Strategy Simulation Games: The Student Perspective and an Investigation of Employability Competencies Gained Through the Use of Strategy Simulations in Higher Education

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Abstract. The use of business simulations continues to grow in higher education business schools. The perspective of a key stakeholder, the student, is presented in this paper. A key to student buy-in is evidence of the competencies acquired through the use of simulations. The Higher Education institutions, the lecturers, the students and the future employers are all seeking enhanced student employability competencies; a demonstrable link between the use of simulations and key employability competencies would present a win for all stakeholders. The second phase of research presented is the students view on employability competencies currently achieved via a case study assessment. Finally this paper presents a high level overview of the proposed research to assess if the use of a strategy simulation in the teaching of strategic management enhances student employability competencies.

Keywords: Strategy simulation · Business simulation · Simulation game · Serious game · Employability competencies · Strategic management

1 Introduction

The current generation of students in our higher education institutions have grown up with the widespread use of technology in their classrooms. These digital natives, through their use of games and technology have developed a more visual, interactive and problem solving learning style to previous generations [1]. One might therefore assume that these students will welcome the use of technology in their teaching and assessment, however it is only by asking that we will really understand their views. It is only through an understanding of their perspectives and addressing their concerns that the commitment of these important stakeholders will be achieved.

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Since the earliest use of simulation in higher education in the 1950s adoption of business simulation has grown significantly in recent years [2, 3]. When a new technology or teaching format is introduced to the classroom, there are many stakeholders; including the teacher, the institution and the student. The students' perspective of the use of strategy simulations is presented in this paper.

The importance of graduate employability skills are discussed throughout academia around the world as well as in the UK [4, p. 262, 5, p. 3]. The Irish Higher Education Authority is also part of this discussion and in their 2012 pilot study identified the concerns of future employers regarding these employability skills, particularly in our business and humanities graduates [6]. These findings are supported by the research of the Association of Higher Education Careers Services in Ireland, which recommends the inclusion of a module addressing these skills in all undergraduate programmes [7].

Our graduates will search for jobs and evidence of employability competences is an important part of the employers selection process [8]. Higher level education institutions therefore need to define these competences and if indeed these skills can be taught and learnt, then institutions need to develop undergraduate and postgraduate programmes that enable their students to acquire these skills. Identification of these employability skills is not straight-forward, mainly due to the many and varied definitions [9–11]. Whilst the definitions vary and often consider the term from the viewpoints of the different stakeholders, student, employer and higher level institution there are common themes across all definitions. Knight and Yorke's [12] definition reflects these common themes, with a broad definition of employability as:

> "a set of achievements, understandings and personal attributes that make individuals more likely to gain employment and be successful in their chosen occupations."

This paper presents the students' perspective on Strategy Simulations in higher education, in particular the concerns raised by students relating to the use of simulation in the teaching of a strategic management module. Further research is then presented of the students view on competencies gained via the current traditional case study assessment. Finally, this paper proposes a research design to understand the benefits of using strategy simulations with a particular focus on the student employability competences that may be enhanced through the use of Strategy Simulations in the teaching of Strategic Management.

2 Literature Review

The key types of value delivered by a business school are given by Hay as: the academic value delivered through research and dissemination; the personal value achieved through knowledge, skill and the foundations of a successful future career and thirdly, the social contribution delivered through graduates and alumni contributing positively to their communities [13]. Employability skills are part of each of these three types of value creation. The role of the business school has long been questioned and challenged. In their 1984 article in the Harvard Business Review, Behrman and Levin [14] listed criticisms of business schools including: the over reliance on imparting theory; the lack of a long term perspective; emphasis on quantitative rather than

qualitative factors; emphasis on traditional management rather than entrepreneurial management; lack of attention to interpersonal relationships and risk adverse behaviour. It is clear therefore that in order to remain relevant schools of business need to continually assess the skills and competencies of the graduates they are creating.

Strategic Management is often the capstone module on degree programmes from business schools, however the difficulty teaching and assessing this module is under researched [15]. The teaching of strategic management, based on delivering theory through lectures, can develop an understanding of strategic management concepts, but it does not demonstrate the complexities of strategic decisions in the real world. Students taught in this way, are unable to see the impact of decisions across the functions of the organisation and the complexities of the decisions necessary to implement strategy in an organization [16].

A long recognised method of dealing with the complexity of strategic management theory and the importance of putting the theory in context is the discussion and understanding of case studies. Since its introduction in Harvard at the start of the last century; the case study has become an essential part of business school teaching across the globe [17]. The case study method has always had its detractors including those from within Harvard itself [18]. The fast changing business environment of today has brought renewed criticism of the static and historical nature of traditional case studies [19]. Current lecturers of strategic management are looking for solutions that allow students apply the theory, but also allow adjustment to reflect changing business environments. Technology advances have enabled the development of business simulations that can achieve this and institutions have been implementing business simulation teaching methods in increasing numbers [20]. Similar to how the case study approach was often central to the definition of an institutions educational practice [21]; institutions are now looking to incorporate business simulations into their teaching methods.

In recent years business simulations have been used in educational environments to give students participative interactive and applied environments in which to learn. In the discussion of games and simulations in education, authors use different terms and definitions. For the purpose of this paper and research, the term business simulation will be used with the definition of simulation as presented by Thavikulwat [22] that "a simulation is an exercise involving reality of function in an artificial environment, a case study but with the participants inside".

It is clear that all higher education institutions exist in order to assist students learn, however to define student learning is in itself an elusive concept based on the underlying pedagogical theories [23]. The characteristics of deep and surface approaches to learning are much researched [24–26]. Experience based or experiential learning is suggested as one of the elements that encourages students to critically analyse and link learning, to ensure better understanding and retention of the material. Although detractors of experiential learning are acknowledged, the wealth of research in support of this learning model lends weight to its validity as a method of creating behaviour, attitudinal and knowledge change. Keys & Wolfe [27, p. 4] outline how the rise in experienced based learning, which occurred in the middle of the last century, contributed to the growth of the business simulation movement.

Experiential learning theory stresses the importance of direct experience and reflective observation. Simulations support this model as they are experiential exercises allowing students to interact with a knowledge domain [28, p. 522]. Business Simulations require students to understand and interpret information in order to make decisions. The consequences of these decisions are then communicated to the students and further decisions are then required – forcing students to live with the consequences of prior decisions [24, p. 24].

There is research which challenges the effectiveness of simulations [2, 29], however there is also much research demonstrating their effectiveness [27]. This research proposes to investigate the perceptions of the students, one of the key stakeholders in the strategic management classroom and to design further research into whether the use of strategy simulations enhances a student's employability competences.

3 The Research

The research for this study was conducted in three independent phases with connected themes:

1. The first phase consisted of a survey and group interview with final year higher education business students to understand their perspectives of the use of strategy simulations in the teaching of strategic management. This research is complete and a summary of the results are presented here.
2. The second phase was a survey of strategic management students to assess their view of the employability skills gained through the traditional strategic management case study assessment method.
3. The final phase of this research is still under design and proposes to assess the students employability competencies gained through a mixed method research study incorporating delivery of a strategic management module using a strategy simulation.

3.1 Phase One: Understanding Student Perspectives of the Use of Business Simulation in the Teaching of Strategic Management

A sample of full-time and part-time students in their final year of study at a higher education institution in Ireland was surveyed to identify their views on the possibility of using strategy simulations in the teaching and assessing of a strategic management module. The key characteristics of business simulations were identified following an extensive literature review and the students were surveyed on their opinions of simulations. Excluding the demographic questions, the questionnaire comprised of seven structured questions using Likert scales and other structured formats as well as three unstructured questions to generate some qualitative data. The questionnaire was prepared using Google Forms and was distributed via e-mail, it is attached as Appendix 1.

The survey data was analysed and a number of discussion themes were identified, such as, findings from the survey that contradicted the literature or findings that would benefit from further detail. The group interview volunteers were given ground rules and introduced to a simulation and were then guided to the discussion themes. The interview contributed a more in-depth understanding of the students views on the themes identified from the survey.

The research discovered that while the students recognised many of the benefits associated with business simulations and are open to the simulation experience, they had reservations in relation to the adoption of simulations in the teaching of strategic management. These reservations can be categorised under a number of headings:

Student Concerns Regarding a New Learning Environment. Students are familiar with the traditional lecture and exams and as a result they know what to expect. Despite students' recognition of the benefits of business simulations coming from both the questionnaire and interview findings, students are still slow to undertake a new mode of learning.

Students recognise the limitations of exams and all participants in the group interview conceded that they do better in continuous assessment assignments than exams, however when faced with a new or unknown method of assessment, the tried and trusted methods are preferred, particularly in final year.

It is necessary therefore to reassure these students of the benefits of business simulations as well as allay their fears toward the new format. This could be achieved by demonstration and exposure to the format in earlier years of their degree programme where the stakes are somewhat lower. Additionally trial/low stakes assessments can be conducted to introduce the concepts.

Student Concerns Regarding Group Work. On joining the workforce all students will need to work in teams, very few will find a career that sees them work independently without the need to co-ordinate and communicate with others. Educators have a duty to prepare graduates for the rigours of the workplace which includes the skills necessary for working in teams [30].

It follows therefore that the success of group work should not be left to chance. Davies [31, p. 564] clearly outlines the numerous benefits of group work and whilst recognising the problems with group work recommendations on setting up and implementing groups include: consideration of the purpose of the group work, allocation of sufficient time to allow groups socialise, support for students in creating ground rules and team contracts along with proposed assessment mechanisms that support constructive contributions to the work of the team and the identification of team members that are not contributing.

It is only in the context of these supports for group work that a strategy simulation could be introduced. If the problems of group work are ignored the simulation will suffer therefore adequate attention should be paid to how groups will be supported and developed through the simulation process.

Student Concerns on the Time Consuming Nature of Business Simulations. The most common concern raised by students in the interview and questionnaire was related to the possible time consuming nature of business simulations. This concern can be addressed by incorporating the business simulations into the existing strategic management modules and replacing existing assessments so that the business simulation does not add to assessment workload. This would also be supporting the principles of assessment for learning as outlined by Race [32]. By using the assessment to drive the student learning the time invested in the simulation would be seen to give the student a return on their investment.

Additionally the time needed to familiarise students with the simulation and the time to prepare and run the simulation should be designed into class time and tutorial time. The students will then benefit from the learning without seeing increased demands on their time; this will go further to address their concerns.

Students also need to be shown that the effort is worthwhile. Clarke [33, p. 450] summarises the learning outcomes and transferrable skills attained from business simulation based on previous studies. These transferrable skills will be of interest to potential employers. The important step is for the higher education institution and its graduates to market these skills and thereby generate an interest from potential employers. If the transferrable and professional skills developed by the business simulation are valued by potential employers this will convince students that it is worth the associated effort.

Before investing in a business simulation it would be important to ensure that the competences required by the potential employers of graduates are included in the assessment process. This alignment between employability skills and the learning outcomes of the business simulations would make it a worthwhile investment of the students' time. This represents the basis behind the second and third phases of this research.

3.2 Phase Two: Student Perception of Employability Competences Gained Through the Use of Case Study in the Teaching of Strategic Management

Currently one of the strategic management modules is part assessed using a written case study. The students are encouraged to analyse the case study in teams or pairs and submit an individual written report on the case. In the light of the importance of employability competences for our graduates, a brief survey of the strategic management students was carried out to assess if the current case study assessment method was seen to enhance employability competences.

A list of employability competences was taken from the meta-analysis prepared by Jackson [34] and the students were surveyed to identify if they felt these competencies were developed using the strategic management case study assessment.

Table 1. Student perception of competences developed via case study assessment

Top 10 competences "Not at all" or "Slightly" developed by case study assessment	Top 10 competences "Reasonably" or "Significantly" developed by case study assessment
Project management	Business acumen
Stress tolerance	Understanding an organisation's culture
Meeting management	Critical thinking
Self-efficacy	Attention to detail
Coaching	Decision management
Oral communication	Ethics and responsibility
Political skill/Negotiation	Research & Information retrieval skills
Leadership skills	Initiative
Team-working	Problem solving
Adaptability & change management	Written communication

A survey was prepared using Google Forms and was undertaken by students at the start of a computer laboratory session – this resulted in a high response rate of 84%. The students were presented with a list of employability competences as identified by Jackson [34] and were asked to rate the degree to which these competencies were developed by their strategic management case study assignment.

It is recognized that this survey represented only the students' perceptions on whether these competences were developed and that the student may not be the best judge of their competency development. It was however noted that further investigation was merited regarding whether the important competences such as those in the left-hand column of Table 1 could be developed. The outcome of this brief survey prompted the more detailed third phase of research to assess whether the implementation of a strategy simulation might enhance student employability competences.

3.3 Phase Three: Design of a Mixed Methods, Action Research, Case Study Exploring the Connection Between Teaching Higher Education Business Students Using Strategy Simulation Games and the Development of Key Employability Competences

The central hypothesis of this study will be that Business students who undertake a strategic management module using a business simulation assessment will acquire key employability competences. This will be established through observation in the classroom, analysis of student assessment submissions and student feedback.

The specific Aims of this proposed study are as follows:

- Analysis of literature, interview with employers and higher level institutions to identify key employability competencies for business graduates.
- Review of strategic management assessment methods to establish benefits of business simulation over alternatives.

- Use of key employability competences and other relevant criteria to select appropriate strategy simulation.
- Implement strategy simulation and assess competencies gained by students through observation, analysis of assessment submissions and student survey.

The aim of this study is that it will deliver benefits to all stakeholders. It is intended that lecturer and students will experience an improved teaching and learning experience. Students will be better equipped for the workplace with key employability skills desired by employers. The institution will be able to demonstrate that it is providing graduates with the necessary skills for their future careers and prospective employers can hire graduates with the skillset needed to make early and significant contributions to their organizations.

4 Conclusion

This paper has presented a three phase investigation into strategy simulation games. Initially, as a key stakeholder the student perspective on simulations was sought and their key concerns identified. A method of overcoming the students' concerns was to identify the key benefits of strategy simulations which is the enhancement of student employability competences. In the students own view, the existing case study assessment method was found wanting in respect of many of these employability competences so a detailed study is proposed to analyse the connection between the use of strategy simulation games and the enhancement of student employability competences.

Appendix 1: Phase One Questionnaire

Student Perceptions of the use of Business Simulation in teaching Strategic Management

This research is being undertaken as part of my MA in Teaching and Learning in Higher Education.

I am writing a research paper on the perceptions of students on the use of business simulation in teaching strategic management.

Your responses to this questionnaire are completely confidential.

The responses remain anonymous unless you choose to disclose your contact information.

Student Background

1) Please choose your programme of study

- ◯ Bachelor of Business (Honours)
- ◯ Bachelor of Business (Honours) in Accounting
- ◯ Other: _____

2) Please select your mode of study

- ◯ Full-time student
- ◯ Part-time student
- ◯ Other: _____

3) Please select your age range below.

- ◯ 25 or younger
- ◯ 26 - 40 years old
- ◯ 41 or older

A Simulation

A Simulation is a representation of a real world scenario. The student can make decisions and see the impact of these decisions.The student receives feedback on the outcomes based on their decisions. The process can be completed as an individual or as a group.

4) Have you used simulations as part of your learning before

- ◯ Yes - At Third level
- ◯ Yes - At Second level
- ◯ Yes - At Primary level
- ◯ No - I have never used simulations as part of my learning
- ◯ Other: _____

5) If you have used simulations for learning before, please indicate on the scale what you thought about the learning experience

Skip this question if you have never used simulation for learning before

1 2 3 4 5

Negative Learning Experience ◯ ◯ ◯ ◯ ◯ Positive Learning Experience

6) Please explain why you felt that your previous use of simulation was a positive or negative learning experience

Skip this question if you have never used simulation for learning before

A Business Simulation

A Business Simulation is a representation of a real world business scenario.

7) If business simulations were part of your strategic management modules, please indicate on the scale what you think the learning experience would be like

1 2 3 4 5

Negative Learning Experience ◯ ◯ ◯ ◯ ◯ Positive Learning Experience

8) Please explain why you feel that the use of business simulations as part of your strategic management modules would be a positive or negative learning experience

9) If business simulations were incorporated into your strategic management modules, please rate the likely learning experience against the following headings

	Not at all	Slightly	Reasonably	Extremely	No opinion
Engaging	○	○	○	○	○
Motivating	○	○	○	○	○
Relevant	○	○	○	○	○
Complex	○	○	○	○	○
Challenging	○	○	○	○	○
Time Comsuming	○	○	○	○	○

10) Please select from the list the characteristics of a business simulation, which in your opinion would give a positive learning experience

Please select all that apply in your opinion

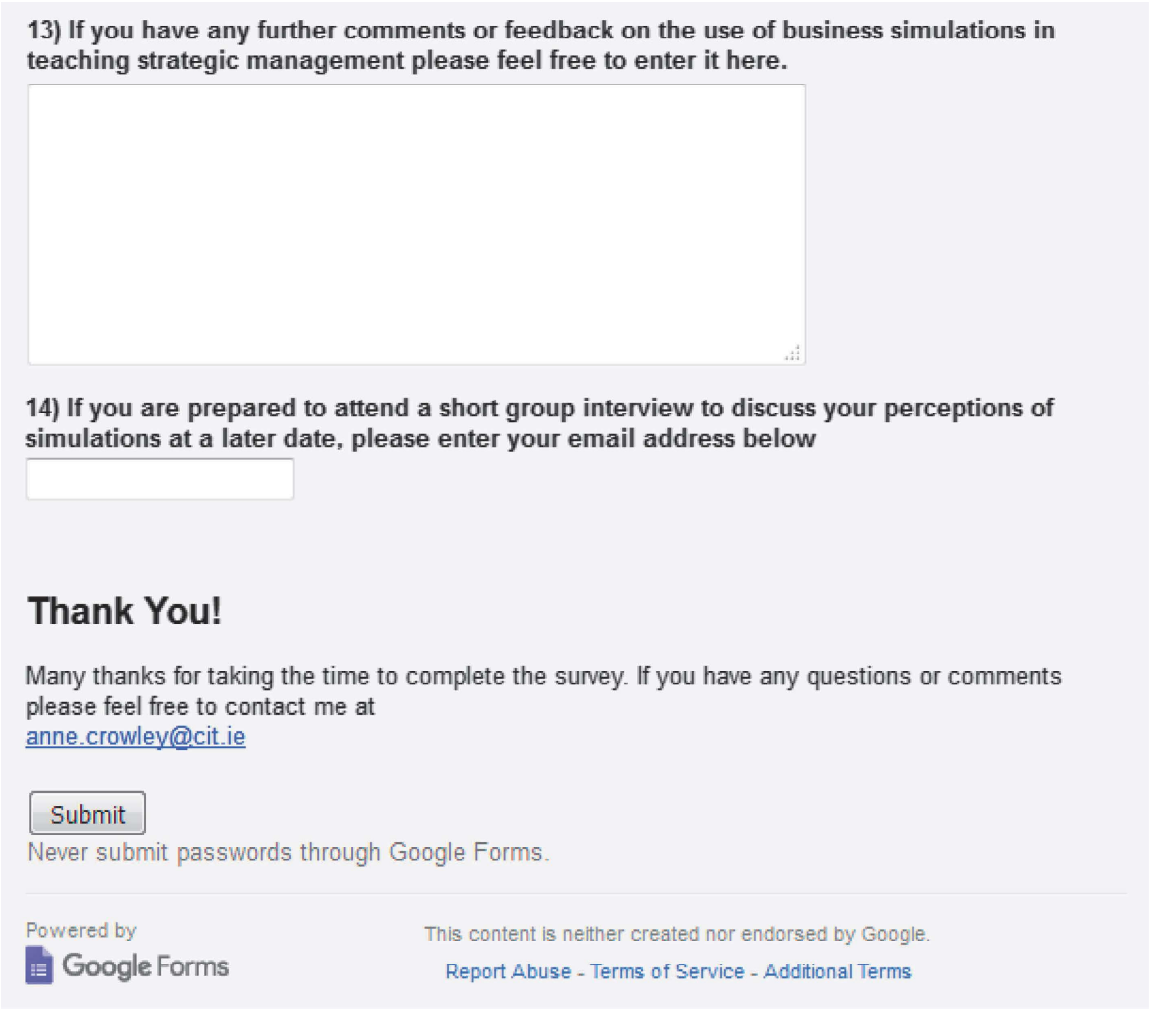
- ☐ Fidelity to a real world scenario
- ☐ Media rich
- ☐ Interactive
- ☐ Ease of use
- ☐ Authentic
- ☐ Challenging
- ☐ Social
- ☐ Other:

11) If business simulations were part of your module would you be prepared to do the simulation as

- ○ An Individual
- ○ A Group
- ○ Either an individual or a group
- ○ No opinion

12) Would you be happy to have a business simulation as some or all of your assessment in your strategic management module

- ○ Yes - as the full assessment
- ○ Yes - as partial assessment
- ○ No - would not like it as an assessment method
- ○ No opinion


13) If you have any further comments or feedback on the use of business simulations in teaching strategic management please feel free to enter it here.

14) If you are prepared to attend a short group interview to discuss your perceptions of simulations at a later date, please enter your email address below

Thank You!

Many thanks for taking the time to complete the survey. If you have any questions or comments please feel free to contact me at
anne.crowley@cit.ie

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