

## **Advancing Students' Business Knowledge via the Deployment of Simulations**

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### **ABSTRACT**

The purpose of this paper is to discuss the role of simulations to advance students' knowledge of the business enterprise, and illustrate the attributes of a selected simulation deployed in strategic management course. Business education is a transitional phase in the lives of college students designed to empower them to occupy managerial positions that influence the long-term survival and growth of the enterprise. Professional success of fresh graduates who join the workforce could be enhanced further with the use of innovative teaching and learning approaches. Well-structured business simulations could in view of the Generative Learning Theory enable students to translate knowledge gained in their programs into practice while, at the same time, assist them to develop decision-making skills.

Keywords: Simulations, business enterprise, strategies, decision-making, business knowledge

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## INTRODUCTION

Business simulations have a relatively long history as a teaching and learning tools. For example, Goi (2019) reported that the applications date back to 1955. The approaches in the earlier decades, however, were fairly simple and limited in scope. Recent advancement in technology, software design, and business knowledge has made it possible for educators in schools and colleges of business to utilize a number of advanced, user-friendly computer-oriented simulation games. The range of uses is wide and growing. They include business valuation (Ernest, 2022); supervision (Maynard 2021); information systems (Ben-Zvi, 2010); risk management (Schott, 1976); health professional education (Cook et al, 2011); sales management (Chapman and Sorge,1999), and production and inventory control (Battissacco et al (2021).

Some simulations are less sophisticated and/or less costly for learners to acquire than others. In the business field, simulations can be classified into three broad categories, as follows:

- a) Major simulations (i.e., company-level in which the decision areas are about key organizational functions).
- b) Functional-level simulations (i.e., the decision area is a specific organizational function such as production).
- c) Operational-level simulations (i.e., the decision area is a specific operating task such as inventory control).

A major simulation is generally a comprehensive computer-oriented online program that enables learners either individually or in teams to compete with each other or with other participants who use the same simulation. This is accomplished by managing identical virtual companies in the same business, industry, products, and capabilities. A major simulation offers greater degree of operational complexity relative to other kinds of business simulations.

This paper is about a major simulation - we refer to Champion. This company-level simulation is created to assist learners understand the fundamental functions of the business enterprise and pave the way for them to make strategic decisions. The purpose of this paper is to discuss the role of simulations to advance students' knowledge of the business enterprise, in general, and strategic decision-making, in particular, and illustrate the attributes of the selected major simulation (Champion) that we deployed in strategic management courses.

## LITERATURE REVIEW

The contributions of Wittrock (e.g., 1974, 1985, 2010) to the introduction of generative learning theory and its subsequent development is widely-acknowledged in the field of education in general, and educational psychology, in particular. Mayer (2010), for example, pointed out that Wittrock's contributions include:

- a) Developing the generative theory of learning;
- b) Testing the theory; and
- c) Applying the theory.

Fiorella and Mayer (2016) pointed out that generative learning is about making sense of to-be-learned by mentally reorganizing and integrating it with one's prior knowledge, thereby enabling learners to apply what they have learned to new situations. Wilhelm and Koszalka (2016, p.1) indicated that the “Generative Learning Theory (GLT) suggests that learning occurs when learners are both physically and cognitively active in organizing and integrating new information into their existing knowledge structures”. Brod summarized what he called six popular generative learning strategies as:

- a) Concept mapping.
- b) Explaining,
- c) Predicating.
- d) Questioning,
- e) Testing.
- f) Drawing.

The author also pointed out that the purpose of generative learning strategies is to improve students' learning by inducing them to actively make sense of the learning material. Zantow et al (2005, p. 451) asserted that “Our findings reveal opportunities for generative learning that occur at all phases of the simulation process”.

Many educators, in line with Wittrock's generative learning theory, voiced support over the years for utilizing simulations in business courses particularly in the field of strategic management, because of the believe that the process of learning and integrating new information enables learners to apply the knowledge gained in future situations. For instance, Tobias (2010) asserted that it is almost impossible to teach everything that students might need in their future career. What is typically taught in educational institutions tends to be a foundation for their future workforce lives.

Vij and Sharma (2018) pointed out that the evidence supports business simulation over other pedagogical tools with respect to retention of what is being learned in a program of study. Granitz and Kohli (2021, p 22) indicated that “the traditional lecture is being replaced by participative learning approaches like simulations that can teach applications, teamwork, creativity, and problem solving”. Morin and Tamberelli (2021) said that there are abundant advantages to incorporating simulation-based approaches into management education including the ability for students to put theory into practice in a realistic, risk-free, and simplified version of a complex decision-making environment. Moreover, Abdullah et al (2013) found out that business simulations are able to translate theory into practice by enabling learners to:

- a) Apply multidisciplinary knowledge;
- b) Manage team dynamics; and
- c) Make decisions in environmental of uncertainties.

On the other hand, Maynard (2021) reported that students expressed desire for learning via the use of simulations in social work courses. Faria (1976, p.1) said that “Although many facts about business can be taught in the classroom, the uncertainty and responsibility of decision-making is best learned through actual decision-making experience”, and that business simulations place the student in an environment that he/she must make decisions on the basis of

incomplete information and live with the results of the decisions. It is also asserted that business simulations provide an environment of a dynamic realism with rapid computer feedback superior, for example, to the class environment of static case analysis can provide (Schott, 1976).

### **THE SIMULATION: TEAMS AND ACTIVITIES**

In business strategy courses, simulation teams (typically 3-4 students each) are formed and assigned individual companies to produce two distinct products and sell them in four regions of the world. The products and regions are the same for all teams as is individual company resources and capabilities. Teams in each class/section compete against each other for market share, profitability, and other business performance indicators. They are instructed to elect the company chief executive officer (CEO) and vice presidents for such functional areas as production and marketing. Typically, students whose majors are management, marketing, and finance occupy the managerial positions in the company that match their major of study.

The time span for the simulation decision-making extends from year 6 (base year) to year 15 (final year). The maximum length of the simulation is 10 years but instructors can assign shorter periods of time. The simulation provides teams with company financial performance for the previous period (i.e., year 5). Annual decisions are scheduled with deadlines to be met. Students are recommended (but not required) to engage in practice decisions for years 6 and 7. The decisions, however, are rescheduled to be performed at later dates.

Students are obligated to spend at least two hours for research and decision-making on their own for each decision period. Grades are assigned to individual students in accordance with the time spent on each decision. Individual student's decision-making is intended to achieve the following goals:

- a) Enable students to learn about the business enterprise as a whole and its functions;
- b) Help them understand the consequences of decisions they make; and
- c) Offer them the opportunity to apply strategies they learned in the course.

Students are not instructed to make the 'optima' or 'best' decisions. Rather, the essence of the simulation is to assist them apply their theoretical knowledge about core business courses such production and operations management, finance, and marketing into practice by virtually managing a business enterprise. Students can make an unlimited number of decisions, save them and redo them again, prior to the decision deadline.

Team members are asked to meet prior to the deadline of each decision period to discuss the company situations and decide on the final decisions to be made in different functions areas of the business. The company CEO in consultation with team members is normally the person who makes the final decision for each simulation period and save it to the system. Company ranking is determined by the final decisions made at the end of each simulation period. The simulation system (Champion) offers instructors the option to assign two online quizzes to assess students' understanding of the simulation. The simulation is also available along with an optional business strategy textbook.

## **DECISION AREAS AND PERFORMANCE**

Decisions for the two company products must be made in six functional areas of the business. The decision areas are the following:

- a) Product design;
- b) Marketing;
- c) Finance;
- d) Compensation;
- e) Special contracts; and
- f) Corporate citizenship.

Participants, as alluded to earlier, are encouraged to make as many decisions as possible in each functional area prior to the decision deadline. This kind of arrangement enables students to receive the system's performance feedback about each decision made. Each decision a student makes will supersede the previous decision up and until the time immediately prior to the decision deadline, for example, year 10. Upon completion of each decision period, the companies are ranked in terms of overall performance in class/section. The performance rubric for company ranking includes the following indicators:

- a) Growth of earning per share.
- b) Return on equity.
- c) Credit rating.
- d) Products' image rating.
- e) Gain in stock price.

## **STRATEGIC PLANNING AND RESEARCH PROJECT**

The nature of the simulation demands that teams develop a 3-year strategic planning for their individual companies as the guiding frame of reference for decision-making and performance assessment. The plan addresses at least the following issues:

- a) The company vision, goals, and objectives.
- b) Company and industry analysis.
- c) Major strategic initiatives.

The teams' tasks include the achievement of their targets in the following areas:

- Earnings per share.
- Return of equity investment.
- Stock price.
- Credit rating.
- Product/company image.

To further augment students’ knowledge of the business enterprise, strategies, and decision-making process, teams are required to write a research paper by the end of the semester. Key components of the paper includes the following topics:

- 3-year plan (e.g., decision years 12-15).
- Market analysis.
- Financial analysis (e.g., profit and loss statement).
- Obstacles the team encountered.
- Lessons the team learned.
- Team’s recommendations for the instructor and new participants.

**STUDENTS’ PERFORMANCE ASSESSMENT**

In addition to the two tests that instructors might assign to assess students’ understanding of company decision-making process, the simulation system offers a learning assurance report which is of value to the accreditation process of many colleges. The nine assessment factors are shown in Table 1 below. The assessment also provides important information to the academic institutions about students’ attainment in ‘soft and hard’ skills, the kind of capabilities that are increasingly demanded by various U.S industries of new recruits.

**Table 1- Learning Assessment Factors**

Leadership skills	Marketing management
Collaboration & teamwork	Human resources management
Analytical skills	Strategic analysis
Financial Management	Corporate social responsibility
Operations management	-

**CONCLUSION**

Business simulations have in recent years become key tools in the educational process of graduate and undergraduate students in many schools and colleges of business in the United States and elsewhere around the world. Some simulations are fairly modest in difficulty while others are more comprehensive and sophisticated in application. The discussion in this paper is about a major, or company-level simulation (we named Champion) that is designed for strategic management - or business strategy & policy - courses. The purpose of this paper is to discuss the educational benefits of such a game for business students.

The instructor found the educational benefits in terms of class performance of the simulation is noticeable as compared to past semesters in which no simulation was assigned. Granitz and Kohli (2021) asserted that the benefits of business simulations to students include skills development in theory application, teamwork, creativity, and problem-solving. Additionally, well-structure simulations could also provide the following benefits:

- Help the student to understand the complexity of organizational decision-making by managing a virtual company.
- Motivate the student to think *strategically* (i.e., creatively) about managing the business along with emphasis on efficient resource allocation.
- Educate the student about the importance of achieving competitive edge for the business enterprise to survive and growth.
- Enable the student to develop his/her attributes of leadership competency and business innovation.
- Promotes the student's competitiveness and contributes to his/her professional development.



**REFERENCES**

- Abdulla, Nor Liza et al (2013). Developing Creative Teaching Module: Business Simulation in Teaching Strategic *Management, International Education Studies*, 6(6), 95-107.
- Alstete, Jeffrey W. and Beutell, Nicholas J. (2021). Delivery Mode and Strategic Management Simulation Outcomes: On-ground versus Distance Learning, *Journal of International Education in Business*, 14(1), 77-92.
- Anderson, Jonathan R. (2005). The Relationship Between Student Perceptions of Team Dynamics and Simulation Game Outcomes: An Individual-Level Analysis, *Journal of Education for Business*, 81(2), 85-90.
- Battissacco, Bruna C. and et al (2021). Production Batch Sizing and Inventory Level Control. Using Simulation Software, *Independent Journal of Management & Production*, 12(9), S812-S830.
- Ben-Zvi, Tal (2010). The Efficacy of Business Simulation Games in Creating Decision Support Systems: An Experimental Investigation , *Decision Support Systems* 49, 61-69.
- Brod, Garvin (2021). Generative Learning: Which Strategies for What Age? *Educational Psychology Review*, 33(4), 1295-1318.
- Cook, David, A et al. (2011). Technology-Enhanced Simulation for Health Professions Education A Systematic Review and Meta-analysis, *Journal of American Medical Association*, 306(9), 978-988.
- Ernest, Dietmar (2022). Simulation-Based Business Valuation: Methodical Implementation in the Valuation Practice, *Journal of Risk and Financial Management* 15(5), 200-210.
- Faria, Anthony L. (1976). Relevancy and the Business Simulation Game, *Business and Society*, 17(1), 31-35.
- Fiorella, Logan and Mayer, Richard (2016). Eight Ways to Promote Generative Learning, *Educational Psychology Review*, 28(4), 717-741.
- Goi, Chai-Lee (2019). The use of business simulation games in teaching and learning, *Journal of Education for Business*, 94, 342-349.
- Granitz, Neil and Kohli, Chiranjeet (2021). Next Round: The Role of Simulation in Business Education, *Journal of the Academy of Business Education*, 22, 22-45.



- Gresch, Eric and Rawls, Janita (2017). Secrets to success: Business skills and knowledge that students find most useful in succeeding in a capstone course simulation, *Journal of Education for Business*, 92(7), 358-367.
- Kotlyar, Igor et al (2021). Virtual high-fidelity simulation assessment of teamwork skills: How do students react? *Journal of Research on Technology in Education*, 53(3), 333-352.
- Mayer, Richard (2010). Merlin C. Wittrock's Enduring Contributions to the Science of Learning, *Educational Psychologist*, 45(1), 45-50.
- Maynard, Sarah P (2021). Standardized Simulations in Social Work Supervision Courses: MSW Students' Perceptions, *Journal of Social Work Education*, 57(3), 557-568.
- Morin, Jennifer C. and Tamberelli, Frank (2021). Resource Review: (CapsimCore) Fostering Strategic Decision-Making and Teamwork Skills With the CapsimCore Business Simulation Game. *Academy of Management Learning & Education*, 20(2), 290-292.
- Schmeller, Rebecca et al (2022). Business Capstone Strategy Simulations: Student Perceptions of Realism, *Journal of Education for Business*, 97(5), 343-350.
- Schott, Brian (1976). Using a Business Simulation Game to Teach Risk Management: Player Strategies The Mechanics of RISKM Teaching Risk Management with RISKM Conclusions, *Journal of Risk and Insurance*, 43 (3), 526-534.
- Tobias, Sigmund (2010). Generative Learning Theory, Paradigm Shifts, and Constructivism in Educational Psychology: A Tribute to Merl Wittrock, *Educational Psychology*, 45(1), 51-54.
- Vij, Sandeep and Sharma, Rajnish (2018). Experiential Learning through Business Simulation Game in Strategic Management, *20th Annual Convention of Strategic Management Forum, "Strategy, Innovation and Entrepreneurship Curriculum in the Era of Disruption"*, 25-27 December Indian Institute of Management.
- Wilhelm, Mary K. and Koszalka, Tiffany A. (2016). Generative Learning Theory and its Application to Learning Resources, *RIDLR report*, Syracuse University.
- Wittrock, M. C. (1974). Learning as a Generative Process, *Educational Psychologist*, 11(2), 87-95.
- Wittrock, M. C. (1985). Teaching Learner Generative Strategies for Enhancing Reading, *Theory Into Practice*, 24(2), 123-127.
- Wittrock, M. C. (2010). Learning as a Generative Process. *Educational Psychologist*, 45(1), 40-45.
- Zantow, Kenneth et al (2005). More Than Fun and Games: Reconsidering the Virtues of Strategic Management Simulations, *Academy of Management Learning & Education*, 4 (4), 451-458.