

Psicología y Educación: Presente y Futuro

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ACIPE- Asociación Científica de Psicología y Educación

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Ediciones : ACIPE- Asociación Científica de Psicología y Educación

ISBN: 978-84-608-8714-0

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Business games and Environmental psychology

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Abstract

The quality of games as “serious” games were used in the sense of dialog – plays by philosophers of ancient times and humanists far long away. Georgian scientist, the founder of the National psychological school D. Uznadze at the beginning of the 20-th century determined that with the help of games it’s possible to instill good manners in children, to educate and train them. The article discusses the environmental simulation games, which develop environmental awareness not only providing for the knowledge of the conditions and changes in the natural environment, but also contributing to the identification of possible ways and means for solving environmental problems.

Key Word: Interactive methods, Business game, Simulation Training; Computer-aided Training; Expert Systems, Business Training, Simulation game.

The playing therapy technique was developed on the psychoanalysis basis J. Moreno the leader of American micro sociology used his own specially developed play based method “Psychodrama” and “Axiodrama” in psychotherapy.

Simulation technologies in comparison with traditional modeling methods allow to play over all possible variants of decision for the decision making results.

Modern education system uses games for developing new skills. Game as a model of social life model that could demonstrate social roles and social functions became a popular method of sociological and socio- psychological investigations. Business games are spread wildly and the sphere of their maintenance is rather different.

Simulation training technologies imitate management, industrial and economy processes using analogues of real models. This method most successfully unites the experimental, analytical and expert methods.


Computer-aided training systems, which are based on student feedback, are widely used in university education or in industrial and professional training in companies and organizations all over the world.

This paper addresses the experience of the University Educational and Research Center for Simulation and Interactive Learning Methods of Ivane Javakishvili Tbilisi State University in development and introduction of the modern teaching technologies.

Using of Simulation Nature Protection Business Games could give an outstanding opportunities for optimizing and wide spread analysis of environment, managing this process and predicting the false decisions. The positive moment is that everything

Is possible to arrange in a short period of time due to the possibilities of the imitation games.

Used in the education process of the State University of Tbilisi ecological simulation games combine in itself the problems of nature protection and economy. They are modeling the most significant factors of economy development of the state and region, or problems of rational use of resources and response of nature to the anthropogenic influence.



The special field represent simulation models that are oriented on ecological problems solving on the international level and at the same time taking into account psychological peculiarities of people from the point of view of their disposition for collective action which depends of psychological or even anthropological personality type according to the opinion of the first rate positions of forming advantageous strategies and consensus achievement are coming forward.

The purpose of the business game *Mediterranea* is to develop skills for the alignment of the group and society interests. The prototype of this game is the game *COMMON* by American psychologists R. Powers, R. Doose and R. Norton, which addressed the economic system with eight different individuals using the same resource. The authors used the game for identification of the psychological constitution and team-player abilities of individuals.

In our version of the game we simulate conflict of interests whereby economic and industrial interests of eight Mediterranean countries, pursuing industrial, agrarian and tourism oriented economies, conflict with the environmental interests. We build our game upon the concept that all human activities are determined by their social and economic interests. So the said Mediterranean countries act as per their economic incentives and overlook environmental concerns. The game is of a concordant type where the representatives of France, Italy, Greece, Spain, Algeria, Israel, Arabia and Turkey should draw various agreements. Any decision taken by them is followed by the corresponding results such as rise of revenues and compromise of environmental balance in the Sea or drop of revenues followed by environmental improvement.

One round of the game stands for a month. During this round the players implement one of the following decisions:

1. Refraining from waste water treatment and contamination the coastal area
2. Provision of the waste water treatment and clean coastal area
3. Implementation of penalties for sea water contamination
4. Rehabilitation and modernization of waste water treatment facilities

Information matrix, divided by rows reflecting different degrees of pollution at the common and/or industrial levels simulates the sea environmental conditions. This is where the results of the exercised options are shown, e.g. if the parties use option 1 the indicator of the sea water conditions shows major pollution.


Decisions are fixed by the anonymous parties in their record cards and only game conductor knows the options by the countries taken during this or that period. This leads to participants blaming each other for the resulting contamination and try to prove such accusations as well as provide evidence of own innocence with this respect.

Here evolves the pedagogical potential of the game: the participants need the evidence for proving their accusations so they investigate the economic position of each participant country, its industry, the levels of development of its agrarian and community facilities to identify potential sources of contamination. They need to find out the environmental, economic or geopolitical problems pertaining to each of the participant countries.

But there is a mutually beneficial strategy that should be worked out by the participants. For this purpose negotiations are scheduled each eighth month where the countries should agree on a further round strategy. The result of such negotiations should be adoption of the mutually beneficial strategy providing for the sustainable environmental management, as otherwise economic standing of all Mediterranean countries is compromised.

These types of business games train students in negotiation skills, teach to integrate environmental management and economic interests and study some of the aspects of the globalization process.

Business game **Sustainable development** (Author: Prof. D. Kavtaradze) presents the model of the regional de-



velopment, based on which it is necessary to select economically effective option which is acceptable also from the environment protection point of view.

The activity is carried out in the region situated in the forested zone. The region includes the town where industry is under development, namely, it is planned to build various industrial plants with their production consumed locally as well as supplied outside the region.

The region as well includes peasant farming area developed in response to the demand of the town population for the agrarian produce. The town should be supplied with grain, meats and dairy, therefore the dual-purpose cattle breeding should be developed.

Another development direction is tourism on the strength of the natural and geographical resources of the region. This implies development of the hotel and recreational infrastructure. Considering the above described conditions the model embraces all the main sources of human impact on environment.

The objectives of the game: students to develop skills for solving practical issues in the social and economic environment considering the environment protection aspects and concrete economic pattern of the industrial development of the region. The participants are the management and administration parties dealing with these issues in reality. The model offers various options for development of the region, while a priori evaluation of the results of their implementation is quite difficult.

The game uses the breadboard simulation model helping students in placing industrial, agrarian tourist and other objects. For scoring of various options of the development of the region the game uses the so called “calculation block” where, based on the input start-up capital, the students have to calculate the costs of the project development, considering directions of outgoings that stipulate multiple-choice alternatives, thus adding challenge to the game. The simulation game is finished by analysis and selection of the developed projects.

Computer Business Game ECOTEA (Author: J. Tolordava) is rendered in the form of the Learning System, where the students have an opportunity - in the computer dialogue mode - to simulate cultivation of the ecologically clean tea within the average duration prospects selecting from the various solution options (up to 300).

The objectives of the game are to teach activities pertaining to the given field of agriculture, its specifics and selection of the solution that ensures efficient land-use management with the minimal environmental impact from the land treatment operations together with the maximum production output with minimum costs and expenses. The structure of the computer simulation model based on the said approach was developed as per the following pattern:

Soil – Tea Plant – Environment


Simulation system is based on 10 main sub-systems involving 10 various types of soil with the corresponding conditions and the respective response agro-engineering framework, aimed at growing ecologically clean high quality tea.

Based on the above described principles 10 different agricultural charts have been drawn, listing all the agricultural activities, necessary for cultivation of tea in each specific plantation type.

The game simulation model includes four peasant farms with soils typical for the West Georgian region.

All charts have corresponding numeric base file characteristic for each peasant farms as per the following features: costs for the land treatment, costs for the soil fertilization, irrigation or draining and for the crop engineering.

So far as the model is structured as a Learning System it has, apart from the numeric base file, also the digital data base containing data characteristic for the given agricultural field. The model considers all the advanced designs of Georgian and world’s leading scientists, offering the schemes of pesticide and mineral fertilizer treatment ensu-



ring minimization of the environmental impact. This and any other information on effective use of any agricultural activities is given in the data base files, helping students in finding correct solutions. Incorrect solutions receive the “computer arbitrator’s” alerts with analysis.

The ECOTEA model example allows for forecasts for the Soil – Tea Plant – Environment system, its analysis and - to the certain levels – its management aimed at prevention of the negative environmental impact of the human economic activities. This ensures sustainable development of the farming economy and the field in a whole.

Flexibility of this model allows its use for simulation of cultivation of any other ecologically clean agricultural produce.

It’s to say that of Simulation Nature Protection Business Games used at Tbilisi state University allows to gain knowledge and skill in decision making and have a high cognitive potential. Games under consideration were demonstrated several times on Georgia TV and their videotapes were demonstrated during the international congresses and conferences.

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