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# **Teaching Strategic Decision Making – Business Management Simulations as a Tool for Generative Learning**

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## **Abstract**

This paper takes a generative learning perspective to study the pedagogical benefits of employing simulated virtual learning environments to replicate real world business decision making. Simulated business games have been growing in importance on many business programmes over the last twenty years, and the increase in online delivery due the Covid 19 pandemic has heightened the focus on this type of virtual delivery. As members of a management students take part in running a simulated business gaining real management experience. Students make weekly strategic decisions for their company, market results are then released for the company each week and the students need to react. The students compete against each other bringing a real element of competition to the experience. This investigation focuses on the student's perspective of their learning experience through a generative learning analysis of their individual reflections. The findings highlight the development of crucial management skills in the areas of analysis, teamwork, presentations and decision making. The main contribution of the paper is the confirmation of a generative learning cycle between course content, engagement in the simulation and skills development. These findings provide a framework for educators integrating a simulation of this type into their programmes.

## **Keywords**

Simulations, Business Games, Strategic Decision Making, Generative Learning, Student Reflections

## **Introduction**

The following paper is based on generative learning analysis of a business simulation which was employed as a pedagogical tool in the teaching of strategic management. Strategy is inherently about making decisions and the use of simulations addresses one of the great classroom difficulties with teaching strategy. How can we create the environment where students can actually make decisions and experience the consequences of those decisions? A business game or simulation provides students with the opportunity to implement strategy at first hand, to make strategic and operational decisions and to manage the outcomes of those decisions. As members of a management team running a simulated company students gain real management skills as well as collateral skills such as teamwork, negotiation and persuasion. This study assesses the students' experience of a business simulation over a number of weeks from a generative learning perspective and uncovers their reflection on the learning experience, the introduction to the real world of management, and the development of their management skills and competences. The potential value of employing simulations as a learning tool is analysed, and a framework of generative learning to support the integration as a pedagogical tool is assessed.

## **Literature Review**

### *Teaching Strategic Management*

A central discussion in the teaching of strategic management has been how the division of thought and action can lead to an unrealistic picture of how firms actually operate (Mintzberg, 1990). It has been well established that the teaching of overly planned approaches leads to staged versions of organisational strategy where organisations first went through a process of planning and then implemented that plan. The case study method has been employed extensively in business schools to bring course content closer to business reality. This approach undoubtedly brings an added dimension to the teaching of strategy, but the analysis of cases can confirm a static approach to strategy development in the classroom. This staged planned process has become increasingly challenged as organisations deal with increased competition and dynamic changes in their environment (Teece, 2014). However, the teaching of strategy has not always kept pace with the dynamic changes organisations are experiencing (Kachra & Schnietz, 2008). This has major consequences for business management students who sometimes learn a staged planned approach in the classroom and are then expected to perform in dynamic fast-paced environments as graduates. Grant and Baden Fuller (2018) contend that the growth of strategic management as a research-based discipline has had a profound effect on how it is taught. Theory based, overly planned analytical approaches have become the dominant teaching approach, despite the goal of management programmes being to develop management skills. The discourse in management education and research gives little attention to the

role of skills. Specifically, there is not enough attention placed on how skills related to strategic decision making are developed.

### *Strategic Decision Making*

What constitutes a strategic decision from those decisions that individuals make every day? Two principal factors underpin the importance of strategic decisions. Firstly, the decisions are important in relation to the overall business purpose of the organisation, as in they are typically irreversible and require substantial commitment of resources (Grant, 2007; Johnson, Scholes & Whittington, 2008; Papadakis, Lioukas & Chambers, 1998). Secondly, strategic decisions are complementary and cannot be considered in isolation (Porter, 1996). The challenge for strategy teachers has been in creating a classroom environment where students can experience these crucial factors when making decisions. Theory based approaches enable the study of the decisions themselves but cannot put students in the position of making the decisions as active learners (Carlile & Jordan, 2005). The case method is a well-established teaching method in strategy but its real strength is in the application of theory to real life situations. The focus of case study teaching is on analysis and theory building (Christensen & Carlile, 2009) rather than active decision making. To build strategic management competencies and management skills in decision making, strategy teachers need to be able to put their students in an environment that replicates the pressures of a real world decision making situation. The emergence of technology based simulations are presenting the opportunity to rethink how strategic decision making is taught.

### *Business Games*

Business games arrived in the late 1950s, instigated by the fusion of developments in war games, operations research, computer technology, and education theory. Armed with new theory of education that revolved around the learner instead of the instructor, the successes of war games and operations research techniques from World War II and the development in computers, the gaming movement emerged in business schools and training programmes. Because the roots of management games go back so far, and are an amalgamation of different fields, there is some confusion over what constitutes a management game (Biggs, 2003). To clarify, management games are employed to create experiential environments within which learning and behavioural changes can occur and in which managerial behaviour and decision making can be observed (Wolfe, 1994). A business simulation in general is any artificial or synthetic environment that is created to manage an individual's or team's experiences. Simulation training is the systematic acquisition of attitudes, concepts, knowledge, rules or skills that should result in improved performance. Computer based simulations involve some level of computer technology to create the environment (Salas, Wildman & Piccolo, 2009).

### *Generative Learning*

From a pedagogical perspective the rise of experiential learning and behavioural change were major drivers of the business gaming movement (Cohen & Rhenman, 1961). Business school pedagogical and training development methods have been greatly influenced by the group change theories of Lewin (1951), T-Group methods (Lippit, 1949; Schein & Bennis, 1965), and the sensitivity training and personal growth work accomplished at the national training libraries. The experiential learning methods create an environment that requires the participant to be involved in some type of personally meaningful activity. Such an environment allows the participant to apply knowledge of theory and principles while developing commitment to the exercise, and experience a real sense of personal accomplishment or failure for the results obtained (Walter & Marks, 1981). These developments led to the more recent arrival of business simulation (Keys & Wolfe, 1990).

Zantow, Knowlton and Sharp (2005) propose the educational theory of generative learning as an appropriate framework for studying the impact of business simulations. Whitrock (1985) describes generative learning as a) the process of generating relationships, or a structure, among the components, or parts, of the information one is trying to comprehend, and b) the process of generating relationships between one's knowledge and the information one is trying to comprehend. Generative learning strategies promote durable learning by helping students develop connections between course content and student's experiences and knowledge (Wittrock, 1974, 1985, 1990, 1992). Jonassen (1988) provides the most direct framework for applying generative strategies, proposing four categories: recall, organisation, integration and elaboration. Zantow et al. (2005) propose that three of these elements are inherent to the simulation experience: organisation, integration and elaboration.

- Organisation generative strategies refer to student's efforts in imposing their own structure on content and material;
- Integration generative strategies allow student to connect with their existing thoughts, ideas, and experiences;
- Elaboration generative strategies are when learners draw their own conclusions, infer consequences, describe examples, or create analogies.

This overview of generative learning provides a framework for understanding an educational theory that can be applied to the study of students and their engagement with business simulations.

Organisation, integration, and elaboration strategies create opportunities for students to develop connections between the material they are studying, their experience, and existing knowledge.

Simulations offer a unique setting for the application of these strategies.

## **The Simulation Project**

The simulation project analysed in this study is run by an external company based in the United States. The company have been providing business management simulations for over twenty years. Students are enrolled on the simulation in week two of the semester after an introduction to the module content in week 1. The participants in the simulation project were from two cohorts: a final year undergraduate Business Management degree, and an MSc in Strategic Management. Strategic Management is a core module for both the final year undergraduate business students and the postgraduate Masters students. In total just under 100 students took part in the project.

As an initial step the students were assigned to groups with four or five members in each. Each group was then assigned to an industry grouping. The simulation allows up to 10 groups competing with each other. As a result, in this project there were four different industries.

When the simulation commences, each groups takes charge of a business in an established industry. For the undergraduate class they take charge of an airline company. In the MSc class they take control of a multinational computer company operating across international regions and product segments. A crucial element of the simulation is that the student teams compete against each other, it is a competitive environment. Groups make decisions across every element of a functioning organisation: Finance, Sales, Marketing, Operations, International Expansion, Human Resources and Corporate Social Responsibility. The decisions they make impact on the competitive structure of the industry. Every decision the groups make reflect the two components of a strategic decision as set out by Grant and Baden Fuller (2018) i.e. the decisions require commitment of resources and the decisions are complementary.

Each week the groups are given the market conditions and have to submit their decisions by Wednesday evening. As soon as the deadline is complete, the simulation generates the results for the team and the marketplace. The results include financial reports, market reports, employees' reports and various other company and market data. Each week the students are also set a significant incident analysis which they have to make decisions on. The timeline of strategic decisions decisions operates as follows.

### *Simulation Timeline*

1. Reading the Business Case

The simulation is designed so the students are taking over the running of an existing company. This is specifically to suit a simulated experience with a priority on the strategic development process rather than decisions of new business development. Therefore students begin by reading a case study of the business history of their company. The students must

familiarise themselves with the company and the prior history before they make any decisions. This is a crucial step as students must grasp the situation they are walking into before they make any decisions of consequence.

2. Establishing Company Name, Brand, Mission and Vision

The next step is for each group is to make the first strategic decisions for the firm. A group has to decide on a name, but also to develop their company brand, mission and vision. This initial step highlights to the group the interconnectedness of the different objectives of the company.

3. Operation Decisions

Once the simulation commences the students must make all of the relevant decisions related to running their business. The decisions fall the following general areas:

- i) Pricing
- ii) Marketing
- iii) Operations
- iv) HR
- v) Finance

4. Special Decisions

Each week there is a decision the students cannot plan for, something that emerges unexpectedly. In some weeks it is an ethical dilemma such as accessing controversial competitor information or an internal employee problem which has leaked to the press. Other weeks it is a market issue where a strategic alliance opportunity has emerged or a potential diversification decision into a new industry. Each week it is something new that the students have not seen before, which means they cannot plan for it.

5. Performance Results

The students must have their decisions recorded before a set deadline each week. Once the deadline passes the quarterly results are issued. Each week is a quarter in the lifetime of the company. Results are broadly focused on four areas: Profit, Stock Price, Reliability, and Quality. Here are quantitative reports which give a breakdown of each area and the groups also get qualitative information such as customer reports and employee feedback. It is up to each group to analyse the quarterly data to get an accurate insight to the performance of their company.

6. Market Reports

Each group is issued with general external market data but one of the key decisions that each group must make is whether to invest company resources in more extensive market research. This creates a dilemma for the students, whether or not to invest resources in additional information on their market structure and competitor activities. The additional information

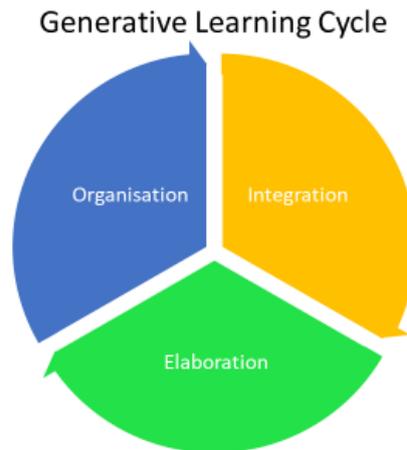
can be very useful for informing decisions but it does potentially create a drain on company resources and additional workload for the group.

7. Assessment

The simulation is assessed through four component parts and the entire submission is worth 50% of the strategic management module. Three of these are group components which are worth 30% and one component is an individual submission which is worth 20%. Firstly as a group they received a grade depending on how they ranked in their profit performance. Secondly the groups are graded on their weekly presentations to shareholders on the performance of the company and the management team. Thirdly as a group they must submit a written report outlining the steps the company has taken throughout the lifetime of the company. The final submission is the element which was analysed for this paper. Student must submit an individual reflection where they assess their individual journey and how the experiences relate to the theoretical content covered in class. It is these reflections which have been analysed for evidence of generative learning.

### **Research Analysis**

The motivation behind the research in this project was to assess, from a generative learning perspective, whether there was an improved understanding of course content and enhanced competence development through engagement in the simulation. A research design was adopted that involved inductive qualitative investigations (Eisenhardt, 1989) of the students' individual reflections. There are noted challenges in analysing reflective submissions of this type (O'Connell & Dymont, 2011) as the depth of real reflection on the students' behalf can vary greatly. Therefore, in this study there was a focus on the three components of generative learning as outlined by Zantow et al. (2005): Organisation, Integration, Elaboration. The qualitative data from the reflections was analysed within these three categories and emerging themes were identified for each area.



**Figure 1: Generative Learning (Zantow et al., 2005)**

### *Organisation*

#### Teamwork

Students strongly identified the development in the dynamics of their team. Unlike other group exercises in the simulation, students are receiving weekly results and feedback on their performance. This creates a positive pressure but also a weekly progression in their performance. Students were able to track the development of their abilities as a team and how they improved as a result of critical incidents, particularly when decisions went wrong. A crucial finding was that students identified tangible examples of their abilities in a team in a competitive environment that they felt could be used in a real world company situation. Students reflected on how they would be able to use these example in competency based job interviews.

### *Integration*

#### Strategic Decision Making Skills

This is the area that was the main focus in the students' reflections. Students particularly pointed to the fact that they had never experienced a learning environments where they actually got to make impactful decisions. In terms of generative learning students particularly reflected on how the simulation focused their attention on the key trade-offs there are in making strategic decisions. Those trade-offs relate to issues like growth versus stability, control versus autonomy, risk taking versus risk aversion. Reflections pointed to the emotional feeling that occurred when the quarterly results for the company were announced and the share price had dropped and the company's profits had gone into the red. Students wrote of their motivation to correct these issues by renewed analysis and team cohesion in a way they had never felt before in a classroom environment. Again, it was the weekly

progression and feedback through the simulation and related classroom discussions that students could identify the progression of their learning.

### Ethical Decision Making

Thematic analysis highlight some very positive responses in this area. Students found that their understanding of complexity of ethical dilemmas was greatly enhanced through being faced with ethical dilemmas in the simulation. It was a great cause of surprise to many that when they needed to balance the profitability of their company with a seemingly grey area in their strategic decisions making, both as a group and as individuals they actually prioritised profit over what turned out to be the most transparent ethical decision. Many students reflected on their lecture on ethical decision making and the business and society relationship and how the simulation had brought home just how complex ethical decision making can be.

### *Elaboration*

#### Comparisons to Traditional Learning Approaches

Thematic analysis highlights a positive response from the students in terms of the simulation as an important learning tool. Many of the students did feel that it was a better overall experience than a case study or an exam. However, the findings were not totally in favour of the simulation on its own as a learning tool, giving weight to the argument that the simulation should only be used in conjunction with other more established learning approaches.

#### Management Competencies

Findings also gave very positive results in terms of the students' development of management skills. The stand out findings were how highly the students rated their own learning in terms of decision making, presentation skills, analytical skills and their ability to negotiate with others. These are all absolutely key business competencies for business graduates.

### **Discussion**

There are some crucial findings evident in this paper across the three areas of generative learning outlined by Zantow et al. (2005). The research found that students preferred the simulation as a learning experience to case studies or exams but that simulations were not a sufficient learning tool by themselves and required academic scaffolding through lectures or other means. The most crucial findings relate to the process of strategic decision making. A major issue in the teaching of strategic management has been the move towards more theoretical class based teaching (Grant & Baden-Fuller, 2018) and the emphasis on a teaching approach which Mintzberg (1990) described as the division of thought and action.

Business simulations provide the opportunity to build generative learning strategies which combine the best of the theoretical approach to strategy, with technologies which promote application of the knowledge through competitive strategic decision making. The findings from this study confirm the progression of students and the development of decision making skills through active generative learning. In their reflections, students could make the connections between what they were covering in class and what they engaging with in the simulation. There are three specific examples of class content which really highlight the impact of the simulation in terms of generative learning. These relate to three crucial areas of strategic management course content; 1. Balancing the demands of the external competitive environment and the internal company environment, 2. Understanding the difference between revenue and profit, and 3. Critiquing complex ethical dilemmas in company situations. These three areas are central to strategic management teaching and it was these three areas which the students predominantly focused on in their individual reflections. The fact that students could identify the importance of all three areas through their own active decision making, and then relate this back to the content covered in class, shows tangible evidence of the potential for generative learning in simulations.

These findings are important for a number of reasons. Simulations have the potential to impact teaching and learning across a variety of disciplines much wider than business. Decision making can be one of the most difficult areas to teach in the classroom as it is so difficult to replicate impactful decision situations. Technology is now giving educators that opportunity but it is crucial that the simulation designed to support core subject content. Therefore the framework of generative learning outlined in this study has the potential to support the pedagogical approach of teaching with simulations.

As a final note, Covid-19 has caused almost all third level education to move online. Educators are now in the process of testing many different learning technologies to try and deal with the pressure this has created. Simulations are not a new educational tool. They have been in existence for a considerable length of time and provide a tried and trusted technology which can be integrated into many courses and provide a dynamic virtual learning environment.

### **Limitations**

The framework outlined in this paper would benefit from being applied to a wider cohort of students. Approximately one hundred students took part in the project, but to get a broader sense of the generative learning impact the research should be based on a wider sample of students. The generative framework applied in the study could also be applied to both the group and individual submission in the project. This would enable a comparison of both individual learning and group learning.

A very important limitation of implementing simulations on a programme is the cost associated with a large cohort undertaking a project of this type. While simulations have huge learning potential there is often a major resource implication to employing packages of this sort. This is a very important factor for educators debating engaging with a virtual learning tool of this type.

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