Capacity building in entrepreneurship education and training using simulation

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Abstract:

This paper proposes the use of business simulation as an accelerated learning tool for capacity building in entrepreneurship education and training at all levels in Mauritius. According to Statistics Mauritius, the estimated number of Small and Medium Enterprises (SME’s) in Mauritius as at 2012 was 108,000. They contributed Rs. 302 billion to the economy but yet there is no national consensus on the modality for mass entrepreneurship education and training despite the fact that entrepreneurs contributed 39% to the GDP.

The value of the entrepreneur to the economy as an innovator, employer and risk-bearer is nationally acknowledged. However, one of the major challenges facing stakeholders is how to mass educate and train students and entrepreneurs in a sustainable, cost effective and result oriented manner leading to a strong spirit of entrepreneurial culture among the population.

Barriers to traditional entrepreneurship education and training are fees affordability, time and minimum entry requirements which students and entrepreneurs are finding increasingly difficult to match.

The need to conceive viable crash courses for the non-business-school students and the complexity of the entrepreneurship subject open entrepreneurship education and training to modern teaching techniques such as simulation games which are the cornerstones of problem based learning and experiential learning.

While knowledge transfer in subjects such as accounting or marketing can easily be delivered in traditional classes, training in entrepreneurship such as understanding the dynamic economic interrelationships is not always easy to deliver conventionally because of the severity of the consequences of mistakes. Computer business simulation games aim at closing this methodological gap of entrepreneurial knowledge transfer and training.

Venture Simulations Ltd, a UK based company has developed the SimVenture business simulation game since 2006 and which is being actively used at schools, colleges, universities and business agencies in 38 countries. Results have shown that simulation can be highly effective and efficient as a vehicle to educate and teach entrepreneurship in terms of cost, time and success rate. SimVenture was introduced in Mauritius in 2010 and is being currently used by a number of individual, colleges and corporate clients.

Keywords:

Entrepreneurship education and training, capacity building, knowledge transfer, business simulation game, accelerated learning, entrepreneurial culture, problem based learning, experiential learning, learning by doing, active learning
Introduction

“Games are…the most ancient and time-honoured [sic] vehicle for education. They are the original educational technology, the natural one, having received the seal of approval of natural selection … In light of this, the question, ‘Can games have educational value?’ becomes absurd. It is not games but schools that are the newfangled notion, the untested fad, the violator of tradition. Game-playing is a vital educational function for any creature capable of learning.” (Crawford, 1982, p. 46).

Capacity Building can be defined as planned development of (or increase in) knowledge, output rate, management, skills, and other capabilities of an organization, community or nation through acquisition, incentives, technology, and/or training.

Capacity building in entrepreneurship education is becoming increasingly popular in Mauritius with the Ministry of Education and Human Resources recently introducing entrepreneurship studies on a pilot scheme as from term 2 of 2013 to 17 secondary colleges involving students of Form 1 and Lower 6.

At tertiary level the University of Mauritius offers undergraduate studies in Entrepreneurship Management.

The Small and Medium Enterprises Development Authority (SMEDA), the National Women Entrepreneur Council (NWEC) as well as the National Institute for Cooperative Entrepreneurship (NICE) provide training to existing and potential entrepreneurs; but all delivered through the traditional classroom system.

This paper will probe the existing literature on the use and effectiveness of simulation as a means to mass educate and train students and entrepreneurs in Mauritius.

Learning modality for entrepreneurship education and training

The issue of ‘the perfect learning approach’ in entrepreneurship education and training still remains debatable. Gibb (1987b) proposed that the learning process in entrepreneurship education is different from the normal classroom teaching, in that it should involve a more flexible, as well as a more active, experienced-based approach. Both Davies and Gibb (1991) critically argued on the conventional education methodologies, which centers mainly on theory plus an instructive approach, suggesting that these seem unsuitable in the teaching for entrepreneurship. Young (1997) supported their argument by stating that both experience and the practical skills required by entrepreneurs are almost impossible to be taught via traditional teaching ways and that Fiet (2000) believes that it is necessary to incorporate theory based activities entrepreneurship classrooms to develop entrepreneurial cognitive skills.

In spite of the fact that Dilts and Fowler (1999) suggested that different teaching methods may affect the success rate of preparing students for an entrepreneurial career, plus the inadequate attention emphasized on the significance of specific educational variables, e.g. programme design, pedagogical approach, etc., there still exists scarce research centering on the teaching approaches and methods targeted to develop entrepreneurial cognition. Volkman (2004) later argued that teaching methods and contents may become significant success factors for entrepreneurship education in the twenty-first century. Teaching methods and approaches may engage “…‘learning by doing’, immersion in real-life situations, case studies and talks by entrepreneurs, or more didactical and conventional procedures whose efficiency could be assessed” (Fayolle, Gailly, & Clerc-Lassas, 2006, p. 711).
An Effective Learning Approach

The literature review on entrepreneurship education and training mostly relates entrepreneurship education to “some kind of educational (or training) process targeted to influence participants’ attitudes, behaviour, values or intentions towards entrepreneurship either as a possible career or to enhance among them an appreciation of its role in the community (i.e. creating an entrepreneurial society)” (Mwasalwiba, 2010, p. 25). This aligns with the work of Jones and English (2004) who defined entrepreneurship education as “a process of providing individuals with the ability to recognize commercial opportunities and the insight, self-esteem, knowledge and skills to act on them” (Jones & English, 2004, in Mwasalibiwa, 2010, p. 25).

A review of the literature identified most authors categorizing the teaching methods in entrepreneurship-based programmes into two groups. The first is termed the “traditional methods” (consisting of normal lectures), and the second is termed the “innovative methods”. According to Bennet (2006) active methods require lecturers to facilitate learning, enabling self-discovery. Facilitating deeper learning in entrepreneurship education occupies high involvement experiential learning methods. And the primary prerequisite for achieving this would be high-levels of energy and excitement for both the students and the teacher (Cooper, Bottomley, & Gordon, 2004). As far back as 1949, Tyler (1949, p. 63) affirmed that “learning takes place through the active behaviour of the student: it is what he [or she] does, he [or she] learns, not what the teacher does”. Later, Shuell (1986, p. 429) also stated “if students are to learn desired outcomes in a reasonably effective manner, the teacher’s fundamental task is to get students engaged in learning activities that are likely to result in their achieving those outcomes…what the student does in determining what is learned is more important than what the teacher does”.

A further review of the literature shows that the three most applied teaching methods in entrepreneurship classes are:
1. lectures
2. case studies and
3. group discussions,

which are all widely used in other business-related courses, and are less effective and inert in influencing entrepreneurial behaviour (Bennet, 2006).

This is in line with Fiet’s (2000) finding when he explains that lecture-based methods are more accepted for the reason that they are easily accomplished in addition to requiring less investment.

Critics suggest that rather than focusing on systems and techniques, entrepreneurship education should center on how to “inculcate the necessary attitudes, values and psychological sets” of effective entrepreneurs (Curran & Stanworth, 1989, p. 13) plus developing the needed personal attributes i.e. creativity, innovativeness, ready to accept risks, prepared to fail then start afresh, strong-mindedness (Deamer & Earle, 2004; Garavan & O'Chinneide, 1994a; Gibb, 2002). The purpose of entrepreneurship education should be to nurture “higher level” thinking and reflection because first, entrepreneurship is seen as “intangible, holistic and enigmatic” (Jack & Anderson, 1999) and second, each entrepreneurial act is unique and typically the result of complex interactions.

Henderson and Robertson (1999, p. 238) criticised the skills training approach in entrepreneurship education for the reason that it is “passive”, ”mechanistic”, and contrasts “with the reality of the entrepreneur operating with intuition and limited information under acute time pressure”.

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Extensive literature was cited by Garavan and O’Cinneide (1994) proposing that “active” rather than “passive” pedagogical methods seem more appropriate for nurturing entrepreneurial traits. They argued on the ineffectiveness of the reflective teaching methods i.e. lectures, handouts, required readings, programmed instructions as well as content-oriented examinations for the fact that these methods ignore the complexities of the environments in which entrepreneurs in reality operate. On the contrary, active pedagogy involves the lecturer to aid, not control, the learning process by means of exercises i.e. role plays, simulations, brainstorming, team tasks, and interactive discussions that do not merely engage listening and taking notes (Carayannis, Evans, & Hanson, 2003; J. Fiet, 2001; Rae, 2000). Earlier, Sexton and Bowman (1984, p. 25) argued that teaching entrepreneurship “should be relatively unstructured and pose problems which require novel solutions under conditions of ambiguity and risk”.

**Business simulation games and their effectiveness in entrepreneurship education and training**

A simulation game is a dynamic model of the real entrepreneurial process, in which a balanced number of decision variables require strategic integration of several subunits such as marketing or new venture finance for organisational startup performance, Keys and Wolfe (1990). The game provides firsthand multiple experiences of management interdependencies and competition in one common marketplace. Participants allocate virtual resources and have to follow the rules of the specific virtual market framework in their decision-making process, Klabbers (1999). This concrete experience and its outcome are observed and reflected on by the participants in an iterative process with immediate feedback, designed specifically to eliminate some of the complexity to accelerate the frame of action of the long-run planning situation in order to mirror the whole entrepreneurial process, Keys and Wolfe (1990). Simulation games are all quite similar in that they require input from the students, process the information and confront the participants with a certain outcome of their decisions, both in absolute terms of profit, loss, liquidity status or market share, and in relation to other virtual competitors. The models of the games are usually designed to show the general principles of management interdependencies and strategy and to teach students not to focus too much on tactical decisions based on the revelations of the short term financial statement. Simulation games are an intrinsically motivating teaching method, Gee (2003), for problem oriented learning in an authentic context. The decision-making process of the participants is characterised by trial and error, which supports the development of logical thinking and problem solving skills, Whitebread (1997). But these are generally desirable characteristics of teaching methods. Especially for the needs of future entrepreneurs, it creates a mistake friendly environment for understanding, selecting and appropriately using a set of key business skills. Entrepreneurs and students are moreover forced to apply otherwise inert knowledge acquired in more or less theoretical classes, Kriz and Hense (2004), which facilitates retention, understanding and further active use of that knowledge. Learning without reflection is therefore replaced by critical thinking. This is all the more important as startup reality requires decision-making under uncertainty. The necessary ambiguity tolerance can be sensitized to and in part built up in a simulation game. It is finally possible to describe simulation games in so far as very realistic, as they usually require team building processes as found necessary in startups, West (2007). Wolfe and Chanin (1993) found that simulation games impart conceptual knowledge to the students. In a later work Wolfe (1997) compared the simulation method with case studies and found that simulation works better. Washbush and Gosen’s (2001) work supports the thesis that the simulation experience improves learning. This should be due to the increased interest and motivation through the simulation game as opposed to traditional classroom projects, Tompsoon and Tomspoon (1995). This is in line with the result that students in complex game seminars rated their learning experience as more valuable than those in seminars in which easy versions of a game were used, Li and Baillie (1993).
Li and Baillie (1993) postulate that good games should force students to plan for the long term, with their decisions reflecting a balance between long-term and short-term considerations. Student motivation and engagement are an ongoing challenge for classroom instructors and the basis of various research endeavors (Glynn, Price Aultman, & Owens, 2005). A substantial body of literature indicates that the use of nontraditional interventions, such as games, simulations, multimedia instruction and interactive activities are valuable teaching methods. For example, reporting on a study on student motivation and learning, Nemerow (1996, p. 365) concludes that, “Although playing games in the classroom does not solve all of the problems with education, it can be a useful tool, one of many different methods and techniques used to involve students with their learning”. The arguments for using active learning in the classroom are clear. Proponents of adult learning theory assert that students must be actively involved in their learning, that they must get feedback, and that they should practice sharing, reflecting, and generalizing in small group activities (Speck, 1996, Spring).

Games promote transfer because they require student participation and active involvement with the material within a rich context (Cruickshank & Telfer, 2001). Creating opportunities for students to practice applying the material, such as in a game or simulation, can bridge the distance between learning concepts presented in a classroom and using that information to solve a problem met outside of the school.

Studies on the use of mainstream simulation and gaming in education are still in the adolescence stage, although growing swiftly for the past 20 years. Instructional games have increasingly pervaded into all educational surroundings (Egenfeldt-Nielsen, 2005; Michael & Chen, 2006; Shaffer, Squire, Halverson, & Gee, 2005; Van Eck, 2006).

**Barriers for using simulation in entrepreneurship education and training**

Researchers have shown that the use of mainstream computer games in schools remains atypical, and is improbable to be incorporated into the curriculum for the following reasons:

- It is difficult for teachers to identify quickly how a particular game is relevant to some component of the statutory curriculum, as well as the accuracy and appropriateness of the content within the game.
- The difficulty in persuading other school stakeholders as to the potential/actual educational benefits of computer games.
- The lack of time available to teachers to familiarise themselves with the game, and methods of producing the best results from its use.
- The amount of irrelevant content or functionality in a game which could not be removed or ignored, thus wasting valuable lesson time. (Kirriemuir, McFarlane, 2004)

Nevertheless, teachers and parents recognised that games are able to support the development of precious skills, such as strategic thinking, planning, communication, application of numbers, negotiating skills, group decision-making and data handling (De Freitas & Jarvis, 2007). The benefit of games, among others, is the incorporation of active participation of students. On top of this, games help to raise questions relating to the relationship between a game and the reality the game represents (Shubik, 2002). Classroom games which engage debriefing or postgame analysis (involving interactive student-teacher discussions) will benefit students in relating to reality. Game simulations provide the opportunity to quickly gain experience without risking destroying a company (Hergeth & Jones, 2002). And above all, the emotional excitement and involvement provided by playing provides a longer-lasting effect.
Games in Business Management Training

Educationalists define a ‘game’ as any contest (play) among adversaries (players), operating under constraints (rules) for an objective (winning, victory, or pay-off). Games have been played for amusement for thousands of years. However, the application of simulation and gaming to education and training only began in the 18th century where war games were widely introduced. In the business and management classroom, simulation and gaming began to be used as vehicles for enhancing decision making and problem solving skills. Not long after, the first business game was produced by the American Management Association of Harvard: the “case study method” (Ellington, Gordon, & Fowlie, 2006). In the 1970s the popularity of games as an educational tool has spread to other disciplines as well, including the science and technology courses. In next-to-no time, simulation and gaming has become used at all levels – from nurseries to schools to universities.

The past 40 years has witnessed an impressive development in the field of simulation and gaming, both in the variety and affluence in game types and of the scale of its users and applications (Crookall, 2010). Simulations seem to be the favourite of educational games where it is defined as “an operating representation of central features of reality” and as a game “… in which participants are provided with a simulated environment in which to play” (Cruickshank & Telfer, 2001, p. 76). It is used widely in the business and economic sectors, as it is better to lose ‘virtual money’ compared to ‘actual money’. On top of that, simulations are growing in popularity in schools and higher education, as it promotes ‘learning by doing’ and ‘making learning fun’. However, the main drawback of simulations is the usage of computers and the resulting human-computer inter-action rather than a human-human interaction.

Resistance to change

For national economies to grow and governments to involve/engage budding entrepreneurs from all sectors, entrepreneurship training courses need to be revamped and modernised in line with other industries, as well as the learning needs of the trainee. However, a number of factors mean resistance to fundamental change is endemic at all levels.

1. A key reason why entrepreneurship training does not change is because people (who are often passionate and highly committed to their job) do not have access to new and innovative resources.

2. A secondary factor is that fundamental innovation is very difficult to engage/implement in a government funded top down system/hierarchy. The only practical route is for teachers/trainers to keep the status quo and/or tinker with existing models.

3. The third, and most worrying factor, is that training providers and/or funding bodies view change as risky and have no self-interest, understanding and/or relevant experience to make change happen. As a direct consequence, it is very difficult for people to move away from the norm (traditional didactic teaching/training methods) which have existed for decades. Whilst this approach has merit, it typically confuses the provision of information with learner understanding. And of course, it is the learner (and economy) that pays the ultimate price when a business fails.

Conclusion

In Mauritius, entrepreneurship education and training remains a challenging subject to teach at schools, colleges, universities or even at business agencies level not only because of its complexity but also because of the ever changing business environment. Most of the entrepreneurship education and training are delivered using the traditional methods which unfortunately do not meet the current challenges of the increasingly complex business world. This type of education and training is also not affordable to the mass for reasons mentioned above. Business simulation games have proved to be a highly cost and time effective tool to build capacity in entrepreneurship education and training.
Soft Skills Consultants (Mauritius) Ltd proposes the use of SimVenture business simulation software to mass educate and train students and entrepreneurs in entrepreneurship. Invented by the Harrington brothers in 2006 in the UK, SimVenture has already stood the test of time as it is being successfully used in 128 schools, 42 colleges, 119 universities and 45 commercial organisations and business agencies in the UK. The software is currently being used in 36 countries.

In Mauritius the software is distributed by Soft Skills Consultants (Mauritius) Ltd since 2010.

According to Mauritius ICT portal of the National Computer Board, the percentage of households with a personal computer has increased from 18% in 2002 to 37.7% in 2010.

The ICT Development Index (IDI) for Mauritius improved to 3.44 in 2008 as compared to 3.30 in 2007. Although the IDI improved by 4.2 percent, the ranking for Mauritius moved to 72nd position in 2008 as compared to 68th in 2007. Mauritius ranked 2nd in Africa in both 2007 & 2008. Sweden ranked first in both 2008 and 2007 and Korea was ranked third (first among Asian countries) in 2008.

The total number of individuals who have followed an IC3 course delivered by the National Computer Board has increased from 49,407 in June 2008 to 147,778 in June 2012; a massive 199% increase over four years.

The Internet and Computing Core Certification (IC3) developed by Certiport Incorporation (USA) is the first globally accepted, standards-based, validated certification program for basic computing skills. Becoming IC3 certified demonstrates that one possesses the knowledge required for basic use of computer hardware, software, and the Internet which are nowadays prerequisites for virtually every placement opportunity.

It is therefore believed that key board skills and an understanding of the English language are not major barriers for using business simulation as a training and educational tool. Creating national awareness at schools, colleges, universities and business agencies is the key to promote this solution.

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Further Readings


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