



MODELING OF AN AUTOMATED EDUCATIONAL INFORMATION SYSTEM BASED ON THE PRINCIPLES OF FRACTAL PEDAGOGY

Kayumova Gulshan Asrorovna

*Senior teacher of Tashkent University of information technologies named after
Muhammad Al-Khwarezmy*

KEYWORDS: Fractal, fractal pedagogy, information models, conceptual model, functional model, assessment methods, the principle of non-compliance, the principle of reflexive interaction optimization, resonance approach, self-development, self-improvement, automated educational information system, innovative teaching environment, management, orientation.

The educational process automation system is currently used in all higher education institutions, but recently the automation of educational processes has reached incredible heights: many information systems provide the smallest details with a number of tools that allow you to plan the educational process. The educational process automation system thanks to the development of web technologies, the ways of development of Information Technology in the educational system as a whole have appeared. The most important innovations are to improve the quality of education, improve the effectiveness of the educational process, improve the methodology and methodology of teaching students on the basis of new technologies in the development of the cognitive level, and most importantly, develop a method for assessing the process of mastering students and introduce assessment in their visual appearance using recursive algorithms of fractals.

The concept of fractal and fractal geometry firmly entered the scientific research of mathematicians as well as programmers in the mid-70s and 80s of the 20th century.

Fractal does not have a clear definition, but in the literature we find different definitions given to it.

Fractal is a geometric fractal that is made up of parts and each represents the state of the whole fractal that has made the copy smaller.

The concept of "fractal pedagogy "comes from the theory of" fractals", it is widely



used in the fields of Natural Sciences, Informatics, architecture, radio engineering, economics and finance. Fractal pedagogy is the mechanism of internal actions of a person for self-creation.[1]

Based on the content of the concept of "Fractal", the Fractal approach is based on the mutual similarity of the systems and processes under study, moreover, within the framework of the conceptual framework of fractal pedagogy, it is not derived from the geometric concept of similarity, but from its structural and semantic content.

First of all, we note the expediency in a situation where it is impossible to represent an object in the form of classical models due to the use of a fractal approach, non-linear connections and non-deterministic data. This is when the object has several options for its development, and the state of the system is determined depending on the state in which it is at a certain moment, that is, there is a chaotic development simulation. This approach makes it possible to take into account the ability of dynamic systems to self-organize on the basis of the influence of certain factors, in the role of which there is human and human society. Modern education can be a vivid example of such a system.

The set of principles reflecting its laws, which are of a fractal structural nature, includes: helplessness, accuracy, openness, fractal harmony, hierarchical knowledge, domination and confidence in human nature, resonant interaction, holographic projection, optimization of reflexive interaction and the principles of holism.[1]

It should be noted that these principles are based on the development of the required volume and preparation of the content of the educational program in the chosen professional direction, the development of self-education skills, self-organization of activities, self-development, independent solution of practical problems by creating a creative approach and trust relationship in the "teacher-student", mutual respect and technologies of[2]

Summarizing what has been said, it is possible to determine the set of psychological and pedagogical determinants that ensure the implementation of the conceptual rules of fractal pedagogy in the modern educational process:

individual approach to education taking into account the psychophysiological characteristics and capabilities of a person;



the teacher must take direct responsibility for the assimilation of the material by students, that is, teach how to learn;

the teacher should know that his attitude to the topic and students has a significant impact on the educational process;

the teacher must understand that his words and actions are capable of forming such a picture of the world in students.

This subsequently determines their attitude to the world and to themselves, the tasks of the teacher include not the transfer of systematized information, but the orientation of students towards the search for knowledge on their own, and the structural structure of the science of new information, the teacher must constantly substantiate the relevance and practical application of the educational material in order to find

In order to implement the conceptual rules of fractal pedagogy in this modern educational process, one of the issues was the development of an automated educational information system based on the principles of fractal pedagogy, as well as improving the systematization of the educational process through its use and increasing the effectiveness of Education.

Automated educational information system educational and scientific resources of educational disciplines by each professor-teacher input block design, introduction of educational and working science programs developed in science in the educational program part of the educational and methodological complex block of Science, Definition of concepts in science with a fractal set, determination of the possibilities of applying fractal methods in improving the computer monitoring, the first stage of the modification of the control system is the formation of a system of basic concepts using fractal methods based on the similarity of fractals to themselves and the preservation of the invariant sludge, the mutual penetration of fractal structures through the fractal structure of the educational material the process of establishing clusters of a mandatory or information space of, the possibility of visual representation of the connection of all concepts, the translation of the idea of the degree of connection of concepts with the serpin triangle into the language of geometric images, the receipt and processing of source data, the storage and transformation of information necessary for the functioning of the system, the design of the database



management subsystem is envisaged.

Studying the theoretical foundations and methodology of fractal pedagogy, analyzing the specific principles and features of fractal pedagogy technology, and determining its effectiveness in improving the quality of training, developing information models and creative techniques based on the principles of fractal pedagogy, modeling the course process on the basis of developed information models, developing lesson developments for the organization of the course process, developing, designing an automated educational information system, drawing up an information model, conceptual model and functional model, drawing up an algorithm describing the performance of each projecting module, drawing up an administrator module that controls an informed educational information system, giving a role to teachers by the administrator, adding students to the system, introducing subjects, setting classes on the basis of syllabuses of subjects and loading, it consists in controlling the functioning of the system, filling the block of disciplines of the system with educational materials by teachers, giving tasks for monitoring students' knowledge, choosing fractals using the recursive algorithm of fractals in the process of issuing tasks, performing fractal steps depending on the number of N tasks, modeling the system based on visual imaging of assessment monitoring, automation of

In the development of an automated educational information system, pedagogical, scientific methodological resources on the topic, the state educational standard, the study and critical analysis of curricula and programs are carried out. Pedagogical and psychological measurements, socio-pedagogical (tests, questionnaire surveys, observations) and experimental-test work are carried out. Through the development of information models of teaching on the principles of fractal pedagogy and developed models, it is possible to improve the cognitive skills and practical skills of students in special subjects (lecture, practical, seminar and laboratory) classes, develop students themselves, self-education, self-improvement, improve self-organization skills, give motivation to obtain a single solution by establishing collective and interaction, develop independent self-improvement.

REFERENCE:

1. Anarova Sh. A., Beknazarova S.S., Qayumova G.A. Fractal methodology of personal and professional self-development of the educator in improving the modern educational



process. Modern education, No. 5 (102). 2021. - V.9-16

2. Beknazarova S.S., Qayumova G.A. Fractal methodology of in improving the modern educational process. The American Journal of Engineering and Technology, Volume 3 Issue 06, 2021. - P. 129-133. ISSN-2689-0984. DOI: [https://doi.org/10.37547 / tajet / Volume03Issue06-23](https://doi.org/10.37547/tajet/Volume03Issue06-23).

3. Madzhuga A.G. Conceptualno-teoreticheskie Osnovi fractalnoy pedagogical kak novoy Oblast Sosialno-humanitarnogo znaniya / A.G. Madzhuga, I.A. Sinisina, E.V. Filipenko / Nauchny dialogue. 2015. № 12 (48). S. 450-459.