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An innovative operational teaching model using business simulators in large scale applications: a case-study on a Brazilian business school

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ABSTRACT

To accomplish an efficient learning, Executive MBAs’ students need the opportunity to practice the concepts, methodologies and managerial tools. In this sense, the use of business simulators is a good option. However, the feasibility of their operational management, with restricted computing resources and a limited number of experienced instructors for a large number of groups geographically scattered, taking place simultaneously, make up a great challenge. This article submits a case study of a successful experience with the use of the Web Marketplace simulator, in a famous business school in Brazil. Using an innovative teaching methodology and logistics, positive results have been achieved, guaranteeing a suitable standardization in the application, control and evaluation, involving simultaneously 600 students organized in 19 groups, leaded by 15 professors in 4 different cities. The major contribution of this work is to create an alternative for a useful teaching model for many other business schools.

1 - INTRODUCTION

The greatest transformations recorded in the history of organizations have been concentrated in the period since the end of World War II until today. It is well known that the business environment is undergoing deep changes brought about by the onrushing phenomenon called “globalization”, by technological innovations, by social and political changes and by the consumer’s greater awareness. Such changes inevitably incite the sharpening of competition in all sectors of the economy.
It was Charles Darwin, in his research, who concluded that the species which perpetuate themselves along the evolutionary process are not necessarily the strongest, but those that adjust more rapidly to environmental changes. If one draws a parallel between biology and the management world it seems reasonable to imagine that the companies with a greater probability of survival are those able to perceive changes, break out of their inertia and adjust to the new conditions. Although it is easy to understand this line of reasoning, it is precisely on this point where the major challenge for the executives lives: achieve the long term survival of their organizations notwithstanding the growing hostility of the business environment.

In this context, business schools have acquired a strategic role. Ultimately, they are primarily responsible for the education of new managers, for the continued improvement of executives and for the enhancement of knowledge in this area by means of research and, finally, for the dissemination of the progresses achieved. However, a hard question must be faced, one that has been widely discussed by all those involved in the area of business administration: are business schools doing their job?

An appraisal made by Behrman and Levin (1984) suggested that at that time the answer was no. According to the authors, critics stated that business schools place too much emphasis on quantitative analysis, tools and models with too little emphasis on qualitative thinking, complex trade-offs, and creativity. They focus too much on theory and not enough on implementation; too much on short-term performance and not enough on long-term success. Also, too much emphasis is given to career and corporate goals and too little to interpersonal relationships and social ethics and finally too much to separate disciplines at the expense of integrative problem solving and management. More recently Pfieffer and Fong (2002) also concluded that, although business
education has become a great business, current surveys show that the schools are not efficient in the task of educating and developing managers.

In these studies many of the criticisms stem from the teaching methodologies used in the classroom, many of which are out-dated and therefore in disagreement with the learning expectations of the students and ultimately of the companies. Among the numerous techniques that are being tried out, the methodology based upon experimental learning has been highlighted as presenting better results. Simply stated the philosophy is based upon a focus of learning by doing, instead of reading alone or of repetitive classes (which are both passive from the student point of view). In this domain, the utilization of technology based business simulators is one of the main instruments for qualification: virtual business simulations represent a form of aggressive training in which students pit their business skills against opponents under the watchful eye of an experienced coach.

Although the importance of this type of tool is extraordinarily relevant for the development of managers, there are few works dealing with large scale utilization of simulators in literature. This article presents a case study of a successful experience with use of the Web Marketplace simulator in a famous business school in Brazil, involving about 600 students organized in 19 classes divided in 76 work groups, led by 15 professors in 4 different cities, at the same time. The major contribution of this work is to create an alternative teaching model useful for other business schools. To meet this goal the article is structured in seven parts beginning with this introduction. The second part presents the theoretical review describing the main concepts involved in this work. Next, a problem evaluation is made (the third part), followed by a
discussion of the methodology adopted (the forth part). The fifth part breaks-down the case study presenting the main contribution of the study. Finally, the sixth and seventh parts report on the conclusions and references.

2 - THEORETICAL FRAMEWORK

In order to fully appreciate the educational benefits of computer simulations, Burns and Gentry (1992) wrote that it is important to understand the philosophy that underlies “experiential learning”. Essentially, experiential learning is achieved by doing. The American Assembly of Collegiate Schools of Business (AACSB) Task Force stated it as follows:

“A business curriculum-related endeavor which is interactive (other than between professor and pupil) and is characterized by variability and uncertainty.”

Gentry (1991) has described experiential learning in detail while he expands this definition by identifying several key characteristics as it relates to business education. Experiential learning (a) is applied to the content (e.g., marketing), (b) is active rather than passive on the part of the student, (c) is interactive with someone (or something) other than the instructor, (d) has a whole-person emphasis in the form of impacting affective, cognitive, and behavioral outcomes, (e) requires contact with the real world environment or some reasonable analogy with it, (f) incorporates the “messiness” of variability and uncertainty, (g) is structured by the instructor to insure a beneficial experiential quality, (h) inspires student self-evaluation, and (i) is rich in feedback to guide the student in successive iterations over the duration of the experiential exercise.
Actually, experiential learning can be derived from any number of teaching concepts. Case studies, internships, workbook exercises, “live” cases where students perform consultation for companies and computer-based instruction all qualify as sources of experiential learning. Each type carries with it unique features and idiosyncratic educator responsibilities.

Cadotte (1995) voiced the opinion that the lecture/textbook format is very efficient for communicating a large number of concepts to a large number of students. However, this format falls short in fostering creativity, the integration of functional material, problem solving, decision making, risk taking, or interpersonal skills.

Another form of teaching is case analysis. This practice is a major step in the transition from the academic world to the business world. Students have the opportunity to analyze and solve complex problems, think strategically and integrate material across disciplines. The limitation is that students do not have to carry out their decisions and endure the consequences. Furthermore, they are not required to respond to competitive moves and countermoves or to deal with the decisions of others. Surpassing the traditional methods presented, simulations can bridge the gap between the classroom and the world of real-life business decisions because they provide students with substantial authority and responsibility. As with case analyses, students are required to analyze and solve complex problems, think strategically and integrate material across disciplines. In addition, they must act on their decisions and deal with the consequences; this includes adjusting strategies in response to changes in end-user needs or wants and to competitive moves or countermoves.

However, business simulations have only lately begun to attain their full potential. Until recently,
hardware constraints, software design requirements, and student work-load considerations limited the depth and breadth of decision making that could be modeled. New developments in personal computers and business software have greatly expanded possibilities.

Therefore the use of technology in business education has become increasingly important. Recently, this topic has received much attention in literature (Castleberry 2001; Evans 2001; Mintu-Wimsatt 2001; Jonassen 2000; Cohen and Lippert 1999) since it can play multiple roles. Technology can be used to bridge temporal and/or geographical gaps in supplying education, render education more convenient, increase the instructor’s efficiency and facilitate communication between instructor and students as well as among students. It could be also employed for teaching a larger number of students that otherwise might not be possible, e.g., increasing the size of the class, enriching course material such as by accessing information from the Internet, and enhancing student learning.

In summary technology-based interactive games incorporate important aspects of an experiential learning environment. They thrust the student into a situation where successive experimentation with business decision variables and feedback from these experiments entice deep reflection on why things happen the way they do.

As Cadotte (1995) concludes, technology-based business simulations offer students the opportunity to practice a number of important skills which are presented as follow:

a) **Strategic Planning and Thinking**

Strategic planning, which gives purpose and direction to the company’s future actions,
requires definition of objectives and development of a detailed plan of activities that are interconnected, time phased, and financially sustainable. Strategy emerges with the appreciation of market opportunities and corporate capabilities. Preoccupation with short-term goals may cause long-term problems.

b) **Strategy Management**

A simulation experience is unique in its ability to provide training in strategy management; no other learning tool can give students experience in the carrying out and constant adjustment of a strategy. Further, simulations allow students to personally observe the interconnection of business functions. A solid cross-functional understanding of the business company is required of the student.

c) **Leadership, Teamwork, and Interpersonal Skills**

A simulation experience is a more complete team-building experience than cases and other group projects because the team must live with its decisions. It is very important for the team manager to regularly assess and improve his or her role and effectiveness.

d) **Budgeting and Cash-Flow Management**

An advantage of the simulation is that all decisions are tied in to the company income statement, balance sheet, and cash-flow statement. Students can immediately see how their decisions impact the various accounts and profitability. By living with their own company, team members develop an almost intuitive understanding of financial statements and cash flows.

e) **Understanding and Delivery of Customer Value**

In a simulation, the learning process corresponds to experience in business—that is to say clues are introduced intermittently and without explicit directions on how to capitalize on
them. Students must listen to what customers say and observe how they react, infer priorities and preferences, and engage in trial-and-error decision-making.

3 - PROBLEM EVALUATION

A drawback is that in this area of research many gaps still remain that recommend a better focus on the subject of business simulators as used in large-scale applications. First, because there is a limited number of studies that deal with large-scale simulations (Alpert 1993). Second, Malhotra (2002) argues that empirical evidence regarding the benefits of using technology in business education is at best sparse. A few empirical studies have been attempted; however, they suffer from severe methodological limitations (Mintu-Wimsatt and Meyers 2002). Finally, Razzouk et al. (2003) point out that real-life projects, as established and supported, bring realism to business education. However, this opportunity is not well utilized by educators because of the major difficulty in finding real life projects and of the lesser difficulty found in implementation. This work casts light on this discussion by presenting the case study of a successful experience in a famous business school in Brazil using the Web Marketplace simulator. Using an innovative teaching methodology and logistics, positive results have been achieved with a suitable standardization in the application, control and evaluation assured. More than six hundred students organized in fourteen groups, led by fifteen professors in four different cities at the same time were involved. The major contribution of this work is to create an alternative teaching model useful for many other business schools.
4 - METHODOLOGY

In view of the unknown problems, for Castro (1977) it is possible to view the whole in an incomplete manner (study of the universe) or seek to know well a small part of this whole, even without knowing to what extent it is representative of the entire universe. This is called “Case Study”. Upon defining a case study, Yin (1989) states that this method is one of the many forms of doing research and defines it as: “An empirical query to investigate a contemporary phenomenon within its context in the real world, which does not present clearly the boundary lines between the phenomenon and its context and in which multiple sources of evidence are utilized”.

According to Yin (1989) a case study can be developed with a single case or with multiple cases. The research carried out was of an exploratory nature with application of the single case method. To collect information interviews were conducted with the manager responsible for the operation of the simulator, with professors and students of the program and with the vendor of the product in Brazil.

A specific questionnaire submitted to the respondents was used to obtain the desired data. It should be noted that interviews were carried out by the researchers themselves. Generally speaking, the main objective of the survey was to identify the interviewees’ opinion regarding the teaching methodology and operational logistics utilized so as to ensure the efficacy of learning.
5 - CASE STUDY

5.1 - ESPM Business School

The ESPM Business School is a market oriented Brazilian school offering complete graduation to executives. These are comprehensive post-graduation programs for all stages of the career, from the first steps of entrance in the job market up to a maximum of professional recognition.

ESPM was founded in 1951 as “Escola de Propaganda de São Paulo” (São Paulo Advertising School) offering in a pioneer manner a freely structured course on advertising. Over the years, to keep up with the market, the course incorporated a Marketing field of knowledge to finally become a college as from 1971. At the beginning of the following decade, the ESPM was also recognized as a Business School, establishing itself as a center of excellence in the teaching of management, marketing and communication. The following programs are currently offered:

- **MBA First Management**
  
  This is a program of managerial graduation with 360 class-hours permitting two specializations: Marketing and Business Management. It is directed towards professionals graduated in the most diverse fields of knowledge with up to two years of experience.

- **Post-Graduation in Communication and Post-Graduation in Market Research, Media and Opinion**
  
  These are programs with 360 class-hours directed towards the graduation and development of specialists;

- **Executive MBA**
  
  Is a 600 class-hour program, with five optional areas of concentration (Business Management, Sales Management, Marketing Service, Marketing and Technology applied to Business) and
eleven supplementary areas. It is directed towards the development of executives with over three years of experience in managerial situations of decision making and with subordinate staffs.

- **Advanced Programs**

  These are 360 class-hour programs that offer two specializations: Marketing and Business Management. They are directed towards senior executives that have taken over or soon will take over key responsibilities at the top of the company.

Finally, ESPM offers Programs of Continued Education oriented towards those who seek information and updating in short programs and with current themes. Available also are *In Company* courses with personalized and specific programs suited to each company’s requirements.

Geographically, ESPM Business School has two campi in the city of São Paulo, where it is seated, and three other campi located in Campinas (SP), Porto Alegre (RS) and Rio de Janeiro (RJ). Further, it reckons with additional units in Alphaville (SP), Brasilia (DF), Recife (PE), Salvador (BA) and São Bernardo do Campo (SP).

**5.2 - Evolution of the MBA Executive Program**

The consequences of globalization and of the dynamics of business management require increasingly more qualified and updated executives in relation to future trends without sacrifice of the minimum basis of knowledge for graduation in business. For this reason, the graduate courses require constant updating and, in certain cases, almost an overall re-design. The ESPM
Executive MBA is a case in point because it is a continually updated program, fine-tuned to the international circuit of business schools.

With the re-design of the course structure done in the beginning of 2003, the ESPM Executive MBA began to reckon with areas of concentration and supplementary areas equivalent to the Majors and Minors of international programs, in addition to an area common to all options, the so-called Business Administration area. Figure 1 illustrates the program’s structure. Additionally, the solution adopted as the final task for the conclusion of the program was the use of the classical methodology of setting up a strategic business plan. Such methodology led students to listen the professor, understand the concepts and prepare replies, although students did not have to carry out their decisions and endure the consequences. Furthermore, they were not required to respond to competitive moves and countermoves or to deal with the decisions of others.

At that time, it is relevant to say that ESPM Business School registered an intensive growth in terms of the quantity of students and the different cities where the school operates. For all of these reasons another teaching alternative was sought that could offer the students the
opportunity to act on their decisions and deal with the consequences, including adjusting strategies in response to changes in end-user needs and to competitive moves or countermoves.

5.3 - The Choice of a Solution

Modern education must encourage students to speak and write about what they are learning, to establish relationships with former experiences and to know how to utilize what has been learned in practical life. Thus, active learning is encouraged in classes that use structured exercises, team work, case studies and that challenge the students to solve problems.

In this context, ESPM Business School identified some reasons and market pressures to change the used methodology and to expand the scope of the final project of the course, including the managerial activity of a business in practical terms. Among these are noteworthy: (a) demand of the students for practical application of their conceptual and methodological learning in a real context, (b) request of the professors for the utilization of simulators, (c) need to expand the large scale use of e-learning thereby linking it with traditional learning; in reason of the great growth of the number of involved students, (d) retrieval of the quality and creativity of the final works of the course taking into account the growth in the number of students and groups, and assurance of a greater standardization of the evaluation of the final works, for a large number of students, groups and professors.

In view of these issues, a change in the methodology was mandatory to keep pace with the changes in the market dynamics and to meet demands of the students, professors and of the institution as a whole. Furthermore, in ESPM there was a need for unification of the programs in
the different cities for better academic management as well as a need to facilitate and speed up the operational work of the school promoting efficiency and quality of the rendered services.

On the other hand, it is widely known that for efficient learning to take place in the Executive MBA courses, students must have the opportunity to apply, in an integrated manner, different concepts, methodologies and instruments learned, in the management of a business under practical situations. In this sense, the use of intelligent computerized simulators is a good option. However, the feasibility of their use and the management of this operation in extreme situations, where there is a constraint of information technology resources, limitation of the number of qualified and experienced instructors, coupled with the need of application simultaneously to a large number of groups geographically scattered represents an enormous challenge to be faced by the teaching institution. Under such circumstances, there is an additional challenge to ensure adequate standardization in the application, control and evaluation that would certify learning.

After extensive debate of the issues submitted by the Academic Board, the ESPM Business School hired the Tec Train, which is a company that represents in Brazil products for Business Simulations and Distance Learning Solutions, as a consultant. Its missions was to help ESPM Business School in the selection of a teaching solution that would meet ESPM´s academical requirements, technological constraints, culture and organizational structure, as well as one that could be simultaneously utilized for a large number of students.
The hired company was essentially expected to provide: (a) The most modern international business simulation available; (b) the possibility of blending both traditional and distance learning so as to challenge Executive MBA students; and (c) a training partner capable of providing personalized support to professors and students, to train ESPM Business School’s professors and to provide continuous and effective back office.

At the end of this process, Tec Train suggested the utilization of the Web Marketplace as the best solution to meet the ESPM Business School’s requirements.

5.4 - Web Marketplace Overview

To describe what Web Marketplace is and how it works, it is transcribed, partially and with adaptations, Ernest Cadotte’s text, professor from the University of Tennessee and creator of the simulator.

*The Marketplace simulator promotes strategic thinking and team dynamics through a rare combination of strategic business instruction and compelling market challenges within a true-to-life simulated environment. There are five hallmarks to its learning methodology:

  a. In-depth treatment of all functional areas of business; b. Heavy emphasis on the interconnectedness of business discipline; c. Continual application of strategic planning and execution skills; d. Repetitive practice of business fundamentals; and e. Ongoing opportunities to demonstrate leadership, teamwork, and interpersonal skills.*

*The simulation provides a living case through which you will gain hands-on experience in business management and represent a powerful learning methodology that is personally*
relevant and highly motivating. At the very least, the type of experiential learning epitomized by Marketplace provokes a slew of benefits (a) Facilitates the learning of business concepts, principles, tools, and ways of thinking. (b) Enhances the understanding of the linkages among the functional areas of business. (c) Promotes better decision making by helping to see how the individual decisions can affect the performance of others and the organization as a whole. (d) Develops strategic planning and execution skills within a rapidly changing environment. (e) Crystallizes the financial implications of your business decisions. (f) Instills financial accountability and the simultaneous need to deliver customer value. (g) Internalizes how important it is to use market data and competitive signals to adjust the strategic plan and more tightly focus business tactics. (h) Excites the competitive spirit and the drive to excel in the market.

MARKETPLACE LEARNING STRATEGY

Marketplace is a powerful yet entertaining way to learn how to compete in a fast-paced market where customers are demanding and the competition is working hard to take away your business. It is not only a motivational learning experience but also a transformational one. Working in teams of four to five, you and your teammates build an entrepreneurial firm, experiment with strategies, compete with other participants in a virtual business world filled with tactical detail, and struggle with business fundamentals and the interplay among marketing, manufacturing, logistics, human resources, finance, accounting, and team management. You take control of an enterprise and manage its operations through several decision cycles. Repeatedly, you must analyze a situation, plan a strategy to improve it, and then execute that strategy out into the future. You face great uncertainty
both from the outside environment and from your own decisions. Incrementally, you learn to skillfully adjust your strategy as you discover the nature of real-life decisions, conflicts, trade-offs, and potential outcomes. The repetitive nature of the exercise works in your favor. By design, the simulation makes competition key. The competitive excitement of the game is infectious. Winning requires that your team knows more and acts faster than the competition. Knowing that the competition is also working hard to win will catch you and all other players in an upward spiral of excellence.

MARKETPLACE CHRONOLOGY OF EVENTS

Marketplace allows you to run a business for eight or more quarters of play. The chronology of events has been scripted to follow the normal life cycle of a start-up business. During the first four quarters, you are financially constrained from expanding too quickly before you have developed a feel for the market.

Quarter 1: Organize the Company: In Q1, you organize your team and assign corporate responsibilities. You also name the company and contract for a survey of customers.

Quarter 2: Set Up Shop: In Q2, the survey arrives, providing information on benefits sought, buying patterns, demographic characteristics, buying intentions, and market size. You analyze these data and decide on your overall business strategy, including corporate goals, target markets, and strategic direction. You must also make tactical decisions, focusing on brand design, plant location, production capacity, and sales office location.

Quarter 3: Go to Test Market: In Q3, your team test-markets its marketing strategy, including brands, prices, ad copy, media campaigns, and sales staffing. The team works through its employee hiring policies and production planning process for the first time and
schedules production for the quarter. You contract market research so that you can
discover customer reactions to your marketing decisions and what the competition has
done. Finally, you need to forecast market demand and simulate your production operation
given your supply chain decisions. Marketplace prepares pro forma statements that will
help you to evaluate the potential financial outcome of your first quarter of total business
operation. You may need to adjust your tactics if the projections are not favorable.

Quarter 4: Skillful Adjustment: In Q4, you receive the market research data that you
commissioned during the test market. You also have manufacturing and accounting data
from your first quarter of sales. With these data in hand, you evaluate your performance
and may adjust your firm’s strategy and tactics. With one quarter’s worth of market
experience, your performance should improve substantially in Q4.

Quarter 5: Invest in the Future: Q5 begins with a review of marketing, human resource,
manufacturing, and accounting data from your second quarter of test marketing. In Q5,
you have the opportunity to substantially expand your position in the market by investing in
research and development, new sales outlets, factory capacity, logistics, and employee
recruitment and retention programs. You also have the opportunity to seek outside funding
from venture capitalists. To obtain this funding, your team must prepare a one-year
business plan in which you assess market opportunity, review your performance to date,
and lay out your strategy for your second year in business. This plan must include
coordinated marketing, manufacturing, human resource, and financial strategies. The
business plan must also include a tactical plan that includes the sequencing and timing of
events to achieve the firm’s goals. Finally, the plan must include both historical financial
statements (Q1 to Q4) and pro forma statements for the second year (Q5 to Q8).
Quarter 6 and Beyond: Expand and Improve the Business: The major emphasis in Q6 and beyond is on improving your marketing, manufacturing, human resource, and financial performance through careful monitoring and continuous improvement. You also face new competitive threats as other firms introduce new technology, more reliable products, better prices, and more advertising and expand into new segments and geographic markets. During this time, the team also has the opportunity to explore new relationships through cross licensing technology and outsourcing of supply.

Final Quarter: Submit Report to Board: At the conclusion of the exercise, your team prepares a report to the board. In it, you (a) highlight the key features of the business plan that were presented to the venture capitalists; (b) assess your business strategy and performance during the second year (compare actions taken against the business plan; discuss departures from the business plan, justification, and outcome; and review significant events that affected the company and market); (c) assess your current situation and the market; and (d) summarize how the firm is prepared to compete in the future.

5.5 - Using the Simulator

It was necessary to apply the simulator Marketplace, simultaneously, to 600 students organized in 19 classes and divided in 76 work groups, guided by 15 different professors as follow: 14 groups in São Paulo, 3 groups in Alphaville (30 km from São Paulo), 3 groups in Campinas (100 km from São Paulo) and 1 group in São Bernardo do Campo (20 km from São Paulo).

Although there were available computer science laboratories, the number of computers and Internet access points were totally insufficient to all of the students and groups. In the classrooms
there was just one access point to the Internet, and the instructor used this. A few students had
their own notebook and the most of them didn't dispose, also, of wireless access to Internet. On
the other hand, to make possible the orientation of the groups, once that it could just happen
during a night class a week (of 3 hour-class), the maximum number of groups should be four,
composed up to 8 participants.

These restrictions made impossible to apply the simulator, in its standard format, that
presupposed, among others, the needs of: (a) the instructor's continuous interaction, with the
work groups, while, simultaneously, they access the simulator, through Internet and (b)
maximum number of 6 participants, for work group. Additionally, it was necessary to qualify, in
a short time, a large group of professors to act as simulator instructors. Another difficulty was
that the professors had not enough time to participate in trainings once most of them were
executives and so part time teachers.

In spite of the international experience of Marketplace, that simulator had never been applied in
those extreme conditions nor with a high number of students and groups, at the same time. So,
the Tec Train’s challenge was to provide consultancy and support both before the start-up and
during the Marketplace application, including these tasks: (a) **Prior to Start-up**: Instructional
design, Choice of the Web Marketplace level, Professors training, Professor Kit development
and Student Kit development; and (b) **After Start-up**: General Coordination, Back office
support, Continuous improvement, Professors coaching and Students coaching.
Thus, for each one of the tasks mentioned above, Tec Train: (a) prepared for ESPM involved professors a complete syllabus package detailing each class activities and theoretical concepts, including Pre-activities, Activities, Class Structure, Class Schedule, Main Web Marketplace Concepts and Coaching Tips; (b) defined to use the Marketplace difficulty level named Business Management because this level does not detail production decisions - which is not focused on ESPM Executive MBA course and facilitated professors training and coaching; (c) carried out 3 training programs for 21 Professors with online support; (d) developed a Professors’ Kit and a Students’ Kit with: business simulation article, Marketplace Overview, Marketplace program document, Factory projection document, Business plan guide document, Student guide document, coaching tips document, benchmarking document, Background to Final Report document, Quarter quiz document and Task list document, Marketplace slides presentation and (e) organized a back office support to develop the following activities: Marketplace instructional design, creation of 19 games with a adequate logistic integration, creation of a Marketplace view let, elaboration of 18 e-mails with important messages and reminders to students and professors and, finally, professor and student kits preparation.

In a cooperated action between the ESPM Business School and the Tec Train teams a logistic and operational support was structured, to guarantee the success of the project, that can be summarized in Figure 2.
As one can see, the students of each one of the classes constituted work groups, characterized as virtual teams, that could be connected individually or in groups in the Internet to access the Processing Center of the simulator (Tennessee, USA). A coaching headquarter, located in Tec Train headquarters (São Paulo, Brazil) took the responsibility for all of the contacts and the integration between the teams and the Processing Center of the simulator, as well as with the respective professors.

The Tec Train support team provided to the students a kit, available at ESPM Intranet, and an online coach to answer the messages within 48 hours. To the professors it provided a local personalized coach during the classes and a permanent online coach that should answer the messages within 24 hours. Each professor could access, at any time, the simulations of each work groups verifying the level of individual involvement, besides the developed activities and the decisions taken. That verification aimed at giving to the professor better conditions to orientate and evaluate the groups and each student, individually.
In order to allow the simulator application, it was prepared a special class schedule, shown in Figure 3, where one we can observe the distribution of the activities concerning to each quarter and their respective tasks.

![Figure 3 - Classes Schedule](image)

That schedule forced to a huge logistic effort to allow the professors to guide all the groups, in classroom, without Internet connections. As written before, just the professor had an access point to Internet and it was used to guide the students considering both the results of the previous quarter and the decisions of the following quarter. After a general orientation for all the groups, at the same time, the professor dedicated from fifteen to thirty minutes to advise each group individually. A difficulty to be outlined was the fact that the professor should not present all the available results in his access to not reveal the groups’ strategies.

After the weekly meetings of evaluation and orientation with the professors, the students organized their own programming to evaluate: the situation of their business in the market, to
define their competition strategies and to formalize all decisions sending it to the Marketplace Processing Center according to a pre-determined schedule. That demanded a rigorous control and served as one of the elements of evaluation of each group performance.

In order to evaluate the performance of each group of students, ESPM defined the following requirements: (a) result of a Balanced Scorecard of the company managed by the group; (b) quality of a Business Plan elaborated in the quarter 4; (c) each student's individual participation and (d) evaluation of a Final Report, presented to an Evaluation Board. The advisor and two more professors from ESPM Business School constituted this Evaluation Board. All of them should behave as investors (or shareholders), evaluating the management of a business, during 8 quarters, by the students' group.

To make that process effective and standardize the evaluation done by the Evaluation Board, it was necessary to create guidelines for the process as well as an unique Evaluation Form. That form was composed by 5 requirements, with different weights: (a) Quality of the Evaluation of the Market and of the Competition (20%); (b) Effectiveness of the Business Management (30%); (c) Financial Results of the Business (20%); (d) Perspectives for the Future of the Business (20%) and (e) Quality of the Presented Arguments (10%). Besides this, it became indispensable to train 30 professors to participate in the Evaluation Boards, once they were occurring simultaneously for many classes. The training program involved orientation meetings and the elaboration of a special document that described simulator’s operation, the role and the posture of the Evaluation Board as well as the evaluation criteria to be used.
5.6 - The Results

The results of the pioneering application of the simulator Marketplace, in the described extreme conditions, were very good, as one can verify as follow.

On the other hand, the volume of the operation and logistic support involved can be appraised by the number of e-mails between the Back office (Tec Train) and the students as well as by the number of hours spent in the activities of the simulator.

Depositions

The enthusiasm with the results of the application of the simulator is evident in the depositions of Mr. Claudio Manassero (Tec Train’s partner) and in the deposition of Prof. Pedro dos Santos, manager of the Marketplace project in ESPM.

“The ESPM Executive MBA business case was worldwide considered by Web Marketplace international vendors the most sophisticated and high scaled application of Web Marketplace Business Management, including hundreds of students located in several Brazilian cities with different professors and distance coach, supported by an international logistics involving one back office in Sao Paulo (Brazil) and another in Knoxville (USA). The final results regarding student learning and level of satisfaction rewarded our efforts in providing ESPM Business School the best distance learning business simulation. The delivery of the simulator at ESPM Executive MBAs followed a blended learning strategy, combining web business simulation, distance coaching and lectures at ESPM. The ESPM business case was our first high-scaled distance-learning project, and its success can be measured by the level of excellence in student learning and satisfaction.”
“As the responsible professor for the implementation of the simulator in ESPM Business School it brought a significant contribution for the students' professional and personal development, as it is read in his deposition: “The experience with Marketplace Business Simulator was a great success and the major reason of it was, besides the quality of the simulator, the logistic and operational support provided by the ESPM Business School and the Tec Train teams.”

International Recognition

Another evidence that the simulator used by ESPM Business School generates quite positive results is the fact that the Marketplace Business Simulation received a Gold Award for Excellence in E-Learning in the Simulation category, in September 2003. The E-Learning Awards program is a showcase for the best e-learning tools and practices in the industry.

A record number of 175 entries in three categories (Best Practices, Custom Content, Innovative Technology) underwent rigorous multi-phase review by 188 independent judges with expertise in instructional design, online learning and organizational change. The Gold Award recognizes the Marketplace Business Simulation for its outstanding contribution to modern marketing education using state-of-the-art e-learning methods.

Classes and Students Performance Evaluation

The Figure 4 presents, by classes, a summary of the students’ global performance evaluation. It is important to observe that evaluation scale goes from zero (0,0) to ten (10,0).
These results demonstrate the good performance of most of the classes. It is worth to emphasize that the participants of all of the Evaluation Boards made praises to the participants’ of the groups during the presentations of the Final Reports detaching the good learning level.

**Students Opinion Research**

In order to appraise the students’ opinion on the simulator experience, it was applied in all of the classes a special designed questionnaire to verify the satisfaction level. A sample of 187 forms were validated and considered. The Figure 5 presents the obtained results. Again, it is important to observe that evaluation scale goes from zero (0,0) to four (4,0).
The table presented in Figure 5 display the excellent level of the students' satisfaction, regarding the great majority of the investigated requirements. It is worth to highlight that the requirements of higher satisfaction index were **Modification of Attitude** and **Personal Growth**, what demonstrates a good reach of the objectives of the simulator. On the other hand, as one can observe for the evaluation of the Requirement 3 - **Conceptual Learning**, the simulator is less effective. However, this result was expected once this tool does not intend to transmit concepts or methodologies but to exercise them in the practice of a real business.
Volume of Operational Effort and Expenditure of the Students' Time

An example of the volume of operational effort dedicated to the application of the simulator is showed in Figure 6. There one can verify the number of e-mails answered by Tec Train’s back office to the groups of students, in each quarter of the Marketplace game.

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<th>CLASS</th>
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<th>Q3</th>
<th>Q4</th>
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TOTAL 50 18 14 7 7 7 14 7 124

Figure 6 - Number of Orientation E-mails for Students

Finally, it is interesting to observe the volume of hours spent by the students in their activities during the Marketplace. Figure 7 presents the summary of these information.

<table>
<thead>
<tr>
<th>MARKETPLACE SIMULATOR - 2d. SEMESTER, 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME EXPENDITURE BY WORK GROUP</td>
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<tr>
<td>Average: 126.2 hours</td>
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<tr>
<td>Minimum: 57.9 hours</td>
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<tr>
<td>Maximum: 274.9 hours</td>
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<td>Total (all of the groups): 9,591.0 hours</td>
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<td>Standard Deviation: 41.7</td>
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Figure 7 - Students’ Time Expenditure
6 - CONCLUSIONS
No single teaching methodology can fulfill all the needs of management students. Simulation exercises represent an advance in our methods of management training. In the light of all that is possible with new computer technologies, we have barely scratched the surface. Innovative technological tools can be used to refine and advance management education.

The ESPM Business School case-study shows that is possible to reach good results using simulations under restrictive situations, when the available computing and instructional resources are poor and it is necessary to manage big groups of students geographically scattered. That case may be used as a reference for others Business Schools that operates under similar conditions.

The challenge is to study the possible application of the teaching model described in this paper in other kind of organizations different from Business Schools. For sure, this task would be challenging.

7 - REFERENCES


10. JONASSEN, D. H., Transforming Learning with Technology: beyond modernism and post-modernism or whoever controls the technology creates the reality, Educational Technology, 40 (March-April 2000): 21-25.


