

THE ROLE OF ONLINE EXPERIENTIAL LEARNING IN POST-GRADUATE EDUCATION: THE CASE OF BUSINESS STRATEGY SIMULATION AT STELLENBOSCH UNIVERSITY, SOUTH AFRICA

Johan Hough
Department of Business Management
Stellenbosch University
South Africa

Abstract

The purpose of this paper is to describe a case study for the use of experiential learning (business strategy simulation) at Stellenbosch University, South Africa, especially as regards the expansion of e-learning opportunities at the postgraduate level. This is achieved by establishing alternative access routes through creating an on-line experiential study environment. The discussion takes into account the University's existing technological infrastructure. The case study takes its direction in particular from the increased role of educational technology in the 21st century. The current situation at the University with regard to technology-enhanced learning is broadly described. This includes a short explanation of the blended use of the Telematic satellite-based platform (iTE), Blackboard, as well as other online support services. The current ICT developments in Africa are also briefly discussed. The paper highlights the purpose, advantages and disadvantages of business simulations. The case of on-line simulation in a post-graduate business strategy course is described and the results of student's feedback are analysed. The paper ends with the challenge to find the optimal blend of practical higher education learning experiences that can be enhanced by the most favourable and feasible mixture of ICT applications under certain limited conditions.

The Changing Role of ICT in Higher Education

Admiral Cheng Ho landed on the East coast of Africa in 1412 to establish trade relations with the African continent. In 1415, the gift of a giraffe was shipped by an Africa king to the Chinese Emperor of the Ming dynasty. The giraffe (instead of an elephant, or lion, or the leopard) was sent to the Forbidden City in Beijing to pay tribute to a ruler who could see in the distance or future (Hadland & Rantao, 1999).

The electronic revolution reached the point where educators and corporate trainers must take the "new knowledge" seriously enough to embrace the challenge to look "above the trees like a giraffe" and into the future. This is possible because ICTs have finally become powerful enough to permit the creation of "teaching machines" that can

manipulate the massive amounts of information involved in the learning process, and the Internet is now fast enough and widely distributed enough to change teaching practices.

Technology has the capacity to promote and encourage the transformation of education from a very teacher or lecturer directed model to one which facilitates increased student-focused models and experiential processes. Evidence of this today is recognized in:

- the proliferation of capability, competency, and outcomes focused curricula where the focus is towards problem-based learning; and
- the increased use of the Internet as an information source; students are able to make decisions about Internet sources, lecturers and global specialists on a 24/7 base.

The use of ICT in educational settings by itself acts as a catalyst for change in this domain (Oliver, 2009). ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (see Jonassen & Reeves, 1996) the influence of the technology on supporting how students learn will continue to increase (Hough, 2006; Scheepers & Hough, 2009).

Stellenbosch University Blended Technology Context

Stellenbosch University launched a comprehensive e-Campus project in 2002 to create a so-called 'networked' campus that uses ICT solutions to improve its business processes. This six-year project (2002–2007) was comprehensive in that it focused on the core academic and administrative processes of the University. The term "e-Campus" was used as an overarching concept for all the information and communication technology activities of the university. With regard to teaching and learning, the project envisaged a "brick and click" model, that is, combinations of residential contact teaching (brick) and electronic contact and interaction (click) with the focus on optimal service delivery to different target groups. The University furthermore takes a holistic view of the student's life cycle from potential or prospective student right through to alumnus and consistently looks at ways to use ICTs to support the student throughout this journey both inside and outside of the conventional class (Park & Van der Merwe, 2009, p. 365).

Stellenbosch University aims to obtain the optimal blend of (e)-learning activities to achieve the outcomes of the specific module or programme at both undergraduate and post-graduate levels. This typically includes face-to-face activities, activities on WebCT, and activities on the Interactive Telematic Education (iTE) satellite-based platform. WebCT (bought out by Blackboard) was introduced in 1999 as a web-based learning management system (LMS), whereas the University had already made an investment in iTE in 1997 (Park & Van der Merwe, 2009, pp. 365–366).

Web-based Learning Management System (LMS)

Currently, the web-based Learning Management System (LMS) Blackboard is used in a blended way to support mostly undergraduate on-campus students, although a few postgraduate programmes are also supported by this system. Within the overall university infrastructure, the Centre for Teaching and Learning (CTL) provides the technical and educational support and training, while the IT Division provides the technical infrastructure (maintenance of server and software). There has been an exponential increase in the number of undergraduate WebCT modules over the past ten years. At the beginning of 2009 about 99% of all undergraduate students had at least one module on WebCT, about 70% of all postgraduate students had at least one module on WebCT and about 99% of all first-year students had at least one module on WebCT. The increase in postgraduate modules on WebCT from 2006 to 2009 can be attributed largely to the use of Turnitin. The University integrated Turnitin into WebCT, which has the effect that lecturers who want to make Turnitin available to their students have to register a specific WebCT module for this purpose (Park & Van der Merwe, 2009, p. 366).

Satellite Based Technology (iTE)

To deal with the African bandwidth constraints and to capitalize on the opportunities provided by the African growth in mobile subscriptions, the University has pledged its unique satellite-based technology platform as a vehicle to provide stimulating and relevant higher education learning opportunities, particularly postgraduate programmes, to a wide variety of communities in South Africa and in Africa. In this area where cable and broadband Internet protocol television are not yet well developed, the obvious choice for one-to-many multimedia communication is by means of satellite delivery (van der Merwe, 2010).

The Interactive Telematic Education (iTE) system is based on a combination of satellite, cell phone (SMS protocol) and smart card technology and consists of an on-campus studio, twenty remote learning centres situated all over South Africa and one centre in Namibia. Together, these create a virtual learning environment to support synchronous teaching and learning opportunities for post-graduate students spread across a widely dispersed geographical area (Park & Van der Merwe, 2009, p. 366).

ICT Developments in Africa

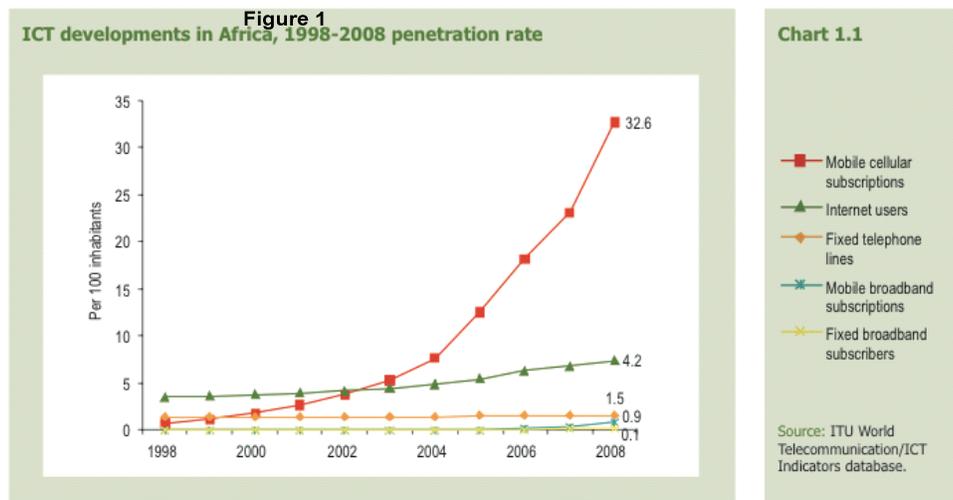
The total African telecoms market is to grow by more than USD40 billion by 2013, while low service penetration rates will allow for growth beyond the five year period (International Telecommunications Union, 2009).

As growth in the global telecoms service markets slows, Africa will be the one region which will see double-digit average annual growth rates over the next five years,

according to TeleGeography's GlobalComms Insight. Spurred on primarily by a doubling of its wireless subscriber base, the total African market will grow by well over USD40 billion by 2013. At that point it will still have by far the lowest service penetration rates compared to other regions, indicating the opportunity for continued strong growth over subsequent years.

Of course growth will remain in check by underdeveloped economies and widespread poverty among large sections of the population, a result of which is an ARPU level that will continue to lag way behind the rest of the world. Nonetheless, Africa represents a strong business growth opportunity for many service providers. In contrast with this picture of Internet usage in Africa, the growth in mobile telephone subscribers is the highest in the world (see Figure 1). Growth over the past 5 years averaged around 50 per cent per year. The continent has the highest ratio of mobile to total telephone subscribers of any world region with the lowest penetration of fixed lines — a continental average of about 3 main lines per 100 people compared to nearly 33 mobile subscriptions per 100 people (International Telecommunications Union, 2009).

By the end of 2008, Africa had 246 million mobile subscriptions and mobile penetration has risen from just five per cent in 2003 to well over 30 per cent today. The high ratio of mobile cellular subscriptions to fixed telephone lines and the high mobile cellular growth rate suggest that Africa has taken the lead in the shift from fixed to mobile telephony, a trend that can be observed worldwide. The number of Internet users has also grown faster than in other regions (International Telecommunications Union, 2010).



Source: International Telecommunications Union
[Information Society Statistical Profiles 2009 – Africa](#)

It is clear from Figure 1 that mobile cellular subscriptions leap-frogged the other ICTs in 2003 and that this trend will continue to outstrip Internet and broadband subscribers. Governments and higher education planning should keep this in mind and develop solutions for this reality.

The use of WebCT/Blackboard for postgraduate programmes for students in Africa remains a challenge because of limited bandwidth and Internet use in Africa. In 2008 the African average Internet subscription was 4.2 users per 100 inhabitants compared to almost 40 in Europe and the Americas (International Telecommunication Union, 2009). If this access is further disaggregated by access type, creative solutions need to be found because less than 0.4 percent of these Internet subscribers had subscribed to broadband or DSL access (International Telecommunication Union, 2009).

Business Simulations as a Practical Way of Experiential Learning

What are Simulations?

A simulation is a form of experiential learning. Simulations are instructional scenarios where the learner is placed in a “world” defined by the teacher. They represent a reality within which students interact. The teacher controls the parameters of this “world” and uses it to achieve the desired instructional results. Simulations are in a way, a lab experiment where the students themselves are the test subjects. They experience the reality of the scenario and gather meaning from it; this strategy fits well with the principles of constructivism.

Simulations promote the use of critical and evaluative thinking. The ambiguous or open ended nature of a simulation encourages students to contemplate the implications of a scenario. The situation feels real and thus leads to more engaging interaction by learners. They are motivating activities enjoyed by students of all ages. Simulations take a number of forms. They may contain elements of a game, a role-play, or an activity that acts as a metaphor. The chief element is that they have context. Board games such as Monopoly or Careers are a type of simulation. The primary distinctions between a game and a “simulation” are the nonlinear nature and the controlled ambiguity. Students must make decisions within its context. Success is usually determined by the industry and commitment of the participants. The goal is not to win but to acquire knowledge and understanding (Thomas, 2009). But let us focus on the application of business simulations in the educational and experiential context.

Advantages of business simulations:

- opportunity to create a practical “laboratory” for theoretical knowledge
- creates alignment between business theory, text and practice
- motivating activity
- element of reality is compatible with work-based business principles
- enhances appreciation of the impact of business concepts
- promotes analytical and critical thinking

Disadvantages of business simulations:

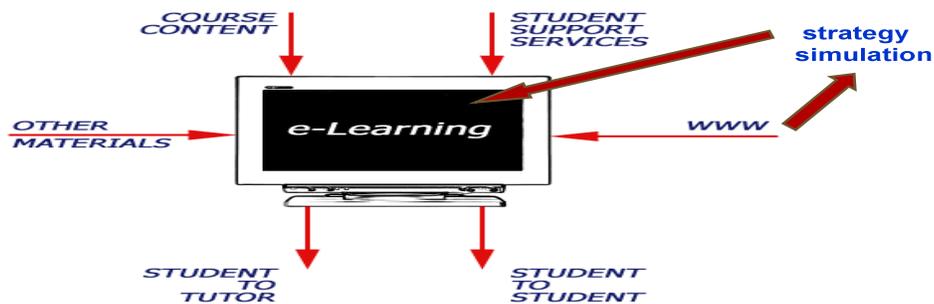
- online access and increased time for answering questions or doing assignments
- requires in-depth knowledge of certain business aspects
- assessment might be more complex and diverse than some traditional teaching methods

Case Study of Online Business Strategy Simulation for Post-Graduate Students in Strategy

Overview

The business simulation is called “The Business Strategy Game.” It is the world’s leading strategy simulation, having been “played” by well over 400,000 students at universities across the world. GLO-BUS, a relatively new and somewhat simpler online simulation introduced in 2004, has been played by over 15,000 students at more than 125 universities across the world (Glo-bus.com). The simulation is used in conjunction with a pre-scribed strategy book and additional articles, relevant work-based readings and business cases to broaden the student’s knowledge and experience base. Figure 2 positions the use of the strategy case in the e-learning domain.

Figure 2: Position of strategy simulation in e-learning



Source: Keegan (2005, adjusted)

Benefits and Drivers of the Strategy Case

We think the following are compelling reasons for using a simulation as a cornerstone, if not a centre piece, of advanced strategy courses for post-graduate students at Stellenbosch University (see Hough, Thompson, Strickland, & Gamble, 2008):

- 1.) Assigning students to run a company that competes head-to-head against companies run by other class members gives students immediate opportunity to experiment with various strategy options and to gain proficiency in applying the core concepts and analytical tools that they have been reading about in the book chapters and/or additional readings. The whole teaching/learning enterprise is facilitated when what the chapters and articles have to say about the managerial tasks of crafting and executing strategy matches up with the strategy-making challenges that students confront in the simulation.
- 2.) Most South African students desperately need the experience of actively managing a close-to-real-life company where they can practice their skills in thinking strategically, evaluating changing industry and competitive conditions, assessing a company's financial and competitive condition, and crafting and executing a strategy that delivers good results and produces sustainable competitive advantage.
- 3.) Students (or company managers in the simulation) are more motivated to try and figure out what strategic moves will make their simulation company perform better than they are to wrestle with the strategic issues posed in an assigned case (which entails reading the case thoroughly, diagnosing the company's situation, and proposing well-reasoned action recommendations). In a strategy simulation, students have to take the analysis of market conditions, the strategies and actions of competitors, and the condition of their company seriously — they are held fully accountable for their decisions and their company's performance. It is to students' advantage to avoid faulty analysis and flawed strategies — nothing gets students' attention quicker than the adverse grade consequences of a decline in their company's performance or the loss of an industry position. And no other type of assignment does a better job of spurring students to fully exercise their strategic wits and analytical prowess — company co-managers have a strong grade incentive to spend quality time debating and deciding how best to boost the performance of their company.
- 4.) This strategy simulation adds an enormous amount of student interest and excitement — a head-to-head competitive battle for market share and industry leadership stirs students' competitive "juices" and emotionally engages them in the subject matter. Being an active manager in running a company in which they have a stake makes their task of learning about crafting and executing winning strategies more enjoyable. Their company becomes "real" and takes on a life of its own as the simulation unfolds. My experience is that the competition in the simulation can get very personal, and most students become immersed in what's going on in their industry — as compared to the more impersonal engagement that occurs when they are assigned a case to analyse.
- 5.) Strategy simulations (like this one) have close ties between the industry and company circumstances in experiential learning and the topics covered in the text chapters provide instructors with a host of first-rate examples of how the material in the text applies both to the experience that students are having in running their companies and to real-world management.

6.) Because a simulation involves making decisions relating to production operations, worker compensation and training, sales and marketing, distribution, customer service, and finance and requires analysis of company financial statements and market data, the simulation helps students synthesize the knowledge gained in a variety of different business courses. The cross-functional, integrative nature of a strategy simulation helps make courses in strategy much more of a true aligning experience.

Business Decisions

Company co-managers must make decisions relating to R&D, component usage, camera performance, product line breadth, production operations, work force compensation, outsourcing, pricing, sales and marketing, and finance. The challenge is to craft and execute a competitive strategy that results in a respected brand image, keeps your company in contention for global market leadership, and produces good financial performance as measured by earnings per share, return on investment, stock price appreciation, and credit rating.

Outcomes

The outcomes of the business simulation help the students to improve their business acumen, their ability to make good bottom-line decisions in the face of uncertain market and competitive conditions, and their proficiency in weaving functional area decisions into a cohesive strategy. Such skills building is the essence of senior and MBA courses in business strategy (glo-bus.com).

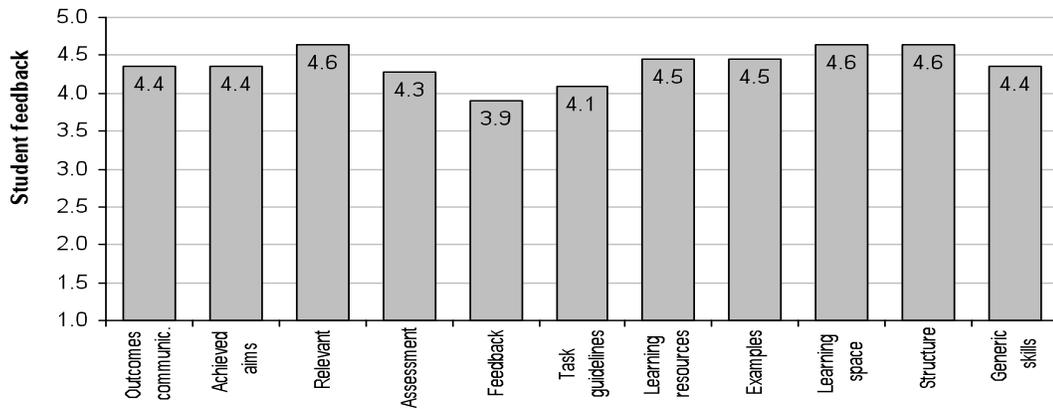
Presentations, Assessments and Student Evaluations

All the students make presentations on their motivation for the different weekly decisions, and they present their progress to the class. Discussions and assessments consider barriers to decision-making, changes in the industry, advertising campaigns, cash flow challenges, etc.

Students evaluate the course and lecturers at the end of the semester and include the following issues: Outcomes, aims achieved, relevancy, assessment, adequate feedback, task guidelines, learning space, structure of module, generic skills development in terms of critical thinking, analysis, problem solving, and communication with fellow students. Figure 3 gives an indication of the feedback from the students. The feedback is given as an average mark on continuum from one to five. These results are illustrated graphically.

Based on Figure 3, it is clear that students find the real-life simulations relevant in their own learning space (classroom size, access to Internet, etc.) and that the module as a whole was well structured. The learning resources (additional reading matter, articles, cases, computer access, etc) provided were adequate, and the relatively high average of 4.4 out of 5 for skills development in terms of critical thinking and analysis, problem solving, and communication with fellow students was very encouraging.

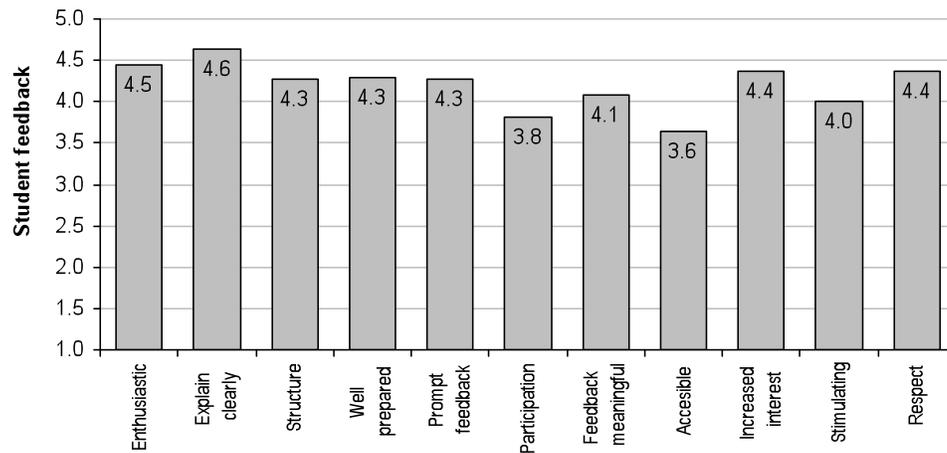
Figure 3: Evaluation of strategy module
Averages for Advanced Strategic Management 742



Average= 82,5% . Based on 2009 module

Figure 4 gives an indication of the feedback from the students in terms of the lecturer. Again, the feedback is given as an average mark on continuum from one to five. These results are illustrated graphically

Figure 4: Evaluation of lecturer
Averages for Prof J Hough



Average= 84%. Based on 2009 module

Based on Figure 4, it is clear that students had a satisfactory experience from the contact with the lecturer. It seems that the explanations were clear, that he was enthusiastic about the course and presentations, and that students were treated with respect.

Concluding Remarks

It is not argued that business simulation should be a substitute for bricks and mortar education or practical on-the-job training; rather, it is a valuable supporting and value-adding tool for students. However, it remains a challenge to find the optimal blend of educational technologies given the technology constraints within the African context. But this case study has shown that success can be achieved by adding value to courses through experiential on-line simulation experiences. Developing countries need to take the “giraffe approach” — to tower above the trees and to make sure that students are afforded the opportunity to be part of the new and exciting global world with blended and value-adding ICT applications.

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