USING MANAGERIAL SIMULATIONS IN THE PROCESS OF TEACHING AND LEARNING MANAGEMENT

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Currently, there is a major interest in economic and managerial education and training because of the knowledge society development. New ways to equip teachers and learners with the competences and skills they need for the knowledge society and economy should therefore be found. Development of the information and communication technologies has opened new perspectives both for the students and teachers. Computer applications, computer games and simulations are often used within the teaching and learning processes. The aim of this paper is to present the managerial simulation used in the process of teaching and learning Management at the Faculty of Management from the Academy of Economic Studies in Bucharest.

Key Words: information and communication technologies, web-based education, management, managerial simulation, PRELEM XXI.

Introduction

This paper explores how the use of computers and managerial simulations could improve the process of teaching and learning Management. I believe that managerial simulations should be used for teaching and learning Management because they could improve the team work, the critical thinking, and the decision making. The study is based on evidence provided by articles, books and personal experiences. The research question was answered by analysing published sources and interpreting evidence. Another way of approaching this question could be collecting and analysing empirical data from the students and teachers and comparing the results with the findings of this study.

Computer games, such as PRELEM XXI, could be used to produce rich educational materials which support collaborative learning. At Faculty of Management from the Academy of Economic Studies in Bucharest we have deployed this game within the context of managerial education. This paper reports on recent research focused on the education of economists specialized in management science. The motivation for this study was justified because business and economics involves a social dimension, meaning that people learn, work and live both as individuals and as teams, as society. Another reason is that PRELEM XXI was designed to produce real situations within the wood industry processing. It supports multi-player interactions as well as individual thinking and learning. All these factors make this game a viable vehicle for the study of Management, providing tools for creating realistic economic and managerial environments.

Background

In the last few years, there has been a growing understanding of the important role of information and communication technologies (ICT) in education. Various new models of education are evolving in response to the new opportunities that are becoming available by integrating Web-based technologies (Barak M., 2007). The interdependence of communicative interaction, new technologies, the development of computer applications, the design of computer-based tasks and focused activity for learners to become critical thinkers and creators of knowledge is a reality of the new educational model. (Kimber K. et al., 2007).

Knowledge-based society needs major changes in the educational programs, being necessary to prepare teachers from all fields, in such way to use the information technologies in computer assisted learning (Pănoiu M. et al., 2006). When teachers are using the ICT in learning activities these become more attractive (Ilomaki L., Rantanen P., 2007), but not all teachers are convinced that ICT should be an integral part of their teaching strategies and this is one of the most difficult barriers for effective ICT integration (Barak M., 2007). However, this resistance to change is more specific to older teachers that were not used to the new technologies.

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E-learning services deliver electronic learning materials to distant learners and it is considered to be the new vehicle that would lead education to new learning methods (Vovides Y. et al., 2007). E-learning could be defined today as the technology and the services used within the teaching and learning processes. It is a wide term covering all the range of previous educational applications such as Computer Based Training (CBT) and Web Based Training (WBT), as well as more recent technologies such as Learning Management Systems (LMS), virtual classrooms or labs and digital collaboration (Doukas N., Andreatos A., 2007).

In Web-based learning environments, maintaining interaction is more challenging than in face-to-face learning contexts because of the time and space separation enabled by the technology. In the context of Web-based learning environments, researchers and designers have shifted their focus from learner–content interaction to learner–learner interaction as well as from the quantity of interaction to its quality (Woo Y., Reeves T. C., 2007). Despite advances, more and better research aimed at improving the learning effectiveness of online interaction is nowadays needed. E-learning management systems are used to deliver courses at a distance via the Internet. These systems include sub-systems that present content as well as facilitate student–student and student–teacher interactions (Rovai A. P., 2007). Both online and face-to-face classes could be enhanced with communication technologies and the use of real time interaction in virtual worlds. These innovative tools can extend the content and enhance the effectiveness of instruction. They are free or inexpensive opportunities that support collaborative projects, meetings, and the building of communities based on reality or focused on inventive constructions. Technologies that support faculty/student and student/student interaction, whether real time or asynchronous, promote and support collaboration and discussion (Yoder M., 2008). With the development of the Internet and its communication and sharing affordances such as Email, chat, Web discussion forums, and other technologies, people are being exposed to more varied and frequent interaction opportunities than humans have ever experienced before (Woo Y., Reeves T. C., 2007). This fact could lead to a better learning and teaching process and also to the development of new and attractive methods for teaching and learning.

Universities and other higher education institutions are highly involved into knowledge creation, diffusion and learning. University’s competitive ability depends on institution opportunity to share, spread and adapt knowledge as well as it is created. Modern students will require regular updating of their knowledge, skills and competences. (Beleviciute I., Sileikiene I., 2006). Therefore, teachers should conscientiously redesign their courses and adopt new instructional methods and appropriate technologies to fully exploit the benefits of web-based learning environments (Lee T. H. et al., 2007), and computer simulations in education. Flexible and innovative teaching and learning based on computer applications will expand and will change the educational process. Within a knowledge-based society the educators and their organizations have a changing role, but, in the same time, they need to manage the processes associated with the creation of their knowledge assets and to benefit from the use of computer applications. In this respect, the skills and competences needed for the knowledge-based society and the impact of using computer applications to the teaching and learning processes are becoming important issues to analyse.

Use of PRELEM XXI managerial simulation for teaching and learning Management

The process of teaching and learning Management is a very complex one because the students need to develop different skills related to psychology, communication, critical thinking, economic and social thinking, decision making etc. (Zamfir A., 2008). This study is the result of some years of personal experience in teaching Management for Romanian students and using managerial simulation entitled PRELEM XXI in class in order to develop the skills that students need for their further activities in the knowledge-based society.

PRELEM XXI managerial simulation was created and developed by a group of teachers from the Faculty of Management from the Academy of Economic Studies in Bucharest. They also created a forum for the PRELEM XXI managerial simulation (figure 1), where the students and other people interested could find information related to the game. The forum is structured as follows: General Information (general rules, useful documents, the situation of decision introduction for the Faculty of Management from the Academy of Economic Studies in Bucharest), Discussions (supply, production, equipment maintenance and repairs, sales, marketing, human resources, research and development, investments), and Varied other subjects (diverse).
Managerial simulation PRELEM XXI has some characteristics such as (Nicolescu O. et al., 2005):

- PRELEM XXI is a general managerial game which simulates most of the activities of an enterprise in order to achieve the main objectives of that enterprise;
- PRELEM XXI is a team managerial game, because the students work in groups;
- PRELEM XXI is a computational managerial game which processes information using the computer;
- PRELEM XXI is an interactive managerial game, because the actions and decisions adopted by the participants are influencing each other to some extent;
- PRELEM XXI is a medium-superior managerial game, because it simulates management and execution processes within the enterprise made by the medium-level and superior-level managers.
Within managerial or industrial games such as PRELEM XXI each student is a member of a group (virtual company) and the class is split into 4-5 groups (virtual companies). The final decisions are the sum of individual decisions first and group decisions second. The initial data (inputs) are identical for each of the 4-5 companies. However, the big number of decisions adopted (circa 60-65 decisions per simulated month) rapidly differentiates the behaviour of each company. Playing the game is based on decisions obtained from calculations and foundations manually executed, and the final result is obtained through successive processing of these decisions, simulating on P.C. 12 months of industrial activity (figure 2).
INDUSTRIAL ENTERPRISE GAME (MANAGERIAL SIMULATION)

IDENTICAL INITIAL MOMENTS (Listing Reports)

4-5 students

4-5 students

4-5 students

4-5 students

4-5 students

Analysis of the activity / Programming the activity MONTH N+1/N+2

Individual decisions or group decisions

BOOK

BOOK

BOOK

BOOK

BOOK

Industrial activity simulation (month N+1)

P.C. PROCESSING

P.C. PROCESSING

P.C. PROCESSING

P.C. PROCESSING

P.C. PROCESSING

MONTHLY RESULTS (Listing Reports)
Simulated activities within PRELEM XXI game are: foresight (prevision), technical conception, investments, supply, production programming, production, equipment maintenance and repairs, sales, products marketing, financial activities, accounting, and human resources. The students take on decisions for each simulated activity, based on the PRELEM XXI book, on their previous learning and on their managerial knowledge. Basically, the students from each simulated company must adopt many decisions, such as: annual forecasting; monthly forecasting; supply decisions; scientific research decisions; new products assimilation decisions; production decisions; marketing and sales decisions; human resources decisions. After taking on the decisions, the students must introduce the data into a computer in order to be processed and wait for the managerial reports with the results of the simulation. The situation of decisions introduction can be found on the PRELEM XXI forum and it is revealed as an illustrating example in figure 3 and figure 4 (http://www.prelem.cnesmc.ro/viewforum.php?f=2, http://www.prelem.cnesmc.ro/viewtopic.php?t=2).
Managerial reports are sent (E-mailed) by the simulation coordinator to each company after the managerial decisions processing. These reports contain the results of the simulation for a simulated month, grouped on the following activities: forecasted objectives situation; validated decisions situation; processed decisions situation; products assimilated in fabrication situation; functioning technologies situation; research activity situation; starting material situation; production situation; human resources use and equipments use situation; selling and products stocks situation; marketing studies situation; costs and profit situation; financial activity situation; achieving forecasted objectives situation.

**Conclusion**

We can conclude that the simulation is quite important to assimilate the theoretical concepts in Management and to put them in practice. Also, the managerial simulation enhances the teaching and is more attractive for the students. PRELEM XXI is quite simple to use, due to the advantage of not having to learn a new “language”, and because of this the students could concentrate on the analysis and decision making process. The simulation becomes an aid during the teaching-learning process to reinforce the theoretical concepts. The simulation promotes competition between the companies (groups of students), but in the same time, it promotes team work inside the companies.
References


