

USING BUSINESS SIMULATIONS TO INTRODUCE BUSINESS CONCEPTS

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ABSTRACT

Business simulations are effective experiential tools used to introduce business concepts, to enhance decision making skills and to appreciate a cross-functional understanding of business. In this article the authors have shared their experience in using a business simulation at the beginning of a post graduate management program as opposed to a conventional approach of use at a later stage of the program. By providing class feedback the authors have been able to convey participant experience in the course. Traditionally, business simulations have been used as a capstone course in a business program. The experience of deploying this pedagogic tool at the start of the business program, with specific goals including that of introducing an appreciation for 'what business is' is sought to be shared in this paper.

INTRODUCTION

Simulations have gained prominence and a high degree of acceptance as a learning pedagogy. It is a dynamic learning tool which provides an environment of constant stimulation and challenge. It is more active and visual than 'standard' approaches (eg. lectures) causing learning through simulations to be more effective than traditional learning methods. Here the learners are actively involved with an experience which enhances learning, increases enthusiasm levels and helps them develop critical problem-solving skills.

This paper is based on the experience of the authors in designing and conducting simulation based courses for a number of years in India. Their experience supports the belief that as against a typical course design built around conventional pedagogies, a simulation based course starts with an edge. Participants have stronger learning with better retention since they truly take ownership of learning with a 'hands on' approach. The course time is spent largely on 'learning by discovering' as opposed to 'learning by listening' (Garris, Ahlers & Driskell, 2002). It also supports the thought that simulation based training helps develop management skills at a faster pace (Salas, Wildman & Piccolo, 2009)

The purpose of this article is to present and elaborate how business simulations can be used to introduce business concepts at the beginning of a program.¹ The different steps involved in conducting the course along with participant

and instructor activities at each level are also described in the sections that follow.

BUSINESS SIMULATIONS

Business simulations can be very effective in introducing business concepts, enhancing decision making skills and appreciation of cross-functional nature of business. It is powerful in highlighting the essence of management and representation of business as interplay of functions. The more common objective of business simulations is to give learners hands on experience in formulating and implementing their strategy (Faria, Hutchinson, Wellington, & Gold, 2009). In most business simulations, learners are involved in managing a firm in a competitive environment. They compete with other firms within an industry. The firm produces, markets goods and manages its resources to achieve profitable growth. Each competing team is required to run the firm over defined decision cycles. They take decisions across functional areas such as R&D, marketing, manufacturing, HR, finance etc. Decisions need to be based on desired objectives, expected outcomes and analysis of performance which in turn is linked to market behaviour and their goals. Running a virtual business over some decision cycles helps the learners to understand the importance of different functions and their impact on each other. Taking a decision on a repeated basis by looking at all facets of business, backed by analysis helps improve decision making skills.

COURSE DESIGN - USING BUSINESS SIMULATION

The course design involves defining the learning objectives and laying out an execution plan (including course deliverables and measures of performance).

LEARNING OBJECTIVES

A course designed around a Business Simulation can have the following learning objectives.

¹ This approach to the use of a business simulation not just towards the completion of the program but also at the commencement is in use at a few schools like The Indian Institute of Management, Calcutta

- Enable the participants to appreciate the functional areas of business and their integration.
- Understand the need of functional area alignment to strategic plan.
- Understand and conduct competition analysis.
- Experience the impact of decisions across functional areas.
- Build team skills

EXECUTION PLAN

The format of the course could be a short 3 to 4 days concentrated workshop or spread across 3 to 4 weeks. Both options have their own merits. The concentrated workshop mode enables participants to devote all their time and energy to the simulation while a course which is spread out enables learners more time to reflect and analyse their performance.

The simulation can be delineated into three phases: the conceptualising and planning phase, implementation phase and the post-performance phase (Zantow, Knowlton, & Sharp, 2005). Each of these phases is important as it fulfils different requirements of the course. The participant deliverables and measures of performance need to be aligned with the purpose of each phase for the subsequent phase to be effective.

The authors used Capstone® business simulation by Capsim Inc.² in the course to introduce business concepts. There are many other business simulations that could be used to fulfil the stated course objectives.³

PHASES OF SIMULATION EXECUTION

Each of these phases is described in detail with the different activities performed by the participants and the instructors. In each phase the instructor takes on a different role, from that of a designer in the planning phase, to that of a facilitator in the implementation phase and finally to that of an evaluator in the post-performance phase.

PHASE 1: CONCEPTUALISING & PLANNING

This can be called a preparation phase. It involves team formation, understanding how the simulation world operates and making a game plan by the participants (strategizing) on how to run the firm.

The activities are

- Designing the industry canvas.
- Getting participants to understand the simulation world

Deliverable:

A blue print with specific goals with objectives and operational plans laid out for running the firm for the defined time period.

Designing the industry canvas

One of the learning objectives is to build team skills and initiate learning across different levels. This can be achieved within firms, the virtual industry the firms belong to and the entire group of participants across all industries.

Instructor Activity: Creating an organisation

The first step is to form teams which will initiate a wide range of discussions. Some ways of forming groups are self-selection, administrator driven or a random process (Bacon, Stewart, & Anderson, 2001). The main focus of group formation is to have diversity within the group. To facilitate this, the instructor can form groups based on the student experience profile, educational qualifications and nature of work experience along with gender diversity. Each team ideally should not have more than of 5- 6 participants. This could promote interpersonal dynamics and yet have adequate work demands of each team member. The participants can form their own teams but it may result in set of 'friends' with low diversity.

Instructor Activity: Conceiving an industry

The next step is to form the industry which will have some 'live' teams and some 'computer managed' firms. Depending on the type of the simulation used, an industry can comprise 4 to 6 firms which ensure that divergence in performance can be tracked by way of larger variances in market shares. It is helpful to have at least one computer firm in an industry as the computer firms can take on different strategies depending on what the instructor would like to convey to the participants. The computer firm can be assigned the role of a strong competitor, which helps the participants raise their level of performance by seeing a well-crafted strategy in action. Alternatively the computer firm can be set at a 'weak' level which does not perform well due to lack of coherence in strategy demonstrating the fact that for a firm to be successful, collaborative and active involvement of all departments is necessary.

The class should ideally have two or more industries operating with different scenarios, if the simulation allows. Different scenarios give participants a perspective on how firms react in different situations. Capstone® by Capsim Inc. allows the instructor to choose the scenario, level of difficulty and number of computer firms while setting up the course.

The participants should be informed of their team composition, industry configuration and registration details in the first introductory session. This will enable them to register onto the simulation site, access online documentation and get familiar with the simulation world.

Participant Activity: Defining the organization structure

The team should plan on how they would organise themselves, the roles that they would play and draw an organisation chart. It is observed that initially participants recognise roles that suit their calibre and experience. By

²Pl see www.capsim.com

³The authors have also worked over several years with a business simulation developed by Prof Dr. Ashok N Ullal (see www.ibizsim.com) which serves similar objectives

way of an example, an accounting and finance major would like to be in charge of the finance function. A person who has more work experience could be given the CEO role. Clear role definition makes participants responsible for the division or role they represent.

Conceptualization

Getting familiar, experimenting with and understanding how the virtual world operates.

Participant Activity: Self preparation-understanding the unknown

To be able to contribute during team decision making sessions, each participant needs to read the simulation manual, attempt solo quizzes and rehearsal rounds if the simulation provides for it. The purpose of these individual exercises is for the participants to get familiar with and to experiment certain decisions that may help validate their understanding of the simulation world.

Participant Activity: Understanding the competitive environment

The second level of preparing for implementation is to take team decisions and understand how the virtual industry operates. Here the participants need to get involved in team decision making process. Each individual has to perform his role so that the team learns to operate as a firm. Besides understanding the performance of their competitors they need to understand their firm's

capabilities and strengths. They can learn from their mistakes and in-depth analysis of how they have performed as a firm and as a competitive player of the industry. The trial or the learning rounds increase the participant's awareness of the simulation world, helps in organizing as a firm and forms the basis of decision making in actual implementation phase (the 'live' phase or the decision cycles)

Instructor Activity: Facilitate learning

The instructor has to analyze the performance of the teams in the trial rounds and discuss it in class to help teams understand the reasons for their performance. The instructor has to also look at the competitive industry canvas, the firm's position and help participants understand how their virtual industry is evolving. This helps teams correct themselves and plan for the future. The instructor can also use the time during the initial rounds to explain business concepts necessary for managing the firm. Frameworks across functional areas and their impact on one other can be discussed as well. The instructor can gauge the knowledge of the group to decide the topics for discussion. Concepts such as segmentation, positioning, targeting along with pricing in marketing, cash flow, working capital, financial ratio analysis in finance and capacity utilization or inventory management in production could be some concepts for discussion.

TABLE: 1

Guidelines for Business Plan Submission

Each team needs to reflect debate and propose how it would like to run its firm (for a period as specified in the simulation). Each team has to look at the following:

1. A situational analysis by reviewing product position, market share across segments, capacity utilization and capital structure.
2. Analyse its firm strengths (this could be some competencies developed within the team) and weaknesses using the learning from the 'trial' rounds. List down the opportunities that could emerge given the environment and whether competitors or the industry might pose any threats.
3. Define goals (verbal and quantitative) which can measure performance with reasoning on the choice of measures.(e.g. RoE, market share, etc)
4. Support goals with an operational plan which could lead on to achievement of targets. The operational plan should aim at alignment across functional areas (without ignoring competition)

The plan has to be supported with

- Reasons for which market segments the firm plans to concentrate on? How much market share is aimed for on a period wise basis?
 - Plans to meet the demand forecast for each period and each product. What are the production plans and capacity utilization estimates (i.e.. overtime, double shifts, etc).
 - Fund requirements at the end of each period to sustain growth- what mix of long term debt, short term debt, new equity and retained profits would be aimed for? Why?
A HR policy (training, recruiting, etc) to help/ aid growth and improve performance of the firm.
5. The report has to be well considered since it forms the basis for further decision making.
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Planning for action

Strategizing and drawing a blue print- a game plan.

Participant Activity: Strategizing for future

All firms need to decide their game plan before they move into the implementation phase. They need to analyse their strengths and weaknesses, reflect on the capabilities of their firm and the resources available to them. They then go on to develop strategies that their firm would like to follow. This exercise helps the team to think on how they would like to run their firm. The teams need to define goals, draw operational plans and define metrics to measure their performance. The outcome of a business plan becomes the basis of the decision making during the implementation phase. The team representing a firm needs to submit the business plan as a document to the instructor with embedded spread sheet tables if required. It should be a concise document covering all the areas mentioned in the exercise. (Table-1)

Instructor Activity: Guiding for a smooth start

The instructor needs to evaluate the submission made by the participants so as to be able to discuss it with individual teams. This helps teams rework their plan if required before the actual implementation cycles. As in the real world, the company that digs itself into an early hole may still be paying the consequences many cycles later, so the team decisions need to be well thought of.

PHASE 2: IMPLEMENTATION PHASE

In the implementation phase, teams execute their chosen strategy to drive the firm towards profitable growth. They have to take decisions in an environment characterized by uncertainty, incomplete information and potentially inadequate time which is similar to the real world.

Participant Activity: Managing a Business

Teams have to work together to review reports on performance and updates to understand their position in the industry. They have to analyze the outcomes of their decisions, see the impact across functional areas and revise their game plan as required. The time required for analyzing and discussing performance within teams can take about 4-5 hours initially which would reduce in due course as teams get better at decision making. Each decision cycle is time bound which requires preparation and hence it is advisable to give access of the completed round reports to the participants well before the next scheduled deadline. The participants also learn to make their own inter-connected spreadsheet models which they validate and improvise as they move ahead. Their confidence in their model would increase if they are able to get results in line with forecasts. Analyzing data and converting it into useful information for decision making is a valuable takeaway from this exercise. They understand

Table: 2

Guidelines for Management Analysis

At the end of the tenure as Management Core Team, the team which has been responsible for running the firm for the last few years, is called upon to report to the Board and shareholders on performance and the way ahead

Each team needs to present a report- Management Discussion and Analysis.

The contents **could** cover the stated goals, plans, actual performance, reasons for shift in game plan, analysis of competition, what could have been done better, learnings or any other aspect considered significant.

- Each team **has to cover**
- Reasons for performance (better/ worse than anticipated)
- Identification of the strongest competitor with a mention of the parameters on which the competition analysis was conducted.
- The approach to managing the markets- the products/ segments that were planned to be concentrated on and what was their contribution to profitability?
- Was there a shift in capacity utilization plan and if so, why? What was the capacity utilization across products at the end of the team's tenure (last decision cycle)? How different was it from the plan? What were the reasons? How did the actual production decisions in each period affect production personnel requirement as against plan
- How/ What was the shift in the cost structure across products? How did it impact contribution and profitability at product level and firm level?
- How did the financial structure of the firm look at the end of each period?

the industry dynamics while doing competition analysis. Their exposure to the game plans of competitors helps them understand that there is more than one way to succeed!

Instructor Activity: Debriefing and feedback

It is rightly said that real learning can be achieved by debriefing and not just the game (Crookall, 2010) During the debrief the participants explore the connections between what they have experienced, their existing knowledge and defined learning objectives (Peters & Vissers, 2004). The instructor can use simulation reports as a medium to explain concepts (even if at a simple level), their co-relation and impact across areas. New concepts can be introduced, discussed and validated at different stages. Marketing concepts such as positioning, segmentation and 4Ps (pricing, promotion, place and product) can be discussed in the initial rounds so that participants can start applying them. Accounting concepts, working capital, and financial structure can all be explained through the reports as they proceed with decision making thereby enabling

teams to forecast financial reports. Integration and co-relation can be emphasized by linking performance of any one company across all functional areas.

Feedback and timely inputs to individual teams can help them improve their performance and learning. The instructor has a platform where the participants can validate their learning immediately hence timely attention is required. This can be done by personalized time for each team as they may be facing a peculiar situation, which could range from the performance of the firm to team dynamics. The instructor can help teams analyze their performance and look for different ways to improve performance.

Each student learns differently. The simulation exposes them to situations where they learn to identify key problems, use their problem-solving skills and conceptual knowledge to resolve them. Their involvement increases as they feel they are responsible for their firm's performance and compete to outperform. Enthusiasm levels increase as they see their performance improve. Teams which do not

Table: 3
Work Experience Details

Chosen Specialisation	Number of participants with		Total
	Prior work-experience	No work-experience	
Finance	41	17	58
Marketing	48	11	59
Operations	63	0	63
Information Management	49	1	50
Total	201	29	230

Table: 4
Participant experience profile

Work Experience	Number of participants	%
No-work experience	29	13%
1-12 months	20	9%
13-24 months	89	39%
25-36 months	77	33%
36+ months	15	7%
Total	230	

Table: 5
Educational Qualifications

Chosen Specialisation	Participants with		Total
	Engineering as first degree	Others	
Finance	29	29	58
Marketing	38	21	59
Operations	55	8	63
Information Management	32	18	50
Total	154	76	230

fare well do feel dejected. The evaluation pattern of the course should be such that the teams which do not fare well in the simulation do have a chance to make up for their low performance through reflection and analysis of performance.

PHASE 3: POST PERFORMANCE PHASE

The post-performance stage is that of reflection. The teams need to re-look at their performance and critique it. Looking back at the business plan creates a sense of awareness of what the management had planned to achieve at the beginning of their tenure and how they performed against it. They need to measure their performance against goals, objectives and the operational plans set by them. The introspection and analysis that happens at this stage reinforces learning as they examine what worked for them and what did not.

The framework (Table-2) serves the participants as a guideline for making their report.

The teams not only submit their reports but also have to present it in class. This gives teams an opportunity to share their takeaways and also learn from others' experiences. They get to question the actions of their competitors to understand and validate their interpretation

of the competitor's performance. They get to appreciate winning strategies while listening to success stories of their peers. While the focus is on content, the participants also develop their report writing and presentation skills. As the report is limited to a preset number of pages, they learn to express themselves precisely and clearly. During the presentation the focus is on explaining the reasons for performance in a convincing and appealing manner.

ANALYSIS

To validate the effectiveness of the course designed to *introduce business* to participants with little or no work-experience, we took feedback from the participants on course completion. The feedback of the course was on standalone basis and not in comparison to the effectiveness of a business simulation conducted as a capstone course. Out of a class of 230 (97 females and 133 males) who completed the teaching evaluations for this course, 187 submitted their responses. This feedback was on an anonymous basis with the sole intent of improving course effectiveness. At an individual level, there was no

Table: 6

Coefficient correlation between different factors

	It enhanced my team skills	Gave me a glimpse of how businesses are run	Helped me co-relate my learnings to the happenings in the real world	Enhanced my decision making skills	Gave me a direction on how data can be converted into useful information	Appreciating that businesses cannot be run in silos, how decisions in one functional area impacts others
It enhanced my team skills	1.00					
Gave me a glimpse of how businesses are run	0.27	1.00				
Helped me co-relate my learnings to the happenings in the real world	0.23	0.49	1.00			
Enhanced my decision making skills	0.28	0.43	0.44	1.00		
Gave me a direction on how data can be converted into useful information	0.19	0.26	0.30	0.58	1.00	
Appreciating that businesses cannot be run in silos, how decisions in one functional area impacts others	0.21	0.42	0.41	0.39	0.45	1.00

connection between feedback and grading. The class profile is summarised in Tables: 3, 4 and 5. For the questions which were administered, the correlation between pairs of factors is described in Table: 6.

Respondents rated the impact of the course on a scale of 1 through 5 from the choices listed in Table: 7. The choices evolved out of experience and class comments in the course of running simulations for nearly a decade.

“The areas where I feel the course impacted my learning the most”

Based on these average ratings, the strongest score was for the point, “An appreciation of the cross functional impact of policies in business” which was the core learning objective of the course. Decision making skills, another key aim also received a strong rating

The participants were also asked to give qualitative responses to state the experiences in the course- some comments follow

‘The course in its essence tried to give a glimpse into how business decisions are made and how each individual unit cannot function independent of the other. It helped in identifying the thread in the garland that brought separate business units into one cohesive entity. It also helped in developing the ability to draw inferences from a plethora of data sources.’

*‘It was a great learning experience and it has increased my understanding of a business environment from a very realistic perspective and a very detailed understanding of every minute thing which should be taken care of while running a business. Also because of the competitors it had a very close resemblance to the real life business world. Thus, I have learned the basics of a running a company pretty well. ‘
The past 3 weeks were most engrossing and full of emotions. All credits to the wonderful simulation environment where we experienced highs and lows of real time business running. The obvious and very important learning is the*

interdependence of various departments and also people in a team who can question you rightly and help come up with perfect solutions. This simulation specifically was very advanced and never at any point gave the feeling of any part being pointless. Hence the energy levels were maintained throughout the rounds. I am also glad that it happened at a moment when we were doing introductory courses in FSA (Financial Statement Analysis, operations etc. Though we started with the feeling that we don't know these concepts yet, so why now? But after the process I feel it helped us relate better to other parallel courses.’

CONCLUSION

The course conveyed the message that business cannot be run in silos very well. The participants started appreciating the cross functional nature of business; this could be gauged from the student experiences captured. The learning objectives of the course were achieved. While the tested practice of conducting business simulations as a capstone course can continue to be pursued, what is interesting is the endorsement of the unconventional idea of launching a business program with a business simulation. With a limited guidance on some fundamental management concepts, the experience for participants sharpens their clarity on business functions and the total organisation. The business program that is built with such an introduction can allow a better appreciation of both functional and integrative courses that follow.

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Table: 7
Student Feedback

	It enhanced my team skills	Gave me a glimpse of how businesses are run	Helped me co-relate my learnings to the happenings in the real world	Enhanced my decision making skills	Gave me a direction on how data can be converted into useful information	Appreciating that businesses cannot be run in silos; how decisions in one functional area impacts others
Avg. Score (out of 5)	3.94	4.33	4.16	4.25	4.37	4.48
Median	4	4	4	4	4	5
Range (min 1, max 5)	2-5	3-5	2-5	2-5	3-5	3-5

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