

Simulation Video Games as a Business School Teaching Tool

Malcolm Ferrier
School of Business
British Columbia Institute of Technology
Canada
mferrier@bcit.ca

Abstract: This paper is a report on the experience of using a commercial business simulation video game as a teaching tool in the Management of Information Systems (MIS) courses in two of the British Columbia Institute of Technology's second year business diploma programs, the International Trade and Transportation program and the Information Technology Management program. The pilot project involved training the students through built-in tutorials to use the program and then creating a multiplayer competition at the end of the course in which the students compete with each other in a simulated business environment that requires the student to build a successful business and compete for market share with their classmates. Their final mark for the exercise was directly related to their business success in the game. Student feedback was overwhelmingly positive and the software will be used again in 2010.

Introduction

One of the key difficulties for post-secondary instructors is to hold the attention of the students. Given the ubiquity of entertainment options such as video games, big screen TV, and 3D IMAX movie theatres, an instructor standing at the front of a classroom writing on a chalkboard seems like a sepia-toned image from the past. However, given that the type of technology options listed above are well-suited for keeping the focus of students that have many other things clamouring for their attention, it follows that education should be taking advantage of the appeal of high-technology entertainment.

This was the motivation for this pilot project at BCIT. After determining that a simulation video game would be the ideal teaching tool for demonstrating how an Enterprise Resource Planning (ERP) system actually functions, research was conducted to find an application that would be both effective and economic. Reviews on Gamespot (<http://www.gamespot.com>) and Metacritic (<http://www.metacritic.com>) resulted in the selection of Capitalism II (<http://www.enlight.com/capitalism2>) as a possible option due to excellent reviews both by users and critics. Gamespot (Figure 1) posted a review score of 8.5/10 (Great), an aggregate critic score of 8.1/10 and an aggregate user score of 8.4/10 (<http://www.gamespot.com/pc/strategy/capitalism2/index.html>). Metacritic (Figure 2) posted an aggregate critic score of 82/100 (Generally favourable reviews) and an aggregate user score of 9.1/10 (<http://www.metacritic.com/games/platforms/pc/capitalism2>).



Figure 1: Gamespot



Figure 2: Metacritic

A review of the Educational Use page on the Capitalism II website provided some suggestions about using the game in an educational setting as well as testimonials from Harvard Business School and Stanford praising the business model in Capitalism II and its utility as a competitive simulation:

“Capitalism is a world class, hands-on learning experience which I've used at Stanford School of Engineering and Harvard Business School. Gamers not only learn the subtleties of growing an entrepreneurial business but also learn about leadership and team building necessary in any business situation.”

“Capitalism is very realistic and will allow the dynamics to change depending on whether you're selling a cola product, which is sort of a low tech-branded consumer good, or whether you're selling consumer electronics or a PC.”

- Professor Thomas Kosnik,
*Consulting Professor, Stanford School of Engineering, and Lecturer, Harvard Business School
 Technology Today, CNBC-TV Cable*

“Stanford Won the First National Capitalism Contest”

“The Duke vs. North Carolina Capitalism battle was just the beginning! In May 1996, three teams of students from Stanford and Harvard engaged in heated battle to create the most profitable business using Enlight Software's Capitalism. The students showed their capabilities in running their billion dollar business empires in the four hours of game play. The final score was derived from each team's individual wealth, number of industries and product domination as well as their corporation's market value. Beating out the Harvard Grads and Stanford Grads was the Stanford Undergrad team who took home the top honors in the National Capitalism Contest.”

Given the scores from the hard-core gaming community as well as positive feedback from renowned educational institutions, there was confidence that the Capitalism II business simulation game would be an effective teaching tool.

Negotiations with the publisher resulted in an agreement that allowed BCIT to use 100 licences for educational purposes. The total cost was \$500.00 or \$5.00 per license. This fulfilled the low cost requirement and Capitalism II was chosen as the business simulation tool for the Management of Information Systems (MIS) courses.

The Project

The business model in Capitalism II is comprehensive. It includes a working Stock Market simulation and allows the player to set up a complete supply chain from mining raw materials to selling finished products in retail stores. The player can run a farm, set up factories, open retail outlets, adjust prices, advertise products, and perform corporate takeovers. Due to this complexity, a set of eight progressive tutorials is provided that allows the player to learn the game's interface through a gradual learning curve (Figure 3).



Figure 3: Capitalism II Interface

Capitalism II was installed on the image for the computers in the BCIT School of Business labs and the students were introduced to the software in the first lab of the MIS course. They were instructed to work through the tutorials in the Entrepreneurship campaign of the game and then start on the more difficult Corporate campaigns. Students were also encouraged to set up multiplayer games with each other to practice competing with real players as well as experiment with the various features of the game. Lecture material could also be tested in a sandbox environment. For example, Porter's Generic Strategies can be applied to the student's business by creating a niche industry that focuses on quality and see if the strategic framework holds up in a competitive retail environment (Figure 4).



Figure 3: Capitalism II Retail Interface

Results

For the multiplayer competition the students were split up into groups of 5 or 6 and a separate multiplayer game was created for each group. They were allowed to use the stock market, compete in all industries and products, and create any part of the supply chain. The student's performance was monitored by the instructor during play. They were given an hour to compete and their mark was calculated as follows:

- Each student starts with 7/10 which can go up and down based on their performance.
- The winner (highest income, profitability and market share) receives 10/10.
- If the student can avoid bankruptcy, they receive 8/10.
- They can potentially raise their grade by submitting a short paper explaining their strategy and why they believe it was not successful.

After the completion of the competition, the students were asked for their candid comments about the experience and the feedback was very positive. Most agreed that it was a good learning experience and thought the software should be used again for the next set of students. The few negative comments mostly concerned the complexity of the game and the quality of the graphics but the consensus was that it added to their education by providing a medium through which they could apply their theoretical business knowledge.

Conclusions

This was a very positive experience for both the instructor and the students. The students were engaged and were able to function well in a challenging and fast-moving simulation environment after an involved training process and the instructor was able to provide a rich learning environment. A similar framework will be used for future MIS courses following the success of this pilot. However, given that Capitalism II is currently eight years old, a newer replacement with better graphics, faster performance, and an equal or better business model will be sought.

References

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