

Developing Entrepreneurial Skills through the Use of Behavioural Simulations

Stephen S. Stumpf, Roger L.M. Dunbar and Thomas P. Mullen
Leonard N. Stern School of Business, New York University, USA

Entrepreneurship has been variously defined. Schumpeter[1], for example, suggested it involves "the carrying out of new combinations of activities". Drucker[2] describes it as "searching for, responding to, and exploiting opportunities". McMullan and Long[3] define it as "involving uncertainty and risk, managerial competence, and creative opportunism". Teaching entrepreneurship and providing managers with the opportunity to learn about entrepreneurship continues to be actively discussed as the field evolves and develops[4].

This article explores how a particular type of experiential activity can be a vehicle to help people to learn how to enhance their entrepreneurial behaviour. Our particular interest is in behavioural simulations[5], wherein people experience the unique character, complexity, and often ill-structured nature of both management in general and entrepreneurship in particular. The empirical work of Hills[6] and a discussion of entrepreneurship education research by Block and Stumpf[7] suggest that goals for entrepreneurship education include abilities to: acquire knowledge and concepts germane to entrepreneurship; acquire skill in the use of such techniques in analysing business situations and synthesising action plans; identify and stimulate entrepreneurial drive, talent and skill; undo the risk-averse bias of many analytical techniques; develop empathy and support for the unique aspects of entrepreneurship; and alter attitudes towards change in such a way that individuals use change as a stimulus for learning rather than denying or resisting it. If one accepts these learning objectives, then behavioural simulations appear to be an underutilised technology that can help people learn to behave entrepreneurially.

Simulating Entrepreneurship

Simulations have been designed to model many different processes, events, and things. For example, the flight simulators used in the training of pilots by airlines and the military recreate the cockpit of an aircraft along with most take-off, in-flight, and landing conditions. The trainee actually sits in the simulator, moves the rudders, ailerons and throttle, both seeing and feeling the effect of the simulation capsule moving in response to his or her actions. In contrast, much simpler "flight simulators" can be run on a personal computer in the comfort of one's home and can simulate the attitudes of the aircraft on a screen. What one is able to learn from the former flight simulator is very different from

and much more personally relevant than any learning that might be derived from the latter simulation.

These two different types of flight simulator both involve a computer and have become possible because of developments in computer technology. A different type of simulation has also been developed over the past ten or more years as part of management education programmes which makes no use of computers. Referred to as a behavioural simulation, such simulations have a distinctively behavioural focus[5,8]. Like some computer simulations, behavioural simulations create a corporate entity or context which includes a variety of realistic business functions. While computer simulations focus on calculating the *results* of the efforts of those using the simulation, behavioural simulations focus on the *inputs themselves, including behaviours and other decision-making processes*, which participants use to manage the simulated company. While computer simulations teach about a fixed set of effort consequences captured by a pre-programmed model, behavioural simulations teach about the sense-making and opportunity-seeking processes that are the participants' inputs into the activity.

It is not surprising, therefore, that simulations that are programmed, and constrained primarily to cognitive inputs from participants, and then to analytic output from a computer, yield learnings which are different from simulations that focus on recreating a context in which participants do what they would do if the simulated environment was replaced with an actual situation. We argue that it is this latter type of behavioural simulation that has the greatest applicability to entrepreneurship education.

How Behavioural Simulations Work

Behavioural simulations re-create a business entity through written materials (an annual report, in-baskets, financial data), an office environment, and lots of interpersonal interactions around issues and opportunities. The various functions of marketing, R&D, finance, personnel, operations, and accounting are generally present. The simulated company is part of an industry; it experiences competitive, economic, legal, social, political, and regulatory forces just like real companies. Yet, *no programmed model* of the firm or industry is used to specify key relationships among any variables under the control of the participants.

Individuals assume the varied managerial roles in the simulated organisation, bringing with them their knowledge base and individual goals, along with any particular focus or perspective developed within the course of which the simulation is a part. The participants have complete control of their actions and of the simulation outcomes. Depending on the goals, styles and skills of the people involved, different issues may become important, and issues may be defined in different ways with different solutions for the same issue.

Creative opportunism is both possible and encouraged. There is no single right way to manage oneself, other participants, or the behavioural simulation. Actions and inactions which evoke attention and discussion depend on the concepts and theories that are designed into the educational experience and the participant dynamics exhibited in leading the fictitious organisation. Feedback

is quick and rich; it is based on participants' views and actions often captured on a post-simulation questionnaire and subsequent small group discussions. A large amount of feedback is provided which is linked to the specific behaviours observed and the actions or absence of actions reported by participants.

There are intensity, excitement and a realism for both participants and facilitators when taking part in a behavioural simulation that are difficult to describe. This article will not do it. Videotapes of others performing in a simulation will not do it. But, when you are in one, you feel it. You can easily engage others who have experienced one in discussion about behavioural simulations; people who have not experienced one have difficulty imagining what one actually does in a simulation or the nature of the learning that occurs.

We have often experienced this sense of helplessness in describing behavioural simulations to colleagues, deans, and corporate training and development people. We say things like: "Metrobank and the Northwood Arts Company are in-basket-based fictitious organisations derived from real events that require participants to assume the leadership of the organisation." Or "Foodcorp, re-creates a set of business situations, people work in a typical office environment, read their mail, conduct meetings, share ideas, and look for ways to improve their individual and organisational effectiveness." While we get polite smiles to suggest that this is understood, other non-verbal cues suggest confusion. Worse yet, some people cannot let go of their image or memory of a computer-based simulation. To reduce this confusion and redefine the concept of a behavioural simulation to eliminate the computer image, we invite people to participate. After they experience a behavioural simulation, they agree that our description is accurate. But now their problem is akin to ours; they do not know how to transmit to others what they have experienced in a way that expresses the essence of what they learned, nor the excitement of what they felt.

What Happens and When

Prior to a programme using a behavioural simulation, participants are provided with extensive information detailing the organisation's structure, financial status, product lines, and services. This information comes in the form of an annual report or business plan, internal and consultants' documents, product descriptions, and market research. Participants familiarise themselves with the material before they arrive for the start of what is often a weekend activity or a three-day off-site educational programme. They have the opportunity to prepare for the event through conducting whatever analyses or techniques they find useful.

The facilitators also prepare for the programme by reviewing the programme materials and participant biographies. Facilitators have already experienced the simulated company through past participation, have co-trained the simulation with an experienced facilitator, and have been lead facilitators of a programme as part of their training.

The agenda for a typical programme would include a pre-programme assignment that requires four or more hours of reading and analysis, the completion of a self-assessment of one's skills, and the collection of on-the-job

peer, boss, and subordinate assessments of one's managerial, leadership and/or entrepreneurial skills (which are discussed as part of the programme). The programme begins with participant and staff introductions followed by a review of the programme objectives. Objectives common to many uses of behavioural simulations are to: (a) enhance one's understanding of the relationship between entrepreneurial and managerial behaviours and organisational performance; (b) examine how one's actions promote or inhibit effective teamwork; and (c) provide a basis of understanding strategic, organisational, and entrepreneurial processes. A typical agenda would include:

Pework: Setting up for the Experience

- Overviewing the programme (objectives, agenda, administrative details).
- Introducing and providing an opportunity to practise the concepts, models, tools, etc., that are part of the programme.
- Discussing the use of simulation as a way to diagnose and practise one's skills.
- Providing time for participants to self-select roles and prepare for the simulation.
- Sharing personal learning objectives and feedback from co-workers through one-to-one meetings with facilitators.
- Meeting with reporters to discuss the work situation facing the company as a way to help the participants internalise their roles and key company information.

Day 1: The Experience

- Managing the business for a day; facilitators observe the process.
- Identifying individual and group actions taken by completing a questionnaire at the end of the day.
- Discussing how the day went, how it felt, what was worked on by whom.

Day 2: Learning from the Experience

Participants and facilitators:

- Review "What happened?" via questionnaire feedback and group discussion.
- Explore "How did it happen?" via questionnaire feedback and group discussion.
- Share personal observations of one another's style and skills via peer feedback.
- Identify implications for real work behaviour through personal conferences to ensure that both the programme and personal learning objectives are met.

For a more detailed description of the processes that occur during a behavioural

simulation, including the role of the training staff, see[8] and[9]. For a detailed comparison of various behavioural simulations known to the authors, see[10] and[11].

How the Learning Takes Place

As suggested by the schedule above, much of the learning takes place in behavioural simulations through working with peers and facilitators in exchange relationships. Stumpf and Dutton[8] suggest that a “dance” metaphor is a useful framework for understanding the nature of the learning which occurs. Dancing is individualised, but often a group event. It can involve different partners at different times, change in pace, and be customised. Most importantly, it is a multimedia process — thinking, doing, feeling, feedback, more thinking, doing, feeling. The result is often a memorable experience with the development of many personal insights that go beyond what one could get out of a textbook or case experience.

Since behavioural simulations depend on the quality and nature of many interactions that are not under the control of the instructor, it is possible for participation in a simulation to be perceived as threatening by some people. Behavioural simulations generally minimise this possibility by creating a context for low-risk, high-pay-off exchanges among participants. Participation in a behavioural simulation is low-risk because it is encapsulated (typically conducted away from the usual place of business), of short duration (a few hours to two or three days), not one’s real job (it is a simulation), involves temporary participants (people do not have to see each other again), and permits the participants to control the content and pacing of the learning.

In contrast with these risks, behavioural simulations provide a rich context for high-pay-off learning through:

- (1) encouraging personalised learning with different participants;
- (2) creating many opportunities and different things to learn as a result of the rich informational and interpersonal environments;
- (3) focusing attention on actual behaviours exhibited and the effects of those behaviours on the enterprise and its members.

To the extent that this high-pay-off learning is directed towards strategic, organisational, and entrepreneurial processes, it can have substantial value for entrepreneurship education.

What Entrepreneurial Skills Can Be Learned?

By observing the language and concepts used by behavioural simulation participants (both corporate managers and entrepreneurs), as well as analysing the behaviours they exhibited, two sets of skills have been identified which can be diagnosed and learned through participation in behavioural simulations:

- (1) core competences;
- (2) strategic leadership skills.

Core managerial competences include motivating others, influence skills, information sharing and collecting, delegation, communications skills, control, organising, and planning. A second and distinct set of qualities which seem particularly critical involve:

- (1) knowing the business and markets;
- (2) managing subunit rivalry;
- (3) finding and overcoming threats;
- (4) staying on strategy;
- (5) being an entrepreneurial force;
- (6) accommodating adversity.

We think that this latter set of strategic leadership abilities also represents the sorts of skills that are particularly relevant to entrepreneurship education[2,3,12,13].

Research Methods

The research conducted involved a sample of 317 business people as participants in one of several different behavioural simulations over a two-year period. Twenty-eight simulations were conducted involving 10-12 participants. Each participant selected one of the 12 roles in the simulated company, ranging across three hierarchical levels (CEO, Executive Vice Presidents of functional areas or groups of businesses, and Senior Vice Presidents of functional areas or lines of business).

Sixty-seven firms were represented in the sample, including several participants from such firms as Citicorp, Metropolitan Life, Dow Jones & Company, Texaco Canada, and First Union Corporation. Each participant had direct responsibility for determining the strategic direction and accomplishments for their real-world business or business unit. Based on a pre-programme questionnaire, participants indicated their company, level within their firm, and their responsibilities. Based on these responses, 137 individuals were classified for the purpose of the research as entrepreneurs. Their positions included CEO or president of a small business or partnership; heading up a new business venture, start-up operation, or new product launch; self-employed professionals; and venture capitalists.

In preparation for the three-to-five day educational experience, participants were asked to have several co-workers *on the job* (including one's boss, peers, subordinates) complete a confidential 20-item questionnaire on their leadership skills and work performance. The questionnaire items were derived from the business literature and facilitator observations of past participants. Inter-rater reliability was moderate to good (r s from 0.53 to 0.86). (For more information on the measurement instrument see[13].)

The dependent variable used in this research was the extent to which an individual's peers *in behavioural simulation* assessed the individual as making important contributions to the performance of the simulated company. Each participant nominated up to three peers for their contributions to the simulated company in each of eight issue areas. The sum of these peer nominations across

issue areas was the measure of peer assessment used. This measure was collected immediately after the simulation and before any group discussion had taken place.

Results

Managers who were observed by their real-life bosses to exhibit more managerial skill were also viewed by their peers in the education programme as being the ones who made more contributions to the running of the simulated organisation. All 20 skills were statistically significant at the 0.05 level (two-tailed-test of significance), and six of them correlated 0.40 or higher with peer assessments of one's contributions. Thus we can conclude that the assessments of the skills and abilities of the same individual in real and simulated environments are related.

More importantly, the skills that were viewed as most critical to performance reflect key skills which are believed to be necessary to become an effective entrepreneur, e.g. asking thought-provoking questions that relate to the business unit's future actions; generating many alternatives to key issues; redefining issues to make them more understandable; seeking to strengthen the business unit's competitive advantage; creating a vision of what the organisation could be; and championing innovative ideas, even when faced with scepticism, risk, and/or resistance.

In addition to these overall results, two additional analyses were performed. First, we were interested in whether or not there was a "role of hierarchy" effect within the simulation. That is, do some roles such as the president's or the chief financial officer's permit more entrepreneurial activity than some others lower in the hierarchy, e.g. personnel manager? Does hierarchical position pre-empt or restrict creative opportunism within the simulation? While the relationships did vary across hierarchical, there were no statistically significant differences among these correlations at the 0.05 level.

The second analysis involved comparing entrepreneurs with managers. In five instances, the relationship between on-the-job and simulation assessments was significantly stronger for the entrepreneur subsample than for the manager subsample. Specifically, a consistent relationship across the two contexts was perceived more strongly for entrepreneurs with respect to their abilities to:

- (1) identify constraints to remove or avoid them (r_s of 0.47 versus 0.26);
- (2) create a vision of what the organisation could be (r_s of 0.58 versus 0.37);
- (3) champion innovative ideas, even when faced with scepticism, risk and/or resistance (r_s of 0.63 versus 0.40);
- (4) deal with setbacks by being resilient (r_s of 0.45 versus 0.25);
- (5) exhibit comfort and tolerance when dealing with ambiguous tasks (r_s of 0.32 versus 0.10).

An interesting reverse effect also occurred. As opposed to entrepreneurs, managers were perceived as more likely to be able to redefine issues to make them more understandable (r_s of 0.52 versus 0.26).

This research was not designed specifically to test hypotheses regarding skills of entrepreneurs versus managers. Nevertheless, the results concerning perceptions across real-world and simulated contexts seem to be consistent with the literature regarding what is required to be successful in entrepreneurial positions. They suggest that, to the extent that a person is recognised as behaving entrepreneurially in the real world, he/she will also be recognised as behaving in this way in a simulation. To the extent that a person lacks these behaviours, a behavioural simulation provides an experiential context wherein one can meaningfully discuss and learn exactly what it would mean for each particular individual to behave more entrepreneurially.

Discussion: Objectives of Entrepreneurship Education

What entrepreneurship education objectives could be accomplished through the use of behavioural simulations? Six objectives for entrepreneurship education are discussed based on an empirical study conducted by Hills[6] and a discussion of educational research presented by Block and Stumpf[7]. Following a definition of each objective, we identify roles for the instructor and managers that management educational theory suggests would facilitate the accomplishment of the objective. We then explore the use of behavioural simulations as a pedagogical tool to accomplish the objective.

Acquire Knowledge and Understand Concepts Germane to Entrepreneurship

The thrust of much entrepreneurship education is to provide content knowledge about some specific area or discipline. Such knowledge often takes the form of increasing awareness and understanding of the processes involved in initiating and managing a new business enterprise. For example, content areas covered in many entrepreneurship courses include:

- the nature and unique demands of start-up ventures;
- alternative ways of identifying business opportunities;
- techniques for analysing and evaluating opportunities;
- frameworks for identifying resources (capital, materials, labour, advisers, mentors) and constraints (licences, laws, taxes);
- ideas on how to facilitate the maturation of new ventures into growing businesses;
- understanding the role of new and smaller firms within the economy.

Knowledge, concepts and techniques are typically taught through lectures, class discussions, expositions of business practices, “problemmettes” and structured cases. For these learning objectives, Dooley and Skinner[14] propose that the instructor’s role is to narrate, expose, enlighten, provide expertise, and explain taxonomies, techniques and interrelationships among concepts. The managers’ role is to listen, question, and work problems and examples.

The utility of behavioural simulations in accomplishing this objective is limited. Managers could apply or use some of the analytic concepts presented within the course prior to the simulation (e.g. develop a new venture plan for the simulated company), or they could develop action plans after the simulation

based on the activities during the simulation (e.g. if managers chose to enter a particular product-market segment, they could be asked to develop a financial and marketing plan for doing so). In either case, the power of the simulation experience will be tangential to the learning objective of acquiring knowledge and understanding concepts germane to entrepreneurship.

Acquire Skill in the Use of Techniques, in the Analysis of Business Situations, and in the Synthesis of Action Plans

Entrepreneurship involves the use of the knowledge acquired from many different fields such as accounting, financial analysis, marketing, information systems, leadership and general management. The ability to integrate business functional knowledge into a holistic activity requires exercising skills of analysis and synthesis.

In contrast with the instructor's role noted above for the knowledge-acquisition objective, Dooley and Skinner[14] propose that the instructor's role in teaching analytical skills is to challenge, question and probe managers to develop greater realism. Complementing the teachers' role, the managers' roles are to develop skill in applying techniques, evolve an understanding of cause-effect relationships based on analysis of facts and logical inferences, and establish priorities for action based on probable outcomes and implications.

Behavioural simulations allow managers to confront realistic business situations that are complex and ill-structured. The implicit emphasis within simulations on taking some action encourages managers to go beyond the knowledge they have acquired to using that information in constructive ways. Just as developing a business plan for a new venture or product requires the integration of separate functional skills into a single document and presentation, participation in a behavioural simulation stimulates the integration of separate functional skills into verbal arguments and proposals for action. By encouraging managers to grapple with the ambiguity and conflicts implicit in such activities, a behavioural simulation provides an opportunity to move from concepts to practice.

Identify and Stimulate Entrepreneurial Drive, Talent and Skill

The willingness and ability to lead a venture under conditions of relatively high uncertainty vary among individuals, and possibly within individuals depending on the situation and their life experiences. A third objective of entrepreneurship education is to increase manager awareness of the new-venture/smaller company career possibilities and to help individuals develop an awareness of their entrepreneurial interests, capability and potential. What does it mean to be an entrepreneur? How does one create a mission and vision for the enterprise that inspire others to follow? How well does one function under conditions of ambiguity, adversity, and personal or professional risk? Does one have the ability to champion an idea, yet remain flexible in approach and have the resilience to bounce back after setbacks? Developing an awareness of what it feels like to manage under such conditions may be as important to developing successful entrepreneurial careers as are the knowledge, concepts, and skills acquired.

The role of the instructor in identifying and stimulating entrepreneurial drive, talent, and skill is that of a counsellor or coach. Most of the time should probably be spent listening, observing, and sharing constructive feedback. The manager's role involves active diagnosis and reflection, sharing one's insights, and seeking additional viewpoints and experiences to validate the insights. The current opportunities for instructors to help individuals assess their entrepreneurial drive, talent, and skills are severely constrained within a classroom setting. In contrast, behavioural simulations are specifically designed to provide the opportunity for managers to enact their role with respect to this learning objective. Peer, instructor, and self-appraisals can lead to self-understanding and insights. Such feedback may also stimulate an awareness of and interest in one's entrepreneurial potential. Thus behavioural simulations can be an important vehicle for achieving this teaching objective.

Undo the Risk-averse Bias of Many Analytical Techniques

Many analytical techniques and managerial practices tend to reinforce a risk-averse value by discouraging personal and interpersonal risk taking. Managers who generate creative answers to standardised cases or critical incidents are typically discouraged from doing so. With the exception of programmes on creativity, few management development efforts place much emphasis on finding lots of "right" answers to situations or exploring the ethics, values and entrepreneurial aspects of issues[15]. The result has been a bias towards quantitative analysis and the delay of actions until all the desired data are available and analysed. Since there is rarely an obvious or single right answer to the more interesting business situations, analysis dominates intuition, envisaging and other less analytical ways of thinking.

A fourth objective of some entrepreneurial education has been to undo this bias towards analysis and finding the "analytically right solution". Undoing the bias means education on the risk-taking process, how to manage risks through actions that spread risk across a wider group of stakeholders, and how to cut losses and stretch gains well beyond what history tends to suggest. The extent to which the bias towards risk aversion is reduced is difficult to assess through testing. In contrast, it is potentially observable in manager actions, either in actual entrepreneurial activities or in behavioural simulations.

The instructor's role in helping individuals to reduce their risk-aversion bias is first deconstructive, followed by reconstructive. Through the examination of issues from many different perspectives, a variety of possible courses of action can be articulated. By denying the more risk-averse possibilities, attention can be directed towards those actions that balance risk with precautions and rewards. The manager's role in this is to debate outcomes while remaining open to multiple, viable courses of action.

Behavioural simulations create an environment with nearly unlimited risk-taking opportunities. We have observed participants take actions that, as facilitators, we had not even imagined. The high-risk actions are not viewed as either right or wrong within a behavioural simulation because no computer models or algorithms are used to evaluate the actions. Rather the debriefing

process is used to raise discussion about high-risk actions, how they are promoted, how they are agreed to, and what sorts of procedures are actually used in practice to safeguard against risk. In these discussions, attention can focus on both the content and interpersonal issues, facilitating the debate and awareness about the nature of deconstructive and reconstructive processes. As a result, how the riskiness and trade-offs inherent in various actions are perceived, explored, or ignored can be examined.

Develop Empathy and Support for the Unique Aspects of Entrepreneurship

Not all individuals who seek education in entrepreneurship wish to be entrepreneurs. Some may. Others may wish to explore entrepreneurship on an intellectual level. Still others may recognise the need for entrepreneurship in society, and attend a programme so as better to understand this discipline. A learning objective for this latter group is to have them develop an understanding of the distinct characteristics of a business in evolution from the seed of an idea to a stable, ongoing enterprise. Similarly, it may be useful for them to understand better the distinct behaviours of individuals as entrepreneurs, both cognitively and emotionally.

The value of such an objective is similar to individuals taking courses in any area outside their major area of study. They are interested in content knowledge, but not for its direct application to their immediate career. Rather they are trying to broaden their understanding of their life or work environment so as to be more effective in working with and through other people.

The instructor's role in developing empathy and support for entrepreneurship is to raise the issue of managerial attitudes towards entrepreneurship and stimulate excitement about entrepreneurial activities. The manager's role is to develop a meaningful place for entrepreneurship within their work lives through both their understandings and experiences.

Behavioural simulations provide a rich experience base in which to explore entrepreneurial activities and actions. Participants become aware of one another's entrepreneurial spirit and values. Because the behavioural simulation process involves many interpersonal exchanges, participants often develop an understanding of and empathy for others.

Change Attitudes towards Change

Many people resist change. Others accept it, but only when it is thrust upon them or does not directly affect them. Still others embrace change as a catalyst for learning — they look for it and actively accept it when it can lead to a more efficient or effective way of conducting business. A sixth objective of entrepreneurship education may be to educate people on how to embrace change and stimulate the desire to innovate. As with the objectives of reducing risk aversion and developing empathy and support for entrepreneurship, creating a positive attitude towards change involves emotional as well as cognitive learning.

The role of the instructor is to assist individuals in developing more open attitudes towards change. The manager's role is to tolerate the ambiguity created, accept the uncomfortable feelings that initially emerge, and trust their intuition that changes can be managed to be productive.

Objectives	Pedagogical preferences	
	Instructor role	Student role
Acquire knowledge germane to entrepreneurship	Narrate, expose, enlighten and explain various techniques, concepts, etc.	Listen, question, work problems, and gain content knowledge
Acquire skill in the use of techniques, in the analysis of business situations, and in the synthesis of action plans	Challenge, question, and probe students to develop greater realism	Develop skill in applying techniques, evolve understanding, establish real-world priorities
Identify and stimulate entrepreneurial drive, talent and skill	Be a counsellor or coach — listen, observe and share feedback	Active diagnosis and reflection, share insights, seek many viewpoints and experiences
Undo the risk-averse bias of many analytical techniques	Deconstruction of past perspectives, reconstructive attitudes	Debate outcomes, remain open to alternatives
Develop empathy and support for the unique aspects of entrepreneurship	Raise questions about attitudes, stimulate excitement	Develop a sense of the role of entrepreneurship in their work lives
Change attitudes towards change	Assist people to develop more positive attitudes towards change	Tolerate ambiguity, accept uncomfortable feelings, trust intuition

Table I.
Objectives and
Pedagogical
Preferences for
Entrepreneurship
Education

Behavioural simulations are ideal tools for changing attitudes towards change. The very nature of simulation — it is realistic but not real — allows people to see clearly what their own and others' attitudes to change may be, without being able to defer to real-world constraints as a way to avoid looking at what change would mean to them personally[9,16]. While some people may believe that their way is the best possible way to do something, after participation in a behavioural simulation they are often more open to exploring alternative ways of approaching both tasks and people. It is generally some critical but constructive feedback that is a necessary jolt to their system that opens it up enough to consider change.

A summary of these six objectives for entrepreneurship education and the proposed instructor and manager roles for each objective is given in Table I.

Simulating Entrepreneurial Experiences

Behavioural simulations, which have become popular as a way to experience strategic and organisational processes, may be equally useful for participants

to experience entrepreneurial processes. Our research results support this possibility. Each of the entrepreneurial educational objectives identified can be partially addressed through instructors and managers assuming particular teacher-learner roles and participating in a behavioural simulation. The specific benefits of behavioural simulations over many other pedagogical techniques can be summarised as follows:

- (1) A behavioural simulation has a known and fairly comprehensive framework with respect to financial information, structure, product lines, and past activities. While this framework may initially guide participants' thoughts and actions, it places few constraints on future possibilities. It provides a level playing-field on which to begin — the activity enacted and how it is enacted are up to the participants. As such, participants determine the organisation's mission, vision, objectives, and strategic action plans.
- (2) Because behavioural simulations have a known and constant starting-point, it is possible to assess or develop an understanding of the unique contribution of participants to the leadership of the simulated organisation.
- (3) There are many possible alternatives and choices for participants to invent, evaluate, and pursue or deny. Few of these choices are clearly known prior to the start of the simulation. Options are developed out of thousands of stimuli; choices are made with little likelihood of obtaining timely feedback on their success. Yet the processes by which the options are identified and choices are made are explored a few hours after the experience.
- (4) Participants are in control of the experience — at least as much as they are in control of other activities in their lives. They choose the roles they wish to assume and the issues they wish to pursue in the simulated company. They create their own strategic agendas, apply whatever entrepreneurship concepts and models they wish, and exercise those skills of which they are capable.
- (5) Behaviours are observed by facilitators, peers, and oneself. Through discussions of what was observed from these different perspectives, participants are able to develop a personalised understanding of strategic, organisational, and entrepreneurial processes.
- (6) Behavioural simulations focus on personal development, not evaluation *per se*. The process involves a guided self-assessment of knowledge, skills and the ability to apply one's knowledge and skills in a realistic situation. As such, behavioural simulations provide a type of *practicum* similar to that provided in many other disciplines such as medicine, law, and the performing arts.
- (7) Participation in behavioural simulations is stressful. The stimuli are often viewed by participants as ambiguous. The instructions provided do not tell participants what to do, whom to meet, or what the criteria are for "right answers". Peer pressure to perform well encourages personal and interpersonal risk taking.

Behavioural simulations offer a substantial opportunity to entrepreneurship educators and managers. The use of such simulations is neither easy nor inexpensive. Their use tends to violate some of the closely held traditions of management development programmes, e.g. get as many managers as possible into a classroom, tell them what they need to know, see what they learned through case presentations, and then tell them to go out and try it on the job. In violating these norms we are creating something critical to the future of new enterprises — we are creating a mutual learning experience for faculty and managers of strategic, organisational, and entrepreneurial processes[15].

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