**Netrepreneur simulation: enterprise creation for the online economy**

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**The authors**

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**Keywords**

Simulation, Electronic commerce, Training, Learning

**Abstract**

E-business is being heralded as the “new economy”. However, developments in the area of new online business-to-consumer (B2C) venture creation has been accompanied by varying degrees of success, and it is increasingly recognised that online venture creation does not materialise overnight. E-business development typically follows an evolutionary cycle of initial experimentation with Internet technologies and the transformation of consumer propositions towards the creation of a commercially viable online presence. To enable entrepreneurs to navigate this new business landscape, Netrepreneur simulates the initial start up phases of e-business creation in the online economy. Through the modelling and electronic simulation of the e-commerce environment, Netrepreneur aims to create a holistic understanding of the entrepreneurial process as well as encouraging participants to “learn by doing” in the simulated virtual world, instead of trial and error in the real economy. This paper reviews the underpinning objectives for design conceptualisation, and the integration of the real and virtual business worlds within the netrepreneur system development. The latter section of the paper reports user survey responses collected from a questionnaire in two pilot investigations. The questionnaire collected information concerning acceptance, criticism and perceived learning achievement.

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**Introduction**

Many tried and untried business models have been hypothesised for implementation in the quest for e-market success. However, there are no guarantees that what is created, as an online enterprise with expectations of being successful, viable long-term businesses will be anything but an empty digital environment tomorrow. Many analysts have predicted hardship for e-businesses and the Gartner group projects that 75 percent of future online e-business will fail because of poor planning and understanding of the market and technological challenges.

Despite the fatalistic trial and error approach being employed by many e-businesses, the internet is still recognised as a revolutionary technology with the potential to change the traditional business environment and steer the future of electronic commerce. Despite problems, e-shopping sales in the UK have reached £3.3 billion (Verdict, 2002). While this only represents 2 percent of all retail sales it is forecast to rise to between 2.5 percent and 5 percent by 2005 (BCSC, 2001) and 10 percent by 2009 (Gibson, 1999; Verdict, 2002). It is also predicted that 94 percent will be at the expense of existing channels, and only 6 percent from extra growth (Prefontaine, 1999). This future will therefore accelerate the shift of power towards the consumer, which will lead to fundamental changes in the way companies relate to their customers and compete with each other (The Boston Consulting Group, 2000). The immense popularity of the online enterprise in recent years has been fuelled largely by the prospect of performing business online. The virtual world has the ability to bring down physical barriers to commerce, almost immediately giving the smallest business and entrepreneurs access to untapped markets, where the size differential of bricks and mortar no longer matters in brand development and involvement.

Against the background of the potential for commercial transformation and the realisation of the reality, the need for online businesses to learn the lessons needed to survive and prosper becomes imperative. With the significant impact that e-commerce is forecast to have, it may be expected that these failure rates will increase if SMEs do not themselves recognise that enduring e-enterprises require a sound business proposal underpinned by an understanding of e-commerce buying behaviour, and a web presence that translates into brand involvement. The consumer momentum of awareness, trial and loyalty, is currently set against a backdrop of infinite competitors and a finite number of shoppers, in an environment where the product or service remains impervious and
guaranteed by companies that may have come into being only months before. The necessity then is for online businesses to entice prospects into active involvement with brands. Many of today’s e-commerce offerings operate without the infrastructure and capabilities to run an effective online business. Active involvement of the brand instead translates into an online purchase experience that promises much more than it is actually capable of delivering. The fact that more than one-quarter of all online purchase attempts fail gives consumers good reason to be wary of the online shopping experience, that promised to be one of convenience, but instead is fraught with proposition compromise and cumbersome navigation. Upshaw (2001), describes this as “a kiss of death for brand value and active involvement”.

Business planners and e-commerce product and web designers need to ensure that the possible consequences of the unusual combination of market models, business strategies, and design solutions, are evaluated safely and inexpensively. To this extent, the Netrepreneur simulation combines theoretical and experimental techniques to help evaluate different business scenarios before they are imposed on the marketplace. The objectives of the simulation will encourage entrepreneurs to innovate experientially by facing the uncertainty and ambiguity of e-business. It is designed to emulate the way practitioners learn to innovate, allowing participants the opportunity to experiment replicating the real world experience but in a relatively risk free environment.

**Entrepreneurship**

The process of entrepreneurship has been defined as managerial behaviour which consistently exploits opportunities to deliver results beyond one’s capabilities (Parston, cited in Leadbeater and Goss (1998)). An entrepreneur is someone with vision who spots a new opportunity and is minded to act on it. Successful entrepreneurial ventures will inevitably require innovation through the exploitation of new ideas, be they cultural, organisational or technological.

Successful entrepreneurial ventures require creativity and innovation, which call for enterprising people to interpret “what is possible” into reality (Kao, 1989). In order to meet the demands of chaotic modern environments and harness the potential of new technologies these ventures necessitate learning and change. Prospective entrepreneurs develop their own ways of dealing with opportunities, hindrances and reservations to “creatively create” new services, products, organisations and ways of satisfying customers or doing business.

Paradoxically, the learning process for entrepreneurs is notably different to conventional approaches adopted within education. Visionaries are those people who are able to synthesise the available information and clarify patterns, which escape others. Motivated by the desire to be successful, entrepreneurs prefer perceptual movement and improvement, continually hoping to find and exploit manageable risks and opportunities (Churchill, 1997). They are comfortable with ambiguity and they can bring transparency by piecing together unrelated messages and signals. Their approach to strategy is a quick but careful initial screening of data, using only limited analysis, to evaluate the quality of the idea. Their success lies in vigilance, learning, flexibility and change during implementation (Bhide, 1994). Inadequate thought and appreciation will increase their sensitivity to the unexpected or unanticipated event (Thompson, 1999).

As such, to make people more enterprising, it will be necessary to foster creativity, innovation and learning through the implementation process. Furthermore, teaching ambiguity tolerances, opportunity identification, venture evaluation, venture strategy, and deal making are officious for entrepreneurial education (Solomon et al., 1994). This implies that the learning environment will be required to emulate a coaching instead of telling style, in order to allow entrepreneurs to take initiatives and accept responsibility for the decisions they take. Feldman (1995) proposes that:

Educators must find ways to model the entrepreneurial process . . . and enterprise simulation . . . can . . . be a viable method for teaching certain elements in entrepreneurial experience.

**Simulation and virtual worlds**

In the real world, one of the most efficient ways of acquiring knowledge and skills is to be immersed within a situational context. While this concept of “learning by doing” is widely acknowledged as an effective mode of acquisition, it is often difficult to replicate within classroom and training instructional contexts. Greeno et al. (1993) contend this problem occurs due to the fact that the knowledge of how to perform a task is embedded in the contextual environment in which the task is to be performed.

However, for time restricted learning contexts, the real world dynamic offers too many
unanticipated factors (Engel et al., 1993), introducing too many complexities for any specific lessons to be learnt quickly and effectively. The use of virtual environments which compress time and space as microcosms of real setting can be tailored to develop knowledge and skills to give participants an experiential taste of reality (McHardy and Allan, 2000).

Simulations are constructed situations that simulate the problems, constraints and resources of the everyday environment and insert the learner into the midst of the maze, challenging them to find a way to the designated final objective. The generally accepted definition of simulation given by Guetzkow (1963) is:

An operating representation of central features of reality.

Thus, to qualify as a simulation an exercise must have two essential features, namely it must represent a real situation of some sort (or an imaginary situation that might be real) and must be ongoing, i.e. dynamic.

Simulation can be used as a response to situations in which participants have to display skill and take risks, and provides a structured environment for learning complex problems. Virtual environments are constructed as recognisably like the reality, while contrasting from it in its outcome. Participants are therefore encouraged to “feel” risk taking, but as Keys et al. (1996), proposes “learn through experimentation ... without the do or die consequences encountered in real life”. According to Schon (1987) constraints that would prevent or inhibit experiment in the built world are greatly reduced in the virtual world, “permitting different paces in doing different things, different ways of doing the same thing, and above all permits reflection in action”.

Success factors in e-retail

Several US studies have found that the strongest predictor of consumers within e-shopping was “hedonic” – the enjoyment of the experience (Childers et al., 2001; Dholakia and Uusitalo, 2001). Through the correct combination of design and concept within the controlled environment of the internet, it may be the first time in the history of commerce that retailers are able to fully exploit the “enjoy” factor of potential customers who are able to seek out more information about a product or service, without being obstructed by the same degree of environmental influences, described by Howard and Ostlund (1973) as “unanticipated factors”. Upshaw (2001) refers to this as “power shopping to the tenth power” and Hoffman and Novak (1996) explain how the “enjoy” factor of web sites can be created through web design, measured and further enhanced by relating internet shopping to Csikzentmihalyi’s (1975) “optimal experience” in which skills and challenges are matched up to achieve a cognitive state called “flow”. Hoffman and Novak (1996) identify flow as a key characteristic of consumer behaviour on the internet and describe it as “the glue that holds the consumer in the hypermedia computer mediated environment”. The authors further outline that an understanding of the variables that relate to a consumer’s propensity to enter into an optimal experience can be used to develop the marketing effort. Commercially the concept of flow and its ability to prolong internet and web site usage is a crucial element of the business concept and its interpretation into a web presence. Business and presence design that encourages flow should increase consumer “stickiness”, and translate into purchase and the creation of brand loyalty.

The Netrepreneur simulation

The literature reviewed provides strong support for learning strategies that actively involve participants in the process, and for those activities that accurately simulate real world practices. The review further highlights the necessity of incorporating these pedagogical considerations in the creation of a virtual context, whereby entrepreneurs can learn about e-start up venture creation and the complex causes of casualties in the online economy.

The simulation, therefore aims to foster creativity innovation and learning through the implementation process. With this in mind the project development sought to incorporate the following objectives:

- To create a constructed representation of the real world of practice.
- To foster creativity, innovation and learning through the implementation process.
- Facilitate the incremental discovery of e-commerce dynamics leading to viable predictive business proposals in the creation of brand value and active involvement.

Business cycle – incremental improvement

Netrepreneur is designed to encourage entrepreneurs to innovate experientially by facing the uncertainty and ambiguity of e-business start-
Participants operate the business over several iterations, allowing them to learn from initial mistakes, improve an existing business design for the next cycle or start a new business. This process of incremental improvement coincides with Churchill’s (1997) view that entrepreneurs prefer perceptual movement and improvement, in the quest of exploiting manageable risks and opportunities. To this effect, the simulation allows participants to operate their online presence in much the same way as an e-commerce business. Uniquely, Netrepreneur dispenses with the time-restricted periods found in many existing business simulations allowing both consumers and entrepreneurs to carry out their activities on a 24-hour a day, seven days a week basis. By adding this real-time aspect the simulation is able to enhance a learning and adapting emphasis, that facilitates the incremental discovery of e-commerce dynamics at a pace that is suitable to the entrepreneurs learning style.

The duration of each cycle is therefore determined by the participant and consists of the following stages of business planning and web site development (theory informs interpretation), implementation (practice), evaluation and review (reflection on theory and interpretation). This is illustrated in Figure 1.

The simulation

The “micro world” is represented by a virtual shopping mall (Figure 2) within which entrepreneurs can design and implement web-based companies to market (virtual) goods and services online to a large group of consumers.

The simulation is divided into three areas, allowing access to facilitators, entrepreneurs and consumers (Figure 3).

The administration panel

Through the administration panel, facilitators are able to perform three functions:

1. assign company names, passwords and restricted upload areas to entrepreneurs;
2. provide user logins and passwords to consumers; and
3. enable virtual credit balances for consumers.

For facilitators, the set-up and maintenance of the administration system has been made as simple as possible, with no technical expertise required and all hosting being done remotely.

The login facility used in Netrepreneur utilises a combination of user names, passwords and secret access levels, which are assigned prior to the simulation by the facilitator. By designing the login function in this way, facilitators are able to restrict certain areas of the upload facility and therefore prevent entrepreneurs from altering any stores which are not their own.

The company names, which have been selected by entrepreneurs in their business plans, are then input by facilitators and will appear in the retailer selection menu on the main entry screen to provide a direct link for consumers to access the Netrepreneur stores. The option of cash balance has been provided should the facilitators wish to
introduce a start-up cost component to the game in the future.

Facilitators will also provide up-to 150 shopper accounts with user names, passwords and cash balances. Cash balances have been made user specific as facilitators may choose to vary funds for consumers, therefore adding additional realism to the simulation, or alternatively cash balances could remain constant to truly gauge concept success.

Entrepreneurs

Once logged in to the simulation, entrepreneurs are able to perform four functions:
(1) upload their e-commerce sites;
(2) gain access to the mall's virtual credit system to sell their goods and services;
(3) view mall sales and hits statistics; and
(4) view demographic statistics taken from shopper questionnaires.

The virtual shopping mall is essentially a landlord for up to ten entrepreneur web businesses. The aim for entrepreneurs is to select their product concept, determine a pricing structure and design their store presence.

The system is designed to facilitate all levels of technical expertise, from those with no web design experience to those that are fully experienced in complex web design methods, thereby removing any constraints for curriculum design and/or prior knowledge. Designs created in Microsoft Word can upload directly from the Netrepreneur site, with no need for web design or file transfer protocol (FTP) software. Netrepreneur also supports complex web design methods and the use of any programming language with an FTP facility, to the Netrepreneur mall. It is envisaged that this will facilitate greater access of Netrepreneur within the university and among other interested institutions.
Competing entrepreneurs as commercial tenants are also provided with access to the mall’s virtual credit system, thus allowing consumers to purchase their goods. This credit system is developed using SQL stored procedures and integrates this with credit values assigned by the simulation facilitator. Following consumer evaluation and purchase, entrepreneurs will be able to assess both their concept marketability and the design of their web sites through various hits and sales figures provided by the simulation. This will enable entrepreneurs to reflect on the objectives of the business proposition and provides the opportunity to ultimately review and change accordingly. This process of improvement will facilitate an understanding of the consumer’s propensity to enter into an “optimal experience” and its dependency on the business concept and interpretation of web presence.

Consumers

The selection criteria for consumers are dependent on the set objectives of the instructional context. For example, the use of Netrepreneur as part of enterprise and web design undergraduate curriculum, entrepreneurs are briefed to design business propositions targeted to the student population of the university, and as such students will form the consumer population.

For consumers, the simulation provides the ability to login and access all stores within the mall. Consumers may purchase products from these stores with a virtual credit balance assigned by facilitators. To prevent misuse, the simulation recognises returning customers and provides only remaining credit balances based on what has been spent on the previous visit.

Consumers on entry into Netrepreneur complete a registration questionnaire. This registration questionnaire provides entrepreneurs with information on customer characteristics, such as demographics and lifestyle. Netrepreneur provides entrepreneurs with this information, not only on the consumer population accessing the virtual mall, but also on consumers actually purchasing.

Transfer of learning to the built environment

In the real world, one of the very natural ways of acquiring knowledge in a domain is to be immersed in a situation related to this domain and to practice. Value in the entrepreneurial venture is added through the transformation process (Thompson, 1999). Effective control of the value adding process will require sound performance measurement, which is outcome driven. To this end the simulation encourages participants to understand which factors are critical for success and ensure that performance in respect of these is measured and any failings remedied prior to “live” trading. The simulation makes this possible by allowing:

- the recognition of customer behaviour profiles;
- identification of valuable segments;
- discovery of patterns of consumer “stickiness” when engaged in web site usage;
- forecasting customers reactions; and
- decision support in business planning.

This allows entrepreneurs the opportunity to entice prospects into active involvement with brands by allowing them to:

- design web sites better tailored to customer needs;
- alter or reposition the proposition; and
- successfully embark on the first stages of e-trading.

Post-experience feedback – survey methodology

Two field evaluations of the Netrepreneur simulation have been undertaken. The first with an undergraduate e-enterprise management module of 50 students and the second as part of a training programme for 40 delegates seeking to establish an online business venture. Lectures were first introduced to participants centring on the standard textbook range of B2C e-commerce topics. During the lecture programme “e-commerce trading success factors” were introduced and reinforced by visual on-screen excerpts from successful established e-enterprises. These excerpts also served as a brief operational demonstration of the simulation exercise.

In the week following the presentation of the lecture material students in tutorial groups of around four persons with their respective tutors where set the challenge of designing and launching an e-enterprise targeting a specific segmentation niche market. Participants were then shown how to engage with the simulation to review the success of the proposition created and more importantly how to reposition the proposition in light of evaluation. Success was measured according to the teams that had achieved the highest sales given their target audience market. At the end of the instruction programme participants were asked to submit their
key reflections given the performance attained. In addition, all participants completed a simulation post-experience evaluation survey questionnaire. The main learning outcomes are shown in Table I.

Participants were observed to be very enthusiastic and resourceful in resolving the simulation objectives. They were also found to be actively pursuing radically differing strategies in achieving these simulation objectives. For example, some participants took an exploratory approach reviewing all aspects and resources provided within the simulation while others aggressively searched for the quickest and most direct path to successfully achieve consumer sales, often ignoring the more effective e-commerce strategies and thus attracting operational penalties. Participant teams had the opportunity to repeat the simulation over three e-cycles and thereby endeavoured to improve their organisational sales results. Organisational sales accumulated were monitored and observed to vary widely reflecting the participant e-business strategy pursued. Analysis of user strategy, its effectiveness, correlation to achieved organisational sales and knowledge learning are not discussed in this paper. The following summarises the student questionnaire survey responses.

**Participant post-experience feedback**

Overall the survey results showed the user to have welcomed and strongly supported the use of the Netrepreneur simulation. As a facilitative pedagogical device, both the lecturers/trainers in charge found the simulation easy to use and administer and to be well received by participants.

**Questionnaire**
The post experience questionnaire survey asked 23 questions using a Likert seven-point scale instrument adapted from an evaluation study, undertaken by Klassen and Drummond (2000), of a business simulation in human resource skills development. A copy of the questionnaire with tabled percentage results is shown in Table II. There were 90 effective participant responses collected and some supplementary written comments. Overwhelmingly, it was found that students favoured the use of the Netrepreneur simulation technique for learning. Over 80 percent of students found the simulation to be above average in:

- motivating their learning;
- stimulating and changing their understanding;
- attracting their interest; and
- a satisfying experience.

Negative feedback (20 percent) was received concerning the general complexity of navigating the simulation. An overwhelming majority (92 percent) found it positively worthwhile, and correspondingly about 78 percent recommended it for future use as a part e-entrepreneurship teaching and training content.

**Skills learning**
The most important aspect of learning results is positive changes in behaviour. Behavioural learning that puts into orderly perspective and practices the e-entrepreneurial skills required to be successful is the most significant goal of the simulation. In this respect 70 percent of participants felt the simulation had corrected their behaviour while 20 percent felt neutral. This large neutral result is to be expected considering that participants had no previous simulation experience and had not at the time of completing the questionnaire received any post experience evaluation or comparative feedback on their individual behaviour.

Participant responses showed that 95 percent agreed that the simulation had positively allowed

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**Table I Netrepreneur learning outcomes**

<table>
<thead>
<tr>
<th>Learning context</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing opportunity analysis</td>
<td>Analyse marketing strategy and plan with reference to electronic markets</td>
</tr>
<tr>
<td></td>
<td>Research and forecast sales demand</td>
</tr>
<tr>
<td></td>
<td>Critically assess marketing opportunities and threats</td>
</tr>
<tr>
<td>Develop and integrate e-marketing plan</td>
<td>Identify market segment and specify e-market and non e-market elements</td>
</tr>
<tr>
<td></td>
<td>Develop strategy for positioning and e-branding of products and services</td>
</tr>
<tr>
<td></td>
<td>Integrate e-marketing plan with existing marketing plan</td>
</tr>
<tr>
<td>Development of e-presence</td>
<td>Implement key activities of e-marketing plan</td>
</tr>
<tr>
<td>Implement e-marketing plan</td>
<td>Identify range of electronic marketing options</td>
</tr>
<tr>
<td></td>
<td>Critically assess electronic marketing options against marketing needs</td>
</tr>
<tr>
<td>Monitoring e-presence</td>
<td>Selection of most appropriate option</td>
</tr>
<tr>
<td></td>
<td>Monitor e-presence, sales activity and competitive environment</td>
</tr>
<tr>
<td></td>
<td>Re-assess e-market segmentation and prioritisation in line with competitive environment</td>
</tr>
</tbody>
</table>
the practic e of e-enterprise techniques. This is underlined by the fact that over 80 percent of responses stated that the experience of using the simulation had improved individual knowledge of e-commerce trading practices. At the same time 90 percent indicated it had significantly increased working understanding. Most participants, about 77 percent, responded that the simulation software had provided appropriate and timely feedback on sales/hits and the target consumer market. Student individual comments also indicated that the organisation feedback system had given them some appreciation of the effect of their decisions and behaviour on enterprise outcomes.

Technically, about 80 percent of respondents found the Netrepreneur mall format functionally easy to use. On the other hand, some 25 percent of respondents indicated that they had experienced computer hardware related difficulties in using the simulation. From investigation it was found that most of those participants encountering difficulties had the same repeated technical browser compatibility problem which was of a minor nature and has since been rectified by the software programmers. Navigation around the simulation had caused some difficulties for about 20 percent of students. The development team suggests this to be related to the time required for some participants to learn about the limitations, individual familiarisation with interactive simulations and user confidence in working with computer hardware. Nevertheless, it is believed that this is representative of the real world frustrations and difficulties of learning in the e-commerce trading environment and should not be viewed negatively as a limitation of the simulation experience. One participant commented:

Some help – what to do next assistance, given I am not attracting sales – could be offered in the form of a troubleshooting guide.

This could be a possible future software enhancement. This feature was deliberately resisted in building the simulation as it was believed this would lead participants to feel that there was one best method to achieve the objectives of the simulation. Whereas the objective of the simulation is to promote diverse solutions and independent strategy approaches just as there

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Table II Netrepreneur simulation – course evaluation form

<table>
<thead>
<tr>
<th></th>
<th>–3</th>
<th>–2</th>
<th>–1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Change your knowledge of the subject</td>
<td>0</td>
<td>1.1</td>
<td>3.3</td>
<td>15.6</td>
<td>48.9</td>
<td>27.8</td>
<td>3.3</td>
</tr>
<tr>
<td>2. Change your understanding of the subject</td>
<td>0</td>
<td>0</td>
<td>4.4</td>
<td>15.6</td>
<td>51.1</td>
<td>25.6</td>
<td>3.3</td>
</tr>
<tr>
<td>3. Allow practice to improve your performance</td>
<td>0</td>
<td>1.1</td>
<td>1.1</td>
<td>2.2</td>
<td>45.6</td>
<td>38.9</td>
<td>11.1</td>
</tr>
<tr>
<td>4. Get appropriate feedback on your performance</td>
<td>0</td>
<td>2.2</td>
<td>7.8</td>
<td>13.3</td>
<td>43.3</td>
<td>27.8</td>
<td>5.6</td>
</tr>
<tr>
<td>5. Correct any errors</td>
<td>0</td>
<td>1.1</td>
<td>6.7</td>
<td>20.0</td>
<td>41.1</td>
<td>23.3</td>
<td>7.8</td>
</tr>
<tr>
<td>6. Get to know the structure of subject-matter (the content)?</td>
<td>0</td>
<td>1.1</td>
<td>5.6</td>
<td>17.8</td>
<td>42.2</td>
<td>24.4</td>
<td>6.7</td>
</tr>
<tr>
<td>The instruction (teaching/tutoring)</td>
<td></td>
<td></td>
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<td>7. Present sequenced activities</td>
<td>0</td>
<td>1.1</td>
<td>6.7</td>
<td>13.3</td>
<td>34.4</td>
<td>37.8</td>
<td>6.7</td>
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<tr>
<td>8. Challenge your thinking</td>
<td>0</td>
<td>1.1</td>
<td>4.4</td>
<td>11.1</td>
<td>36.7</td>
<td>38.9</td>
<td>7.8</td>
</tr>
<tr>
<td>9. Encourage problem solving and application of knowledge</td>
<td>0</td>
<td>0</td>
<td>2.2</td>
<td>7.8</td>
<td>37.8</td>
<td>42.2</td>
<td>10.0</td>
</tr>
<tr>
<td>10. Arouse your interest in the topic or subject-matter</td>
<td>0</td>
<td>1.1</td>
<td>2.2</td>
<td>7.8</td>
<td>35.6</td>
<td>34.4</td>
<td>18.9</td>
</tr>
<tr>
<td>11. Encourage the “tutor” to work with the class (or with yourself)</td>
<td>0</td>
<td>2.2</td>
<td>5.6</td>
<td>18.9</td>
<td>30.0</td>
<td>25.6</td>
<td>7.8</td>
</tr>
<tr>
<td>12. Fit into or suit your course?</td>
<td>0</td>
<td>1.1</td>
<td>2.2</td>
<td>7.8</td>
<td>45.6</td>
<td>32.2</td>
<td>11.1</td>
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<tr>
<td>Affective (feelings)</td>
<td></td>
<td></td>
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<tr>
<td>From your experience, did you feel the Netrepreneur to be:</td>
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</tr>
<tr>
<td>13. Stimulating/attractive</td>
<td>0</td>
<td>1.1</td>
<td>2.2</td>
<td>4.4</td>
<td>33.3</td>
<td>41.1</td>
<td>17.8</td>
</tr>
<tr>
<td>14. Motivating/interesting to use</td>
<td>0</td>
<td>1.1</td>
<td>0</td>
<td>8.9</td>
<td>35.6</td>
<td>41.1</td>
<td>13.3</td>
</tr>
<tr>
<td>15. Satisfying/good to use?</td>
<td>0</td>
<td>1.1</td>
<td>1.1</td>
<td>12.2</td>
<td>40.0</td>
<td>32.2</td>
<td>13.3</td>
</tr>
<tr>
<td>Technical</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>How would you rate Netrepreneur for:</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>16. Quality of screen presentations</td>
<td>0</td>
<td>1.1</td>
<td>0</td>
<td>6.7</td>
<td>14.4</td>
<td>32.2</td>
<td>45.6</td>
</tr>
<tr>
<td>17. Ease of use</td>
<td>0</td>
<td>2.2</td>
<td>4.4</td>
<td>13.3</td>
<td>33.3</td>
<td>35.6</td>
<td>11.1</td>
</tr>
<tr>
<td>18. Computer problems – glitches, bugs, technical problems</td>
<td>8.9</td>
<td>6.7</td>
<td>10.0</td>
<td>38.9</td>
<td>26.7</td>
<td>6.7</td>
<td>2.2</td>
</tr>
<tr>
<td>19. Navigation (ease of knowing where you were in the program)?</td>
<td>7.8</td>
<td>5.6</td>
<td>6.7</td>
<td>28.9</td>
<td>26.7</td>
<td>18.9</td>
<td>5.6</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall, what is your opinion about:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Using Netrepreneur again</td>
<td>0</td>
<td>2.2</td>
<td>5.6</td>
<td>12.2</td>
<td>40.0</td>
<td>28.9</td>
<td>11.1</td>
</tr>
<tr>
<td>21. Recommending it to your fellow students</td>
<td>0</td>
<td>2.2</td>
<td>7.8</td>
<td>12.2</td>
<td>33.3</td>
<td>26.7</td>
<td>17.8</td>
</tr>
<tr>
<td>22. The organisation of “laboratory” experience</td>
<td>0</td>
<td>0</td>
<td>2.2</td>
<td>12.2</td>
<td>35.6</td>
<td>36.7</td>
<td>13.3</td>
</tr>
<tr>
<td>23. How worthwhile the activity/experience was?</td>
<td>0</td>
<td>1.1</td>
<td>1.1</td>
<td>5.6</td>
<td>38.9</td>
<td>43.3</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Note: Percentages, n = 90
is no one best way solution to any business problem.
In general, summary individual written comments supported the notions indicated in the survey results or detailed some of the concerns and faults encountered. Among this, some 30 percent of participants suggested that more vigorous recruitment of consumer candidates could be introduced. This is an anticipated and desirable future Netrepreneur simulation enhancement, and it is recognised that external player (consumer) involvement is a critical component of the simulation but remains challenging to obtain and sustain, with participation rates of 40 percent from those solicited to participate.
It is acknowledged that there is a need to evaluate the application of the simulation technique in greater depth especially in respect of actual learning achieved compared to traditional methods and analysis of costs versus learning benefits. Nevertheless, these successful pilots of the simulation have seen both the London Institute and Manchester Metropolitan University adopting Netrepreneur within e-enterprise curriculum.

Conclusion
E-trading is a complex and diverse issue. The Netrepreneur simulation creates an experiential “virtual world”, which user groups can run to learn the general dynamics of B2C e-commerce venture creation, and the complex causes of casualties in the online economy. The introduction of an interactive simulation to the learning process provides the learner with the opportunity to experiment, discover and practise skills in a non-threatening and supportive environment. Further, the learner is placed into a position where he or she must interact, respond and understand the consequences of their decisions and actions. The Netrepreneur simulation evaluated here demonstrates a flexible approach to learning, making available a range of activities and functions that closely resemble actual e-business operations in a manner that is resource allocation effective.
In the evaluation of this educational tool it has been demonstrated that the use of this interactive computer-based instructional technique practically enhances user learning of e-trading dynamics. The real time dynamic embedded within the design principle, together with emulation of practitioner learning leads to the removal of conventional limitations associated with simulations and conventional teaching/training practices. Further evaluation will enhance future versions of the Netrepreneur simulation but it is clear that in the twenty-first century this type of instructional method will continue to develop towards being an essential tool of e-entrepreneurship education and learning.

References
Dholakia, R.R. and Uusitalo, O. (2001), "The structure and determinants of consumer intention to switch to electronic shopping formats, recent advances in retailing and services science", 8th International Conference, the European Institute of Retailing and Services Studies, Eindhoven.


