

**CLADEA**  
**Guide** to  
Responsible  
*Business*  
**Education** in  
Latin America

*Edited by* **Mariella Olivos Rossini**

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# 12

## Use of computer-based business simulation methodology in order to get a master's degree

Gonzalo Guzmán Sanjinés<sup>1</sup> [gguzman@upb.edu](mailto:gguzman@upb.edu)

Diego Guzmán Nagel<sup>2</sup>

In this article we share the experience, methodology and results of using business simulation as a master's degree certification process for MBA programs in Escuela de Graduados en Economía y Administración EGEA, the business school of the Universidad Privada Boliviana (UPB).

Business simulation implies an experiential education methodology that stimulates the engagement of students in the learning process (Thompson and Stappenbeck, 2016); it encompasses a continuum of technology intended for educational purposes and can be conceptualized as a practice environment created in order to develop attitudes, concepts, knowledge, rules and executive skills (Salas et al., 2009).

- 1 Gonzalo Guzmán Sanjinés is a project assessor in the postgraduate department and Strategy professor at the Universidad Privada Boliviana, earned a PhD in Economy and Business Administration at Universidad Politécnica de Valencia, Spain, and an MBA at ESAN, Perú. Since 2003 has worked as a tutor to MBA students, and since 2005 has been developing the computer-based business simulation methodology institutionalized at UPB in 2009 as a degree certification method.
- 2 Diego Guzmán Nagel is a certified business simulation instructor and Social Responsibility and Applied Marketing professor at Universidad Privada Boliviana, earned an MBA at Universitat Politècnica de Catalunya, and an MBA specialized in Leisure Management at Escuela de Administración de Empresas Barcelona, as well as Master in Strategic Management and International Business at Universidad de Sevilla. Since 2005 worked in the development of computer-based business simulation methodology at UPB.

**This document analyses the benefits of using the computer-based business simulation and managerial skills that participants develop during the titration process; it finishes with the presentation of the successful graduation ratio in MBA programs of the EGEA Business School and a compilation of the experiences of students who participated in business simulation courses.**

**Keywords:** business simulation, student engagement, managerial skills, knowledge application

This article shares the experience developed by the EGEA Business School of the Universidad Privada Boliviana, using business simulation methodology to get a master's degree within MBA programs. Business simulations provide a structured learning environment which permits students to apply knowledge acquired in classes, develop management skills, and also live the experience of being an executive in a global company. Academically, this methodology: has improved the graduation success ratio; is one of the principal achievements of the Universidad Privada Boliviana; and has pioneered the idea of universities designing business simulation courses for MBA and executive programs.

## **EGEA Business School (UPB)**

Universidad Privada Boliviana (UPB) is a university sponsored by the Private Enterprise Federation of Cochabamba (FEPC) and the Confederation of Entrepreneurs of Bolivia (CEPB); UPB started its activities in 1993 in Cochabamba, Bolivia.

The postgraduate department is composed of three schools:

- Escuela de Graduados de Ingeniería (EGI): specializes in master's programs for engineering.
- Escuela de Graduados de Gestión Pública (EGEP): courses designed for the public sector.
- Escuela de Graduados de Economía y Administración—EGEA Business School: offers PhD and master's programs for enterprises; has a presence in five cities in Bolivia.

This paper summarizes experience regarding methodologies based in business simulation at the EGEA Business School since 2009.

## The experience

Business simulation was introduced in 1956 by the American Management Association (Cohen and Rhenman, 1961). Its use for educational purposes has increased during the last 10 years as a result of the Internet, as it has become the principal interface resource used by simulators. Students perceive that simulations are engaging, useful, and effective as learning tools and for promoting teamwork (Lainema and Lainema, 2007). Normally, business simulation is used for training purposes, in order to facilitate the teaching of certain competencies.

This paper shares the experience of using a business simulator as a source of information for writing a master's degree thesis; it also presents the benefits, skills, and knowledge that students gain from business simulation. This methodology has improved the successful graduation ratio in the MBA programs of the EGEA.

## Experiential learning

According to Xu and Yang's (2010) research into different factors that contribute to learning through business simulation, students have demonstrated that it has a positive impact by ensuring knowledge application, and promoting social interaction and psychological safety, which allows participants to develop complex mental models.

Business simulation can be divided into three primary categories: role playing, physically based and computer-based simulations (Summers, 2004). Our experience focuses on computer-based simulations, which involve the use of Internet-based technology, allowing students to perform the various executive duties required when one is responsible for managing a company, such as analyzing reports remotely in order to make decisions and interacting with other teams and classmates via the Internet. Due to its practice-oriented nature, simulation provides many advantages as a management education tool (Salas et al., 2009).

## Benefits of computer-based business simulation

### Competitive skills

Participants became strongly motivated to accomplish objectives, comprehend operational processes, and make decisions involving cost-efficiency and value offers. The quality of reports generated by simulators and the quantity of information received lets participants become emotionally involved in strategical manage-

ment of their company, which allows consolidation of lessons learned during the MBA program.

The competitive nature of a computer-based business simulation provides the opportunity for students to fully experiment with their strategic wits, analytical skills, and decision-making processes, thus helping them to comprehend the complexity of being an executive in a company that has a worldwide presence.

Tanner et al. (2012) identify different studies exploring benefits generated by computer-based business simulation:

### Knowledge application

The computer-based simulation approach to teaching specific concepts, whereby participants are expected to run their own virtual company with real-life based variables, offers participants the chance to develop their understanding of basic concepts, to experience the benefits of making correct decisions, and to complement their existing technical skills.

### Student experience

Buzzetto-More and Mitchell's (2009) research suggests that students felt that business simulations helped significantly in their understanding of how course concepts are applied to the real world and inject greater enjoyment into the learning process.

### Teamwork

A study by Tompson (1995) indicates that computer simulations seem to be more effective in terms of preparing students for group-based projects than traditional methodologies.

### Student interest

Anderson (2003) examined students' perceptions of computer-based simulation; the results show that team cohesion and student independence strongly influenced their perceptions of the use of computer-based simulations.

Salas et al. (2009), identify the following advantages of simulation business training (SBT) for management education:

### Imparting complex applied competencies

A well-designed simulation potentially can impart both theory and practice simultaneously; given that necessary executive skills and competencies—like leadership, strategic decision-making or effective communication—are behavioral skills



that are only acquired through practice, SBT provides an environment in which management students can comfortably and purposefully apply that knowledge and practice more complex skills, leaving them more prepared to enter the workforce after graduation.

### Learning and developing skills in a reduced time frame

Simulations can allow for quicker development of executive skills because of their ability to collapse time and space (Lane, 1995): a simulation can be used to replicate multiple decision-making situations in a period of a few hours and can provide rapid, concrete feedback after each decision episode. In a simulated environment, the learning curve can occur at an accelerated pace, as students engage in decision-making processes and adjust their strategies.

### Complex and realistic learning environment

Simulations can provide a complex model of reality. This rich environment makes the simulated situation more realistic and, therefore, the learning is more applicable to later performance in the industry. A main goal of simulation is to mimic real-life situations, so learning is grounded in a context that is directly relevant to the management students, who can apply knowledge and skills to a realistic problem and analyse the outcome firsthand.

### Immersion

This refers to the sense of realism that a simulation provides, as it replicates the basic underlying psychological processes that would occur in specific executive situations, thus engaging students and prompting critical emotional responses, as well as allowing them to gain new competencies (Lane, 1995).

### Simplified and manageable reality

Simulations simplify reality enough to make teaching manageable (Cook and Swift, 2006), providing a balance between the complexity of the real world and the necessary simplicity of learning processes, by stimulating critical thinking, encouraging the application of knowledge in a practical way, and allowing instructors to maintain sufficient control over the learning direction.

### Risk-free environment for learning and experimentation

Simulation provides a risk-free environment in which to test and practice crisis-management techniques, by offering participants the opportunity to practice emergency response strategies without fear of harming real organizations because

of the decisions made in the simulation, and to practice ways of responding to infrequent, yet critically important, scenarios.

## Engagement

Simulation provides participants with an enjoyable and engaging medium for learning, by providing an active learning method and generating intrinsic motivation in order to improve learning and retention of knowledge.

Using simulations as part of a management curriculum has been empirically demonstrated to increase interest, involvement, and enthusiasm toward the educational material (Keys and Wolfe, 1990; Raia, 1966).

In the following sections, we share know-how and results related to successful implementation of computer-based business simulation methodology as a path to a master's degree.

## The method

### 1. Preparation course

This course includes the following contents and activities:

- Creation of executive teams: each team member assumes a chief executive's position in a virtual company, i.e. chief executive officer, chief marketing officer or chief financial officer.
- During the course, instructors adopt roles as the companies' shareholders, induct students into the companies, and teach the simulator's interface and decision-making process.
- Contents include corporate strategy to guide company management. At the end of the preparation course, executives must create a brand and elaborate their strategic plan for the company.

### 2. Fieldwork

Fieldwork implies management of a virtual company over a period of six years; this includes executives accepting total responsibility for making decisions. Executives participate in a head-to-head competition against companies managed by other class members, creating a highly competitive environment, and receive comparative reports and results of their companies' performances.

Business simulators score the companies using different indicators like: share prices, ROE, earnings per share, dividends, and others. These indicators are

translated as “shareholders’ expectations”, which are defined as the executives’ objectives.

### 3. Tutorship

Participants receive a guide to elaborating on the thesis by structuring it as an executive’s report.

### 4. Written document

This is composed of three key parts:

#### a. Strategic analysis

Participants apply different tools of strategic analysis, like strengths-weaknesses-opportunities-threats (SWOT) and competitive forces, based on the industry information; a user’s manual for the simulator, containing information about the software; and the company’s situation at the initial year.

#### b. Company presentation

Participants are responsible for making the company as tangible as possible; in order to do this, they must:

- create the brand and slogan
- design the logo
- define vision, mission, and company values
- develop brand advertising by contracting designers or advertising agencies
- contract celebrities.

#### c. Evolutionary comparative analysis

Business simulators generate various reports (finance, marketing, production, competitive, I+D), which allow participants to measure the company’s performance, and its competitive position within the industry, compared with other companies.

Participants analyse their own decisions as well as their competitors’ strategies; the reasons for their results; and to what extent executive objectives and shareholder’s expectations have been met.

### **Internal dissertation**

This activity simulates a meeting with the board of shareholders, where each participant presents their results with the objective of renewing their contract as executive of the company.

### **Public dissertation**

In the final activity of the MBA program, representatives of the Vice Ministry of Superior Education and the instructors grade participants and endorse access to the MBA degree. In order to apply to present their thesis, candidates must accomplish all the requirements determined by UPB and Ministry of Education, to enable the tribunal to check their suitability for making the presentation and receiving the master's degree they are expecting.

## **Executive skills and competences developed by this methodology**

In addition to benefits of business simulation, our methodology develops the following skills in participants:

### **Teamwork**

Students work within managerial teams of three or four classmates, each of whom occupy an executive position in a virtual company.

### **Technical English**

All EGEA programs are delivered in Spanish, but the simulators we choose to use are in English, generating direct contact with technical language.

### **Strategic thinking**

Each team must: create a strategy and execute it within a highly competitive industry; understand key decisions, as well as the company's evolution and its results compared to those of competitors.

### **Decision-making**

In adopting their roles as executives, participants accept responsibility for deciding the company's future during six simulated years and dealing with the consequences of their decisions.

## Time management

During the whole process participants have to accomplish constant deadlines, and are challenged to manage time effectively.

## Creativity

Participants have complete freedom to create vision, mission, values, brand, logo, slogan, advertising material and strategic planning.

## Analytical thinking

Simulators allows access to the strategic information of a company, industry and competitors; class members must develop analytical skills in order to understand scenarios that occur and analyse information for their presentation to their shareholders.

## Executive responsibility

During both internal and public defense, executives present the results of their work, regardless of whether or not expectations have been met; they must also analyse the reasons for their successes or failures.

## Synthesis

Simulators generate strategic, competitive, market, and operational information, which participants must collate by creating charts and graphics that the shareholders can understand.

## Executive dissertation

Candidates present their work to a tribunal and each member of the tribunal assumes four roles as: part of the degree panel, strategy professor, representative of the Vice Ministry, and shareholder; questions can stem from any of these roles.

## **Academic results**

The principal objective of this methodology is to ensure students achieve their MBA degree. During the process, students receive different designations according to their achievements:

- participant: student signed up on the preparation course

- candidate: participant who has presented his/her intern report
- graduate: candidates who passed their public defense and received their master’s degree.

The success ratio is calculated by dividing the number of participants per program by the number of candidates/graduates.

Year	Programs	Cities	Participants	Candidates	Success	Graduates	Success
2009	1	1	20	20	100.0%	18	90.0%
2010	1	1	15	15	100.0%	14	93.3%
2011	1	1	18	18	100.0%	12	66.7%
2012	1	1	20	20	100.0%	18	90.0%
2013	3	3	68	66	97.1%	61	89.7%
2014	5	5	85	85	100.0%	53	62.4%
2015	10	5	236	232	98.3%	72	NA*
Total			462	456		248	
Average					98.9%		82.0%

Table 1: Successful graduation following the use of computer-based business simulation

\*Still awaiting the ministerial authorization of 123 candidates.

Since 2009, the EGEA Business Simulation program has run 22 courses with 462 participants in seven cities.

The average candidate success rate is 98.9 percent; the graduation success rate average is 82 percent, demonstrating the effectiveness of our methodology.

## Testimonies

In order to finish this article, we have compiled testimonies of graduate students, who wrote about their business simulation experiences in their thesis documents:

Allows students to acquire useful experience and practice in order to evaluate risks in business; analyse the industry’s conditions; make decisions from the company’s perspective; think strategically regarding position in the market and the actions that can be taken in order to improve it; conceive strategies and modify them according to changes in conditions by applying the knowledge learned in the business school (Carla Andrea Montaña Tapia).

Simulation developed my managerial faculties and enabled me to apply the theory I have learned in the master's program to real-life situations, giving me a global vision of the impact of decision-making in the real job. The drive to be the best company in the industry helps us to become better professionals and executives, who can contribute our knowledge and skills and help our country to move forward (Alejandra Lourdes Zegarra Dorado).

Simulation allows the master's student to understand the importance of strategic thinking and its application in order to achieve a competitive advantage that permits differentiation from the rest (Marisol Antezana Fernández).

I acquired invaluable professional experience thanks to the simulation (David Molina Guzmán).

## Conclusion

Computer-based business simulation is an advanced and complete experiential learning methodology that allows students the opportunity to develop executive skills in a controlled risk-free environment, thus promoting the use of competencies and practical knowledge in future managers.

At EGEA Business School of the Universidad Privada Boliviana, we identified the potential of using simulation as source for writing a thesis. Although reports generated are normally confidential in a real firm, this information is made available to participants because time compression is an inherent attribute of the simulator, therefore making this information comparable and representative of the evolution of a company.

Academically, the success ratio both for candidates and graduates exceeded expectations, making business simulation a successful pathway to a master's degree within UPB, as well as an opportunity for graduates to experience high executive responsibilities.

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