

THE USE OF SIMULATION MODELING IN STUDYING PROBLEMS OF SUSTAINABLE DEVELOPMENT

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RESUME

At simulation modeling of the sustainable development both the economic and environmental criteria should be considered equally.

Although most of the models don't allow for the perfect forecast of the dynamics of environmental and economic entities and forming of recommendations for the people dealing with these issues, the models play immensely important role in solving environmental problems, ecological education and environmental awareness. At the same time it is necessary to remember that sustainable development cannot be accomplished all by itself and requires special targeted management actions.

Key Words: sustainable development, economic sustainability, Simulation Modeling, Interactive Learning, Professional identity.

INTRODUCTION

Notably, nowadays a significant part of the entire multitude of problems that are being solved is represented by problems related to issues of sustainable development, a market economy and globalization that are relatively new for our scope of competence. To ensure that these problems are solved at an appropriate level, it is necessary that the individual specialists constantly improve the knowledge gained and master new professional skills.

Achieving the necessary level of knowledge and its practical application is possible with implementation of the wide range of the various interactive teaching methods.

Based on the experience of the Center for Simulation Modeling and Interactive Learning Methods of the Tbilisi State University, in selecting the teaching methods for the economic sciences it was necessary to re-analyze the content of the subject, to establish the order and methods of applying theoretical knowledge to the future professional practice of graduates.

Study of the existing concepts of sustainable development and corresponding simulation game models is necessary for making conclusions on the problem of simultaneous sustainable economic and environmental development. Sustainable development means not only non-exceedance of the human impact on the environment but also adequate economic development ensuring satisfaction of the people's material wants determined by the concrete social and cultural conditions of the public life.

For achieving the most favorable conditions for the formation of the professional identity of students and their close engagement into the said process, a number of practical aspects were taken into account. Thus, an interdisciplinary approach to the problem was incorporated into the simulation of economic processes. To this end, psychological and didactic aspects of the management process were included in the managerial games, which furnished greater credibility to the developed model [1, 3].

In simulations of sustainable development processes, both economic and environmental sustainability were considered, and students were asked to choose the most appropriate development option, which would ensure economic growth with the lowest environmental impact [1,2].

It is necessary to provide for management of activities directed at achieving conditions ensuring the sustainable development. This is the field where simulation game models render invaluable facilities at determining the most efficient actions for reaching the said objectives.

Sustainable development business games within our training practices use models solving the issues of the justified strategy of

the acceptable options of economic activities consistent with environmental protection. It is common knowledge that in real life withdrawal from economic development due to the following principles of the environmental awareness in its extreme leads to the “zero growth” of the countries’ economy.

Use of environmental business games presents unique opportunities in optimization and comprehensive analysis of environmental conditions, their management and prediction of the possible implications of wrong decisions, and all this within the tight time schedules thanks to the capabilities of simulation games.

All these measures were directed towards ensuring that students acquire interdisciplinary knowledge and skills while attending the university, towards enhancing their self-awareness and development of the significant abilities necessary for their professional activities, which ultimately contributes to the formation of professional identity of future specialists.

As a separate note, I want to emphasize importance of management games. Mastering the fundamentals of management is primarily included in management games, as they contribute to the adaptation of managerial skills of the future managers. In real life this would require many years of professional experience in one of the managerial positions [4].

In this case participants of the game quickly master the behavior pattern, memorize the cause-and-effect relations and learn the basics of the feedback communication between management areas. This makes it possible to carry out a comprehensive analysis of the results of each player’s decisions.

Availability of computer support in management business games makes it possible to use ready-made structural models on the one hand and to ensure a permanent recourse to the data bank, to information on earlier decisions and their effectiveness on the other hand. All this allows for replaying various versions of the prediction model again and again.

The player can only act within the scope of acceptable solutions.

Going beyond the boundaries of this area causes a blockade of the operations, which encourages a second analysis of the economic situation of the subject of simulation in order to make the right decision. A kind of replacement of real experience is introduction to and gaining proficiency in the management functions by students, and against the said background, mastering the skills of making collective decisions.

Thus, a business management game is a quick, interesting and useful training for any manager. Any “manual”, computer, clipboard and analytical game allows for tracing a chain of cause-and-effect relationships comparable to a real life ones. However, in the game, the student does not pay for the consequences of erroneous decisions, as it would be in real life professional activities. And, of course, there will be no aspect of the actual situation or responsibility pressure. Nevertheless, each participant is free to choose thinking and acting pattern of the person whose role he plays performing a specific task.

Underestimation of personnel training is a typical trait for countries in transition. Here rather than elsewhere it is necessary to implement interactive teaching and simulation methods that are especially important for economists. This is proved by the fact that this type of training is important not only for the development of skills for making complex and comprehensive decisions in economics, for acquiring job knowledge, but also for adoption of the western management standards.

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RESUME

The sustainable development issues, which address both ecological and economic development, address the need to maintain a rational regime of human impact on the environment and to ensure an adequate level of economic well-being.

To solve these problems, professional staff should be trained and effective teaching methods selected. Different interactive methods, including imitation models (business games), are used to obtain the appropriate level of knowledge and to implement it in practical activities. Although most models do not provide ideal forecasts on the dynamics of ecological and economic entities, they play a major role in environmental education, the formation of ecological cultures, and the resolution of environmental problems.

The article discusses the imitation of the modern Tbilisi Universal Modeling and Learning Experience working in a centralized field in this field and the results of the students' business activities, their ability to make rational decisions independently, which ultimately fosters students' professional development.