ON LINE BUSINESS SIMULATION – A NEW METHOD OF IMPROVING MODERN MANAGEMENT OF FIRM

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Abstract

In this paper I intend to show the benefits of using of these software for both students and employees of companies interested in improving their performance enhancement but also for the organization as a whole. Learning by simulation is much more interesting and appealing to students and offers more benefits in the long term.

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JEL Classification: E27, E37, M10

1. Introduction

There is no longer a novelty that simulations are used as a modern method of self training in various fields, as a method of testing the effects of various decisions. New is from the use of simulation techniques in current management firms, the use of business games for improving current and future business managers. So, recently appeared more initiators / manufacturers of software that simulates various businesses to learn the principles of management of simulated reality.

2. Use of simulation

The software for simulating business (business games) can be used to obtain information about the impact of various factors on the organization. Can be calculated, for example, basic elements (revenue over a period of time, expense types, labor efficiency, etc.) can generate sales simulations, visualizations of fluctuation of turnover or other microeconomic indicators in case of change of input parameters in the software. Many managers choose simulation software and generate forecasts of consumer behavior (loyalty to the brand and product, manufacturer selection, the perception of the quality level of consumption, etc.) and to study the evolution of the market under certain conditions, competitor reactions environmental impact, etc.

3. Benefits

For students, the business virtual (that mimics a real economic environment) is a very effective tool to better understand the company's strategy studied by simulation, to become familiar with the workings and decision of managers. By participating in a business process simulation, students are actively involved in making decisions and they can easily understand the impact of their decisions on the overall performance of the company's business simulated. Having an overview of the entire company, students have the opportunity to discover what activities and what department they would fit better.

Some benefits for students participating in learning this method are:
- Business Games allows accumulation experience a problem prior to the actual economic processes anticipating resource in different situations, of course without their actual use;
- Understanding the economic environment and the company's position in the market;
- Understand the need for clear strategies to ensure business survival and performance of the company;
- Identification of connections between business strategies and results;
- Understand the need for better forecasting and a better knowledge of market;
- It can take action in real time to correct wrong decisions;
- Improve skills training students to solve concrete managerial situations;
- Develop skills to address complex and systemic simulated process;
Stimulates creativity participants to find innovative solutions to existing problems;
Enables testing application results found solutions without affecting the integrity of real resources involved;
Allow changing the input parameters in the system in order to study the effects they produce the output data;
Enables compression of time so that the manager can be seen in a short period of time long-term effect of decisions.
It is interesting to say psychological effects on the part of participants (self-confidence, taking responsibility for the decision, verifying acquired knowledge, the power of abstraction and generalization of phenomena).

In next image, it is represented a model for requirements for an effective simulation.

![Simulation Model](image)

**Figure 1 Requirements for an effective simulation**

*Source: Syed Sharjeel Ul Hasan, Shabbir Ahmed Khan, Perceptions of students who participated in business simulation at Umeå School of Business, Sweden. A model for educational simulations, p. 26*

In the following diagram, it is presented an effective model for simulation design from educational perspective.

**4. Limits of business simulation**

There are however a number of drawbacks of these games business, namely:
- Design, modeling and the development of an online business simulations require much time and a large amount of work from a complex interdisciplinary teams;
- A model cannot fully reproduce the conditions of reality, there will be the complexity of reality, no matter how hard they try filmmakers that model;
- Implementing a business simulations can absorb an investment in the sense that involve large sums of money and time and the results are not always as expected;
- A rigid model can highlight intelligence, intuition, creative initiative from players or any of the designers who, as experiments could legalize their system;
- Any mathematical model used and establishes a series of quantitative relationships that occur between phenomena, processes, while qualitative aspects are neglected, the latter having, however, influence the process studied.
5. Example of business simulation

For example, Knowledge Matters is the leading provider of cloud-based, educational simulations for business (food service, hospitality, retailing, sports management and manufacturing) and personal finance. The company's Virtual Business line of simulations have been used in over one-third of all the high schools in the United States. The company's ProSim line of advanced simulations are used by leading universities globally.

In today's world where facts are available instantly, the competitive advantage goes to individuals who can solve complex problems. This kind of thinking is best taught through rich, detailed, visual simulations which pack years of experience into hours and days. Compared to older, passive methods such as watching videos or reading text, learning through simulation is more appealing to students, easier for teachers, and more effective in achieving useful skill development. Mission of Knowledge Matters is to allow people to demonstrate and develop the full breadth of their talents through rich, visual simulations. To find and create great leaders and thinkers from all walks of life, from all over the globe. To break down barriers to opportunity and achievement by letting people show what they can do.

The instructional time for Virtual Business Management is used for simulation exercises, readings assignments, reading quizzes, and math quizzes.
Work procedure is: Students sign in to Virtual Business Management at vb.KnowledgeMatters.com, complete the reading assignment, take the reading quiz, take the math quiz. After that, students click Run SIM and follow the lesson instructions. Student progress and grades may be tracked from the Instructor page. In the lessons of this simulation, students explore ways to recruit, screen and hire employees. They begin by posting a job on a simulated “free” website patterned after Craigslist.org. They use filtering tools to screen their applicants for relevant experience. Next, students read applicant resumes and find some with obvious spelling errors. They further narrow their search by checking references. Students then set a wage level and hire a candidate. Finally, students try to hire several additional employees to increase their business’s production to a target level. If they cannot get enough skilled applicants through the free website, they are given the choice to recruit employees through “pay” website, patterned after Monster.com. Here, learning objectives are to:

- Explain why recruiting and selecting good employees is so critical to a business
- List alternative Internet and non-Internet recruiting options
- Understand the importance of an error-free resume
- Be able to review a resume effectively
- Evaluate applicant references and explain the importance of references
- Use their recruiting knowledge to hire employees and increase business output

In Employee Opinions lesson, students explore why it is critical to be open to feedback from their employees. They begin by taking a survey of their employees. The use segmentation tools to understand which employees feel most overworked. They visually observe these employees and then take steps to hire additional employees for that task. They confirm through observation that employee workloads have dropped. Finally, they use surveys, visual observation, and hiring to reduce workloads for employees to sustainable levels. In this lesson, learning objectives are:

- Appreciate the importance of getting feedback from employees
- Understand how to act based on employee feedback
- Use surveys to determine employee satisfaction
- Use data segmentation techniques to get usable information from data sets
- Use visual observation to diagnose and eliminate workplace problems

In other lesson, students begin by observing their employees producing bicycles. They note that some employees work very slowly. Students quantify the difference in production rates between employees. They then issue warnings to the lower producing employees. One employee responds positively and increases production. The other employee responds negatively, and students are given choices for further action. Finally, students use their supervision options to try to increase daily production to a target level. They must:

- Understand the concept of employee supervision
- Be able to identify management actions that supervisors use
- Use positive and negative feedback constructively
- Identify legal and ethical risks in managing employees
- Use supervision principles to be able to improve business outcomes

In Strikes, Unions & Collective Bargaining this lesson, students assume the role of managers in a unionized plant. They begin by running time forward and experience a worker strike due to pay grievances. They enter negotiations with the employees and make a wage increase offer which is rejected by union vote. They eventually
increase their offer, and this time the union accepts it. Finally, students switch to another factory they own where employees have also gone on strike. They examine their Income Statement to see how much room they have to increase wages without eliminating profits. Armed with this knowledge, they negotiate with employees to get them to back work at a wage level that will still allow the company to make a profit. They must:

- Explain the role and importance of unions in America
- Argue the side of a union in a labor dispute
- Argue the side of management in a labor dispute
- Define a labor strike
- List ways in which strikes can be avoided or ended

This business simulation has a Management Accounting lesson, where students begin by reviewing an income statement—exploring revenue, expenses, and profit. They use percentages to understand how profitable their business is. Students then check their balance sheet to understand their cash position, inventory levels, and liabilities. Finally, students make use of their financial statements to identify and reduce expenses that are too high. By doing so, they pursue a specific profit goal. The learning objectives are to:

- Understand the components and purpose of an income statement
- Can explain revenue, expenses, and profit
- Calculate percentages to analyze financial statements
- Understand the components and purpose of the balance sheet
- Find major assets and liabilities from a balance sheet
- Use information from financial statements to improve the profitability of a business

There is another lesson, for example, Operations Management, where students explore the importance of operations management: a critical part of almost any business. Students take on the role of manager of a blue jeans factory. However, their factory floor is very poorly laid out and exceedingly inefficient. They are directed to make a specific change to the layout. Students then learn how to evaluate the effect of the change on production. Finally, students are challenged to redesign the rest of their floor to meet a specific production goal. They must:

- Define operations management and workflow
- Assess and identify workflow problems
- Take corrective actions to improve operations
- Analyze results of actions as part of a feedback loop
- Redesign complex processes to improve operations and business output

In other lesson, students utilize applied math to create key elements of a business plan, they learn how to define a business plan and its major components, they understand how use production goals and cycle times to compute required processes, compute space requirements based on square footage of needed components, lease and plan space to meet business goals. Students look at ways to reduce risk in a business. They begin by reviewing different types of insurance available for the valuable machines on their production floor. Next, they run the simulation (with no insurance) and experience a fire that destroys a machine. They shop for an Actual Cash Value policy and discover how premiums vary with deductibles. They purchase the policy, experience another loss, and compare the out-of-pocket costs to being uninsured. Next, students shop for another policy and see how premiums vary with coverage limits. Finally, they try to insure themselves to cover the cost of their most expensive piece of equipment while keeping premiums under a specified target. In other lesson, students look at three similar businesses, each with a different form of ownership. One is a sole proprietorship, one is a partnership, and one is a corporation. Students look at how the choice of form of ownership affects the capital in each business. They then compare how taxes are paid by each entity. Finally, they run the simulation and witness the businesses experiencing a bad industrial accident. They then compare the owner’s liability across the three forms of ownership.

In this capstone project, students test out the management skills they have learned in the lessons. They are challenged to build a bicycle manufacturing business from the ground up. They must recruit employees, set pay levels, hire employees, supervise employees, obtain equipment, design their production floor and bid on orders. All students serve the same set of simulated customers and pursue a specific profit goal. By default, the class scoreboard is turned on so students can compare their profitability to others. The instructor can turn the scoreboard off. Also, the students take over a struggling blue jeans manufacturer. The business has made some very poor hiring choices, and the layout of the factory is a mess! Students are challenged to find and diagnose these and other problems. They then set about correcting them. Students learn that a single correction may not produce profits if other factors are not aligned. Eventually, students work through all the issues to achieve a profit. By default, the class scoreboard is turned on so students can compete against each other for the fastest and most effective turnaround. In extra credit project, students use the full power of the simulation to create their own manufacturing empire. They can choose to manufacture bicycles or blue jeans. Students can open multiple factories and pick from a range of sizes for their factories. This project is open-ended; students do not have a specific profit goal and can continue on as long as they desire. By default, the class scoreboard is turned on so instructors can use this project as a competition.
6. Conclusions:

Business simulation, in any form it would make, is a very interesting and with very good results in improving current management companies that are interested in improving management methods. The conclusions show that students consider business simulation the most interesting learning tool compared to others.

Simulation is considered practical learning, learning through a gaming approach, an exercise that replicates realistic environment in classroom. It provides an enjoyable way of learning and the retention of learnt concept very good.

By participating in a business process simulation, students are actively involved in making decisions and they can easily understand the impact of their decisions on the overall performance of the company's business simulated. Having an overview of the entire company, students have the opportunity to discover what activities and what department they would fit better.

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