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STAEM PROGRAMS AND MODELING THAT ALLOW YOU TO DIGITIZE SUBJECTS

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Annotation
This article covers mathematical and physical laws and applications that allow the digitization of phenomena, as well as modeling in detail. Concepts about modeling postulates and functions are also given.

Keywords:;. Mathematical model, Physical Modeling, modeling, model scheme, applications, physical processes, mathematical theory, mathematical apparatus, object.

The achievements of Science, which are currently developing rapidly, cannot be reached without digitized Sciences and technologies. The development of computer techniques and programs makes it possible to create 3 D models of the object. When creating 3D models of an object, fundamentalism still relies on STAEM modeling disciplines. It uses mathematical modeling, physical modeling, chemical modeling, biological modeling, technical modeling, and other modeling.

Currently, we are talking about mathematical modeling and Physical Modeling in detail and try to highlight the rest of the models in our next articles:

Examples of programs that allow STAEM to digitize subjects include: MatCad, MatLab, Maple, Matemateka systems, and other application packages. These are programs that allow the digitization of mathematical formulas and mathematical laws, and the method of mathematical modeling is used in mathematics education in two forms.

First: not a single model leads to a model that does not fit into the scheme, in this case an internal mathematical problem of researching new class models arises, which leads to the development of an existing mathematical theory or the emergence of a new theory. This form of the mathematical modeling method is used in most cases at the time of the lecture, and it has the following structure:

1. Looking at the issues of professional content leading to a new mathematical concept – the construction of a model.

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2. Statement of the main content of a new topic, a new section (concepts, theorems, methods of proof).
3. Research the generated model using a new mathematical apparatus.
4. To set an example for solving an issue of professional content using a structured model and transfer the result to the language of this issue.

Second: is to bring to a mathematical model of a certain appearance, which is mainly applied in practical training to strengthen the material, or is used at the end of a lecture to solve issues of professional content that were previously expressed. The structure of the training in this case will be as follows:

- The imposition of the issue.
- Choosing his mathematical model from among certain models.
- Model research.
- Transfer the result to the language of this issue.

"In mathematics, the reflection of elements of mathematical modeling gives the opportunity to solve a number of important pedagogical tasks:

- perfects the orientation of theoretical acquired knowledge to practice;
- forms the enslavement of the mathematician in engineering activities;
- assimilates interdisciplinary connection, etc.

Examples of applications that allow modeling of physical processes are: MatCad, MatLab, Maple, Matemateka systems, Crocodile Physics, Electronics Workbench, Interactive Physics, and other application packages. The use of computer models in educational processes using the opportunity of information technology will pay off. The principles of application of computer models in educational processes are as follows:

1. The computer program should be applied when the experiment cannot be carried out or the experiment has moved beyond observation.
2. A computer program should help in determining the detail under study or in illustrating the issue being solved.
3. As a result of the work, students must be able to see both qualitative and quantitative correlations of magnitudes characterizing phenomena using a model.
4. When working with the program, the task of students is to work on tasks of different difficulty, since this allows independent work on oneself [1] .

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Subordinate to the modeling process, the following principles, called modeling postulates, are distinguished in [3] (Figure 1).

"The mathematical model will never reflect all the properties and specific aspects of the object being viewed, nor will it be identical to it. It is based on simplification, idealization, an approximate reflection of an object" [4].

- Modeling has the following functions:
- simplified research of objects in gnoseological science, their direct study for one reason or another is impossible;
- illustrative-generating a base intuition for analysis and generalization;
- heuristic-obtaining new knowledge;
- integrative or synthesizing – establishing a unified model of synthesis and knowledge [4].

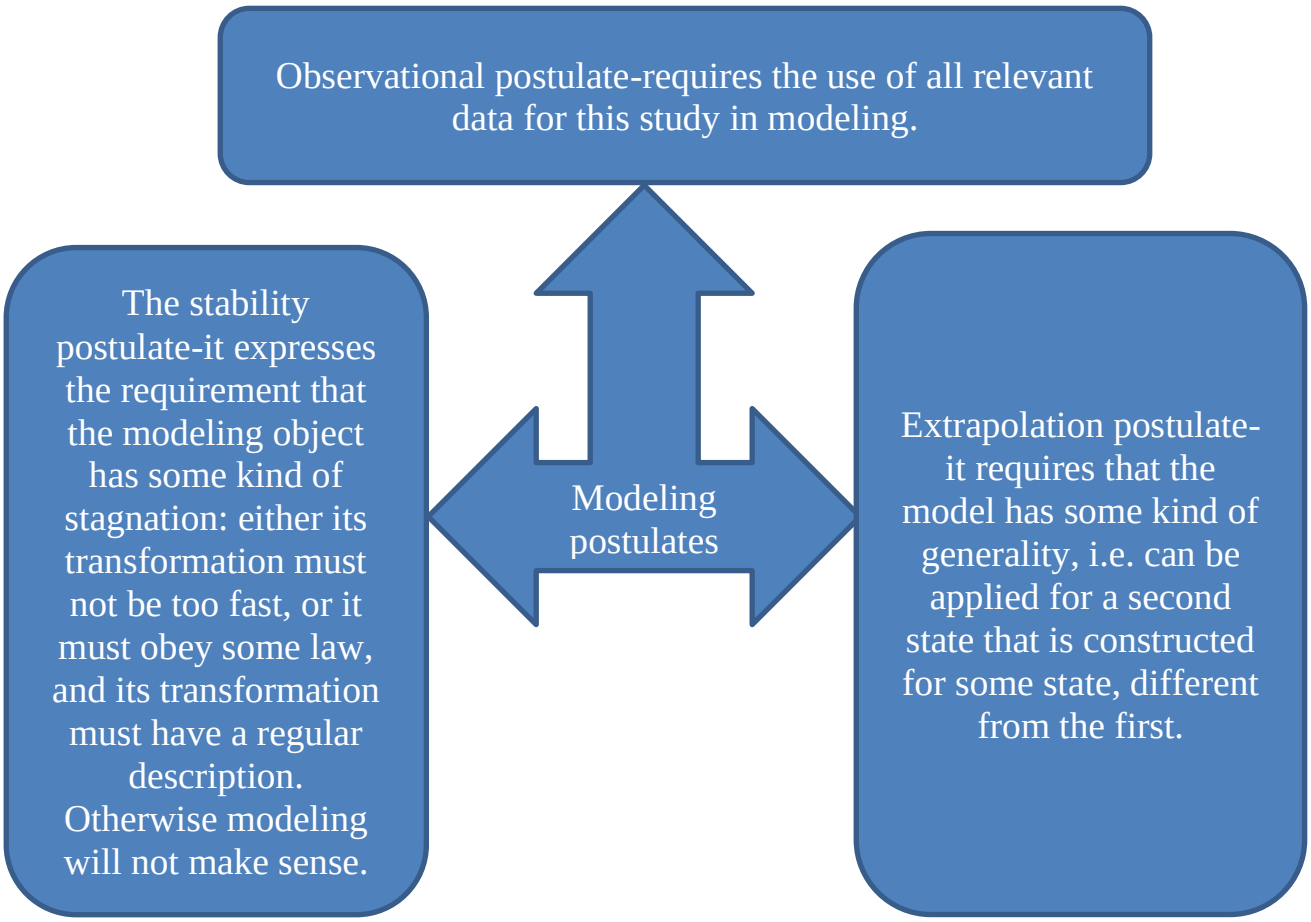

Figure 1. Modeling postulates

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REFERENCES.

1. Sobirovich, H.S. Physics and Technology specialist INTERACTIVE PHYSICS instructs the public . Tashkent 2008.
2.Shadiev R.D. The characteristics of the category concept and their comprehension - components of any understanding. //Science and world. International scientific journal. №7(47).2017, Vol.II. P-66-68.(Impact factor-0,325).
3.Плотникова, С.В. Профессиональная направленность обучения математическим дисциплинам студентов технических вузов Текст. : дис. . канд. пед. наук / С.В. Плотникова. Самара, 2000.
4.Тарасова.Н.А. Роль метода математического моделирования в формировании профессиональных умений у студентов инженерно-педагогического вуза Текст. : автореф дис. . канд. пед. наук / Н.А. Тарасова. -Нижний Новгород, 2002. 22 с.
5.Новожилов, Э.Д.О методологии научного педагогического исследования Текст. / Э.Д.Новожилов // Технологическая и экономическая подготовка студентов в педагогическом вузе. М. : МПУ, 1998
6.Shoxrux Razzoqovich Turdiyev. (2021). ORGANIZATION OF DUAL TRAINING THROUGH THE STEAM APPROACH IN HIGHER EDUCATION. CURRENT RESEARCH JOURNAL OF PEDAGOGICS (2767-3278), 2(10), 215–219. https://doi.org/10.37547/pedagogics-crjp-02-10-39.
7. Davronovich, Shodiyev Rizamat, and Ergashev Nuriddin Gayratovich. "ANALYSIS OF EXISTING RISKS AND METHODS OF COMBATING THEM IN CLOUD TECHNOLOGIES." American Journal of Pedagogical and Educational Research 18 (2023): 190-198.

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8. Gayratovich, Ergashev Nuriddin. "A MODEL OF THE STRUCTURAL STRUCTURE OF PEDAGOGICAL STRUCTURING OF EDUCATION IN THE CONTEXT OF DIGITAL TECHNOLOGIES." American Journal of Pedagogical and Educational Research 13 (2023): 64-69.
9. Ergashev, Nuriddin. "RAQAMLI TEXNOLOGIYALAR MUHITIDA TA'LIMNI RIVOJLANTIRISHNING YETAKCHI TENDENSIYALARI VA ISTIQBOLLARI." International Scientific and Practical Conference on Algorithms and Current Problems of Programming. 2023.
10. G'ayratovich, Ergashev Nuriddin. "The Problem of Training Future Engineer Personnel on the Basis of Cloud Technology in Technical Specialties of Higher Education." Eurasian Scientific Herald 13 (2022): 1-4.
11. Ergashev, Nuriddin. "Uzluksiz ta'lim sharoitida muxandislar malakasini oshirishni rivojlantirishning metodik shartlari." Journal of Integrated Education and Research 1.2 (2022): 54-59.
12. Ergashev, Nuriddin. "Bulutli texnologiyalar sharoitida muxandislarni kasbiy faoliyatga tayyorlash muammosining amaldagi holati." Journal of Integrated Education and Research 1.2 (2022): 49-53.
13. G'ayratovich, Ergashev Nuriddin. "It Is A Modern Educational Model Based On The Integration Of Knowledge." Eurasian Scientific Herald 5 (2022): 52-55.
14. Ergashev, Nuriddin. "Didactic fundamentals of electronic books visualization." An International Multidisciplinary Research Journal (2020).