

## Modern Training Technologies in University Education

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### Abstract

During the reform of the universities' tutorial system, oriented at the globalization of education, election of the effective teaching models and their introduction into curriculum became most important today. These processes are enhancing requirements to proper structuring of professional education; putting forward the necessity of the development of the cognition activity and the professional skills in students via the introduction of the new, modern tutorial practices.

Dynamic professional education requires introduction of integrated teaching methods that ensure advanced development of professional, pedagogical and cultural skills of students. Such methods are simulation technologies, computer-aided training systems, cognitive training techniques, web technologies and controlled self-training technologies.

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. Cognitive training systems aim at identification of cause-and-effect relation with the master data.

Web technology training is based on permanent student-teacher communication via the telecommunication technologies such as email, mailing lists, bulleting boards, chats, forums, videoconferences, etc.

Controlled self-training technologies refer to extracurricular learning, when the student, under the supervision of the professor, selects topic and the relevant publications, prepares an essay and its presentation.

This paper addresses the experience of The Laboratory of Active Training Methods and Simulation Modeling of Ivane Javakhishvili Tbilisi State University in development and introduction of the modern teaching technologies.

**Key Words:** Integrated Teaching Methods; Simulation Training; Computer-aided Training; Systems Extracurricular Learning.

On the basis of the current reforms in high schools, and the globalization process in education, choosing effective forms of teaching and their introduction in educational process is much more topical today than ever before. These processes required professional organization of students by the establishment of modern technologies, and the development of students' cognitive activity. Exactly here the creative methods fuse some computerized technology. Herewith, in this epoch of rapid changes in socio-techniques, socio-culture and economics, such as training of staff, adult education and refreshment of their knowledge becomes very significant. The university plays a crucial role in this process as far as the professional direction of education, deepening professional knowledge by learning

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all kinds of innovations; all have advantages in continuing and adult education. In achieving all these, the university has the real advantage.

Various modern technologies and methods are used in the educational process of worldwide universities today.

Game technologies of learning (Simulations) imitate governing, industrial, and economic processes that spread over the analog models of real objects. This develops the skills of students in practical work and decision-making process.

Computerized simulative models took a worthy place in world's university, adult education and continuous distance learning.

The aims of the game are strongly linked with the practical requirements of specialists. This given form of learning excludes the resistance between the abstract learning discipline and the reality of professional occupation. It also assists the interdisciplinarity of knowledge.

Cognitive models are used when the creation of the formal traditional quantitative models is impossible. The existence of illegibility and heterogeneous evaluation of decisions makes it possible to describe it only on a qualitative level. Apart from knowledge, the problem solution requires the necessity of having intuition, experience, thought association, guessing and finding the right answer. The science providing the transmission of the information about such problems to the computer is called ``knowledge engineering`` or cognitology.

The special cognitive models train the administrative staff in micro/macro economics and regional management units. The learning objective of these models is to pass the administrative staff simultaneously on more difficult assignments.

In this way, the usage of cognitive modeling instructions in the training process develops effective constructional managerial skills of students and personnel. All these together help to train professional administrative staff, which is an essential factor in terms of strengthening and developing business relations.

Due to telecommunication technologies, with the usage of this method a student and a teacher can communicate with each other permanently during their classes (e-mail, chat, forum, and video-conferences).

Students can attain teacher's tutorial during their independent work. They also participate in distance-learning (video classes, seminars, colloquiums, and etc.) in on-line regime or by using video records with the help of special computer program. During distance-learning special subdivisions are formed (virtual lecture-rooms).

Lecture-rooms are designed for frontal video on-line classes by using video conference connection, which implicates the implementation of the general assignment by the students' group.

Chat – is the web site for on-line conversations and is used to conduct seminars, debates and business games. Forum – or teleconference is held during seminars, practical and lab classes. Students receive methodological materials to carry out the laboratory assignment or guidance how to conduct the research. Tutorial classes – are held to conduct group tutorials before exams or during the semester in certain cases. Classes are held through network. Study and methodological materials are available on server, the session is conducted on-line.

### **Usage of Video materials in Studying Process**

The component parts of new teaching technologies are: video movies, video records of teaching process, video trainings. So called on-line frontal video-classes already exist in distance-

learning via internet. But, as for video teaching movies, video trainings, video cassettes, which are comparatively new forms of teaching methods, might become unalterable sources. Video movies are used as: additional source of information, for studying foreign countries' experiences, for analytical examples to appropriate topic questions by showing abstracts from video movies, for learning these teaching methods and decision making due to video business game records. In all cases, video materials assist students' encouragement and extension of their cognitive motivation.

In the process of video training, group of students take part in decision making and discussions in assignments and situational-cases prepared by specialists. The process is being filmed on the videotape, which must be seen after finishing the instruction. It is important because it requires analyses by the training instructor who will make appropriate conclusions. The main purpose of this method is to give the students skills in business dealings and provide them with insight in decision making.

Video trainings, teaching video films, and business role-plays are the central points in contemporary technologies, which clearly showcase, actions of the personnel during training and decision making process. Finally this contributes to the development and formation of new staff.

It must be noted that new technologies for instruction compared to other methods of teaching, require much energy, concentration and creative improvisation, from those in university the workforce who apply this method in their teaching.

Accordingly, support from university administration is inevitable, in implementing and the methods mentioned above.

Tbilisi State University of Ivane Javakhishvili helped formation and modeling of intensive teaching methods and business role plays in the university Labs, which are used with great success. These are: managerial, industrial-economic, and *consultative* business role plays.

### **Managerial business Role plays**

The purpose of the business game "Mediterranean" is to develop group and society interest correlation skills. In this given game (R.Powers "Common" version) Mediterranean Sea countries (8 countries) economic (industrial, agrarian, tourist fields) have conflicting interests in environmental protection concerns. The main purpose of the game is to work out profitable strategy; to exercise skills in discussion rounds; to integrate protection of the country's environment and economic interests and study some of the aspects in the globalization process.

The business game "Career" is being implemented according to expert computer system method, where students have expert functions. In certain matrix of management personnel, professional, business and certain psychological trait factors, which are ranged and then correlated by the participants of Computer "ideal instructor" Later game participants calculate correlation of range coefficient, the meaning of which gives closer view of the person's "ideal" variant.

The business game "Check yourself" is performed in a style of computer expert system. The game uses behavioral model. It compiles different situations, and best ways of problem solving, from where game participants choose more appropriate variant for themselves. Accordingly they get analytical answer that is given by "Computer" expert. Above mentioned system develops analytical and forecasting skills in a student.

Computer expert system “Manager Rating” is based on the conception worked out by R. Benett, according to which evaluation is carried out taking into consideration the following three factors: personality of the specialist, his managerial skills, determining role of manager in achieving goals of the firm.

According to the results, students are given advice on what the most important skills are necessary for successful management.

During the business game “Delegation” students distribute roles and carry out delegation procedures in practice. As a result of group discussion the most rational variant of distribution of responsibilities is created.

The business game “Conflict” aims to help students gain knowledge and skills that are crucial for professional work. Purpose of the game is to determine type of conflict, and find solutions. Students are divided into groups and compete with each other. The correctness of the decisions made is cleared up in the process of discussion.

The computer business game “Branch Structure of Industry” consists of given examples of the three countries, including Georgia and the students should be able to analyze the economic situation of the given countries, create projects and discuss them. The second aim of this game is to establish economic relations according to the geopolitical situation, and the economic and political interests of those three countries.

#### Industrial and Economic Models

The business game “Incomplete Concurrent” teaches students market mechanism necessary for functioning of an industry: effect of demand on production price, number of workers, profits, elasticity, incomplete competition, etc.

In the business game “Industry” general regulations are used, that stimulate businessmen to make concrete economic decisions. Representatives of joint-stock companies, small industries and L.T.D.s are participating in this game.

The goal of a computer model “Strategy” is to select strategy of “Production-Market” type. According to the data and economic and mathematical methods used in this model, students are able to make right decisions. “Computer Arbiter” gives analytical answers to every decision.

The business game – “Consulting in Industry” (diagnosis of financial standing). The aim of this game is to teach students the specificities of consulting. Those students who play a role of consultants analyze financial conditions on the real industry example and thus make diagnosis on its bases.

Computer-based business game “Diagnosis of Industry System” (Diagnosi del sistema impresa) is drawn out by Italian specialists. This business game is conducted by Italian Universities in the courses as “Consulting”, “Personal- Management”, and “Industrial Management”.

The Computer-based model is a Learning System, and its database includes industrial indicators, the units of “Analysis and Synthesis”, “Priority Areas”, and “assessments” of drawn out projects. Using above-mentioned unit students consistently do appropriate tasks in a computer-interactive mode. All decisions made are accompanied by illustrated matrix and analytical units that indicate to students’ errors or correct choices and gives advice how to conduct exact work activities.

In the business game – “Stable Development” the model of regional development is imitated; according to which best variants from the perspective of economical effectiveness and suitability for protecting environment are selected. The aim of the game is to develop students’ habits of solving problems practically in specific socio-economical peculiarities, taking into consideration the

development of ecological aspects and regional industries. Model imitators and calculated units are used in this game. The business game comes to its end after the decisions of worked out projects.

The business game – “Rotor”. This game provides students with opportunities to make diagnosis of real industry example, to plan how to overcome crisis, and to draw up industries business plan. In ht model the problem of scarce resources, providers’ instability and absence of finances are described. For the complex, multi-variant problems, students have an opportunity to make appropriate decisions on the bases of diagnosis and analysis of industry’s conditions.

The above-mentioned models are just small portion of those imitators, which were worked out at Tbilisi State University’s Models Imitating Laboratory and those which were brought from other foreign top universities. The aim of such business games is to improve the professional level of a wide-circle of students and specialist.

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