predicted or predicted, and therefore requires experience (imitation) to predict the behavior of real complex systems issues were analyzed. In addition, imitation is defined as a digital method for conducting experiments on a computer with mathematical models that describe the behavior of complex systems over a period of time [1].

The need for priority development of education in the dissertation of A. A, Volodin "Kompyuternoe imitatsionnoe modelirovanie pri izuchenii osnov sifrovoy texniki budushim uchitelyam texnologii" is related to the scientific and technological development and global technology of the advanced countries of the world , as well as the fact that social change determines the requirements of society to train a competitive, highly qualified, intelligent and enterprising specialist with creative thinking ability, which in turn determines the development and creation of new technologies for teaching [ 2].

The dissertation is based on the fact that the study of electrical and radio engineering by students is one of the main aspects of technological training of future technology teachers in pedagogical universities. Currently, the most rapidly developing area in the field of modern electronics and radio engineering is the study of the problems of development and production of digital devices and equipment, as well as the processes of storage, processing, conversion and transmission of digital data.

V. Lowe, in A. Kelton's book "Imitatsionnoe modelirovanie" through target imitation programs, model validation and sufficiency testing, data input modeling, random number generators, random variables and process creation, imitation involving statistical plans provide complete information on all important aspects of systems research. The simulated experiments are also

based on the main directions of the application of imitation, in particular, the possibilities of modeling production systems [3].

## DISCUSSION

Modeling allows a holistic study of the object under study, as it is possible to demonstrate and reproduce analogs of existing or developed systems and processes by the researcher, not only the structure, elements, properties, but also the relationships between elements and also reveals the relationship. The computer imitation model is designed to focus students' attention on some important learned concept, category, object, allowing them to form and consolidate certain skills in a creative environment. The use of models on different topics allows for interdisciplinary integration of disciplines. Taking into account interdisciplinary connections is a prerequisite for successful learning. The development of students' thinking and worldview depends on how this connection is made. Organization of the educational process on the basis of interdisciplinary relations helps to involve students in thematic and practical activities, including the active acquisition of knowledge, their creative use, the development of cognitive activity and independence, the formation of a scientific worldview.

The computer imitation model combines the most important achievements of different disciplines, being used as a tool of modern information technology as a systematic way of creating, studying and using models in perceiving the surrounding reality. Many modern educators make the most effective use of the opportunities inherent in new pedagogical technologies, one of which is ALT, only through the widespread introduction of new information technologies, combined with the development of appropriate methodological support. The formation of the content of the process of "computer imitation modeling" is carried out on the basis of the event-graphical approach.

Laboratory and practical classes will be conducted to study the process in depth. In these lessons, theoretical materials are understood, practical experience and the ability to formulate the basic rules of the theory being studied are formed, and professional skills are acquired. Using an event-graphic approach, the use of laboratory and practical work involving computer imitations of events and processes of various natures is suggested: the movement of a social group; changes in the state of economic reserves at the enterprise in conditions of uncertainty; interactive learning; the process of learning and teaching the training module; scheme of logical functions.

## RESULTS

These laboratory-practical works are structurally meaningful units that provide a combination of theory and practice, activate the cognitive activity of students, give specificity to the theoretical material studied in lectures and focus on many interdisciplinary problems. However, traditional teaching methods do not allow to fully realize their didactic potential. In laboratory-practical and lecture classes a gradual transition from the method of explanatory-illustrative teaching to the creative method is required (Figure 1).

The gradual transition from methods involving relatively simple thinking skills to methods based on higher abilities falls into three levels of activity:

- Reproductive activity is characterized by the student's desire to understand, increase knowledge, master the methods of application in accordance with the model. Suitable for explanatory-reproductive and reproductive teaching methods.
- Interpretive activity is related to the student's understanding of the meaning of the subject being studied, making connections, mastering the methods of applying knowledge in changing conditions. Consistent with the method of problem statement.
- Creative activity - involves the student's desire for theoretical understanding of knowledge, independent search for solutions to problems, intensive manifestation of cognitive interests. Partially appropriate to the search and research method of teaching.

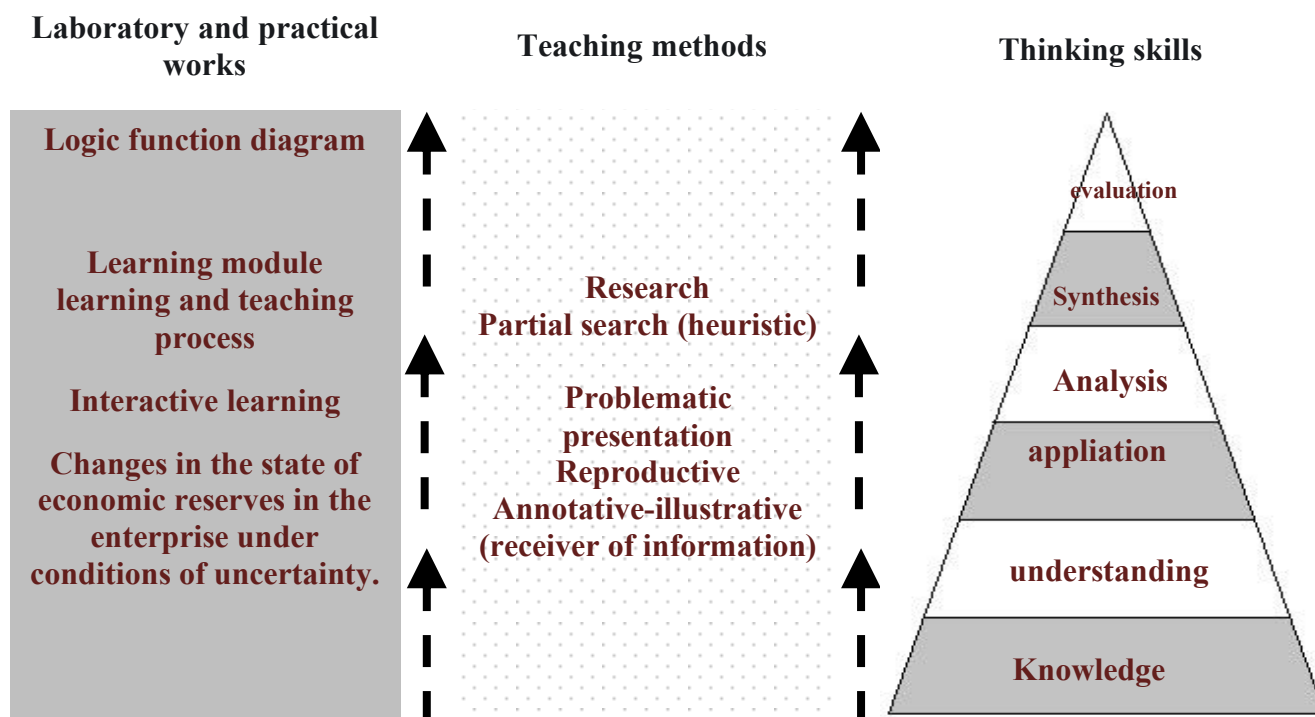


Figure 1. Step-by-step transition from explanatory-illustrative teaching style to creative style during lessons

The implementation of laboratory and practical work is a period aimed at mastering and strengthening the synchronous work of students under the supervision of an independent, teacher. Each work is performed in the following sequence of steps (Figure 2), reflecting the general approach to the computer imitation modeling sequence. At each completed stage, students prepare a report for the defense.

Active forms of computer use in the educational process contribute to a deeper study of the content of the material, the effective use of different teaching methods, the development of logical thinking in students, the implementation of the principle of activeness and transparency in reading. The use of active learning technologies allows students to improve the quality of subject preparation, expands, deepens and systematizes knowledge, helps to develop all levels of thinking skills.

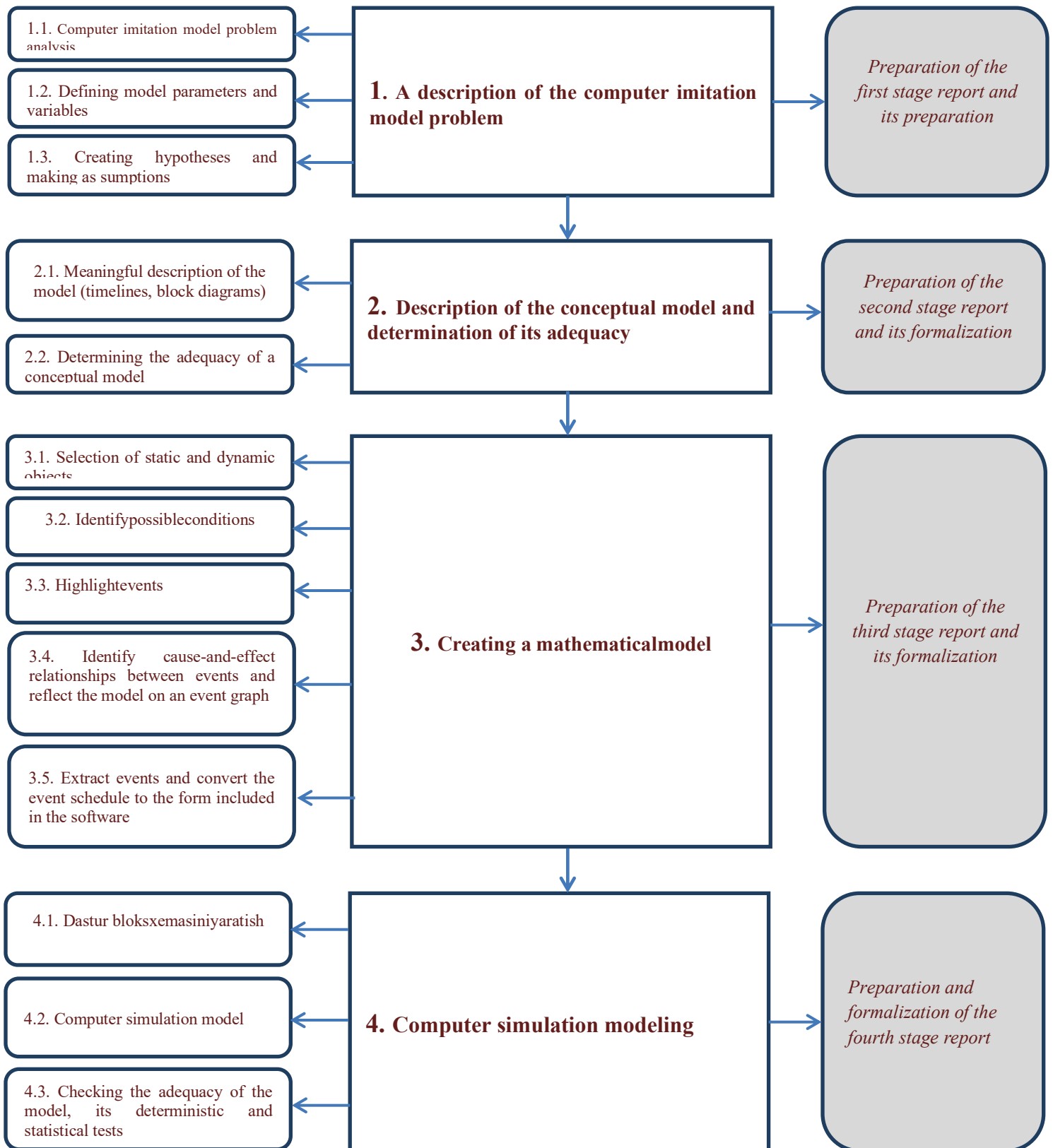




Figure 2. Stages of laboratory and practical training using a computer imitation model

## CONCLUSION

Active forms of computer use in the educational process contribute to a deeper study of the content of the material, the effective use of different teaching methods, the development of logical thinking in students, the implementation of the principle of activeness and transparency in reading. In addition to the presentation of the internal and external features of the topic in the CIM created for each topic, lectures, practical and laboratory classes are interpreted by teachers by "voice"..

In short, a multimedia e-textbook created from the disciplines serves as a visual aid for students to increase the effectiveness of the learning process.

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