



MODELING OF SOCIAL PROCESSES AFFECTING LABOR EFFICIENCY AND ITS IMPORTANCE

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ABSTRACT

This article discusses the importance of the application of mathematical modeling in sociological research, its theoretical basis and practical effectiveness. The article also acknowledges that its use in increasing labor efficiency can lead to better stools. Of course, now it is important to increase labor efficiency, improve working conditions and establish rational labor relations with employees. It is now clear that one of the most important tasks is to increase labor efficiency, improve working conditions and establish rational labor relations with employees. Therefore, the importance of the application of mathematical modeling in labor in the implementation of these requirements is theoretically demonstrated.

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Introduction

The problem of labor efficiency and economic development has always fascinated people to varying degrees at all times. This interest has been growing since the application of the technique in production. Over time, labor efficiency and productivity have led to an increase in the role of the human factor as a result of improvements in technology, improved production and labor organization, low demand for physical labor, and continuous improvement of their skills. Due to the development of science and its application in the production of its achievements, the attention to it is even greater.

It is known from the experience of the labor economies of developed countries that the increase in labor efficiency and productivity has ensured the development of enterprises and entire production, improved social conditions of employees and favorable prospects, which primarily led to improved living standards and interest in their work. Scientific and practical research in the social sphere has shown that the main factor in achieving labor efficiency in the enterprise is the human factor.

Economists, sociologists and psychologists, who understood human labor as the most important socio-economic factor and the main force in the development of society, in the 19-20th centuries paid great attention to the human factor in the scientific study of labor processes and relations, which brought great success and was confirmed in practice.

The main part. In sociology, modeling of social processes, studying the impact of social factors related to the labor worker on labor productivity, and determining the prospects of the subsequent labor process is one of the tasks facing science today.

We know that a model (Lat. Modulus - dimension, norm) is an image or model of an object or system of objects [1].

Also, a model is such a material or imaginary object that in the process of studying this object directly as an original object, we gain new knowledge about the real object. The famous Russian scientist N. Moiseev wrote: "The model can be considered as a special form of information coding. By using the model, new knowledge can be generated from old knowledge. Therefore, one of the important tasks of science is not only to encode and systematize accurate information based on the theory of this system model, but also to develop methods of theoretical analysis that decode potentially stored information in models that lead to new knowledge" [2]. Modeling builds abstraction in itself, forms a similar analogy, and develops a scientific hypothesis. Modeling is a key part of the structural approach. In sociology, due to the modeling process, the object under study is considered by its internal and external relations. Modeling is based on a systematic approach and is its final stage. Here, the systematic approach takes a practical view of the analysis of all interactions and relationships of the object under study.

A key requirement of the modeling process lies in the ability to understand using a substituted object. In this case, the model is seen as a specific understanding device that the researcher puts between himself and the object, with the help of which the object of interest is studied. It is the possibility of the modeling process that determines its specific forms - abstraction, analogy, hypothesis and other categories, as well as methods of cognition. "In turn, the modeling of social processes is manifested as a powerful mathematical apparatus for analyzing the nature and properties of social phenomena" [3].

In sociology, the modeling process re-imagines a previously reconstructed image of the object under study using causal, correlation, and factor analysis. Based on the causal analysis, the exogenous and endogenous parameters of the variable, latent, interdependent model are determined. Correlation analyzes the dynamics of quantitative indicators with the breadth of information. "This method is available in all statistical software and computer systems for processing sociological data. It is also possible to perform such calculations with Microsoft Excel" [4]. Factor analysis, on the other hand, can reveal hidden factors that can affect the performance of a relationship, cross-link, and describe the nature of the process model.

The following steps should be taken in building a model of socio-economic process in sociological research:

1. Formulation of the main goals and objectives of the research.
2. Defining the boundaries of the system, its separation from the external environment (in turn, the separation of endogenous factors from exogenous factors).
3. Create a list of system elements (subsystem, variable, etc. factors).
4. Substantiate the integrity of the system.
5. Analyze the interrelationships of system elements.
6. Construction of subsystem elements of the system.

7. Setting the functions of the system and subsystem elements.
8. Compatibility of system and subsystem elements.
9. Define the boundaries of the system and the elements of each subsystem.
10. Analyze events.
11. Bringing together different professionals during problem solving periods[1,5].

It is also possible to design separate stages in the construction of the modeling process: Problem statement and its qualitative analysis - at this stage the problem should be clearly formulated and some questions should be answered. In this case, the specific important features and aspects of the modeled object are separated and abstracted. The structure of an object and the basic elements associated with it are studied. An initial hypothesis is formed that explains the motion and development of the object.

Building a formalized model. At this stage in the formulation of the problem is to describe its exact mathematical connections and relationships in the form of functions, equations and inequalities, and so on. The causal relationships of an object are developed and described in the form of a diagram. First, the view of the basic mathematical model according to the rule is determined, then the details of that view are determined.

Mathematical analysis of the model - at this stage the general features of the model are determined, and most importantly, the proof of the formalized model is carried out.

Preparing to draw conclusions from preliminary data - there are strict requirements for data system modeling.

Data acquisition capabilities may limit the choice of models for practical application.

Hence, based on the theoretically based stages of the above modeling, we identify them by carefully studying internal and external social factors in a systematic study of the process by which the social status of employees affects labor productivity. Factors need to be causally related to each other and one to cause the other. Then we perform a correlation analysis of our obtained factors and use dynamic numbers derived from the correlation results to apply them in mathematical modeling. By using these numbers in mathematical formulas in a computer program, we can draw and plot graphs of a socio-mathematical model that shows how much or how much the social status of employees affects productivity. This helps us to constantly study and analyze the extent to which the social factor influences the labor process and labor efficiency in an enterprise.

Results. So, we think that modeling helps us to create a model sketch based on the necessary analytical and graphical mathematical developments of labor efficiency and the social factor, which is the object of our study, and to study them quickly and efficiently in the work process. Therefore, according to research scientists, today in the world economy and sociology, scientific research on mathematical modeling is becoming increasingly important in obtaining very in-depth and complete valuable information about the mechanisms of the phenomenon under study. After all, as the great mathematician Leonardo da Vinci said, "Any knowledge without mathematical operations is far from the truth".

We believe that at a time of rapid socio-economic reforms in our country, in any labor process, taking into account the social status and interests of man, the identification and rational use of their impact on labor efficiency should become the main goal of every business leader. After all, labor efficiency is determined by human intellectual potential, physical health and socio-economic interests. Given that these processes take place differently in enterprises in different conditions, its scientific study from the

point of view of a single socio-economic modeling will certainly serve as a key determinant of the prospects for labor efficiency in business.

Conclusion. Today, when studying the effectiveness of work in higher education institutions, taking into account the individual characteristics of each professor, for the optimal use of their pedagogical and scientific experience and knowledge through the development of a system of science-based assessment methodology increases the productivity of professors and teachers and provides a higher quality level of teaching students.

One of the most important factors in the study and analysis of socio-economic factors influencing the effectiveness of the work of professors and teachers is to determine the importance of their impact on the overall indicator of their effectiveness. In practice, this is very difficult. In this direction, the task becomes easier if we use the method of variance analysis, which is one of the fields of mathematical statistics[6].

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