An Action Research Enquiry of Third-Level Student Employability Competences through the Implementation of a Business Strategy Software Simulation

Anne Crowley, BSc, HDip, MBA, MA

This thesis is submitted to Dublin City University in fulfilment of the requirements for the degree of Doctor of Philosophy

Supervisor: Dr. Margaret Farren

School of STEM Education, Innovation and Global Studies

Institute of Education

Dublin City University

January 2021

Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy is entirely my own work, and that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed: (Candidate) 

ID No.: 15211872

Date: 7th January 2021

Acknowledgements

I would like to begin by thanking my supervisor Dr. Margaret Farren. Her support and advice were fundamental to this research. I will always be grateful for her belief in me, and my research, from the day we first spoke in early 2015. I am confident that without her understanding, guidance and encouragement, this journey would have ended a lot sooner and very differently!

I am also very grateful to my employer, Cork Institute of Technology. The support of the Staff Doctorate Scheme run by Dr. Noel Barry and Dr. Stephen Cassidy, along with the support of my departmental manager Don Crowley, allowed me to dedicate the necessary time for this research. Thanks also to the Teaching & Learning Unit Development fund for financing the software licence costs for the first implementation cycle. Alongside these formal supports were many colleagues, who inspired, advised, supported and listened to me over the last five years. In particular, I would like to thank Dr. Sheila Butler, Dr. Tom O'Mahony, Dr. Gearóid Ó'Súilleabháin, Kathryn Carey and Eileen O'Mahony.

Not forgetting, of course, my "backroom team". Firstly, my wonderful parents, my late mother, a proud UCD graduate and my father, a PhD graduate. As a child, upon seeing my Dad's business card, I realised he had more letters after than in his name. Both are truly an inspiration - *go raibh maith agaibh*. Secondly, my husband Liam, whose unwavering support, was frequently challenged, but never faltered: he is the foundation, upon which this research was built, thank you so much. Finally, thanks and final words must go to my four amazing children. I hope my PhD journey will inspire you all to take on the opportunities and challenges life will throw at you. An example, that any elephant can be eaten – once you take it one bite at a time, and in response to your oft-asked question – YES! Finally, Mum has finished her PhD! Wooho

Table of Contents

List of Figures

List of Tables

List of Charts

List of Abbreviations

AACSB	Advance Collegiate Schools of Business
ADDIE	Instructional design model named after the stages of its processes; Analyse, Design, Develop, Implement, and Evaluate.
AMBA	Association of MBAs
CBI	Confederation of British Industry
CIT	Cork Institute of Technology
CAQDAS	Computer-Assisted Qualitative Data Analysis Software
DCU	Dublin City University
EFMD	European Foundation for Management Development
EQUIS	EFMD Quality Improvement System
EU	European Union
IBEC	Irish Business and Employers' Confederation
IPS	Interpersonal Skills
PAC	Participatory Action Research
REB	Research Ethics Board
RTC	Regional Technical College
TLU	Teaching and Learning Unit
UCD	University College Dublin
UK	United Kingdom
WRSX	Name of marketing agency in Software Simulation

Abstract

Title: An Action Research Enquiry of Third-Level Student Employability Competences through the Implementation of a Business Strategy Software Simulation

Author: Anne Crowley

This action research study investigates if using a business strategy software simulation in the teaching of an undergraduate strategic management module enhances business students' employability competences. Through a preparatory action research cycle, key employability competences are identified, and a suitable software simulation is selected following a structured selection process. In addition, through a process of programmatic review applying the concepts of both constructive alignment and assessment as learning, a module is created to integrate the simulation software.

In two further implementation cycles of action research, data was gathered through structured researcher observation, student pre- and post-surveys and thematic analysis of student journals (second implementation cycle). Analysis of the data gathered identifies the improvement of students' employability competences through the use of strategy simulation software. Further discussion of findings identifies next steps and areas for further research.

The employability of third-level graduates is much discussed and researched. The key stakeholders in this discussion are the student, the future employers and third-level institutions. Ensuring consistency of the various stakeholders' expectations regarding the necessary competences and the best means of developing them is challenging. Graduate recruitment campaigns often expect more than discipline-specific technical knowledge, other more generic skills or soft skills known as employability competences are listed on graduate job requirements. This research identifies twelve key student employability competences.

Students and third-level institutions are aware of the importance of these competences in securing first positions post-graduation and subsequent career development. In seeking to develop these employability competences third-level institutions have two approaches, one option is to create specific modules for this purpose. A more common solution is to build these competences into modules across degree programmes. This research follows this second approach and investigates if implementing a business strategy software simulation in a strategic management module helps enhance student employability competences.

1. Research Context

1.1 The Researcher

The first fifteen years of my career comprised of technical, training and managerial roles in various industries in Ireland, Europe and the United States. The last (nearly) fifteen years, I have been a third-level lecturer, focused on how best to balance industry relevance or experience with lecture content and learning outcomes. Possessing qualifications in education, business and computer science meant my pedagogical journey showed a natural interest in technology-enhanced learning, serious games and game-based learning. This action research journey, which explores experiential learning, pedagogical improvements and graduate attributes, forms the basis of this thesis.

From the start of my teaching career, I have actively sought the students' perspective. I use informal lecture hall discussions, mid-semester review points and a final more formal and extensive semester-end feedback forms. The semester-end student feedback covered areas such as instructor feedback (frequency, timing and quality), study materials (quality, quantity and student interaction with course material), assignments (type, timing, weighting) as well as overall student satisfaction and whether the student would recommend the module to another. This feedback enabled small incremental changes to modules from year to year and more substantial module redesign such as this research.

1.2 The Research Institution – Cork Institute of Technology

This study focusses on third-level undergraduate students in Ireland. The Department of Education and Skills on their website use the terms higher education or third level education to explain the education provided in Ireland by the universities, technological universities, institutes of technology and colleges of education, and other specialised education providers, e.g. art, music or theology. The terms third-level and higher education will be used interchangeably in this study.

This research is conducted in Cork Institute of Technology (CIT), an institution that can trace its origins to the Royal Cork Institution in 1802. Throughout the 19th century, further changes culminated in the opening of the Crawford Municipal Technical Institute in 1912. Further expansion and developments in subsequent decades led to a consolidation as the Cork Regional Technical College (RTC) in the 1970s. The college moved to its current home in Bishopstown, Cork, and expansion and development continued to broaden its focus from technical education to more general business awards. The RTC became Cork Institute of Technology (CIT) in 1997 and has continued to grow and expand in both the breadth of courses offered and award levels (CIT, 2018a).

In addition to its long history of teaching, CIT prides itself on the strength of its research and industry links. The most ambitious current plan is the proposed amalgamation with the Institute of Technology Tralee to become the Muster Technological University. This plan is in its final stages at the time of writing this thesis. CIT has remained close to industry in its region throughout its development and prides itself on its career-ready graduates. CIT's current mission statement from the most recent strategic plan emphasises this industry focus:-

To provide student-centred, career-focused education and research for the personal, professional and intellectual development of the student and for the benefit of the broader society in the region and beyond.

(CIT, 2018b, p. 7)

This mission statement forms the basis of programme and module development across the institute. Any new programme must pass a panel, which includes representatives from industry and accreditation bodies. This mission statement and more specifically, the goal of creating career-ready graduates inspired this research.

1.3 Researcher Voice

The author of this thesis was also the researcher and lecturer throughout the study. An action research enquiry such as this one means lecturer, researcher and author were three of the "hats" worn throughout and put me naturally at the heart of the study. As a result, extensive thought was given to the correct academic voice for this thesis. Traditionally, academic writing avoided using the first person and personal narrative, the reason rooted in an attempt to ensure objectivity and avoid presumption of authority (Murray & Beglar, 2009, p. 85; Murray, 2006, p. 93). In recent years, there is an acceptance of alternative styles (Phillips & Pugh, 2010, p. 78) and action research, for example, is often written in the first person due to the researcher's central and many roles throughout the study.

McNiff contends that the writing style decision is influenced by the politics of publication (2016, p. 88). Coghlan (2019, p. 178) recognises that there is no consensus on this personal versus

impersonal narrative dilemma associated with writing up action research and suggests that the personal narrative style is needed when extensive reflection on personal learning is key to the study. The key focus of this research was the students and their employability competences, however, the central role I played throughout this research process is reflected in my choice of personal narrative.

1.4 Experiential Learning Explorations

The introduction of the simulation discussed in this study was not the first method I used to introduce experiential learning into strategic management lectures. There were other interventions, and each had both merits and drawbacks. At all times, discussion of both mine and the students' industry experience was encouraged. Strategic questions were posed, and students' were asked to apply these to their organisations and industries (in the case of part-time students). Students were broken into breakout groups and asked to apply a strategic management concept to their organisation. This approach was helpful because it allowed the students to see the theoretical concepts in their own organisations. The subsequent class discussion was interesting and enlightening for all students in the class; however, it did not allow students to see if their application of a theoretical concept would have made a difference to their organisation.

Another approach I used to bring industry into the lecture hall was case studies. Students were assigned case studies in advance of a lecture, and lecture content could then be discussed and applied to the chosen case study. The advantage of this approach was that all students were discussing the same organisation or industry, thus generating often better discussion as

exposure to the detail was for the most part similar for all students. The benefits of students working with a similar company, industry, and an equivalent level of information were noted. The playing field was levelled to an extent as most students have access to the same information.

In addition, case studies were used as part of assessment, and students were asked to apply elements of strategic management theory to a chosen case study. This allowed deeper engagement with the case study, and assessment was either via a presentation or written document. The drawback of this approach was that students' feedback was still somewhat removed from the real world scenario. In the case of an essay, feedback was not instantaneous, and as a result, its benefit reduced. The student had generally moved onto another assignment or task by the time the feedback was returned.

Case studies were also assessed via presentations. While feedback on a student presentation could be more instantaneous, it was still my view of how the students' decisions might have developed. Also, there was no easy way for students to react to the outcome of their choices, i.e. a second decision round dependant on the first was not possible. The feedback process was still a little removed for students, and the real-world need to live with or develop previous decisions was missing.

I also made use of live case studies on many occasions. This took the form of representatives from an organisation coming into class to present their business and business issues. The students were then tasked with addressing these real-world business issues with reference to the strategy material presented in the module. A very high level of student engagement was seen with this approach. Students realised that they were addressing real-world issues and ensured they were well prepared when presenting their proposals to the organisation at the end

of the semester. Student feedback from the case study organisations was from the “coal-face” so a lot more relevant to students. I still assigned the grade, but hearing directly from the organisations how one approach might work and another not, definitely resulted in better student engagement and learning.

Whilst live case studies offered students’ feedback from the organisation they had examined, again, the outcomes of the students' proposed decisions were still lacking. Students didn’t get to see if their suggestions were successful or not. In addition, it was challenging to have a suitable live case study lined up for each year. The contribution and commitment of the organisations varied year on year leading to difficulties ensuring assessment consistency. Also, depending on the organisation and industry, access to material to assist students with their analysis sometimes presented challenges. However, I still use live case studies, but they are selected for their merit and alignment with course material without the demand to find one each year.

A final consideration regarding material from both case studies and my own industry career was relevance. As my lecturing career developed, some of the examples and discussions drawn from my industry career remained relevant, but some became outdated. Similarly, any case study once put to paper begins to age. This problem can be overcome by telling students that the case study material should be considered in the light of the current industry climate, but this does not always remove the shadow of “historical” from the case study or example.

I still use all of the experiential learning approaches discussed here, and all still bring benefits and support lecture content. What these methods lack, and what was sought by this research was a more “lived” experience for the students. This “lived” experience, was a situation or case study where the feedback on students’ decisions was visible, and multiple decision rounds

allowed students the option of developing their decisions over time. It was for this reason that I began an exploration of experiential learning and software simulations.

1.5 Previous Research

This research's first cornerstone was a redesigned project management module, implemented following research into experiential learning benefits as part of my MA in Teaching and Learning in Higher Education. The module redesign was developed using the concepts of constructive alignment as outlined by Race (2009) and Biggs (2003) and experiential learning ("the process whereby knowledge is created through the transformation of experience") as defined by Kolb (1984, p. 38). Through research into experiential learning, I redesigned a project management module with a very traditional delivery of lectures, written project and written end-of-semester exam, into a continually assessed participative module with strong constructive alignment from learning outcomes to indicative content and assessment tools.

Student feedback following the module redesign showed increased satisfaction and increased interaction with course material and an overall uplift of student grades. Following the success of the redesign of the project management module, a similar approach was considered for my content-heavy strategic management module. The challenge was creating the experiential learning aspect of the module and exploring various experiential learning options ultimately led to an investigation of strategy simulation software. The literature review that follows will outline the many benefits of simulation games; however, my MA study identified that students recognised these benefits but had reservations around using simulations (Crowley, 2014; Crowley, Farren, & OSúilleabháin, 2017).

These student concerns regarding simulations formed the second cornerstone of this research. The question was if there were merits associated with the use of simulation that could overcome the students' reservations. Recognising that students ultimately need jobs and, therefore, employment soft skills, I chose to explore the link between the use of strategy simulation and student employability competences. The aim was to understand whether there might be other merits to using the simulation that might convince students to put their reservations to one side.

1.6 Rationale for this Study

There are three core strands of enquiry behind this research: firstly, reflective practice, which in the context of this study will be focused on teaching, learning and assessment; secondly, employability competences and the generic skillset required of third-level graduates; and finally, experiential learning which is introduced using software simulation. The background of each of these three areas will follow.

As outlined by Thompson and Pascal (2012), reflective practice is more than just pausing for thought from time to time. Instead, solid reflective practice demonstrates analysis, interaction with an underlying knowledge base, and new knowledge from the experience. This thesis will show a culmination of this structured and reflective process, resulting in better outcomes for all stakeholders – the student, the lecturer, the institution, the future employer and wider community through the knowledge gained through this process.

Employability is much discussed and interestingly, Raybould and Sheedy (2005) state that 64% of graduate vacancies analysed are open to graduates of any discipline. Therefore, they point

out that employers are not looking for degree-specific knowledge but the transferable skills that graduates have gained through their programme of study. Despite the debate on whether it should be a university's role to develop these skills, most aim to develop generic career skills in their graduates (Tymon, 2013).

As investigated by Mintzberg from the 1970s onwards, experiential learning is the proposition that management skills need to be developed through practice and feedback in real or simulated environments. Mintzberg states that both the swimmer and the manager will drown unless they get their feet wet (1975, 1990). Business degree programmes across higher education vary in their focus and module selection. Still, the concepts of management, strategic planning and strategy implementation are core to the development of any business graduate (Karagozoglu, 2017). How, therefore, do third-level institutions ensure business graduates with their new management qualifications do not drown?

This study is rooted in my interest in reflective practice focusing on teaching, learning and assessment, and an ongoing goal of bringing workplace and industry experience into the lecture hall. In conjunction with this and equally important is the students' need to acquire industry-relevant expertise and skills.

Taking the first of the concepts introduced above, reflective practice, CIT has a very active Teaching and Learning Unit (TLU) to provide support to lecturers looking to develop their practice. Formal initiatives include an MA in Teaching and Learning (which I completed in 2014) and a comprehensive staff doctorate scheme, which supported this research from its inception. In addition to the formal structures, regular professional development and networking events give staff space and freedom to reflect and develop their practice.

Within CIT, reflective practice is actively promoted and supported at all levels. Koshy (2005, p. 38) outlines some practical considerations when embarking on an action research study. The first one identified is “Experience and Interest”. Koshy emphasises that the topic under investigation needs to be relevant to the researcher's experience and context. When reflecting on practice and seeking ways to enhance teaching and bringing real-world experience into the lecture hall, education technology for business students was a natural step due to my degrees in technology, business and education. Pedagogically appropriate technology for business undergraduates allowing an experience of real-world issues certainly ticked both the “experience” and “interest” boxes as outlined by Koshy.

Concerning the second concept, that of graduate skills, the CIT institutional literature as well as that of specific programmes outline graduate employability competences and transferrable skills. Employer surveys and other sources also identify competences, leading to a long and often duplicative list. It can be difficult for lecturers, students and others to recognise the competences upon which to focus. This research aimed to identify key competences for CIT graduates and then set out to identify a suitable module to support the development of these competences. Therefore, the output will be a relevant list of competences and subsequently, a module that will support the development of these competences. The rationale being that students need to focus on the employability competences most needed for their future careers. A well-researched set of competences would help students focus on the competences most needed and will allow CIT to develop the right competences in their modules.

Looking at the final concept, experiential learning, the quotation from Oscar Wilde’s 1894 essay “Maxims for the Instruction of the Over-Educated” is relevant, “Education is an admirable thing. But it is well to remember from time to time that nothing that is worth knowing can be taught.”

As a lecturer with 15 years of industry experience, I have always kept under review, the challenges of sharing that industry understanding with students. Following the successful introduction of experiential learning in a redesigned project management module, the open question was whether this concept could also be successfully introduced into a more theoretical and traditional module.

Cognisant of reflective practice concepts, graduate employability skills, and experiential learning as explored above, I sought an appropriate module to implement these concepts. There were two main strands to module identification: firstly, the selected module should ultimately give access to the most significant number of students. Therefore a core module rather than an elective module was preferable; Secondly, the module sought should be one with a considerable degree of traditional content delivery and summative assessment, thereby ensuring the most significant degree of benefit from this study if successful.

In seeking a module that is core to business programmes, strategic management was an early choice. As an academic field, strategic management was established in the late 1970s following the work of Schendel and Hofer (1979) and provided a new model for what was previously known as business policy. The discussion and study of strategy is a recognised part of management theory (Thomas, Wilson, & Leeds, 2013), and therefore, strategic management is a regular feature of third-level business programmes. Indeed strategic management is a core component of the undergraduate and graduate degree requirements of key accreditation bodies such as AACSB, EQUIS and AMBA (Galvin & Arndt, 2014).

The boundaries of strategic management overlap with other areas such as finance, marketing and operations; thus, there are many definitions of the field of strategic management. Nag,

Hambrick and Chen (2007) conducted a content analysis of strategic management publications to define strategic management using the published literature's common themes. Therefore, their definition has solid roots in the published literature on strategic management and can claim to reflect current strategic management thinking.

> *"The field* of strategic management deals with the major intended and emergent initiatives taken by general managers *on behalf of owners, involving utilisation of resources, to enhance the performance of firms in their external environments."*
>
> (Nag et al., 2007, p. 942)

This definition demonstrates how strategy is fundamental to organisations, and it involves critical business decisions regarding what to do, what resources to use and how to react to the external environment. The importance of strategy to business is reflected in the frequency in which it features as a core component of business degree programmes. This, therefore, made a strategic management module a good choice for intervention, any benefits achieved through this research could be rolled out efficiently and effectively to other business students.

2. Introduction to Study

2.1 Introduction

This chapter presents the research aims and objectives, developing the broad research question that guided this study. This research's relevance is discussed before the chapter finishes with an overview of the layout of the remainder of this thesis.

2.2 Research Aims and Objectives

This research sits in a complex context. Brady (2013) uses both operations management and systems analysis techniques to understand the complexity of processes and the different roles of lecturer and student. Understanding these varying roles within the classroom and the institution itself will aid learning and teaching development. Action research, sometimes called practitioner based research or self-reflective practice, is a powerful tool for change (McNiff, 2002). Farren and Crotty (2010) discuss how the teachers' values and concerns need to be considered through reflective practice.

This research is an action research enquiry in Cork Institute of Technology (CIT). It focuses on a core business school module (Strategic Management) and assesses whether the use of experiential learning through the implementation of a business strategy simulation software enhanced students' employability competences. Taking the core themes as introduced earlier, the research aimed to develop knowledge at the intersection of best practice in the areas of

- Teaching, Learning & Assessment
- Graduate Employability Competences
- Simulations / Serious Games

The literature review examines each of the three core research fields. The key themes from each of these three areas are developed to draw upon and intertwine best practice from each area. Iterative cycles of action research were undertaken to ensure reflection and researched changes are introduced with each cycle.

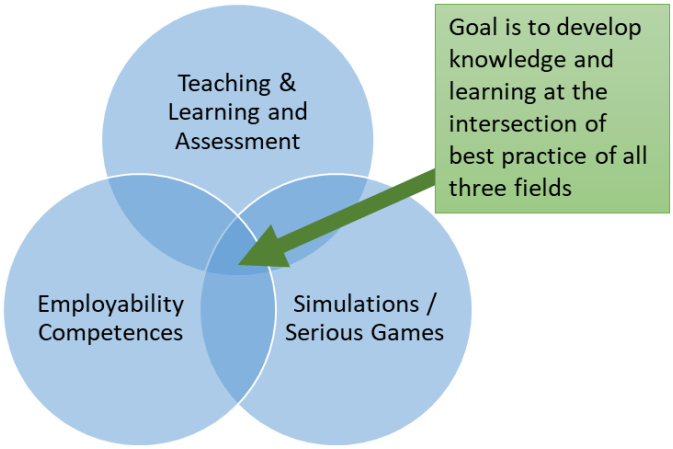


Figure 1: Overview of research aims

In addition to research at the intersection of all three fields, it was also planned to develop contributions within each individual area. Firstly, the concept of constructive alignment was discussed and implemented to introduce experiential learning into a redesigned strategic management module. Secondly, a shortlist of core employability competences was developed with reference to publications from employers, educators and regulators. Thirdly, software selection criteria were developed and implemented using both the competence shortlist and

other research-supported criteria. In addition to contributions from each of the research fields and the intersection of the fields, further findings and contributions discovered across the three cycles of action research in this study will be highlighted for the reader.

2.3 Research Question

According to Tharenou, Donohue and Cooper (2007), action research is not always suited to a research hypothesis, rather a general ("fuzzy") question that becomes more focused as the cycles of action research progress

> *"In action research, the researcher begins with a general question or focus. . . . . Hence, there is a fuzzy question that results in fuzzy methods, which arrive at fuzzy answers. Therefore, in action research there is convergence towards precision."*
>
> (Tharenou et al., 2007, p. 91)

The questions, methods and even answers might be "fuzzy", but educational research is important. Bassey (1992) began his presidential address to the British Educational Research Association by outlining three ways of creating education; doing it the same way we have always done it, following our hunches or through research. Research is the only viable option, he maintains, and this research supports that belief. Alongside my lecturing role was a process of asking questions, gathering evidence, generating ideas and evaluating them, reviewing alternatives, monitoring, and evaluating outcomes. This was not necessarily a process started

with an exact question or destination but a process of continual improvement through reflection, planning and implementation.

Whilst "traditional" research might begin with a narrow hypothesis to be proven or disproven; this research study began with a more general urge to continually improve my teaching and assessment practices. In particular, this study focused on the development of experiential learning in a strategic management module. Rather than a central hypothesis, the general question that drove this research was whether experiential learning could be introduced to a strategic management module using a software simulation. Initial reading indicated that experiential learning with a simulation was possible. In particular, it was hoped to explore whether students' employability competences would be enhanced by using a business strategy software simulation to teach a third-level strategic management module. The research question was, therefore finalised as:

"Can third-level student employability competences be influenced through the implementation of a business strategy software simulation?"

In order to address this question, three cycles of action research were undertaken. These are outlined in Chapters Five, Six and Seven. Some of the key stages in these action research cycles were identifying suitable software, redesigning a strategy module, identifying key employability competences, and implementing a robust research process, including funding and ethics approval. The two implementation cycles were cognisant of the previous preparatory action research cycles to narrow down the question and close any open issues.

The research issues explored and resolved across the cycles of action research include:

1. Identification of a suitable module for the research
2. Creation of a shortlist of key employability competences
3. Redesign a module using the principles of constructive alignment
4. Selection of a suitable software simulation from the market
5. Selection and Design of appropriate research instruments

This research question was explored following a robust literature review and a structured methodology process, ensuring that the research was informed by best practice and conducted using the tools and methods most appropriate to the situation under consideration.

2.4 Research Relevance

Perea and Brady (2017) question the impact academic business school research has on either teaching or the wider business community. This research aims to avoid these pitfalls by ensuring rigour throughout the process and aiming to produce outcomes that will be useful for me, my institution, and industry, the employers of our future graduates. Action research by its nature is specific to the participants, and each cycle can vary as a result of either participant changes or researcher approach. However, much can be learned from the action research of others, and this research is no exception. Two specific findings from this research are:

- The list of employability competences acquired through the analysis of employer, government and educational sources.

- The process proposed for the software selection could be useful to others attempting to select from the extensive range of simulation software on the market.

In addition to these specific findings, more general findings are relevant to other research. Firstly, the general approach and use of the action research cycle applies to other areas. The analysis of various action research cycles and the mapping of the more complex cycles to the simple four-stage cycle is a concept that could be considered by other action researchers. The discussion in Chapter Five regarding the module redesign is relevant to anyone implementing constructive alignment and assessment for learning in their module writing or redesign. Finally, this research's most significant results are included in Chapter Eight - Consolidation of findings and Chapter Nine – Conclusion and Recommendations.

2.5 Format of this Thesis

Action research is very much set within its context, therefore this thesis begins, through the last chapter and this one, by introducing both the researcher and the host institution. The research's goals and objectives have also been laid out, giving the reader a clear indication of this study's proposed contribution.

Chapter Three explores the leading literature in the three key research areas: teaching, learning and assessment; employability competences; and serious games and simulations. The literature is studied, and a unique approach to the intersection of the three key themes is proposed.

Chapter Four discusses the nature of research, enquiry and the approaches to understanding the world around us. These fundamental concepts that underlie all research are explored, and this

research is placed within the pragmatic paradigm. The rationale behind the chosen research approach is explained, and the selected research instruments are identified and justified. The important concepts of research sampling, validity and rigour as well as ethics are also addressed.

Chapter Five sets out the first cycle of action research. This initial research stage is the preparatory cycle where the groundwork is put in place for the subsequent two implementation cycles. This chapter outlines the essential steps of firstly identifying the appropriate employability competences, followed by the crucial step of selecting a suitable software simulation and the necessary redesign of a module to accommodate the software simulation

Chapter Six outlines the first implementation cycle from spring 2017. The full cycle of action research is discussed, including the research observations and reflections that will feed into the second implementation cycle.

Chapter Seven discusses the second implementation cycle from autumn 2017. Planning for this cycle included the reflection and learning from the first implementation cycle. The chapter concludes with reflections and observations on this second cycle.

Chapter Eight consolidates the findings across the preparatory cycle and two implementation cycles. The key findings are identified and amalgamated into a structured format that allows the reader to see the research process's key outcomes.

Chapter Nine aims to summarise the work undertaken and highlights the contributions made by the research to the body of knowledge in the research area. Any research limitations are also highlighted, and recommendations for future research are discussed.

3. Literature Review

3.1 Introduction

This chapter explores the key research themes, and as with all enquiries, the first step is to understand the existing research in each of the relevant fields. As attributed to Isaac Newton (1643-1727) “If I see further than others, it is by standing on the shoulders of giants.” The Research Aims and Objectives section in the previous chapter identified the key research fields relevant to this study. Figure 1 on page 14 shows these key areas: teaching, learning & assessment, graduate employability competences and simulations / serious games. These aims, objectives and key research areas were the basis of this literature review.

A systematic approach was taken to the literature review; an initial list of key search terms was created from each of the three research areas (Aveyard, 2014, p. 75). This keyword list was dynamic and was updated throughout the process. The literature search was mainly digital using Dublin City University (DCU) and CIT online library resources. As an academic staff member and a researcher, interlibrary loans and long-term loans meant hard copy material was reasonably straightforward to access. Reference lists of key articles were used to supplement the search and the keyword list. All articles and bibliographic material were stored in Mendeley, which resulted in regular suggested articles based on my ever building Mendeley document library. These suggested articles were also reviewed for relevance. Conference attendance, academic networking sites such as ResearchGate and Mendeley, and validation sessions with peers also supplemented the literature. Each of the key research areas will be introduced over the next three paragraphs before the detailed literature review.

Teaching and education has a long history and has had many influences over the millennia. Higher education in Ireland is one small branch in the long evolution of education. Morris (2000) outlines the challenges faced by lecturers since the introduction of modularisation and semesterisation. A lecturer at third-level needs to keep up with the changing requirements from both their institutions and students. These diverse demands, pressures and influences will be discussed throughout this literature review, particularly with an emphasis on how a lecturer can review their practice, with the goal of understanding the role of teaching, learning and assessment decisions.

When discussing graduate employability, there are many stakeholders beyond the graduates themselves. The Irish Government's National Skills strategy (2016, p. 33) emphasises the constant changes evident in the labour force and the need for interdisciplinary or transversal (relevant to a broad range of occupations) skills. The Department of Education and Skills in their National Strategy for Higher Education (2011, p. 76) mentions academic business engagement that could support graduate employability skills development. CIT, the host institute for this research, also has employability goals. In the institute's strategic plan (2018b, p. 11) through to 2023, one of the goals listed is to develop student and graduate skills to enable career progression. Finch et al. (2013), in their study of factors affecting undergraduate employability, identify that employers focus on soft-skills in their graduate recruitment. This chapter will explore graduate employability to define it better and discover methods of incorporating it into undergraduate degree programmes in CIT.

Experiential learning through simulations or games is not unique to higher education. Indeed the ability to learn through play starts in our preschools (National Council & for Curriculum and Assessment, 2009). At third-level, simulations and serious games allow students to apply the

subject matter theory to a relevant context. The need for subject matter theory is long recognised, but applying this theory is also important. This chapter will review the field of serious games and simulations in the context of the current generation of undergraduates and the benefits a simulation might deliver. The challenge of software simulation selection will also be discussed.

3.2 Teaching, Learning & Assessment

3.2.1 Evolution of teaching, learning & assessment

Power (1991), in his history of Western education, finds education's roots over two millennia ago in ancient Greece. However, education goes further back, and Greek thinkers, such as Pythagoras, Archimedes, Plato and Aristotle were influenced by the Egyptians (Sifuna & Otiende, 2005, p. 24). The influences of people, politics, society, economics and more, continued unabated across history, ensuring the evolution of education to what we know today. Moving to the start of the 20th century and focusing on higher education, Walsh's (2018, p. 23) comprehensive history of higher education in Ireland outlines the independence and autonomy awarded the higher education sector at the establishment of the Irish free state in 1922. The elite nature of higher education waned over the decades. Still, it was not until the "radical transformation" of the sector between 1950 and 1980 that the higher education sector in Ireland began to reflect the needs of industry and society at large (Walsh, 2018, p. 233).

Expectations of higher education today reach beyond the enrichment of individual graduates, beyond drivers of economic life, to the point where higher education is seen as a private commodity rather than a public good (Walker, 2006). Higher education has recognised these

challenges and has adapted to these new demands to some degree, and all have forged “closer links to the world of business” (Walker, 2006, p. 9). CIT prides itself on its links to industry and economic life in its local region, so graduate skills have always been promoted within the institute. Teaching, learning and assessment are the institute's tools to deliver to its stakeholders – the graduate, industry and beyond.

Cohen (2011), in his aptly named text *Teaching and its Predicaments*, discusses many of the challenges teachers grapple with daily. Is the lecturer, the expert who shares their expertise with an attentive and unchallenging student body, or is it the teacher’s role to foster in their students critical thought and a propensity to challenge norms and authority. Cohen recognises that there are teachers who feel experience is the only route to learning while others support study in its more traditional sense. Having recognised the different sides of the debate regarding the teacher’s role and the teaching method, he then introduces the disagreements amongst teachers regarding how to establish that students have achieved the required learning. Teaching, learning and assessment have been around for a long time, yet the debate continues how best to achieve each of them.

Active learning, or the process of teaching students through classroom activities and engagement, has been much explored across all levels of education. Bonwell and Eilson (1991, p. 19) explore active learning at third-level and outline the general characteristics of active learning: students do more than listening, the reduced transmission of information by the lecturer, and the students’ involvement in higher-order thinking and “doing” something. The final characteristic identified is the exploration of attitudes and values which should be incorporated in the process. Doyle maintains that fifteen years of research in the fields of

neuroscience, biology and cognitive psychology offer only one conclusion: “It is the one who does the work, who does the learning” (2008, p. 25).

Doyle opens his subsequent 2011 text with a chapter entitled “Follow the Research”. Here, he draws on research in neuroscience, biology, and psychology, amongst other areas to argue that the traditional model of teacher-centred instruction is less effective than an approach where students are more active in the learning process (2011, pp. 7–22). Doyle argues that student-centred learning should be welcomed as a method of improving both teaching and learning. Also, the research is there to support a move to learner-centred practice. Doyle’s view is supported by others including Bishop, Caston and King (2014), who propose that students welcome the move from a teacher-centred to a learner-centred approach, but that supports and structure are needed in the classroom and with the material to guide students’ expectations.

It is not only the students that need reassurance. Changing pedagogies and procedures in our lecture halls can also be daunting for both lecturers and institutions. The promotion of active learning in higher education can be seen by the support resources dedicated to it within institutions. Three examples include Harvard (2020), Stanford (2020), or closer to home in Ireland in UCD (2020). These examples show the institutional support behind lecturers implementing active learning approaches. Indeed, CIT also promotes teaching and learning innovation through the Teaching and Learning Development Initiative (2020) and the Department of Technology Enhanced Learning (2020).

Despite the challenges faced in implementing active learning, calls for student-centred and active learning will continue and will increase from external stakeholders such as accreditation bodies and future employers (Lund Dean & Wright, 2017). The evidence of active learning

success is shown in the extensive meta-study conducted by Freeman et al. (2014, p. 8410). They propose “active learning as the preferred, empirically validated teaching practice in regular classrooms”. Many other examples of the benefits of active learning can be seen. Some further studies are put forward by the University of Vanderbilt on their teaching and learning support pages (Brame, 2016). Therefore, with recognition of the benefits of active learning, it will form the basis of this research both in the classroom and through the module redesign and implementation.

3.2.2 Challenges teaching strategic management

Lecturers of strategic management are dealing with a broad and somewhat ill-defined field, leading to challenges in ensuring students achieve adequate levels of strategic management understanding. 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 the concepts alone cannot see the impact of future decisions across the organisation's functions and the complexities of the decisions necessary to implement a strategy in an organisation (Arias-Aranda, 2007).

In order to allow students to put strategy management concepts into practice, lecturers have long used the case study (or case method). The case study approach has its origins in Harvard (Barnes, Christensen, & Hansen, 1994) and remains an essential part of business school teaching across the globe (Alexander, O’Neill, Synder, & Townsend, 1986). Mintzberg and Quinn (1991, p.

xiii) introduce case studies as “a rich soil for investigating strategic realities” which supports the important role case studies have played in strategic management education.

Each lecturer approaches case studies differently leading to difficulties in generalizing their use and effectiveness. However, Argyris (1980), questions the effectiveness of case studies in teaching “double-loop” learning or learning to change underlying assumptions and values. Jennings’ 1996 study confirmed that case studies were still an essential tool in the teaching of strategic management, but found that the respondent’s primary objective for using case studies – the development of strategic analysis and thinking – were not well served by the case method (Jennings, 1996). These studies demonstrate a weakness in the case study method and one that I questioned from my early use of the method.

3.2.3 Challenges teaching with the case method

It is recognised that case-study teaching has its roots in Harvard’s Law School in the 1870s and nearly 50 years later (1919), it was introduced to the business school by the then dean, Wallace P. Donham - a Harvard Law School graduate (Shugan, 2006). In his research within Harvard, Argyris (1980) identified that individuals had differing views of the case method and that some individuals applied the method differently depending on the teaching situation. Shugan (2006) outlines the difficulty in defining case-method teaching as being related to the underlying difference between the educational domains in which it is used.

Interestingly, case-method teaching has its roots in law education, where the legal concept of *stare decisis* applies. *Stare decisis* is where legal decisions can become precedents for future

cases. This principle supports the idea that students should become familiar with past cases and decisions as part of their learning. Although Peters (1996) questions the merits of *Stare decisis* and associated decisions, he also acknowledges how this process enshrines good decisions into practice. Another reason that legal cases and associated legislation are implemented through case-method teaching is their public availability, which helps select cases for use in the classroom.

Shugan (2006) explains how the traditional legal case method demands students to keep to the facts of the case whilst the business case method requires students to deploy scientific investigation to understand the market and managerial decisions. The complex nature of business decisions means no case is necessarily a precedent; previous decisions whilst having an influence cannot be seen as precedents to be blindly followed. Therefore, the difficulty in defining case-method teaching is influenced by the field within which it is employed.

Traditionally the application of knowledge in the area of strategic management has been through the use of a business case study. A case study does not allow for quick feedback and does not respond to students' decisions. This research set out to identify the best method of enabling the students to experience business strategy and the impact of their decisions. How can undergraduate students understand the process of business strategy formulation and the challenges of implementation? This desire to facilitate the most authentic experience for students leads to an exploration of experiential learning.

3.2.4 Experiential learning.

Taylor & Marienau (2016) explain in their book on learning for the adult brain, that we need to go beyond Descartes' "*Cogito ergo sum*" (I think therefore I am), and support Marton & Booth's (1997) formulation "*Cognosco ergo sum*" (I experience therefore I am). Taylor and Marienau support their argument regarding the importance of experience to learning, with examples of children who misinterpret and misunderstand due to their limited experience, and this is then developed to explain how the wealth of experience adult learners possess, can impact their interpretation and understanding.

When discussing experiential learning, a quotation oft attributed to Confucius is frequently cited "I hear and I forget, I see and I remember, I do and I understand." This quotation recognises the importance of experience and action in the understanding and education process. John Dewey (1859–1952) was a strong advocate and conducted much research to support the connection between experience and education. In his text *Experience and Education* (1938) he states,

> *"There is an intimate and necessary relation between the processes of actual experience and education"* (p. 20)

Jean Piaget (1896–1980) developed a constructivist epistemology through extensive research into the nature and development of human intelligence. With texts including *The Origins of Intelligence in Children* (Piaget & Cook, 1952), he outlined the theories of intelligence and cognitive development stages. Kolb was also a firm believer in the benefits of experiential learning. His 1984 seminal text, *Experiential Learning: Experience as the Source of Learning and Development*, introduces both his experiential learning theory and learning styles framework (Kolb, 1984).

Kolb recognises that there are many definitions of experiential learning, but states the most common definition refers to learning from life experience, and it is often contrasted with traditional lecture and classroom teaching. Kumar and Bhandarker (2017) explain Kolb's model of experiential learning as being based on three key elements which can be traced back to the earlier behaviourist theorists:

- Importance of experience in learning (Dewey 1938)
- Relevance of active participatory learning (Lewin 1951)
- Conceptualising intelligence as a result of individual interaction with the environment (Piaget 1970)

Whilst experiential learning has been widely accepted; some challenge it. Two of Kolb's early detractors, Freedman & Stumpf, challenged the level of empirical evidence to support Kolb's theory. Kolb strongly defended this with a long list of supporting evidence behind his theory and framework (Freedman & Stumpf, 1980; Kolb, 1981). However, predating Kolb's framework, even Dewey recognised that not all experiences are equal:

> *"The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative."*
>
> (Dewey, 1938, p. 25)

In other words, it is not just about experience. Experience needs to be structured and managed in a way that leads to learning and education. Developing this further, the concept of adults not being "empty vessels waiting to be filled" and their prior experiences meaning at times that "unlearning" is needed before learning can begin, is supported by Lowy and Hood (2005, p. 257).

Kolb and Kolb identify six propositions that are shared by the founding scholars identified above. These propositions allowed the development of their experiential learning theory (Kolb & Kolb, 2005).

1. Learning is a process and should not be seen merely in terms of outcomes.
2. All learning is relearning – the student's views need to be drawn out and examined.
3. Learning requires conflict resolution – it is what drives the learning process.
4. Learning should involve the whole person – thinking, feeling, perceiving and behaving.
5. Learning comes from balancing new experiences into existing concepts and accommodating existing concepts to new experiences.
6. Learning creates knowledge.

Various strategies have emerged to achieve experiential learning in the classroom. Gentry (1990, p. 9) proposes that an experiential learning strategy should include an interactive "real-world" situation that provides students with the opportunity to apply the concepts and theories introduced in class along with their own ideas. November (1997) gives an interesting insight into his near decade long cycle of introducing experiential learning through simulation into his strategic management module. He outlines the cycles of reflection and adaptation that were undertaken to reach a point where he still challenges himself on how the module should be delivered. This "recurrent unease" (1997, p. 298), he now understands as his leanings towards post-modernism, which he explains as being "comfortable with the absence of certainty". The concept of implementing experiential learning through cycles of action and reflection is also supported by Greene (2011) in his review of his first-year marketing experiential learning experience. This research is undertaken with reference to this "recurrent unease" or desire for continuous improvement through cycles of action, as will be seen in later chapters.

The literature suggests that the implementation of experiential learning is a cycle of analysis, action and reflection, similar to Kolb's experiential learning cycle. Therefore, I am experiencing Kolb's learning cycle whilst trying to implement it for the students – an action research cycle within a reflective cycle, essentially. (Kolb, 2014)

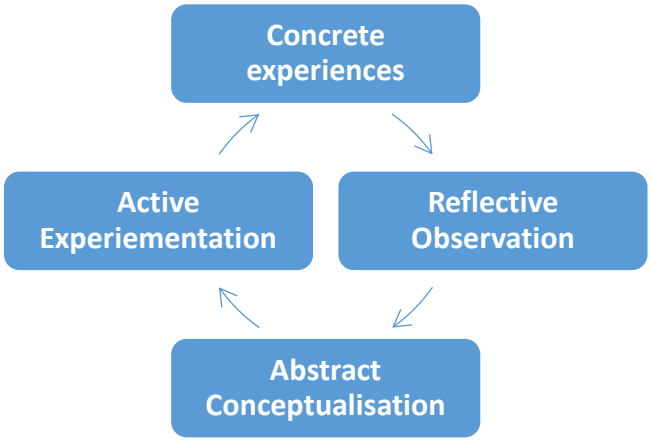


Figure 2: Kolb's cycle of experiential learning. Source: (Kolb, 2014)

Recognising the merits of experiential learning may be the first step but identifying the best method of implementing experiential learning into the lecture hall is the next challenge. Hawtry, (2007), in her research, identified the benefits of experiential learning against set objectives and ranked the students' view as to which methods were more beneficial in achieving these objectives. The more interactive and unstructured tasks such as preparing a radio broadcast and presentation were favoured as achieving the objectives of developing knowledge and stimulating curiosity. Indeed these techniques were even favoured as preparation for a traditional final exam type format.

3.2.5 Assessment design

Student learning (both depth and breadth) and the time invested in the curriculum is influenced by assessment instruments (Bloxham & Boyd, 2007; Entwistle & Karagiannopoulou, 2014). Many others support this view of the importance of assessment and its direct influence on student learning (Brown, 2004; Ramsden, 2003). Using coursework as the primary source of assessment leads to better results for the students and is no less valid when designed correctly than an end of semester exam (Bridges et al., 2002; Gibbs & Lucas, 1997). With research and best practice in mind, this research sought to move towards a continuous assessment module structure where possible.

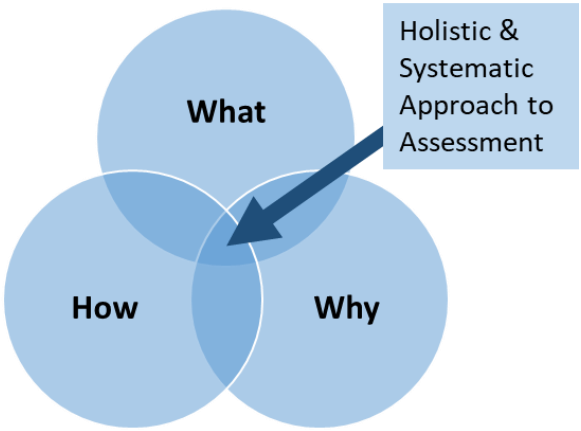


Figure 3: A model for optimizing assessment effectiveness (Sigler & Rhee, 2014)

Effective assessment should ensure that the student learns the key module concepts and acquires a broad understanding of the curriculum and the ability to apply this knowledge in a manner that is practical to their programme of study. Assessment instruments themselves are neutral – it is what we do with the instrument that influences its effectiveness. As outlined by

Sigler and Ree (2014), it is what we attempt to measure (construct), reason for assessment (purpose) and how we approach and implement assessment (methodology) that determine the effectiveness of an assessment. This is shown graphically in Figure 3.

Traditionally, an assessment was seen as the method by which student learning could be evaluated, and it has often been referred to as "assessment of learning" or summative assessment. More recently, an assessment's role in driving the learning is recognised; this is seen as the concept of "assessment for learning" or alternatively known as formative assessment. The stakes are lower, and the students are given the opportunity to incorporate the feedback into their learning and further development (Wiliam, 2011).

The concepts of assessment for learning and the systematic approach of optimizing assessment effectiveness were both considered when redesigning the module for this research. However, the assessment sits within the broader context of the programme and learning outcomes that require assessment design cognisant of these requirements – such design is referred to as constructive alignment.

It is widely accepted that student learning is driven by student assessment (Race, 2009). If the aim of a strategic management module is to develop a student's strategic thinking and decision making processes – then Race proposes that the best method of learning these skills is to assess these skills. This research set out to establish if a software simulation is the right platform to develop such skills in undergraduate students.

3.2.6 Constructive alignment

Whilst I have actively sought student feedback from the start of my teaching career, Entwistle and Tait (1990) advise caution when taking account of student feedback, as it is influenced by the students' study preferences. Recognising that the student perspective is important, but should not be the only driver of assessment design, further research and reading were undertaken to incorporate other perspectives. The ultimate goal was to positively influence student learning.

This research was cognisant of the principles of good module design and the concept of constructive alignment (Biggs, 1979). Biggs is one of the early and consistent advocators of constructive alignment, which he defines on his website as *"In constructive alignment, we start with the outcomes we intend students to learn, and align teaching and assessment to those outcomes"* (Biggs, n.d.). In his text *Teaching for Quality Learning at University* (2003), Biggs conveys the importance of coherence in curriculum design. Pedagogical approach should encourage deep learning and engage students. In their paper on embedding employability into the curriculum, Yorke and Knight (2003) emphasise the importance of constructive alignment, to ensure students' learning outcomes are as intended.

University College Dublin (UCD) Teaching and Learning refer to both Biggs and earlier proponents of constructive alignment, including Tyler (1949) and Schuell (1986). The UCD Teaching and Learning resource website develop the concept of constructive alignment into a diagram presented in Figure 4.

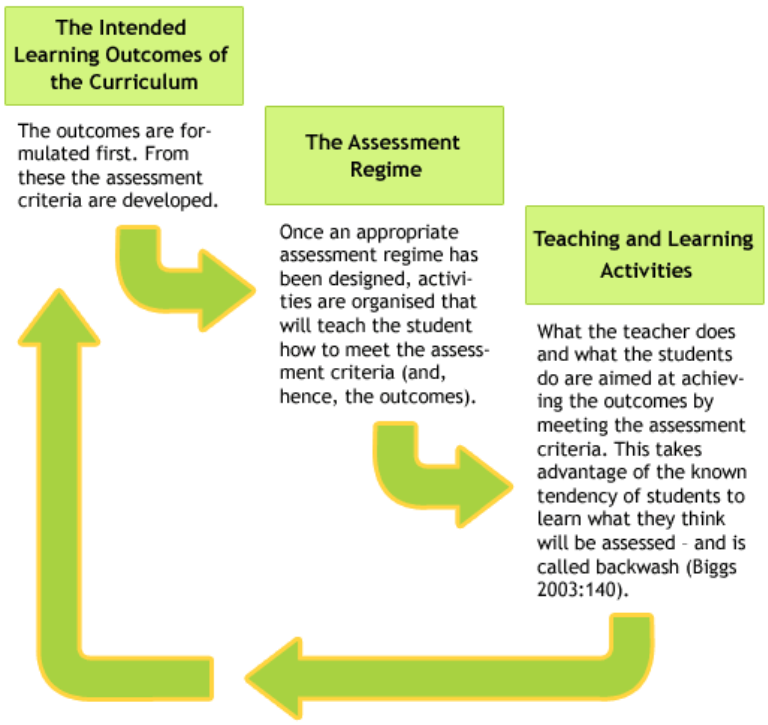


Figure 4: A basic model of an aligned curriculum (Jennings, Surgenor, & McMahon, 2013)

As can be seen from the diagram, the sequence of steps to an aligned curriculum begins with identifying the intended learning outcomes. Consistent with the concepts of effective assessment discussed above, the second step is to design the assessment. The final stage is to design the teaching and learning activities to enable students to achieve the learning outcomes through the assessment instruments.

A constructively aligned module will ensure that students learn what is intended by the learning outcomes and that the teaching and learning resources support the students in this process.

3.3 Employability Competences

3.3.1 What is employability

The concept of employability in the national workforce is much referenced in Europe and the UK (McQuaid & Lindsay, 2005). In the UK, the 1997 Dearing report into the future of higher education highlighted, among other things, the need for higher education to deliver graduates with what it termed, key skills required by future employers (Dearing, 1997). The simplest and most blunt instrument of measuring graduate employability are the statistics of graduate first destination surveys. CIT conducts this research and the results of their first destination survey for 2015 recorded employment levels of 62% for their graduates (Cork Institute of Technology, 2016b). However, employment is not always the best measure of employability skills. As discussed by Dacre, Pool & Sewell (2007), whether a graduate has a job is a very imprecise measurement of the graduate's achievement. Jackson and Tomlinson (2019) propose that students' "career values" influence "career proactivity" and that these values should be addressed at third-level to enhance future employability.

If having a job is not a good measurement of employability, it is worth exploring what further detail is needed. Most research regarding employability starts by discussing the difficulty defining or the breadth of definitions that exist. Williams et al.'s systematic review of the current understanding of employability was no exception (2016). Hillage & Pollard (1998) see three elements to the definition of employability; the ability to gain an initial position, maintain a position and find new positions should the need arise. These three elements are part of the definition as well as the quality of the work attained. The definition from their research summarises these concepts as follows:

"Employability is about being capable of getting and keeping fulfilling work. More comprehensively employability is the capability to move self-sufficiently within the labour market to realise potential through sustainable employment."

(Hillage & Pollard, 1998, p. 3)

This definition supports the concept that our graduates need more than just technical industry-specific expertise; other skills are needed to allow for a sustainable career. These skills are often referred to as employability or transferrable skills, as they are skills independent of the industry chosen by the graduate.

The role of higher education in the development of these employability competences or transferrable skills is often debated (McMurray, Dutton, McQuaid, & Richard, 2016). One side would contest that higher education should be providing job-ready graduates (OECD, 2019) whilst the other side would argue that education should develop the individual by developing critical and reflective thinking skills. Baldwin et al. (2011) maintain that both students and employees suffer from a lack of "applied management skills", demonstrating that soft-skills are not being delivered at third-level, nor in the workplace. Tomlinson (2012), on the other hand, contends that the changes in the nature of the workforce and the expansion of the higher education sector have led to a de-coupling of the previously close bond between higher education and industry. Indeed Delaney and Farren (2016) claim in their research on long-distance learners, that employability is not always something that can be taught or acquired, but that confidence of employability needs to come from within the student themselves.

3.3.2 What is a competence?

The terms competence, competences, competency and competencies are often used interchangeably. Moore, Cheng and Dainty (2002) highlight the confusion and misunderstanding that emerges from this inconsistent use of the different versions, particularly when different definitions abound. The Collins British English Dictionary defines competence as "the condition of being capable" with competences being the plural. The same dictionary defines competency and the plural competencies as the "less common word for competence" (CollinsDictionary.com, 2020). The terms competence and competences are used in this research, with reference to the definitions above, and this decision is supported by Moore, Cheng and Dainty, who propose that the terms competency and competencies are more frequent in an American context.

Discussion of student competences can be traced back to McClelland's 1973 article that fronted the *American Psychologist*. This article challenged the widespread use and acceptance of intelligence and aptitude tests throughout industry, especially in education (McClelland, 1973). McClelland suggests the use of competences as a better prediction of future success, and although his article was debated strongly, it was quickly accepted and incorporated into psychology textbooks (Barrett & Depinet, 1991). In his discussion on competences, McClelland distinguished between role or job-specific competences, defined as cogitative competences and what he referred to as personality variables. These personality variables are most closely associated with the employability competences upon which this research focuses.

Having found a definition and understanding of competences, the next more challenging step is to find consensus on how to develop competences in students (Morris, Webb, Fu, & Singhal, 2013). Wu (2009) develops a competence model for entrepreneurs, and in doing this, he

describes a competence model as a cluster of competences. This concept of competence clusters is used in this research to develop the list of relevant employability competences, as a model of graduate competences. The creation of these clusters of competences is revisited as part of Chapter Five's preparatory research cycle. The clusters created in this preparatory cycle become the core of this research.

3.3.3 What are employability competences?

With a clearer understanding of both employability and competences, it is then necessary to discuss which skills and competences make graduates employable. Hillage & Pollard (1998) identify three categories of 'employability assets'; the graduates' knowledge (i.e. what they know), skills (what they do with what they know) and attitudes (how they do it). The first of these assets is focused on a particular area, industry or skill set, whilst the other two assets (skills and attitudes) are more general often referred to as the "soft skills", transferable skills or employability competences of the graduate. Literature defines soft skills as the range of competences enabling the graduate to relate to themselves and others. Laker & Powell (2011) identify soft skills as consisting of both intra-personal skills - one's ability to manage oneself and interpersonal skills - how one handles one's interactions with others. This definition of soft skills allows us to understand why these competences are often also referred to as interpersonal skills.

Business schools and departments are not alone in recognizing the need for soft skills or employability competences in graduates. Research in other areas supports the need for soft skills, in addition to the discipline-specific skills. Examples include engineering (Pope, 2001; Sripala & Praveen, 2011; Wikle & Fagin, 2015), medicine (Lazarus, 2013), dentistry (Gonzalez,

Abu Kasim, & Naimie, 2013), project management (Geithner & Menzel, 2016), nursing (Eales-Reynolds, Gillham, Grech, Clarke, & Cornell, 2012; Rode, Callihan, & Barnes, 2016) and software development (Ahmed, Capretz, & Campbell, 2012). Research into MBA programmes in the United States concedes that the schools recognize the need to focus on soft skills but have failed to make significant progress in incorporating interpersonal skills into their programmes (Bedwell, Fiore, & Salas, 2014; Pfeffer & Fong, 2002). Balcar, Šimek and Filipová (2018) also show in their research on the Czech republic that the gap between graduate soft skills and employer expectations is not unique to Ireland.

3.3.4 Key employability competences

In 2015, Bloomberg surveyed 1320 recruiters at 600 employers to understand the competences sought by employers and those common to or found in US MBA graduates (Levy & Rodkin, 2015). Whilst this research is focused on postgraduate (MBA) level graduates, it still relevant to this study, as level 7 and level 8 degrees should be aiming to develop similar competences in their business graduates. The earlier business graduates develop these necessary skills, the easier their transition to further study or the workplace. The Bloomberg research results are presented in quadrants based on how common (more or less), and how desired (more or less) the competence scores. Therefore, the key competences are those that appear least common in graduates and are most desired, as these will enable students to differentiate themselves from the competition. This is the top right quadrant of Figure 5. The competences listed in this quadrant are: strategic thinking, creative problem solving, leadership skills and communication skills

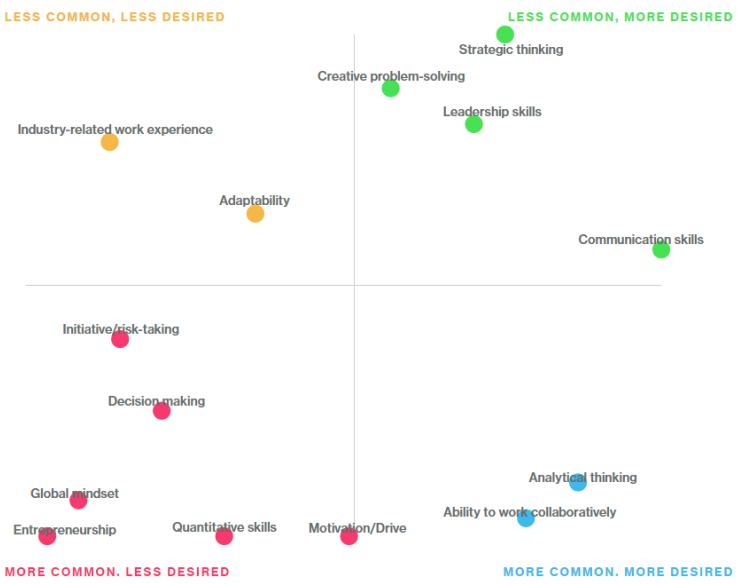


Figure 5:The Bloomberg recruiter report: Job skills companies want but can't get (Levy & Rodkin, 2015)

While the Bloomberg research reflects the US employability competences, there are still similarities to be seen later with the Irish, British and European survey data presented in the preparatory cycle in Chapter 5. In this chapter, the chosen surveys' results are analysed to produce a shortlist of key employability competences for this research. The identification of a set of key or core employability competences will be useful to all stakeholders, the student, the lecturer, the higher-level institution, as well as graduate employers.

3.3.5 How to teach employability competences

One of the essentials to achieving these soft skills in business graduates is understanding how they acquire them. The first essential issue regarding developing interpersonal skills (IPS) in students is the underlying principles guiding research and the subsequent teaching of these

skills. These principles are adapted from Bedwell, Fiore and Salas (2014) and shown in Figure 6. There are essentially two core trains of thought. One suggests IPS are traits inherent to the person, whilst the other proposes the molecular model, which views interpersonal skills as dependent on the situation and other factors. This research agrees with Bedwell, Fiore and Salas, and advocates that the teaching of IPS is situated somewhere in the middle. This view recognises that IPS are partially trait-based, but can be developed by exposing students to situations and experiences that allow them to develop the appropriate skills.

Rebele and St. Pierre (2019) in their research with accounting graduates, recognise the need for soft skills but emphasise the pressures on third-level institutions in developing these skills when timetables and contact time are already under pressure. They raise other concerns regarding a lack of clarity regarding the definition of soft skills along with a "laundry list" of soft skills. They conclude that a prioritisation of relevant soft skills should be developed, assuming staff are in a position (trained and supported) to develop these skills; the skills should be developed but not at the expense of the essential field-specific skills. This complementary approach is the one that will be followed in this research. The core learning from the module will still be the strategic management theory, but the intervention will aim to develop additional employability skills/benefits for the student without taking from the disciple specific learning.

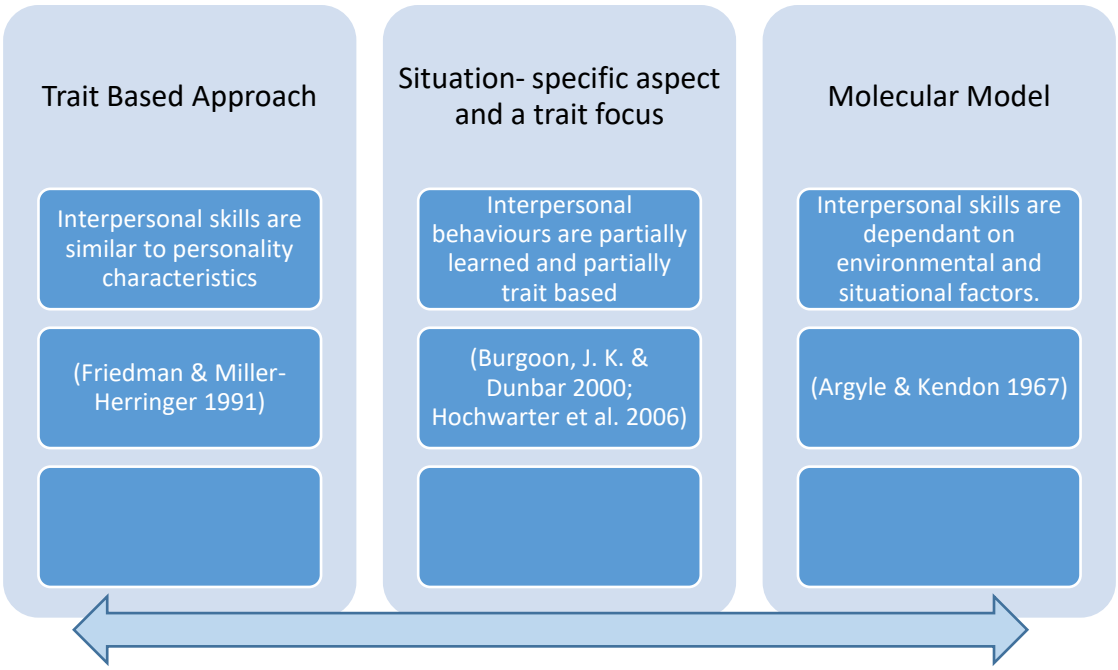


Figure 6: Perspectives guiding interpersonal skills research. Adapted from Bedwell, Fiore and Salas, 2014

3.4 Simulation / Serious Games

3.4.1 Experiential learning through simulation

The earlier section of this chapter on teaching, learning and assessment, discussed the experiential learning literature. The importance of learning through experience was highlighted through the relevant literature, in addition to the supports and structures required to facilitate students to learn from experience. Lovelace, Eggers and Dyck identify simulations as a "significant learning experience" and pedagogically helpful for developing a soft skill such as critical thinking. They conclude their research paper by saying,

> *"We encourage management educators to continue to apply Confucius' words, 'I do and I understand', to management development, and thus,*

further explore pedagogies that target higher order cognitive skills learning." (Lovelace, Eggers, & Dyck, 2016, p. 117)

Mohsen, Abdollahi and Omar (2019) show that simulations are effective from both the student's and the lecturer's perspective. They encourage the adoption of simulation games to enhance the students' learning experience. The benefits of using simulation to connect students' learning to experience and feedback ensures that the learning "sticks and becomes transferable" (McCord, Houseworth, & Michaelsen, 2015, p. 425) This section will discuss the tools of serious games and simulations as a means of introducing experiential learning to the lecture hall.

3.4.2 This generation of third-level student

The current generation of third-level students represents the very end of Generation Y (Millennials or Net Generation) and the start of Generation Z (the post-Millennials or iGeneration) (Rosen, 2010a). The current undergraduate may be at the interchange between two demographic generations, but what is clear is that today's third-level student has grown up with widespread access to the internet, smartphones, online games and social media (Rosen, 2010b). Indeed the internet as we know it today is of an age to be a member of the iGeneration, "born" in its modern publicly used format in the mid/late 1990s (van Oord & Corn, 2013).

Ng (2012) highlights that although this generation of students are often referred to with Prensky's (2001) title of "Digital Natives", that it is not always safe to assume they automatically possess digital literacy in the area of educational technology. Leaning (2019, p. 4) defines digital literacy as "an 'umbrella' term for a range of distinct educational practices which seek to equip

the user to function in digitally rich societies." This need to educate our students on the use and integration of digital content despite their apparent comfort with the technology is supported by Tiernan and Farren's research (2017), which showed students' ability to integrate video content once adequate tools and supports were provided. This generation is internet-connected and socialise, purchase, game, listen to music and more online, but research reveals that they still need to be shown how to use other (educational) technologies (Leaning, 2019; Ng, 2012; Tiernan & Farren, 2017). Costa, Hammond and Younie (2019) also urge caution when generalizing students' technology use. They remind us that neither people nor their practices will always fit the pattern.

The lecture halls of today are not too different from those attended by previous generations. According to Rosen (2010a), it is not that this generation doesn't want to learn, but that their use of technology has altered the way they need to learn – education needs to change to adjust to their way of learning. Today's students use technology for every form of communication, except learning – education needs to catch up. According to John Dewey, a strong proponent of experiential learning "If we teach today's students as we taught yesterday's, we rob them of tomorrow" (1944, p. 167). The use of technology in the teaching of this generation of students is a logical consideration.

3.4.3 History of simulations/games

Learning with games is not a new concept. Keys and Wolfe (1990, p. 309) outline the evolution of today's business games from the early war games, through the seventeenth and eighteenth centuries, to the initial business simulation games of the 20th century. Jackson views the modern

business decision game as a direct descendant of war games developed during the mid-20th century by the US and Japan. These US and Japanese games, in turn, can be seen as direct decedents from the mid-19th century German *Kriegspiel (war game)* (Jackson, 1959).

Business schools are not alone in teaching with simulations. With the obvious high-stake consequences of practitioner error, medical education embraces simulations (Grant, Wolff, & Adler, 2016). Further examples of simulations can be seen in the teaching of architecture (Attar, O 'Brien, Nikolovska, & Khan, 2014), engineering (Deshpande & Huang, 2011), law (Boyne, 2012) and marketing (Caruana, La Rocca, & Snehota, 2016). This brief list of simulation use is not exhaustive but aims to highlight the range of educational spheres where simulation has been implemented. The examples above also demonstrate that simulation use ranges from the more applied subjects such as medicine, engineering and architecture to the more theoretical subjects such as law, marketing and indeed business.

In 1980, a three-fold increase in simulation game listings was noted in the fourth edition of *The Guide to Simulations / Games for Education and Training* (Horn, 1980). This increase in simulation games spans the three previous editions of this text, across the preceding ten years since the late 1960s. While a degree of flux through the arrival of new simulation listings and the disappearance of others was recognised, the editors felt that the field of simulation use for education and training had reached a degree of stability. The fourth edition listed essays evaluating and contrasting simulations (although not all computerised) from 24 educational subject areas. The guide aimed to assist simulation users in their selection decision process. The fact that there was a market for a tool to guide simulation users in 1980 was indicative of the popularity of simulation as well as the complexity presented by the simulation selection decision process. This complexity of simulation selection is still true today and will be revisited later.

Business simulation games were introduced into the university curriculum at the University of Washington in 1957, and other universities quickly followed (Faria, 1998; Watson, 1981). By 1961, it was estimated that the number of games in existence had risen above one hundred (Kibbee, Clifford and Nanus, 1961) cited by (Watson, 1981). Research on simulations and games are scattered across journals in many research fields, demonstrating their increasing use in higher-level education. In the 2010 review of the 40 years of the *Simulation & Gaming* journal, editor, David Crookhall noted the increase in volume, variety and richness of games and the array of applications and users. He also highlighted the difficulty in defining the field.

> *"Simulation/gaming encompasses an array of methods, knowledge, practices, and theories, such as simulation, gaming, serious game, computer simulation, computerized simulation, modeling, agent-based modeling virtual reality, virtual world, experiential learning, game theory, role-play, case study, and debriefing."* (Crookall, 2010, p. 899)

Therefore, it is no surprise that this field's terms and definitions have expanded and evolved over the decades. Recognising the various terms and definitions used when discussing simulations, a definition of business simulations will be developed.

While some researchers use the terms simulations and games interchangeably, this research takes Bloomer's (1973) definition presented and discussed by Ellington, Addinall and Percival (1981) which presents the differences between simulations and games whilst recognizing an important overlap between the two. This definition is interpreted and presented in Figure 7 and discussed below.

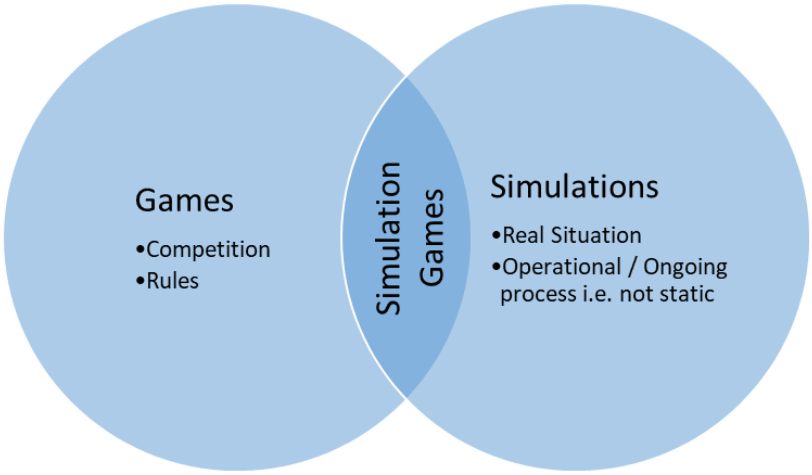


Figure 7: Definition of games and simulations interpreted from Bloomer, 1973; Ellington, Addinall and Percival, 1981

In order to be classified as a game, there needs to be a set of rules that the player should follow, as well as a competitive element either against another player or set of players or indeed against the game itself. Simulations, on the other hand, must represent a real-life situation with an iterative or operative element enabling the user to become part of the situation. In Figure 7, there is also clearly an overlap were simulation games include the elements of both games (competition and rules) and simulations (real-life situations). This research will focus on simulation games. There will be a competitive element to the simulation, with some rules and procedures to follow, and the situation presented will be a realistic business scenario that the student has to navigate in an iterative process.

It is also worth noting that simulations vary significantly in their use of technology. Salas, Wildman and Piccolo (2009) noted a broad classification of simulations as shown in Figure 8. Their research noted that simulations do not necessarily need to have a technology or computer element, although most modern simulations have a technology aspect.

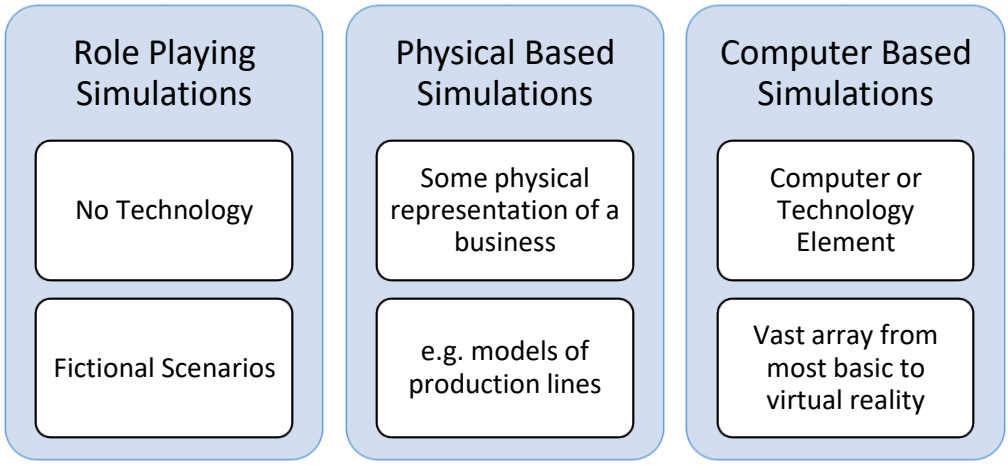


Figure 8: Categories of simulations as defined by Salas, Wildman and Piccolo (2009)

This research will focus on computer-based simulations using technology to host the simulation, which will enable students to access the simulation from their own device at a time convenient to them.

Another term used in this space is "serious game". As previously mentioned, the use of games for serious reasons began with military purposes but spread into education, business and other areas during the second half of the 20th century. The rise of computer games in the early 21st century has created an industry of digital serious games (Deterding, Dixon, Khaled, & Nacke, 2011). According to Ritterfeld, Cody, and Vorderer (2009) cited by Deterding et al., these digital, serious games can be defined as

> *"Any form of interactive computer-based game software for one or multiple players to be used on any platform and that has been developed with the intention to be more than entertainment".* (Deterding et al., 2011, p. 10)

This definition is matched by De Freitas & Liarokapis (2011), who define serious games as programmes that use elements of video and computer games to develop a learning environment that is both engaging and immersive for the learner.

The definition of serious games above mentions that the "serious" annotation is due to the concept of students learning through the games that are played. This learning concept introduces another phrase associated with simulation games and serious games – that of game-based learning. Pivec (2007) discusses game-based learning as using digital games to provide required or desired skills and competences. Game-based learning is achieved through a blurring of the actual learning material and the game characteristics. Game-based learning is, therefore, an important element of serious games.

3.4.4 Concerns regarding simulations

There is research showing positive student perceptions of the traditional case study over simulations (Miles, Biggs, & Schubert, 1986; Sugges, 1983). On the other hand, Anderson and Woodhouse (1984), demonstrated that students perceived simulations to be a more effective learning environment, whilst emphasising that their research captured student perceptions of the pedagogical approaches and should not be interpreted as evidence of the effectiveness of one approach over the other. They do however conclude that "What people believe will work, will probably end up working. What people believe will not work, will probably fail", a concept known as the "Pygmalion Effect" (Anderson & Woodhouse, 1984, p. 154; Rosenthal & Jacobson, 1968).

Miles et al. (1986), identify several factors that might have influenced the students' perception of cases or simulations. The first is the complexity of the simulation, where complexity can lead to lower scores from students. The second is the grade weightings associated with the case study or simulation, which would need to be equal to allow comparison. It was not clear that all studies were comparing case studies and simulations with similar weightings. Finally, they refer to the novelty factor of simulations and this as an influencing factor when assessing students' perceptions. We can perceive things differently when they are new and unexplored.

Gosen and Washbuch (2004) also researched the effectiveness of both human-based and computer-based simulation interventions. They raised numerous concerns regarding previous research examining the effectiveness of teaching with simulation. In particular, they question the correlation between performance in the simulation as a measure of learning or the efficacy of simulation as a teaching approach. Noting their valid concerns in this area, it was not proposed to connect any element of simulation success to student module grade. In their conclusions, one of the concerns also raised by their extensive study was the elusive nature of measuring learning achieved through the use of simulations. They summarise their study by saying that insufficient rigorous studies exist to allow a generalised conclusion that students learn by participating in simulations.

Stainton et al. (2010) recognise the inconclusive results from previous studies of the validity of simulations. They aimed to respond to the concerns of Gosen and Washbuch as discussed above, by developing a research methodology framework to examine business simulation validity. An element of Stainton et al.'s framework suggests construct validity can be achieved from using various research instruments, including "reflective accounts, questionnaires, semi-structured interviews and direct observation" (2010, p. 719). Therefore, this study will aim to follow this

approach and triangulate the data gathered from several sources. The proposed approach does not deny the challenges associated with the use of simulation but instead acknowledged them and aimed to overcome them as best possible in both my teaching practice and research methods.

3.4.4 Benefits of simulations

Mitchell (2004) explains that both case studies and simulations are used to introduce active learning into the classroom. Whilst it is accepted that a case can represent a real-world business situation, one of the major criticisms is that the student cannot see the effect of their decisions. The feedback on decisions is from peers or instructors, and the influence of one decision on future decisions cannot be created in the static case study. It is this drawback in particular that simulations can address by offering students successive and sequential decision periods, enabling the student to see the consequences of their decisions and deal with these through future decisions (Carson, 1969, p. 39).

Since its introduction to the lecture hall, teachers have tried to assess the benefits and challenges of simulations. In 1973 Greenlaw and Wyman reviewed the most significant studies of teaching with simulation and concluded that little was known about the benefits of teaching with simulation (1973). A decade later, Dekkers and Donatti (1981) claimed the efficacy of simulations is unsubstantiated and inconclusive, although this research was challenged by Wolfe and subsequently others (Faria, 1987; Hsu, 1989; Wolfe, 1985). Anderson and Lawton (2009) summarise the outcomes of using simulations into three categories. These categories are

created with reference to the work of others over the previous more than 35 years. (Faria, 2001; Gentry & Burns, 1981; Hsu, 1989; Knotts Jr. & Keys, 1997; Wolfe, 1985)

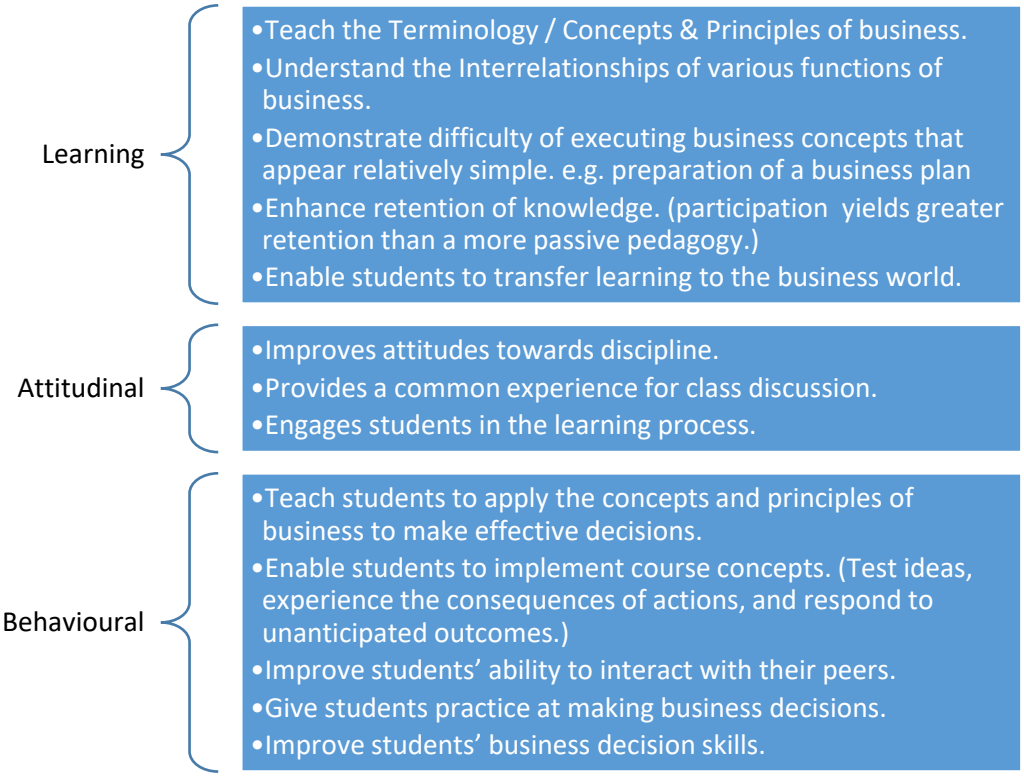


Figure 9: Outcomes of using simulations (adapted from (Anderson & Lawton, 2009)*)*

While the outcomes given in Figure 9 of using simulations are not mutually exclusive, Anderson and Lawton (2009) see simulations as more effective in delivering some outcomes over others. Specifically, simulations are seen as a less effective pedagogy to deliver an understanding of terminology, basic concepts, principles or specific applications. Lectures are recognised by the

authors as faster for delivering these concepts, although they questioned whether students would be able to apply these basics if a lecture is the only delivery method.

Devitt et al. (2015) examined the use of simulation in a marketing module and supported the presence of higher-order learning. Doyle and Brown (2000) implement a business simulation and conclude that the exercise assisted student learning. They added a note of caution that games are most beneficial when complementing the teaching and assessment, i.e. to reinforce the learning. They conclude that "without a specific purpose, the game ceases to be interesting and becomes a waste of time" (Doyle & Brown, 2000, p. 333).

In their seven-year study Lu, Hallinger and Showanasai (2014, p. 237) demonstrate that the "combination of challenge and enjoyment in the learning process appeared to lead to higher levels of engagement with course content both inside and outside of class." Therefore, while there is some evidence that the benefits of simulations are limited in delivering theoretical concepts, their suitability in complementing teaching and allowing students to put the theory into practice is supported by the literature. Significantly, In their near decade-long systematic literature review of the evidence of the impacts of serious games, Connolly, Boyle and a wider team have shown methodically an increasing number of papers and an increasingly positive outcome for serious games. Along with this, in their most recent paper, they identify simulations as the most popular form of serious game (Boyle et al., 2016; Connolly, Boyle, Hainey, & Boyle, 2012).

Increasingly employers rely on teams to achieve their goals, and this prevalence of teamwork has also been seen in higher-level education (Kayes, Kayes, & Kolb, 2005). Students are formed into teams or groups for many different assignments, but it is essential that the task structure

supports the team environment. The simulation should support rather than challenge a group structure. Teams and groups have been analysed from many perspectives, and studies have indicated a connection between team performance and both communication (Ancona & Caldwell, 1992) and leadership (Scott & Bruce, 1994).

The connection between simulations and teamwork has been much researched, including in the longitudinal study undertaken by Ceschi, Dorofeeva and Sartori (2014) that investigates a business game simulation to assess the influence of teamwork and team climate on decision-making and team learning. Lohmann et al. (2019) propose that an online business simulation provides an authentic team learning environment supporting the development of management-related learning outcomes.

The evidence is in the literature that simulations are a positive and engaging learning environment. Simulations support the application of theory to “real-world” iterative situations, thereby enabling students to learn from and build upon their decisions. Additionally, simulations have been shown to suit and support teamwork.

3.4.5 Strategy simulations

Serious games can address any and many learning fields from medicine and engineering, to navigation and architecture. Business simulations are a subset of serious games addressing business problems and business learning outcomes. A review of business programmes in two top-level institutions, the London Business School (2016) and the Harvard Business School (2016), identifies subjects in the following core areas; accounting, economics, finance,

entrepreneurship, general management, marketing, technology, operations management and strategy. Due to the broad range of areas covered by business education, business simulations necessarily address a corresponding board range of areas.

There are business simulations that aim to take an integrative approach, asking the student to address several areas, such as finance, marketing and operations management. There are also business simulations that address one of these areas individually; a simulation in marketing, a simulation in operations management, etc. Many simulations address the area of strategic management. These simulations are most frequently called strategy simulations, and these strategy simulations are the focus of this research. The relationship between all serious games, business simulations and strategy simulations is shown in Figure 10.

Figure 10: Relationship between strategy simulations, business simulations and serious games

3.4.6 Simulation software selection

Having established the merits of experiential learning and introduced software simulation as a means of developing experiential learning in the lecture hall. It is then necessary to consider how a suitable simulation might be identified.

Gredler (2004, p. 571) identified some important characteristics of a simulation:

a) An adequate model of the complex real-world situation with which the student interacts (referred to as fidelity or validity);
b) A defined role for each participant, with responsibilities and constraints;
c) A data-rich environment that permits students to execute a range of strategies, from targeted to "shotgun" decision making; and
d) Feedback for participant actions in the form of changes in the problem or situation.

This research does not aim to develop a new business simulation but to choose a suitable one from the market. However, it is still worth considering, Gredler's essential design criteria for a simulation (p. 572):

a) Winning should be based on knowledge and skills and not random factors.
b) Games should address important content and not trivia.
c) The game dynamics should be easy to understand and interesting to players, but not obstruct or distort learning.
d) Students should not lose points for wrong answers but be encouraged to learn from making mistakes.

e) Games should not be zero-sum exercises in which only one player wins at the expense of others.

Fletcher and Tobias (2006) in their review of simulations and games research, emphasise the importance of the pedagogical design of the game/simulation. This research supports the view that the pedagogy and the simulation's content is essential to its relevance. Keeping the above criteria in mind, a shortlist and rating scheme was developed to select the most suitable simulation software for this research. Details of how this selection process was prepared and implemented will be provided as part of Chapter Five, the preparatory cycle. During this process, attention was paid to the points raised above when creating the shortlist and selecting the software.

3.5 Conclusion

This chapter introduced and examined the three key research themes of teaching, learning and assessment, employability competences and simulations/serious games. The evolution of teaching, learning and assessment was discussed; particularly, the move away from lecturer-centred delivery to student-centred learning. This student-centred approach is supported by the concept of experiential learning and constructively aligned assessment.

Employability competences were defined for the reader, and their importance as a graduate skillset was highlighted. The challenges faced by higher education in developing these soft skills or competences alongside the degree-specific knowledge was highlighted. The proposal put

forward was that soft skills should be developed alongside rather than instead of theory and that the lecturer is supported through this process to ensure successful outcomes.

Simulations and serious games were defined, and their history and suitability for experiential learning were underscored. The demographics of our current undergraduate student were discussed, as well as the need for educational technology to catch up with the technology in all other aspects of our students' lives. The limitations of simulations were also identified, along with the benefits they can deliver. The challenges posed by selecting an appropriate simulation from the extensive range of available options was also debated, and the need for support in this area identified.

Having discussed the key literature across the core areas of this research, this enquiry aims to consolidate best practice, to determine if there is an impact on students' employability competences when using a software simulation in the teaching of strategic management. The enquiry will be supported through; a structured software selection process, a module redesign applying the principles of constructive alignment, and an identification of key employability competences.

4. Methodology

4.1 Introduction

This chapter aims to demonstrate the philosophy underlying this research and the research design and methodological decisions that form the foundation of the subsequent data collection and analysis choices. The chapter begins by introducing the reader to research paradigms, the fundamental principles that underlie all research and enquiry. The research paradigm once identified, allows a discussion of methodological choices. Once the chosen method is identified, the reader is introduced to possible research strategies. This discussion is structured using the research onion model (Saunders, Lewis, & Thornhill, 2016), and the result is the selection of action research as the appropriate research strategy. The data collection and analysis tools are identified, and the concepts of research sampling, validity and rigour, researcher role and ethics are also discussed. At the end of this chapter, all key methodology decisions will be in place to allow the first cycle of action research to begin.

4.2 Research Paradigms

Mouly (1970) recognised society's long-standing quest to make sense of the environment as being undertaken through the means of three broad inter-dependent and complementary categories; experience, reasoning and research. When problems challenge experience and reasoning, then research is required. Figure 11 shows how these interdependent categories work together to enable us to understand our environment. Mouly's view also proposes that

research cannot be undertaken by a detached, objective observer but by someone already influenced by their experience and reasoning: all researchers, essentially, come with baggage.

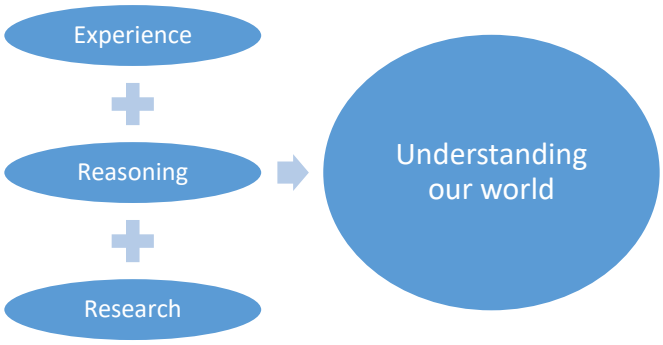


Figure 11: Interdependent categories needed to understand our world - Adapted from Mouly (1970)

In Mouly's opinion, there is an underlying paradigm to all research. A paradigm is defined by Mertens (2015) as a way of looking at the world and includes philosophical assumptions that guide all researchers' decisions and actions. Therefore, before more can be discussed on the research methods chosen, an overview of the underlying principles behind research in general is proposed.

The underlying expectations about the nature of reality and the nature of acquiring knowledge are the drivers of all subsequent layers of methodology decisions. "As we think, so do we act" (Lincoln & Guba, 1985, p. 15). Our actions as researchers cannot occur without reference to fundamental paradigms. All research has at its very roots assumptions and beliefs on reality. Burrell and Morgan (1979) look at four layers of assumptions that contribute to a researcher's overall methodology decisions. These are shown in Figure 12.

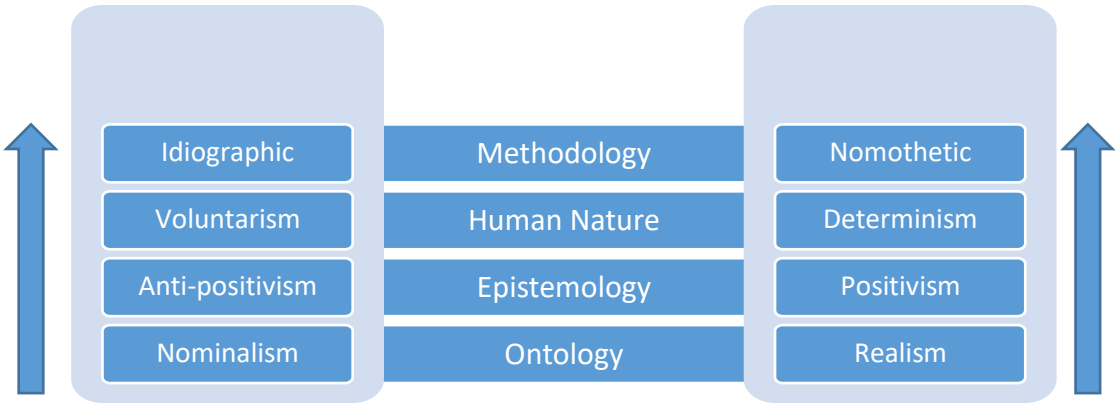


Figure 12: The two approaches to analysing social science as presented by Burrell and Morgan (1979)

At the base of all research are the ontological assumptions on the nature of reality. For example, does consciousness come from within or without? Is reality there to be discovered (realism), or is it created in the mind of the researcher (nominalism)? The next layer identified by Burrell and Morgen involves the epistemological assumptions underlying research. This has to do with whether the researcher believes that knowledge is objective and tangible and can therefore be acquired through observation (positivism), or the anti-positivist view that knowledge is subjective and unique, requiring the researcher to be involved with the research participants to build the knowledge. The third layer of underlying assumptions relates to human beings and their connection with the environment. Again, there two opposing views; determinism sees human beings as products of their environment, whilst voluntarism sees human beings as creating their own environment through their actions and decisions.

These three layers of contrasting assumptions influence the methodological decisions of researchers. If a researcher believed that the natural world is external and independent, then the methodologies chosen would favour scientific methods looking at measuring and recording this external reality. Due to the prevalence of measurement, the methodologies would tend to be quantitative in nature, and due to the assumption that laws are there to be found and understood, this approach on the final layer of the objectivist approach is known as nomothetic.

On the other hand, the researchers who have favoured nominalism, anti-positivism, and voluntarism in the first three layers, see the importance of humans in the understanding of reality. Researchers need to understand how people interpret the world. Recognising the difficulty in understanding the general or universal means a qualitative approach is taken to understand particular behaviour or a particular event. This approach is known as idiographic due to its focus on one or a few examples or events.

In their text on educational research, Cohen, Manion and Morrison (2011) recognise Burrell and Morgen's work above and use it as the foundation of their further discussion on research methodology selection. Similarly, I understand these building blocks of research as presented above as key features underlying all research. These underlying layers influence all aspects of research, from the basic definitions of participants, to how questions are phrased, and how data is gathered to answer those questions.

The debate about the apparent superiority of one philosophical approach over the other has been ongoing in academia for many decades (Creswell, 2003). In 1998, Newman and Benz proposed that there does not need to be a winner of this philosophical debate. They propose that these philosophies are not necessarily mutually exclusive, so a researcher does not need to

commit entirely to a subjectivist nor an objectivist view (Newman & Benz, 1998). Further, they propose a more fluid approach to philosophical decisions, presenting a continuum between the two philosophical schools. They argue that all research sits on this continuum and tends towards one side or the other without necessarily sitting clearly in just one philosophical school. Kincheloe (1991, p. 16) argues against the dangers of positivism in education and the importance of including the student experience in the assessment of education. Educational research, due to its high degree of human interaction, sits most comfortably towards the subjectivist end of Newman and Benz' continuum.

Creswell (2003) expands on the paradigms developed by Burrell and Morgen and refers to the knowledge claim made by a researcher, which includes assumptions about what they will learn and how they will learn during the project. A researcher's knowledge claim includes assumptions on ontology, epistemology, axiology, rhetoric and methodology. These assumptions are briefly outlined in Table 1.

Ontology	What is knowledge?
Epistemology	How do we acquire knowledge?
Axiology	What values go into our knowledge?
Rhetoric	How do we write about knowledge?
Methodology	What is the process of studying knowledge?

Table 1: Summary of Creswell's research assumptions (2003, p. 6)

Creswell groups these assumptions into knowledge claims, which then fall into four schools of thought:

- Post-Positivism: often referred to as the scientific method is characterised by quantitative research, measurements of careful observations.
- Constructivism: the researcher looks for a complexity of views rather than a narrow understanding. The researcher themselves is positioned in the research as their role is recognised.
- An advocacy / participatory knowledge view: goes even further than a constructivist view, in that, the researcher's role is seen as including a political agenda. Generally associated with research of marginalised groups, this stance recognizes the importance of actions following from the research undertaken.
- Pragmatism: the final knowledge claim stance is focused on what works or any approach that assists in understanding the problem. Mixed methods research sits in this area.

These four categories, as outlined by Creswell, although labelled slightly differently, correspond to the categories identified by Guba and Lincoln (1994).

This research recognizes that every class group, indeed, every lecture, is influenced by all the individuals involved. This combined contribution to the lecture outcome cannot be ignored when choosing a research methodology. This contribution of all participants ensures that a post-positivism/scientific stance has been discounted for this research. Additionally, the advocacy stance was discounted because the research lacked the political or advocacy characteristics more commonly associated with this approach.

This led to the question of whether this research is based on constructivist or pragmatic foundations. The two stances are similar in recognizing the contributions of all participants to the reality of research in an educational context. However, the pragmatic philosophy sits more firmly with a mixed-methods approach, where the methods are chosen to fit the question or problem. As Mertens claims, the pragmatic approach applies "common sense and practical thinking" (2015, p. 35). In particular, the pragmatic view of research, being judged by effectiveness rather than success in proving something necessarily true or false as outlined by Maxcy (2003), is in line with the goals of this research undertaking.

Whilst Pragmatism may be seen as a more recent philosophy, according to Ormerod's (2006) history of pragmatism the earliest roots can be traced into the 18th century with Kant's (1724-1804) identification of "pragmatic belief". Kant's view was developed into a pragmatic doctrine by Saunders Pierce (1839-1914) and further developed by William James (1842-1910) and others before Dewey (1859-1952) took the concepts and applied them to practical areas such as education. Ormerod sums up the influence of the above scholars on the history of pragmatism as follows:

> *"Peirce's pragmatism is scientifically elitist, James's is psychologically personalistic, Dewey's is democratically populist"* (2006, p. 893)

Another useful model for structuring the research methodology discussion is the "research onion" developed by Saunders, Lewis and Thornhill (2016, p. 124) shown in Figure 13. The discussion above addresses the first layer of the onion (research philosophy), and pragmatism, from this layer, has been shown as the foundation of this research.

The next layer to consider is the approach to theory development or logic underlying the research. Both qualitative and quantitative research use logical reasoning to make sense of what is observed, with the choices being abduction, deduction, and induction. Pratt (2014) gives examples of green plants sharing connections through the common process of photosynthesis and a second example of fish sharing connections through their shared environment (water). These examples explain abduction as a form of classification using characteristics common to the things being classified. Abduction "generates hypotheses" according to Jackson (2011, p. 162) and is consistent with the fundamentals of realism (Pratt, 2014, p. 92).

Foreman, Fosl & Watson (2017, p. 20), in their text putting forward a toolkit for critical thinking, debate the emphasis or meaning in the phrase "of necessity", in the original definition of deduction taken from Aristotle. Does it mean that something "is sure to follow" or "certainly follows"? The debate on this continues. Notwithstanding this debate, a definition of deductive logic is given as the arrival at a conclusion based on the truth of the underlying premises.

The third and final logic is induction. A logic which emerges in the situation where conclusions are not guaranteed where there is a strong probability that the conclusions proposed are correct. Induction, of course, has its drawbacks and as pointed out by Popper (2005), no amount of observed white swans will justify a conclusion that all swans are white, but sometimes definite conclusions are not essential and probable conclusions will suffice. Reichertz nicely summarises the three schools of logic in the quote below.

> *"Deduction begins with a valid law and asserts that something will behave in a certain way. Induction observes individual parts of the unique diversity of the world and attempts to determine rules and laws to order its infinite*

manifestations. Induction can only hope that the rules ascertained in one limited situation also apply in other contexts . . . . Only abduction, which creates hypotheses and conjectures from the interpretation of perception and ideas, is capable of bringing a new idea to life."

(Reichertz, 2013, p. 131)

Taking the explanations of the three reasoning processes into consideration with reference to the research proposed, it was felt that inductive reason best suited the approach planned. It was not the aim of this research to develop a hard and fast rule. This decision concludes the discussion of the research philosophy, and the approach to theory development (logic), the outer two layers of the research onion. The remainder of this chapter will be structured by the four inner layers of the research onion model (Figure 13).

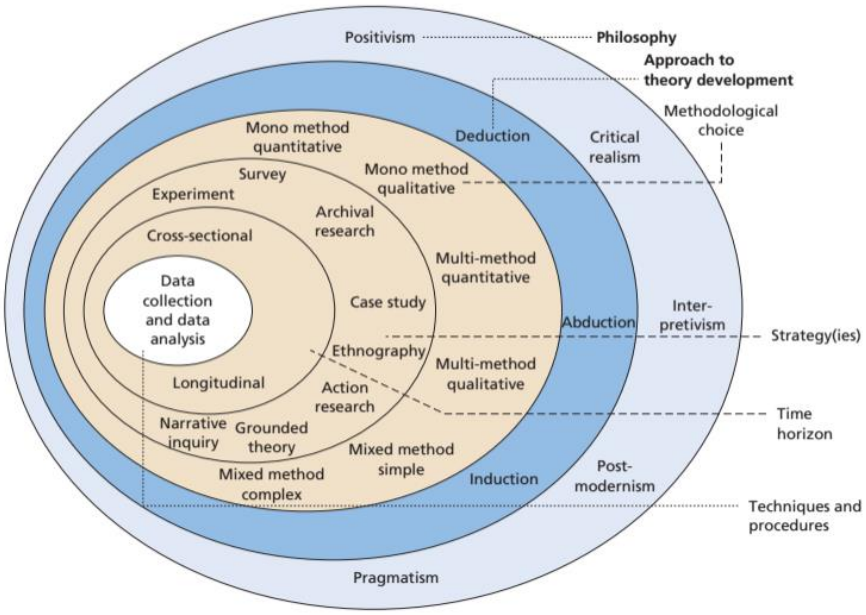


Figure 13: The Research Onion (Saunders et al., 2016)

4.3 Methodological Choice

The philosophical basis for this research has been identified as pragmatism, the fundamentals of which are shown in Figure 14 adapted from Saunders, Lewis and Thornhill (2016, p. 137). As can be seen from this summary of pragmatism, reality is seen as complex and rich, resulting in knowledge being focused on problem-solving and informing future practice. This results in research that is value-driven and led by reflective practice. Research methods, as a result, should be focused on practical solutions driven by the research problem.

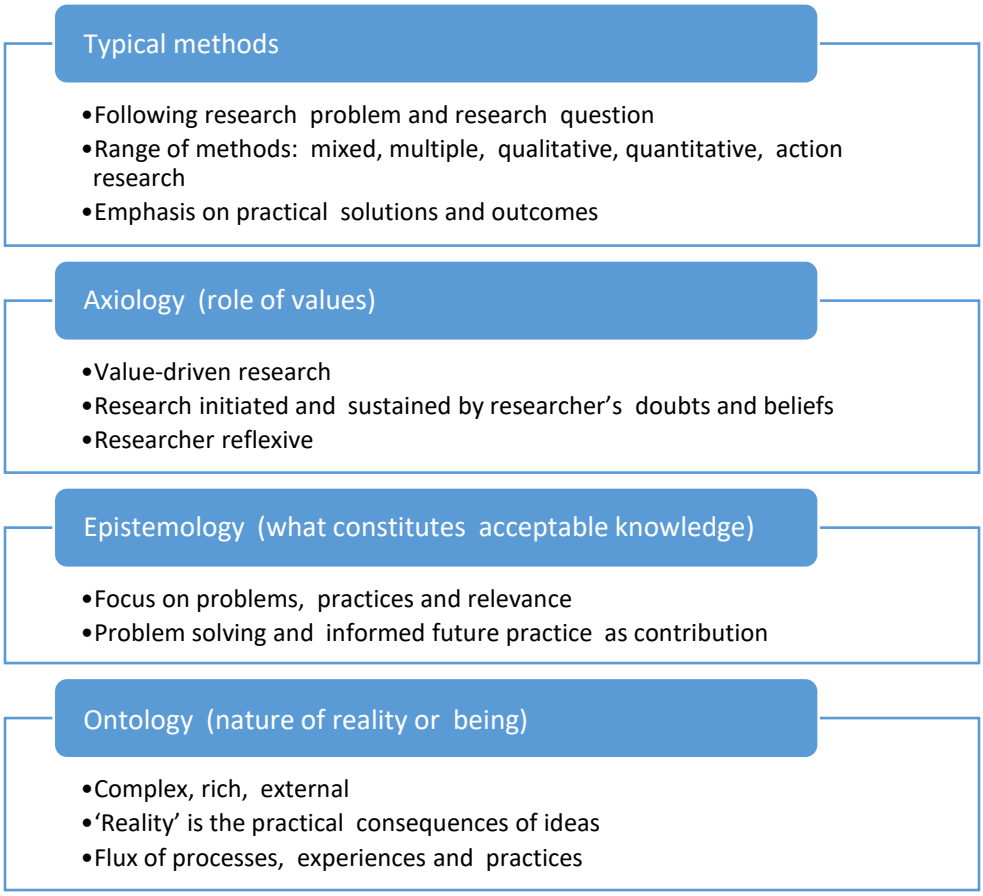


Figure 14: Understanding pragmatism - Adapted from Saunders, Lewis and Thornhill (2016).

With pragmatism at its core, a simple hypothesis, experiment and conclusion were never going to address the complexities of the relationships under investigation in this research. The methodological choice relates to both the type of research and the structure of research. The influence of the type of research and how often data will be gathered is explained by Saunders, Lewis and Thornhill's diagram in Figure 15. The main decision is whether one or more methods are seen as necessary for the research problem. Due to the complexity of the relationships under investigation in this study, a multi-method qualitative study is proposed. The qualitative data will be collected using several methods outlined later in this chapter.

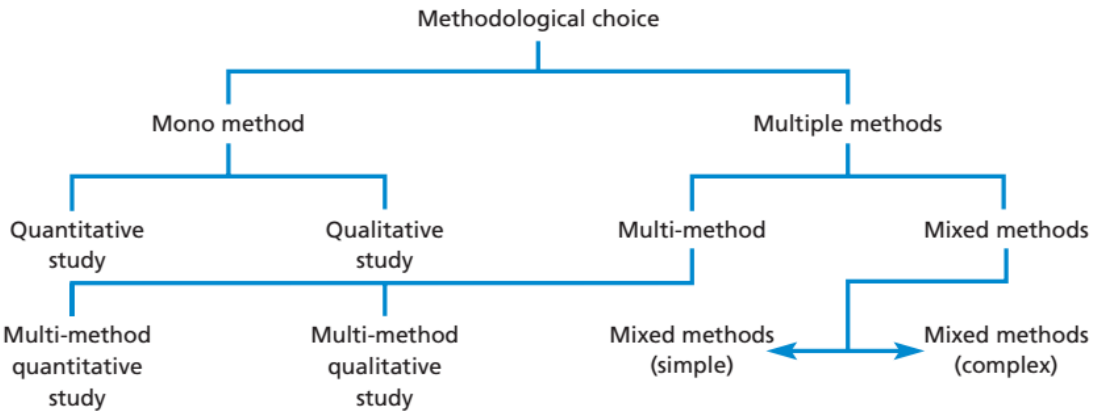


Figure 15: Methodological choices (Saunders et al., 2016, p. 167)

4.4 Research Strategy

The next layer of the research onion (Figure 13) is identified as the research strategy. Before finalising a research strategy, it is worth discussing the purpose of the research study. The four purposes as proposed by Saunders, Lewis and Thornhill (2016, p. 174) are

- Exploratory Study seeking to gain an understanding of an issue, problem or phenomenon.
- Descriptive Study aiming to gain an accurate understanding of an event or situation, however, a clear definition of the event to be studied is essential to success
- Explanatory Study investigating a situation to understand the relationships between variables.
- Evaluative Study seeking to understand how well something works.

This research aims to do more than explain an event or phenomenon, so it is more than a descriptive study. The research intends to find out more than if simulations "work". Therefore, it is, more than an evaluative study, and as there are many variables at play, this study is more complex than an explanatory study. The purpose of this study is most aligned with an exploratory study.

This layer of the research onion presents eight research strategy options shown in Figure 16. A number can be discounted whilst others need a little more thought and discussion. Each will be discussed briefly, with the rationale behind the associated decision explained.

Figure 16: Research strategies - Adapted from, the research onion (Saunders, Lewis and Thornhill, 2016)

Experiments as a research strategy have an essential feature: the deliberate control and manipulation of conditions determining the examined events. Interventions are introduced, and their effects measured (Cohen et al., 2011, p. 312). It is later explained that educational experimentation can have three different designs: controlled experiments; field or quasi-experiments; or natural experiments, where variables cannot be identified or controlled (2011, p. 315). A field or quasi-experimental approach could have been proposed for this research, where a control and experimental group could have been designed. However, the problems of comparing two different teaching environments and ethical and quality control issues ruled out an experimental research strategy.

Survey as a research strategy includes approaches such as longitudinal, cross-sectional and trend analysis. The attraction of a survey strategy is often related to the approach's scalability, wide audiences, geographies and issues that can be addressed. These are not characteristics of this research, which meant a survey strategy was discounted. On the other hand, many of the benefits of surveys are reflected in methods such as questionnaires used in this research and will be discussed later.

Archival research involves the study of historical documents, surveys, artefacts etc. Archival methods can also analyse digital artefacts such as texts, emails, web pages etc. (Ventresca & Mohr, 2017). This research strategy was deemed unsuitable for this enquiry as it is not particularly concerned with historical data. However, the thematic analysis of student journals (Chapter Six) will draw on some aspects of archival research.

The remaining five research strategies (ethnography, grounded theory, narrative research, case study research and action research), have common ontological and epistemological roots and

common characteristics. They are, therefore, more closely aligned with the qualitative research under discussion. The different research strategies have varied procedures, emphasis and scope. Ethnography defined by Webster's dictionary (2020) as "the study and systematic recording of human cultures", is discussed in an educational context by Pole and Morrison (2003). They recognised the many variations of the research approach but identified five common characteristics of ethnography. These characteristics are adapted from the text and shown in Figure 17. This research study does not have a discrete focus on a single event or setting; nor does it have an interest in a wide behaviour range. For these reasons, an ethnographic strategy was not proposed for this research study.

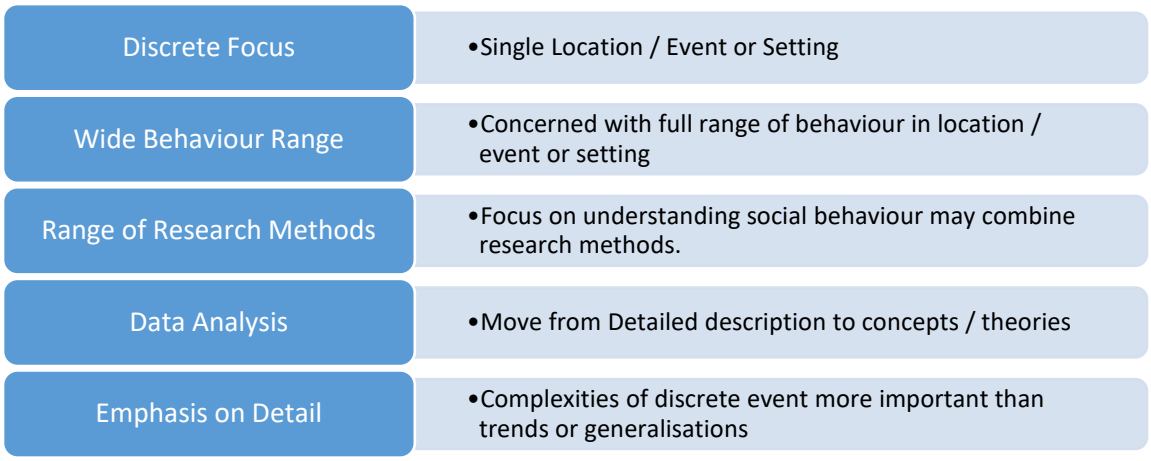


Figure 17: Common characteristics of ethnography adapted from Pole and Morrison (2003, p3)

Grounded theory is explained by Greckhamer and Koro-Ljungberg (2005, p. 729) as a method or set of techniques, designed to produce knowledge. They also recognize that it is a method that has evolved and continues to evolve. The researcher should approach the field with no

preconceptions (Jarvis, 2019, p. 193). Cohen, Manion and Morrison identify some features in common across the definitions of grounded theory, which are:

- Theory is emergent rather than predefined
- Theory emerges from the data (not vice versa)
- Theory generation comes from systematic data collection and analysis
- Patterns and theories are in data waiting to be discovered
- Inductive, deductive and iterative.

  (Cohen et al., 2011, p. 598)

A grounded theory research strategy was not proposed for this research, as an emergent theory approach was not seen as appropriate. This research started with some theories and research questions in mind, making grounded theory unsuitable as a research strategy. There is overlap between the characteristics of grounded theory and thematic analysis, which was used in the research. As a result, some of the principles of grounded theory will still apply but not at the level of overall research strategy.

Narrative research focuses on the analysis of stories and dialogue. In their book on narrative research, Dwyer, Davis and Emerald, give many examples from the field of narrative research and discuss this research approach from different viewpoints. They begin by "mapping the terrain" of narrative research by describing it as an approach that recognizes that "the stories people live and tell are a rich source of knowing and meaning making" (Dwyer, Davis, & Emerald, 2017, p. 1). This research was not about participant stories as a source of data. Narrative

research methodologies, therefore, were not seen as a realistic approach for the research design.

A case study "is a specific instance that is frequently designed to illustrate a more general principle" (Nisbet and Watt, 1984, 72). Gillham defines a case as a unit of human activity, which can only be understood in context, with boundaries that are difficult to draw (2000, p. 1). Stake (1995, p. 2) is more specific and identifies a teacher, child, or classroom of children as a case, but he claims that teaching lacks the specificity and boundaries to be called a case. As this research is about teacher practice and teaching, learning, and assessment, the entirety of what is researched was deemed to be too complex for a case study approach.

Seven of the eight possible research strategies in the strategy layer of the research onion were considered and discounted, leaving only action research. Research paradigms were discussed earlier in this chapter, with pragmatism identified as the paradigm underlying this research. Hammond (2013) proposes three reasons to connect pragmatism as a research paradigm and action research. Firstly, there is the pragmatic stance that knowledge is "consequential"; if there was a library of best practice available to draw on, practitioners would not need to use action research to generate their own knowledge from their experiences. Hence, action research is needed to generate knowledge that is both useful and informative to others. Secondly, pragmatism supports the dialectic creation of knowledge. Action research supports this view, in that once knowledge is created, it will generate the need for further iterative cycles in an ongoing process. Thirdly, pragmatism supports agreement and collaboration between participants as seen in much action research. Hammond concludes that whilst a pragmatic paradigm does not ensure action research is the choice of research strategy he emphasises the fit between the two as is shown in Table 2.

A pragmatic stance on knowledge argues:	This explains why action research:
Antecedent knowledge has been constructed in particular circumstances and for particular ends	Requires practitioners to generate their own knowledge even if existing concepts and evidence can guide their inquiry
Intelligent action is stimulated by indeterminate situations	Has a 'problem'-solving focus
Intelligent action can be contrasted to trial and error reasoning, it requires new habits of reflection and analysis	Is reflective and systematic
Generating knowledge is a dialectical process	Is an iterative process that is never complete
Warranted assertions are stable, social agreements but they do not offer a correspondence view of reality	Is a collaborative and communicative process
Knowledge is generated after the event by considering the consequences of action	Has quality criteria that consider the impact of action
The generation of knowledge is value laden	Is explicit about democratic values

Table 2: The contribution of pragmatism to understanding action research. (Hammond, 2013, P615)

Having reviewed the eight possible research strategies, action research was identified as the research strategy most aligned with this study's exploratory purpose.

4.4.1 Action research

As described by McNiff (2013, p. 23), action research or practitioner research is undertaken by the practitioner "on the job", thinking carefully about what is being done, and how to improve it. A much earlier definition from Blum defines action research as the:

> *"Diagnosis of a social problem with a view of helping improve the situation."*
>
> (Blum, 1955, p. 1)

Blum continues and identifies action research as consisting of two stages – a diagnosis stage and a therapeutic stage.

In 1946, Kurt Lewin was one of the very early researchers who focused on social change in his action research into issues of disadvantage with regard to housing, employment and training. Despite a drop in interest in the 1960s, action research never disappeared, and it received new interest in the 1970s thanks to Stenhouse in the UK. Stenhouse's text *An Introduction to Curriculum Research and Development* was influential in the use of action research in education (Koshy, 2005, p. 3). According to Koshy, research is about generating new knowledge, and action research is about generating new knowledge from practice in a particular context.

Action research is designed to bridge the perceived gap between research and practice (Somekh, 1995). It gives teachers a structured method to introduce informed and well-designed interventions in the classroom and document the impacts. Morgan (2014) explains Dewey's approach as having no sharp boundary between everyday life and research, inquiry is just one form of experience, and research is just one form of inquiry. While all pragmatic research would focus on practical scenarios, action research was seen as particularly relevant to the applied nature of this research undertaking.

Altrichter et al. (2002, p. 130) in their article on the concept of action research, conclude that "while it is important to attempt definition and clarification for communication, it is also important to acknowledge that action research must remain open for ongoing consideration since confining it within narrow, restrictive definitions could serve to inhibit constructive conceptual development". One of Altrichter's co-authors Kemmis (2009) asserts that action research has three aims, to change practices, people's understanding of those practices and the

conditions in which they practice. However, like the legs of a three-legged stool, none of these can take priority, be ignored or forgotten – they are all important to achieve successful action research.

4.4.2 Principles of action research

Kemmis and McTaggart analysed many various definitions of action research in order to create a list of action research principles (1982, pp. 22–25). In Table 3, these principles are grouped under three headings the purpose, process and product of action research. These principles emphasise the collaborative nature of action research. There is a school of thought that also supports the principle that action research can be an individualistic journey focused on the practitioner's problem, possible solution and outcome. This movement is an individualistic approach and can be referred to as the "teacher-as-researcher" (Stenhouse, 1975). This research study is not seen as individualistic in this manner and holds with the more collaborative participatory model of action research. This enquiry will aim to adhere to as many of Kemmis and McTaggart's principles as the research study allows. The topic of action research principles will be revisited under the Rigour section later in this chapter, where the principles applied to this research will be discussed.

Purpose	• Improving education by changing it and learning from the changes • Critical analysis of institutional structures.
Process	• Participatory where people work towards improving their own practices • Developed through a self-reflective spiral • Collaborative involving those responsible for action • Systematic learning process remaining open to emerging developments • Open-minded about what is evidence/data • Keeping a journal about practice and process
Product	• Establishes self-critical communities committed to enlightenment and emancipation from institutional constraints • Theorising practice, inquisitive about circumstances and understanding relationships • Assumptions and practices put to the test • Political process as outcome will affect others • Starts small and works towards extensive changes • Builds records of improvements • Creates a developed tested and critically examined rationale for intervention.

Table 3: Kemmis and McTaggart action research principles (1992, pp.22–25)

4.4.3 Models of action research

As stated by Coghlan & Brannick (2014), much qualitative research is focused on the past, action research, on the other hand, builds on the past, takes place in the present and aims to shape the future. According to Brydon-Miller, Greenwood and Maguire (2003), modern views on action research go beyond Lewin's statement "there is nothing so practical as a good theory". The modern view of action research is that it goes beyond theory, informing practise, to the belief that theory can and should be generated from practice.

Lewin has been mentioned as one of the early pioneers of action research. His early theory of action research was focused more on operations rather than on education, and his approach

was a series of steps of planning, fact-finding and execution. Lewin's model was less a cycle than a sequence of steps. The steps he proposed in his oft-cited 1948 text, *Resolving social conflicts; selected papers on group dynamics* are shown by Smith (2001) in Figure 18:

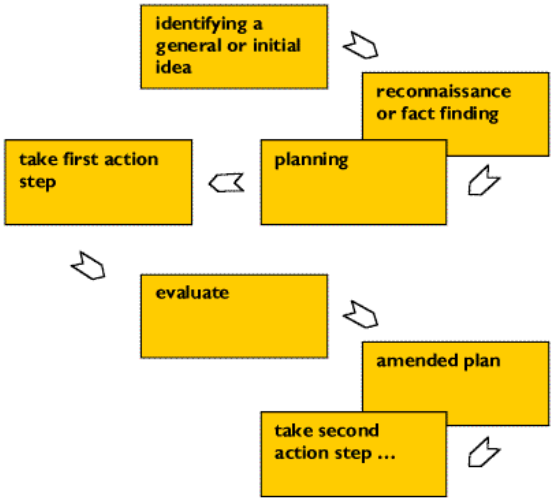


Figure 18: Lewin's theory of action research, as presented by Smith. (2001)

Lewin's sequence begins with an idea, issue or problem. Data is gathered to describe the situation, and the situation is analysed to develop a plan of action with an identified objective. The plan is then implemented whilst always gathering data and observing to evaluate progress. This evaluation may produce an amended plan, and a second phase would begin with implementation of a second step and so forth. Elliott (1991) took Lewin's model and expanded it to show how the model would look across three phases of action research. This model is shown in Figure 19.

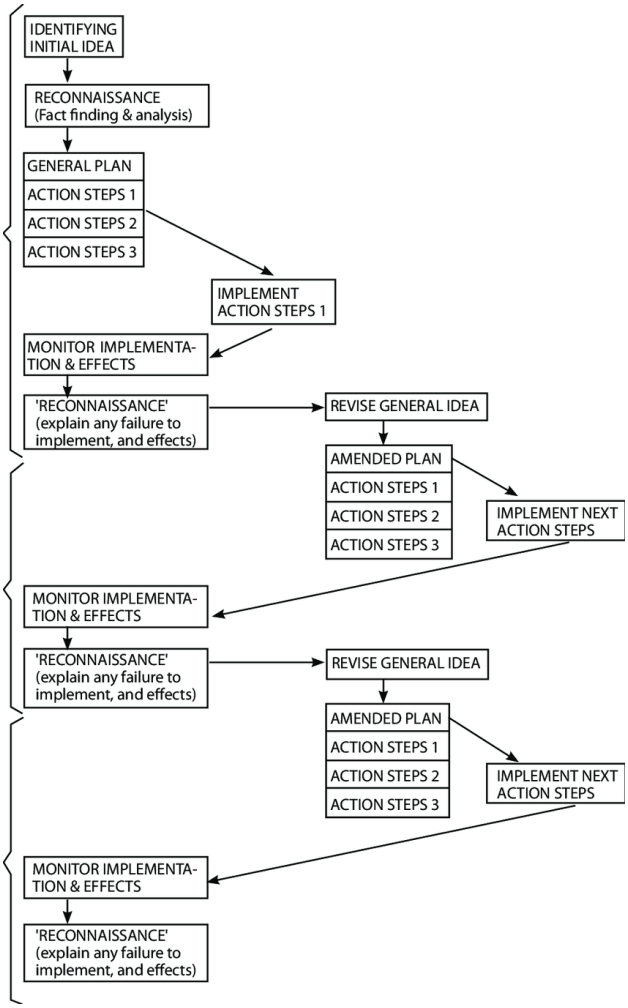


Figure 19: A revised version of Lewin's model of action research, Elliott (1991)

Zuber Skerritt refers to the development of Lewin's model undertaken by both Kolb (1984) and Carr & Kemmis (1986), as well as others, but summarises action research as consisting of four significant "moments": plan, act, observe and reflect (Zuber-Skerritt, 1992, p. 13). The assumption is that learning and knowledge can be created from experience, through observation and reflection. This process will allow for concepts and generalisations that can be tested and will, in turn, lead to new cycles (Zuber-Skerritt, 1992, p. 11).

This same cycle is presented by Kemmis, McTaggart and Nixon (2013, p. 19), referencing earlier work by Kemmis and McTaggart in *The Action Research Planner* (1988) where this cycle was presented and became known as the self-reflective spiral or spiral of action research. While recognising that action research can be more fluid, the cycle presents a strong foundation for action research. The cycles are presented as shown in Figure 20.

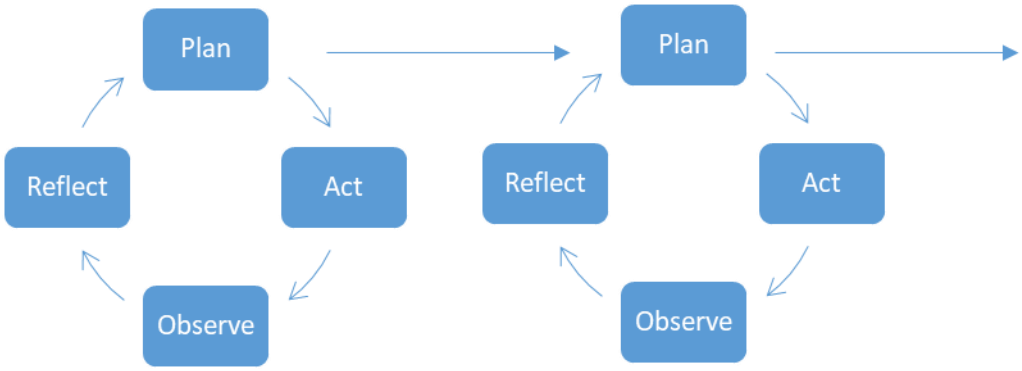


Figure 20: Traditional spiral of action research cycles - Zuber-Skerritt (1992)

As discussed previously, in the latter part of the 20th century, action research took hold within education. Many action research models were produced, including those by McKernan (1996), Bassey (1998), McNiff (2002, p. 67) and Cohen et al. (2011). Each has its merits and reflects the model author's desire to focus on particular stages of the action research process. As shown in Table 4, all the above models can be mapped back to the four stages of Zuber-Skerritt's simple model. Table 4 shows the mapping of these models onto Zuber-Skerritt's four-stage model with the addition of a definition/context phase at the beginning of the process.

The mapping in Table 4 supports my belief that this four-step action research cycle, with the addition of a definition/context phase at the beginning of the process, is very relevant and is, therefore, the most appropriate action research model to support this research going forward.

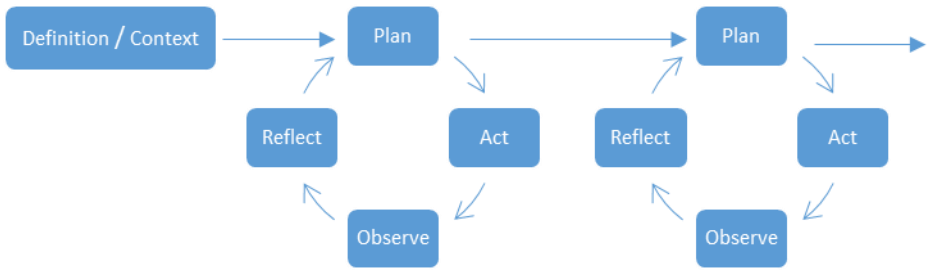


Figure 21: Proposed action research model

Steps to Model		Define	Plan	Act	Observe	Reflect
(McKernan, 1996)	1. (Re)Define the problem 2. Needs assessment 3. New hypothesis 4. Revise action plan 5. Implement revised plan 6. Evaluate action 7. Decisions (reflect, explain & understand Action)	1 2	3 4	5	6	7
(Bassey, 1998)	1. Define the inquiry; 2. Describe the educational situation 3. Collect evaluative data and analyse it 4. Review the data and look for contradictions; 5. Tackle a contradiction by introducing change; 6. Monitor the change 7. Analyse evaluative data about the change; 8. Review the change & decide what to do next;	1 2 3	4	5	6	7
(McNiff, 2002, p. 67)	1. Review your current practice 2. Identify and aspect to improve 3. Imagine a way forward 4. Try it out 5. Monitor and reflect 6. Modify the plan in light of what has been found / what has happened 7. Evaluate the modified action 8. Continue until satisfied with this aspect of your work	1 2	3 6	4	5 7	8
(Cohen et al., 2011)	1. Problem Identification 2. Possible Interventions 3. Decision on particular intervention 4. Plan intervention with success criteria 5. Implement the intervention 6. Monitor & record implementation effects 7. Review and evaluate Intervention 8. How well intervention solved problem.	1 2	3 4	5	6	7

Table 4: Mapping of action research models to Zuber-Skerritt's 4 step model

4.5 Research Time-horizon

The next layer of Saunders, Lewis and Thornhill's research onion (Figure 13) is the research study's time horizon. A time frame decision can be important in research design, as it involves a decision whether the research is a once-off cross-sectional study, or whether the phenomenon is studied across a time period. As we have identified action research as our research strategy, our timeline is already decided. Action research, by its nature, is carried out across a time period in cycles of action and reflection as outlined above. While action research may not have a timeline in years as might some longitudinal studies, it is not a once-off cross-sectional measurement. Therefore, this research study's time horizon is a cycle of problem-solving, planning, intervention and analysis, similar to a longitudinal study.

4.6 Data Collection & Data Analysis

The core of the research onion (Figure 13) is data collection and analysis; this is the final research design decision. The data-gathering process in action research is, by its participatory nature, very different from scientific data-driven research. All research, however, is built upon data. Coghlan and Brannick (2014, p. 99) explain how data is created in action research by engagement with the participants. Every action of the lecturer-as-researcher has implications, and the very presence of research influences the system or lecture experience. For this reason, they refer to data generation rather than the more traditional data gathering.

The lecturer-as-researcher does not just influence the dynamic and interaction in the lecture hall. There are also implications on all aspects of the lecturer's role in the organisation. When undertaking action research, data is generated in structured and unstructured formats throughout the lecturer's day-to-day interactions with colleagues, further development training, students, management and others. This data was gathered in this research by using

formal approaches, such as meeting notes and minutes, and through the use of a reflective research diary of practice, to capture less structured data, such as, for example, thoughts and ideas following training courses or conferences.

As well as minutes, notes and diaries, there are several recognised data gathering techniques available to all researchers. Figure 22 gives Merten's (2015, p. 363) methods of collecting information with their associated advantages and disadvantages:

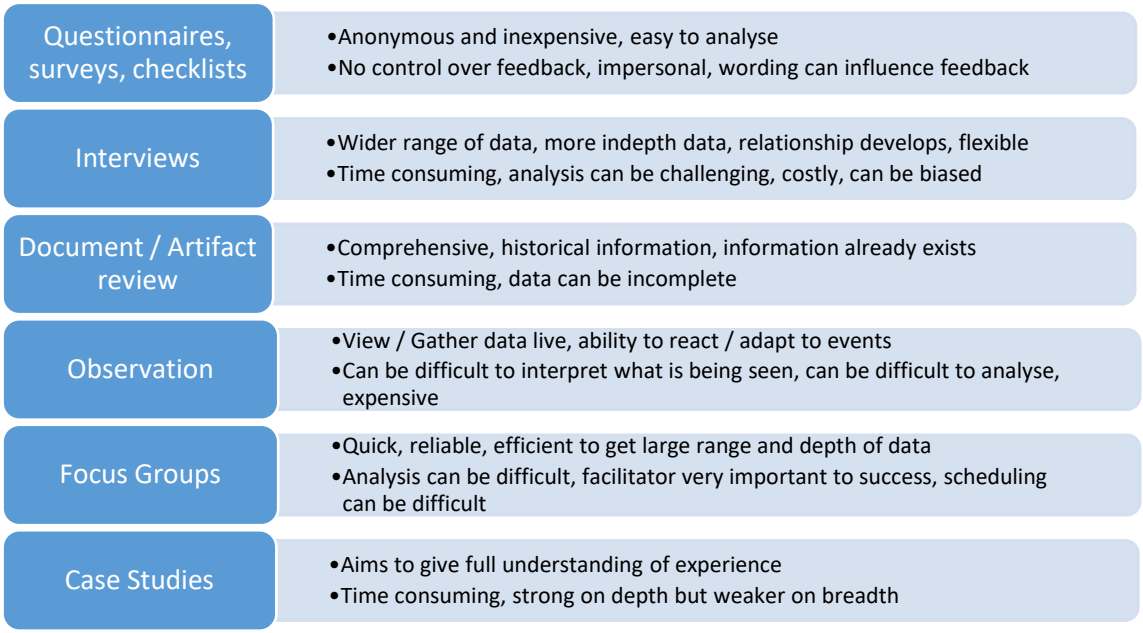


Figure 22: Six methods of data collection (Mertens, 2015)

The merits of the six data collection options shown in Figure 22 were assessed, and three methods were identified for this research. None of the six was deemed unsuitable, and all could have been used. The three selected were chosen with reference to suitability for the research in question and the aim of data source triangulation. Interviews and focus groups were discounted due to the delayed timing of the data gathering involved in these methods. Both methods tend to be arranged after the event being examined. This research, on the other hand, aimed to capture the research data whilst the simulation was underway. Case

study was also discounted due to the focus of this method on individual instances or examples. This research had a broader scope than a case study approach would have facilitated. For these, and other reasons given below, the selected data collection methods were, questionnaires, observation and document/artefact review.

4.6.1 Questionnaires

A questionnaire was used to gather the students' feedback on this research project. The questionnaires were anonymous in order to encourage student participation and candour. Whilst interviews were considered as a technique, it was felt a broader and more honest student view would be gathered with the anonymity of a questionnaire.

The questionnaire was used to assess the students' evaluation of their employability competences before and after the module. The nature of this data was structured and therefore suited a questionnaire format. An online survey tool was used, making the distribution to all participants easy, and the subsequent collation of the questionnaire data was efficient. The questionnaire was rigorously planned, designed and piloted. Further detail on this process is included in the preparatory cycle chapter.

Geoffrey and Ryan (2014) note the prevalence of the questionnaire as a research instrument. The advantages include the tool's cost-effective nature, with many efficient and free tools available to prepare, distribute and analyse questionnaires. Some concerns relating to researcher bias or influence connected with an interview process, are removed when a questionnaire is used. However, robust question design needs to be applied to avoid misleading or misunderstood questions.

According to Brace (2013), each questionnaire has five categories of stakeholders. These stakeholders are; the person commissioning the survey, interviewers (not used in this research), respondents, data processors and the questionnaire writer. This research has four of these stakeholder categories, and I represent three of these stakeholder roles. I am the one commissioning, writing and processing the questionnaire. Although I am undertaking three of the roles, I still considered the different stakeholder's requirements as per Brace (2013). For example, the needs of the data processor were considered whilst designing the questionnaire.

4.6.1.1 Questionnaire implementation considerations

The design of the questionnaire will be discussed in more detail in the next chapter on the preparatory cycle. However, it is worth noting some of the measures implemented to address the shortcomings of questionnaires and ensure robust data was gathered. Firstly recognising that any questionnaire is an intrusion of respondents' time and energy; every effort was made to keep the questionnaire as straightforward and quick as possible. This was done whilst still ensuing adequate data was gathered. Secondly, the same layout and format were used for the pre and post-module questionnaires to ensure respondents' familiarity. It was planned that participants completed the questionnaire at home, rather than in my presence in class. Whilst not a guarantee, this plan aimed to improve data quality, by reducing the chance that respondents fed back answers that I might have wanted to receive. Finally, considerable thought was given to construct measurement. This will be outlined in more detail in the section on questionnaire design in the preparatory cycle (Section 5.4.6 Questionnaire design on page 147).

4.6.2 Observation

The second data-gathering technique used in this research was observation. Lecturing is an interaction between individuals. Very often, observation is the only window into the lecture hall, and it is an important technique in understanding the dynamics at play.

A few observations and much reasoning lead to error; many observations and a little reasoning to truth.

Nobel Laureate: Alexis Carrel 1873-1944

Observation is an essential part of finding the truth. Reasoning alone will not necessarily generate the right answers, but reasoning based on in-depth and informed observation will generate the best outcome. Like all lecturers, I observe the outcome of my lectures each time I stand at the top of a lecture hall. The key to this research was to document my observations, and attempt to improve any shortcomings identified, in a structured and reasoned approach.

In his reflections on the benefits of observation in relation to marketing, Gummesson (2007) notes the merits of observation over words or numbers, which fail to give access to reality in many instances. The critics of observation often cite the transience, or difficulty to reassess or review observations. This transience can be overcome by the use of photographs and/or videos. The history of the use of video-supported observation is given in the opening chapter of the book by Ulewicz and Beaty (2001), and a further chapter is devoted to recognizing what a video can and cannot capture, essentially, recognising the limitations of video while availing of its benefits. Some of the limitations of video recordings result from decisions made whilst recording – where the camera is positioned, for example, has a strong influence on subsequent data available. For this research, a discreet corner giving the largest view of

the activities during the simulation sessions was chosen, and the camera was left there without interference throughout the session.

Photographs and pictures have a long history as a research method, particularly in the fields of sociology and anthropology. In his article promoting photographs as a research method in organisational research, Ray and Smith (2012) outline the benefits of using photographs as an accurate form of data gathering. Photographs offer a means of overcoming recall bias as they have the benefit of being a real-time observation. While Ray and Smith also recognize that a photographer's presence may alter the “reality” being captured, when done unobtrusively, it can still add to the research data. Therefore, it was proposed for this research, that the photographs would be taken by someone outside the research, to reduce disruption and possible distortion of the images being captured.

In his text on classroom observation of teaching and learning, O’Leary (2014, p. 48) discusses how there is a continuum of observation from quantitative to qualitative. Quantitative can include recording and or rating of incidents in a structured manner, ultimately gathering data that can be converted into numbers. At the other end of the continuum is qualitative observation, which can include open-ended text recording of what is observed. At either end of the continuum, the two approaches are not mutually exclusive and can be complementary. An approach of complementary quantitative and qualitative observation is proposed for this research.

My observations were supported by note-taking during and after lectures. This note-taking was in my research diary as well as structured observation sheets. DeWalt & DeWalt (2010) explain how participant observation is different from either pure observation or full participation. This research sits in the arena of participant observation, as I am also the lecturer in the room, interacting with the students and ensuring the classroom activities are

coordinated and managed, whilst the research observation is also taking place. Therefore, as outlined by Sanger (1996, p. 8),

> *"A major difference between seeing and observing is that the observer takes steps to counteract the in-built biases we all possess."*

A structured observation form was prepared to assist the gathering of the observations. To reduce the possibility of bias and to increase the accuracy of observation. Two types of structured sheet were used, strengthening the data gathered.

4.6.2.1 Observation implementation considerations

One of the challenges of a practitioner-researcher is facilitating normal classroom activities while conducting the research observations. To assist in overcoming this challenge, strict agendas were planned in advance of the simulation sessions, and adherence to these schedules was achieved for the most part. Also, it should be noted that once the students were interacting with the simulation and debating their decisions, I was free to observe. The simulation sessions were not like a lecture; I found myself for the most part available to stand back and observe.

Another issue with observation is the criticism that it is a once-off unreliable data source. Each simulation session only happened once, so it was a one-time chance to gather the observation data. This concern was addressed in this study by the use of video recording and photography. These technology supports were used during the simulation sessions, and enabled me to review the sessions again, supplementing the observations made in class. Also, there was more than one simulation session in each implementation cycle, giving me access to hours of live observation and recorded data.

What was not possible to address in this research study was the concept of inter-rater reliability, which addresses concerns that another researcher might return different observations. This concept is discussed under the validity and rigour discussion later in this chapter and is also one of the recommendations at the end of this study. This study's observations would be significantly strengthened if another lecturer delivered the module and used similar research instruments to gather the data. CIT may well address this recommendation in the future.

As with all practitioner studies, I am at the centre of the enquiry. This challenge is never more evident than when gathering data by observation, a method which relies on the researcher being present while the phenomenon under study takes place. To reduce the influence of the observations process, one measure used in this study was the preparation of two observation forms, reducing writing and note-taking. Also, the previously mentioned use of photography and video, enabled subsequent review, thereby reducing the need for note-taking during the sessions. Despite these measures, it remains important to recognise my influence on the research process, and this is addressed in the reflect sections of each chapter. In particular, the reflection on the researcher role section, in addition to the research rigour section in each cycle.

4.6.3 Document/Artefact review

The third and final data-gathering technique used in this research was the document/artefact review. The student's reflective journals were analysed for themes associated with the research. It was mentioned earlier in this section that the very presence of research may influence the lecture and the interaction between students and the lecturer. The analysis of student assessment submissions aims to overcome this shortcoming. While

the student might be conscious of what the researcher is looking for when completing a questionnaire or when being observed, the student is less likely to have the research question in mind when submitting a piece of assessment for the module.

Furthermore, while observation could be criticised for its replicability, as the data is in a permanent format, the document review process can be verified through re-analysis and replication if necessary. This replicability lends a degree of validity to the data gathering process, a topic that will be revisited later in this chapter. The document/artefact review was supported by computer-assisted qualitative data analysis software (CAQDAS). Many CAQDAS products are on the market, ranging from free downloads to proprietary products implemented across a research institution. The CAQDAS product used for this research was NVivo, version 12, a software developed and supported by QSR International Ltd.

Dublin City University (DCU) have an institute-wide licence for NVivo, and all research students have access to both the software and associated training. I undertook both the beginner and intermediate training courses provided by the DCU graduate studies office. Whilst the software assists with the thematic analysis, the researcher remains the primary tool for analysis (Leech & Onwuegbuzie, 2011). There is functionality within NVivo that assists in coding documents, but researcher input remains essential to ensuring the coding's quality. The software adds significant value in the analysis of the coded material – there are strong reporting features within the software.

As part of this thematic analysis, all student reflective journals were anonymised and uploaded into NVivo. All journals were then coded for each of the employability competences, which became nodes within the NVivo software. The coding was done without reference to previous coding loops; in other words, text could be coded under more than one employability competence if appropriate. Once coding for all competences was

complete, the analysis of the competences (nodes) could be undertaken. This process was included in the second implementation cycle, and more detail will be discussed in the associated chapter.

4.6.3.1 Document/Artefact review implementation considerations

A challenge of using student assessment elements as part of the research was the tension this dual-purpose introduced. Could it be possible for a document to be the best assessment instrument whilst still gathering the best possible research data? In this study, the student reflective journal was designed to lean towards the assessment piece. There was no mention of employability competences or any other aspect of the research in the reflective journal assignment brief. Therefore the data gathered from these journals should be as untainted by the research as possible.

A further aspect of using the student reflective journals or any assessment piece in the research process was gathering consent from the students. Also, students needed reassurance that the grading of their submissions would be an entirely separate process to the research data gathering process. To this end, at the start of the module, the students' consent was sought, and detailed reassurance given of the separation of module grades from the research process. In addition, little reference to the reflective journal element of the research was subsequently mentioned so that students, for the most part, were unaware of the research process at the time of writing their reflective journal.

4.7 Research sample

As noted by Abbott & McKinney (2013, p. 121), using the word sample sets an expectation that there is a representative group of units from some larger population. This is not the case with this research, and as with most action research studies, any form of probability sampling was not an option. The sample is not generalisable for the broader population in the statistical sense. I was limited to the class groups within the School of Business in CIT. As the research focused on the teaching of strategic management, several class groups were undertaking suitable strategic management modules. The summary details of the different class groups are given in Table 5.

Programme	Programme Mode	Module Title	Approximate Student Numbers
Bachelor of Business (Honours)	Full-time	Strategic Management 1	105
Bachelor of Business (Honours) in Accounting	Full-time	Strategic Management 1	85
Bachelor of Business (Honours) in Marketing	Full-time	Strategic Management 1	68
Bachelor of Business (Honours) in Sport & Exercise	Full-time	Strategic Management 1	15
Bachelor of Business (Honours) in Accounting	Part-time	Strategic Management 1	15
Bachelor of Business in Management	Part-time	Strategic Management	30

Table 5: Summary of available strategic management student cohorts (2016).

In both my option and CIT management's opinion, the full-time student class groups were too large to use for a pilot of this nature. All full-time class groups are in lectures of over 100 students. There was also a financial aspect to this decision, as the licence fee for most

software would be dependent on the size of the student group. Additionally, the risks of running a pilot with such a large group were higher and were deemed unacceptable. A final consideration was that whilst I had previously taught the full-time class group, they were not currently allocated to me. As a result, there would be time-tabling issues associated with choosing a full-time group. These reasons, along with the fact that there was a more suitable group available, influenced the decision not to use any full-time groups.

The remaining class groups for consideration were the two part-time groups. The part-time accounting group follows the same programme as the daytime accounting students. Therefore, while it was possible to use this group, it was not deemed appropriate to pilot a different module to full-time and part-time accounting programmes. Additionally, this group's class size is traditionally fewer than 20, which was deemed a little small.

This left the Bachelor of Business in Management student group. This module has suitable student numbers to facilitate a pilot, and I have delivered this module for more than six years. This strategic management module was one I was familiar with, in a position to review, and eager to improve. The student feedback over the years and my observations meant that I was confident there was room for improvement within the module delivery. Therefore this was the module and the student group selected.

This student group selected was in year three (award year) of a level seven programme. The class size was suitable at approximately 30 students meaning sufficient numbers for class surveys but not so large as to introduce challenging cost implications. It was also a suitable size for a pilot within the institute.

The sample selection strategy was most certainly non-probability sampling. While it would have been preferred that more purposive sampling could have been applied, in reality, the sampling strategy most strongly resembled convenience or opportunistic sampling. This

sampling approach is consistent with the aims of action research, seeking out a sample that offers the best data and opportunity for an intervention. This project's primary focus is not necessarily its generalisability, but the action research goals of the study.

4.8 Validity and rigour

According to Eikeland (2006), the reason research is to be believed is that it is seen to produce valid results, producing unbiased, and ideally improved knowledge of a "thing". Taking the more scientific approach of Cronbach:

> *"The job of validation is not to support an interpretation, but to find out what might be wrong with it. A proposition deserves some degree of trust only when it has survived serious attempts to falsify it."*
>
> (Cronbach, 1980, p. 103)

Validity is essential to any activity or opinion posing as research. Action research, therefore, is no exception in having to prove its validity (Eikeland, 2006).

Before looking at validity in qualitative research, it is worth introducing some key concepts of strong quantitative research. Rigour in quantitative research has many characteristics. Four important characteristics are explained as follows (Cohen et al., 2011):

- Validity including, but not limited to
    - Internal validity is associated with accuracy.
    - External validity refers to the degree to which the results can be generalised
- Reliability which in its broadest sense is the repeatability of the experiment
- Objectivity meaning the researchers detachment for the experiment or research

From these brief definitions, it is clear of the merit of each of these concepts, and their contribution to reliable research. How then does qualitative research compare to these characteristics of strong research?

Lather (1991, p. 66) outlines how praxis-based researchers or action researchers need new techniques to retrieve and define reliable data. This would assist in avoiding the dangers of the more traditional notion of validity. Lather draws on the works of Reason and Rowan (1981), with their view of validity captured by the phrase “objectively subjective”, as well as Guba and Lincoln (1981), with their minimum requirement for validity being; triangulation, reflexivity and member checks.

Merten draws on a later text from Guba and Lincoln when discussing the quality of qualitative research (Guba & Lincoln, 1989; Mertens, 2015, p. 268). Merten explains how Guba and Lincoln equate credibility with internal validity, transferability with external validity, dependability with reliability and confirmability with objectivity. In addition, they add a qualitative research category of authenticity. The comparison between the characteristics of strong quantitative versus strong qualitative research and how they can be mapped against each other is shown in Figure 23.

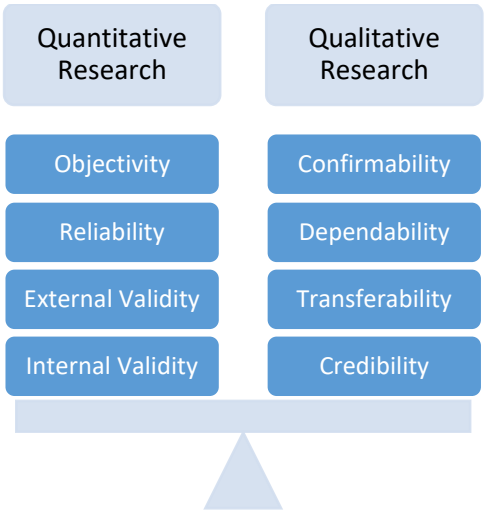


Figure 23: Comparison of quality of quantitative V qualitative research (Mertens 2015)

These headings are discussed in Thomas and Magilvy's (2011) paper on rigour and validity in qualitative research in the field of nursing research. Mertens (2015) takes Guba and Lincoln's (Lincoln & Guba, 1985) characteristics and develops criteria for strong qualitative research under each heading.

4.8.1 Credibility

As introduced above, the equivalent of internal validity (accuracy in quantitative data) is credibility. One of the critical aspects to improve credibility, according to Merten, is "prolonged and persistent engagement". This research spans a five-year period with earlier investigations into related concepts going back a further four years. Therefore, I have been engaged in and researching this field for nearly a decade. Sufficient data and triangulation are also listed as enhancing credibility; this research collected data via survey, document analysis and observation which ensured plentiful and triangulated data.

4.8.2 Transferability

External validity in quantitative research is based on the sample being representative of the general population. This is not possible in qualitative research and transferability, as discussed above, is the equivalent concept. Although compared to generalisability, transferability operates a little differently than its quantitative equivalent. The onus to determine the ability to transfer the findings lies with the reader; my role is to provide sufficient detail to enable my reader to make a transferability judgement.

Strong qualitative research provides transferability through "Thick Descriptions" as proposed by Geertz (1973). Thick descriptions provide sufficient detail of the context to enable readers to judge whether the findings can be applied to their situations. This research will provide full and comprehensive detail of the context to enable transferability as appropriate. In addition to "Thick Descriptions", transferability can be enhanced by using multiple cases. The concept of multiple cases was proposed by Yin (2009), and this research repeats the implementation cycle twice, which could represent two cases.

4.8.3 Dependability

Dependability is the qualitative researcher's equivalent to reliability. In quantitative research, reliability means stability over time. This ability to produce the same results at a later time is not always the same in qualitative research. Action research is all about change, and therefore, dependability is more about tracking those changes so that the reader can see where they stand regarding recreating the research findings. This research will track and record all changes through the process so that the reader has clear visibility of the case being researched.

4.8.4 Confirmability

Objectivity in quantitative research means that the influence of the researcher on the object under study is minimised. In action research, it is well recognised that the researcher is part of the study and influences the process and findings. Objectivity, therefore, is not an option. The equivalent is confirmability, meaning that the data and interpretation are genuine. This research achieves confirmability by demonstrating the source of all data and making the data interpretation logic clear. This process will enhance the reader's confidence in the findings.

4.8.5 Rigour

The scientific field has a long history of quantitative research. Qualitative research in scientific fields can struggle to stand up to the long-established principles underlining rigour for quantitative studies. However, Mays and Pope (1995) stand over the rigour of qualitative research even in the field of medical research, which has long been associated with quantitative studies. They propose a strategy to ensure rigour in qualitative studies through systematic and "self-conscious" research design, data collection, interpretation and communication. A qualitative researcher's goal should be to enable another researcher to analyse the same data in the same way and come to the same conclusion. To achieve this rigour, the researcher must give adequate descriptions of their process, data, analysis and assumptions. Throughout this research, detailed explanations at all stages of the process aim to achieve rigour proposed by Mays and Pope.

Newton and Burgess, argue that the criticism of action research rigour is not always due to a lack of rigour but due to "a lack of an accounting of research rigour within action research projects" (2008, p. 27). Their suggestion of documenting and making the rigour visible to the reader will be adhered to in this research. Whilst Newton and Burgess propose a modified

Anderson and Herr (1999) framework; this research will use Winter's (1989) principles of action research.

Winter argues that the terms valid and validity should be used cautiously in action research. It is so easy to fall into the positivist view of the term with the requirements of generalisability and replicability. Action researchers, Winter contends, should focus on their process to ensure it is rigorous, and this is how research results can be valuable to others. Winter puts forward six principles of action research which are:

1. Reflexive critique
2. Dialectical critique
3. Collaborative resource
4. Risk
5. Plural structure
6. Theory, practice, transformation

Principles for action research were discussed in the earlier section regarding the research strategy, but Winter's list of action research principles was selected due to the suitability for this study. Each of these principles will now be discussed to demonstrate how rigour was ensured throughout this enquiry.

4.8.5.1 Reflexive Critique

Any account of an event or analysis of gathered data is coloured by the researcher's values, judgments, and assumptions (Fisher, 2007, p. 299). The purpose of a reflexive critique is to identify these values and assumptions to allow the reader to understand the researcher's viewpoint. A reflexive critique can also cause the researcher to review or reconsider values

or assumptions. Even if a review or reconsideration does not occur, a reflexive critique allows the reader into the researcher's mind and therefore better understand the proposals being put forward. Each cycle of action research in this enquiry will discuss my role to ensure that the reader can best understand my view, and any value reassessments should these occur.

4.8.5.2 Dialectical Critique

As well as subjecting the researcher to a reflexive critique as described above, dialectical critique is the process of subjecting "observed phenomena to a 'critique'" (Winter, 1989, p. 52). There are three characteristics to be considered as part of the dialectical critique. Firstly, the "context of necessary relationships"; in other words, the appropriate level of detail is needed for the acceptable interpretation of any results. Secondly, the "diversity of elements", for example, when we study teaching, the vast diversity of methods even from one teacher, can challenge the concept we are studying, i.e. teaching. Winter proposes that we should be looking for "unity concealed behind apparent differentiation, and contradiction concealed within apparent unity." Thirdly, "the tendency for phenomena to change", with an explanation of how something works, looks for the history of change within this system, as understanding this will allow the researcher to implement future changes more effectively.

This concept of dialectical critique will be followed in this research to ensure, where possible, that analysis is at the appropriate level, whilst not forgetting the constituent parts of the phenomenon and their history of change. Questioning and understanding these concepts will lead to more rigorous action research methods.

4.8.5.3 Collaborative Resource

In an action research enquiry such as this one, the researcher is never detached from the situation under study. The situation also involves other participants, both in the classroom, in the wider institution and beyond. The concept of collaborative resource to ensure rigour takes some of the principles of participatory research and participatory action research (PAR). As proposed by Kindon, Pain & Kesby, PAR is 'a democratic commitment to break the monopoly on who holds knowledge and for whom social research should be undertaken." (2007, p. 11). At its heart, the concept of collaborative resource is a drive to gather all stakeholders' views and opinions and ensure these opinions are considered, particularly if and when these views contrast or contradict my views.

This research ensured that students' views are represented via both the survey and the thematic analysis of students' reflective journals. Also, I regularly sought the student's views before, during and after the simulation sessions. Student views were included in the planning of subsequent cycles of research. Other viewpoints were also sought and considered, for example, when redesigning the module to incorporate the simulation, the approval process included both CIT colleagues and industry representatives.

4.8.5.4 Risk

Action research introduces risk by questioning the status quo. It is important that researchers acknowledge this risk, and Whitehead (2017, p. 395) proposes that the risks should be documented and the contradictions recognised. He expands to demonstrate the contradiction in his roles as part of his 1993 text *The Growth of Educational Knowledge: Creating Your Own Living Educational Theories*. All participants, including myself, enter the research with a degree of risk (uncertainty). It is only by recognising these concerns that a

researcher can address them. This recognition of risk should be done with reference to both ethics (participant peace of mind) and prudence (concern for the organisation under investigation) (Winter, 1989, p. 61).

A consideration of this concept of risk will also be included in each action research cycle. As outlined by Fisher (2007, p. 300), the research will benefit from a questioning of my own values and opinions, as well as an analysis of results, planned approach and even the underlying question. Rigour will be enhanced by ensuring constant consideration of all stakeholders' views, and their associated risk factors.

4.8.5.5 Plural Structure

The previous principles emphasise the importance of considering the multiple stakeholders in an action research setting and the multiple viewpoints each stakeholder might have at different points in the research process. This plural structure principle addresses concerns relating to how all these views can be included in a document written by only one person, myself.

One approach to achieve a plural structure is to ensure that all elements of the situations under study are explained, giving the reader an understanding of the entire context with the many players involved in the study. The data gathered and analysed will then be understood in the context from which it came. This thesis will ensure that the reader is fully aware of all elements that make up the phenomenon being studied.

4.8.5.6 Theory, practice, transformation

Action research leads the lecturer to review theory to solve a situation and change his/her practice; however, this final principle of theory, practice, transformation recognises that theory cannot dictate new practices without understanding the current situation. Successful outcomes will not be achieved with inflexible dictates, a certain degree of flexibility and understanding of the practical implications should be included.

In addition, the reverse influence of practice on theory should be recognised. This reverse influence has two aspects; firstly, if changes are achieved following the research, these changes will then influence the theory as the reality has changed. Secondly, if the research suggests changes to practice that are not feasible to introduce, this also needs to be fed back into the theory process. In other words, practical decisions may need to be made irrespective of the theory. This cycle of influence of theory on practice and practice on theory needs to be made clear to the reader to strengthen the rigour of the research process.

Fisher (2007) points out that these six principles from Winter (1989) form a useful series of checks to enhance an action research study's rigour; however, not all principles need to be applied. For this research, Winter's criteria will be discussed as part of each action research cycle. The relevant principles from Winter's criteria applied in each cycle will be identified to reassure the reader of this research process's rigour.

4.9 Researcher Role

As outlined by Wellington and Szcerbinski (2007) in their text on research in the social sciences, the researcher is often the research instrument. This researcher's influence is difficult to avoid and attempting to diminish this effect through covert research has ethical

considerations. Therefore, Wellington and Szcerbinski propose an alternative approach, which is to acknowledge the researcher effect and reflect on this bias. They continue to point out that a subset of reflection or thinking critically, is reflexivity, reflecting on the self, the researcher. This self-reflection should not be overly long or excessive but should include details of the researcher's background and opinions that are relevant to their role in the research study.

Herr and Anderson (2005, p. 31) discuss the aspect of researcher positionality in relation to the research. They introduce a continuum (shown in Figure 24) from insider to outsider with six positionality options. They contend that it is not often straightforward to define one's position. Insiders may have limited knowledge of their organisations, and outsiders can have much empathy and knowledge of the systems they are investigating. A researcher's position can also change across the research as relationships build throughout the process.

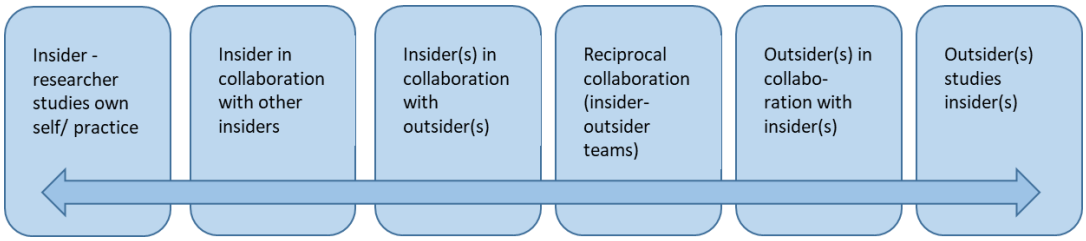


Figure 24: Continuum of researcher positionality. Adapted from Herr and Anderson (2005)

For this study, I was, for the most part, an insider working in collaboration with other insiders. However, at points in the research, outsiders are consulted. Also, the role of my PhD supervisor is that of an outsider regularly consulted on this process. Berger (2015) gives three means of keeping the balance as the researcher moves along the above spectrum: using a

log, repeated review, and seeking peer consultation. I used all three of the methods in this research.

There are frameworks and models that can assist with practitioner research; for example, Cunliffe (2016) proposes three ways of becoming critically reflective. Whilst I did not follow a formal reflexivity framework, a research diary and notes ensured that thoughts and findings were captured throughout the research process. Additionally, rigour was addressed by using Winter's criteria, as discussed earlier. At the reflection stage of each cycle, I reflect upon any influence my role might have had on the research process and my positionality in relation to the research.

4.10 Ethics

Researchers need to balance their role as professional scientists and their participants' rights, which may be compromised by the research. This concept, often referred to as the primary ethical dilemma in social research, has been called the "costs/benefits ratio", and it was developed by Frankfort-Nachmias and Nachmias (1992). Researchers need to balance the possible future benefits of the research against the costs or inconveniences imposed on the research participants. When conducting this assessment, the researcher is influenced by their own biases, and the assessment is subjective, but there is still merit in reflecting on this relationship.

In this research, it was felt that the requirements from participants were not too onerous, and the benefits to future students from possible research outcomes sufficient, to justify proceeding with the research as proposed. Critical elements in addressing ethical concerns are the use of a consent form for all participants, the freedom of participants to withdraw

without prejudice at any stage, and institutional ethical approval from the research ethics board in both participating institutions.

The first step in ethics approval was to establish if ethics approval needed to be from CIT, the institution where the research was taking place, or from DCU, the institution for which the research was conducted, or whether the process would need to be completed in each institution. Following an investigation, it was established that as the data would belong to DCU, and that this was where ethics approval was needed.

As the research includes human participants, an important part of the ethics approval is related to the risk level associated with the research. The risk is assessed based on three elements; the participants' competence, the methods being used and the nature of the study. This is shown in Figure 25. The continuum from low risk to high risk can be seen across the top with the three elements listed on the left. The influencing factors for each element are shown at either end of the continuum. Addressing the participant group element, as all participants were competent adults, puts this research into the low-risk category. Similarly, the nature of the study was at the low-risk end of the continuum. The methods were not completely anonymous and could be considered slightly invasive, but overall the study was given a low-risk rating.

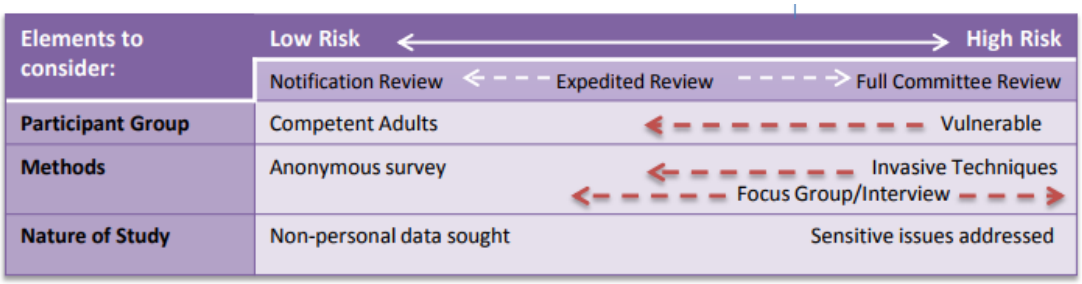


Figure 25: Research risk assessment - Source – DCU

The approval process also required preparing a plain language statement outlining the research and its implications for the participant in plain and simple terms. Also, the submission included an informed consent form, which is included as Appendix A. A draft of the questionnaire was also included as part of the ethics approval process. The final questionnaire is included as Appendix B.

The ethics approval submission for this research argued the case of a low-risk categorisation. The submission was prepared and submitted in early 2017, and the DCU Research Ethics Committee granted approval. This ethics approval was also registered with CIT to address their ethical concerns.

4.11 Conclusion

The decisions outlined in this chapter are fundamental to the success of this research study. The research design addressed important choices regarding research paradigms and explained how this research sits in the pragmatic paradigm. The further discussion identified the logic and reasoning processes underlying the study. The research onion model was introduced to guide the discussion of fundamental questions regarding the methodological choice, research strategy, research time horizon and the research techniques. The crucial elements of research sampling, validity, rigour, researcher role and ethics were also discussed. The key decision made was the selection of an action research model to support this research. The suitability of action research as a model was influenced by both the research context and process. Set in the context of a higher education institution and supporting a process of practitioner-led reflective practice, the action research model best supports this research going forward. The next three chapters represent three cycles of this action research cycle over a period of two years.

5. The Preparatory Cycle

5.1 Introduction

This chapter is the first of three action research cycles presented in this thesis (Chapters 5, 6 and 7). This chapter covers the preparatory cycle, which covered the necessary steps before the intervention could take place. The format of this chapter and the two subsequent action research chapters (6 and 7), will follow the format of the action research model that was selected Figure 21 on page 84. Figure 26 gives the full action research model followed from the definition/context stage through the three cycles of action research. This chapter will address the definition/context and preparatory cycle. The reflections from this preparatory cycle will form part of the planning phase of the first implementation cycle.

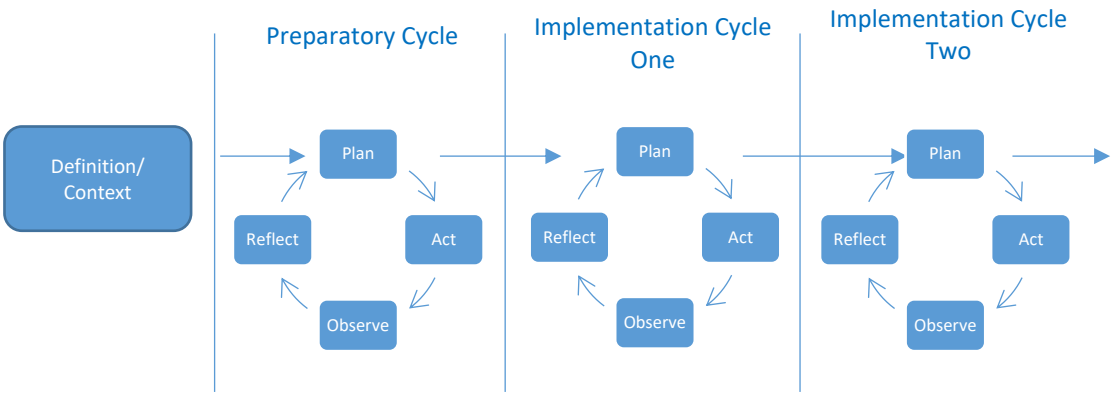


Figure 26: Complete action research model for this study

5.2 Definition/Context

Teaching and higher education have long been associated with action research. Beauchamp (2015) outlined the long history of criticism of reflective practice, while still recognising its merits and importance for teachers. Therefore, the action research approach of looping through cycles was suited to both the research question and higher education context.

Before the action research cycles could begin an assessment phase defining the key issues and setting the research in context was undertaken.

As mentioned in the first chapter of this document, I have implemented many alternative approaches to achieve experiential learning in my classroom. Some of these were outlined earlier, and two elements, in particular, formed the foundations of this research study. The first was the redesigned Project Management module completed as part of my MA in Teaching and Learning in Higher Education. A project management module with a very traditional delivery of lectures, written assignment and final exam was redesigned using the guiding principles of constructive alignment as set out by both Race (2009) and Biggs (2003) and the principles of experiential learning as discussed by Kolb (1984).

The redesigned project management module allowed students to plan a project by creating key project planning documents and creating a Gantt chart using project software. The final assessment element was a reflective journal where students linked module content with their reading and experiences. I could see the benefits of the more experiential approach. Students were more engaged in the classroom, more engaged with the content and student feedback supported these observations (Chart 1). In the four years since the rollout of this new module, more than 90% of students each year responded that the module was either very or extremely worthwhile.

Following the success of the project management module redesign, I sought to include experiential learning in the more content-heavy strategic management module on my timetable. To this point, many interventions had been successful to greater or lesser degrees. The use of cases studies and live case studies had been implemented in various forms. While successful in achieving some experiential learning, following extensive reading it was clear, as was discussed in more detail in the literature review, that there are merits in using

software simulation in the teaching of strategy at third-level (Keys & Biggs, 1990). My MA research showed that students recognised the benefits of software simulations but continued to doubt the merit in their use (Crowley, 2014; Crowley et al., 2017). This conflict in student opinions formed the second cornerstone of this research.

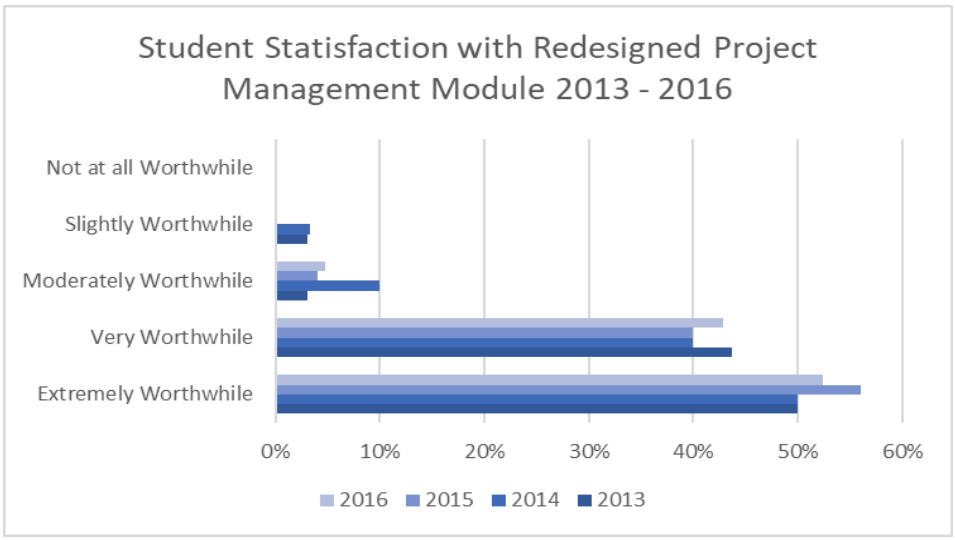


Chart 1: Student satisfaction with redesigned project management module

The question was whether there were merits associated with the use of simulation that could convince students to reassess their doubts. As ultimately, all students need to find a job, I began to explore the competences sought by employers. This research grew into an investigation of a possible link between the use of strategy simulation and student employability competences. After research and reading, it became clear that this intervention aimed to introduce experiential learning to the strategic management module via a strategy simulation implementation. The objective was to investigate whether using a strategy simulation in the teaching of strategic management, might enhance students' soft skills and employability competences. If a connection could be established, the added

employability skills would offer students an incentive perhaps to put their reservations regarding simulations to one side.

5.3 Plan

This stage of the preparatory cycle identified the activities that needed to be addressed and prepared for their implementation in the act phase. This research question was approached in an exploratory and developing way as proposed by Agee (2009, p. 431): “The reflective and interrogative processes required for developing research questions can give shape and direction to a study in ways that are often underestimated.” This research was initiated with a broad question in mind, and the action research cycles allowed for refinement of that question throughout the research study.

The literature outlines various benefits of using software simulations; this research aimed to establish whether there are benefits relating to soft skills or employability competences. An initial step was to identify the employability competences through further reading. This literature review began immediately, and a process of identifying the key competences was undertaken.

Once competences were identified, some of the research's logistical elements needed to be prepared: in particular, a suitable module was selected and prepared for the changes associated with using the software simulation. In addition, a suitable software simulation was selected from the market. The final two preparatory steps were the acquisition of the simulation and the design of an appropriate student questionnaire.

The preparatory activities included the following:

- Creating a competence shortlist following literature review.
- Identifying a suitable module for use in research.
- Preparing a module through a constructively aligned module review procedure.
- Identifying software through a suitable software evaluation process.
- Ensuring funding approval and software installation are in place.
- Designing survey questionnaire.

The plan phase was concluded with a clear view of the activities needed to prepare for the first implementation cycle. The first essential step was identifying the employability competences; this would feed into all subsequent steps. A timeline was created to determine when specific activities needed to happen, including any dependencies between activities, in addition to, identifying actions that could happen in parallel.

5.4 Act

This phase of the preparatory cycle put into place the activities identified in the previous plan phase.

5.4.1 Competence shortlist identification

A review of the literature identified many competences, so a prioritisation or shortlist was needed to create a more streamlined and manageable list. Collet, Hine and Du Plessis (2015) argue that a common language regarding skills and employability between student, academic and industry stakeholders is needed. In the earlier discussion on competences, it

was mentioned how Wu (2009) described a competence model as a cluster of competences – it was with this concept in mind that this research sought to create a shortlist of competence clusters. To create the shortlist for this research Irish, British and European surveys that represented the views of graduates' future employers, as well as the Department of Education's National Skills Strategy were analysed and subsequently clustered under what became twelve competence headings. The research studies used are outlined below.

Research Study One was the National Survey of Employers' Views of Irish Higher Education Outcomes commissioned by IBEC (Irish Business and Employers' Confederation). IBEC represents small and medium-sized enterprises in Ireland. This is an Irish survey and was selected because it represents employers' views of graduate competences. (IBEC, 2012)

Research Study Two was the National Employer Survey commissioned by the Higher Education Authority, SOLAS and Quality and Qualifications Ireland, to get employers' views on Irish further and higher education outcomes. This Irish study and was selected because it represents the employers' view of graduate competences. (Higher Education Authority and SOLAS and & Quality and Qualifications Ireland, 2015)

Research Study Three was Ireland's National Skills Strategy 2025, a policy document created by the Department of Education and Skills, Ireland. The document aims to set out the vision and targets to guide education and training strategy. This Irish study and was selected because it represents the Irish Department of Education's view of future graduate competences. (Department of Education and Skills, 2016)

Research Study Four was the Inspiring Growth, Education and Skills Survey 2015 commissioned by the Confederation of British Industry (CBI) and undertaken by Pearson publishing. This study was selected as it gave the UK employers perspective of graduate

competences. Ten percent of all 2016 Irish graduates took up employment overseas, and of these overseas employed graduates, the UK is the most popular overseas destination (The Higher Education Authority, 2018, p. 6). (Confederation of British Industry / Pearson, 2015)

Research Study Five was the Employers' Perception of Graduate Employability requested by European Directorate-General for Education and Culture and coordinated by European Directorate-General Communication. The survey was conducted by Gallup Hungary, to gather insights into the needs and perceptions of graduate recruiters, by monitoring the opinions of staff in companies throughout Europe. This survey was selected because it gives the view of European employers and their expectations of graduate competences. (GALLUP on behalf of the European Commission - Directorate-General for Education and Culture, 2010)

The many different competences from the various research studies were first gathered and then clustered to identify cluster headings. Once cluster headings were identified, the competences taken from the research studies were reviewed again and dropped into one of the appropriate clusters. This process was undertaken using paper and a large whiteboard. All research studies' competences were listed on separate pieces of paper, one piece of paper for each competence from each study. On the first pass, competences that mentioned common skills were grouped together; for example, any competence mentioning business acumen were grouped together.

Following this first grouping exercise, it was possible to rank the competences, and those with the most entries were ranked highest. As a second grouping exercise, any competences as yet unpaired/ungrouped were then reviewed again with reference to the more popular groupings created in the first pass. A suitable group or cluster was then identified for each of these ungrouped competences. This outcome of this process can be seen in Table 6, the

individual entries for business acumen include those that specifically mention business acumen; these would have been grouped on the first pass. There are then further entries; for example, “Knowledge about their chosen job/career”, which would have been included in this grouping on a subsequent review.

This grouping exercise was repeated several times until twelve clusters were identified. Three competences could not be grouped into a cluster; creativity/innovation, decision making and leadership. Creativity came from study three, Ireland’s National Skills Strategy 2025. Although not listed on the other studies it could not easily be accommodated into any of the other clusters so was listed as a competence on its own. Decision making could have been grouped with analytical skills, but it was explicitly mentioned in study five, Employers’ Perception of Graduate Employability, that there was a difference between the ability to analyse and decide. For this reason, it was decided to leave it as a competence on its own. Leadership is the third competence, where only one listing was found. Again, as with creativity, it did not fit easily into any of the other groupings, so was left as a competence on its own.

The other two clusters that could perhaps be considered similar are organisation skills and self-management. However, they represent different perspectives; the organisation skills cluster represents planning and time management skills, whilst the self-management cluster is more related to motivation, positive attitude, and professionalism. Therefore, the two clusters were not combined, and the difference between them was noted and remembered as the research progressed to the data-gathering phase.

The process explained above was followed until twelve clusters were identified. Whilst qualitative data analysis such as the process outlined was, of course, interpretive, use of a structured process as outlined by Cohen et al. (2011, pp. 223, 554) aimed to ensure a

comprehensive list of competences reflecting the details from each of the five data sources was secured. The employability competence headings resulted from the analysis of Irish, UK and European, employer and education reports. They are clustered to the point where no further reduction (below 12) was possible. Therefore, the twelve competences represent the soft skills required by our third-level graduates, and they are the basis of this research study going forward. The mapping process showing the clusters and the underlying competence detail from the reports is shown in Table 6. The twelve competence are listed here in alphabetical order.

5.4.1.1 Final Competence Shortlist

1. Analytical skills
2. Business acumen
3. Communication skills
4. Creativity/Innovation
5. Cultural awareness
6. Decision-making skills
7. Entrepreneurship
8. Flexibility/Adaptability
9. Leadership
10. Organisational skills
11. Self-management
12. Team working

COMPETENCE CLUSTERS	RESEARCH STUDY ONE	RESEARCH STUDY TWO	RESEARCH STUDY THREE	RESEARCH STUDY FOUR	RESEARCH STUDY FIVE
ANALYTICAL SKILLS	Concern for quality and detail Thinking critically and analytically	Attention to detail Numeracy/ Processing and interpreting numerical data	Critical & analytical thinking	Problem-solving Skills of analysis	Analytical & problem-solving skills
BUSINESS ACUMEN	Ability to apply professional and/or technical knowledge in the workplace Business acumen/awareness	Business acumen/awareness Application of technical knowledge	Business acumen	Technical skills Knowledge about their chosen job/career Business & customer awareness	Sector-specific skills

Table 6: Employability competence clusters

COMPETENCE CLUSTERS	RESEARCH STUDY ONE	RESEARCH STUDY TWO	RESEARCH STUDY THREE	RESEARCH STUDY FOUR	RESEARCH STUDY FIVE
COMMUNICATION SKILLS	Communicating verbally appropriately and effectively Communicating in writing appropriately and effectively	Effective written communication Effective verbal communication	Communication	Communication skills	Communication Skills
CREATIVITY / INNOVATION			Creativity		
CULTURAL AWARENESS		Ethically and socially aware		International cultural awareness	
DECISION-MAKING SKILLS					Decision-making skills
ENTREPRENEUR-SHIP	Entrepreneurial skills	Entrepreneurial	Innovation and entrepreneurship		

Table 6 (ctd.): Employability competence clusters

COMPETENCE CLUSTERS	RESEARCH STUDY ONE	RESEARCH STUDY TWO	RESEARCH STUDY THREE	RESEARCH STUDY FOUR	RESEARCH STUDY FIVE
FLEXIBILITY / ADAPTABILITY	Openness to change Capacity to be flexible and adaptable	Adaptability and flexibility			Ability to adapt to and act in new situations
LEADERSHIP	Leadership / Leading others				
ORGANISATIONAL SKILLS	Working effectively on their own (e.g. personal organisation, commitment and time management)				Planning & organisational skills

Table 6 (ctd.): Employability competence clusters

COMPETENCE CLUSTERS	RESEARCH STUDY ONE	RESEARCH STUDY TWO	RESEARCH STUDY THREE	RESEARCH STUDY FOUR	RESEARCH STUDY FIVE
SELF-MANAGEMENT	Taking responsibility Self-motivation Ability to cope with work pressure	Working effectively on their own Ability to cope with work pressure Professionalism and work ethic Positive attitude and energy Personal commitment Reliability		Positive Attitude to work Self-management / Resilience	
TEAM WORKING	Working effectively with others (e.g. team and inter-personal skills)	Working effectively with others	Teamwork	Team working	Team working skills

Table 6 (ctd.): Employability competence clusters

The analysis outlined above and shown in Table 6 became the competence shortlist reflecting graduate requirements from industry and educational perspectives in Ireland, the UK and Europe. These competence clusters became the basis of this research going forward.

5.4.2 Module selection

Some discussion on module selection was outlined in the Research Sample section of the Methodology chapter. In discussing research sample selection, it was mentioned that class size and access to the class via staff timetabling was important. An additional criterion considered when selecting the module was the possibility of facilitating sufficient groups of the appropriate size to accommodate the strategy simulation. Wolfe and Chacko (1982) argue that team size is as important a decision in the simulation setup as student ability or game complexity. Following their research on the effects of team size, they proposed groups of more than three. In their extensive meta-analytical review of social loafing or freeloaders, Karau and Williams (1993) determined a direct correlation between group size and social loafing. Therefore, larger group sizes were avoided, and a group size of four was planned. Additionally, Cosse, Ashworth and Weisenberger's (1999) recommendation of equal group sizes was where possible planned into the implementation.

The element of competition between groups was also important to the implementation, so it was planned that at least five student groups would be created, and a minimum class size of 20 (5 groups of 4 students) was set as the requirement were possible. The very large classes were avoided as outlined in the research sample discussion, with concerns relating to budgeting due to licencing costs and the preference for a pilot with a smaller cohort before rolling out to a

larger student group. As mentioned in the Research Sample section earlier, a final logistical element was that the module had to be on my timetable or available to me.

Considering all the elements just discussed, a strategic management module from the Bachelor of Business in Management, delivered to part-time students was identified for this research. This module's class size is usually between about 20 and 35 students, and the module was already on my timetable. A plan was then put in place to redesign this module to accommodate the software simulation.

The School of Business in CIT underwent a programmatic review process through the academic year 2015/2016. Programmatic review is a systematic process undergone by each academic school within CIT on an approximate five-year cycle. Module amendments are possible on an annual basis, but a large-scale module review and update such at that proposed including the piloting of a software simulation was more suited to the programmatic review process. Therefore, the module redesign was incorporated as part of the School of Business' programmatic review process.

5.4.3 Module redesign

Constructive alignment and the merits of mapping learning outcomes to assessment and teaching material were discussed earlier in the literature review (page 35). Before implementing constructive alignment, a number of the available module redesign frameworks were reviewed. The benefit of using a design framework, according to Gustafson and Branch (2002), is that a structured framework enables the designer to visualise, direct and manage the module design process.

Dick, Carey and Carey published their book *The Systematic Design of Instruction* in the late 1970s, and it is now in its seventh edition (2014). The Dick and Carey Instructional Design model is still in use today. The book encourages reflection on the broader context when designing instruction, consideration of the teacher, learners, materials and learning environment are all crucial to a successful design and subsequent learning.

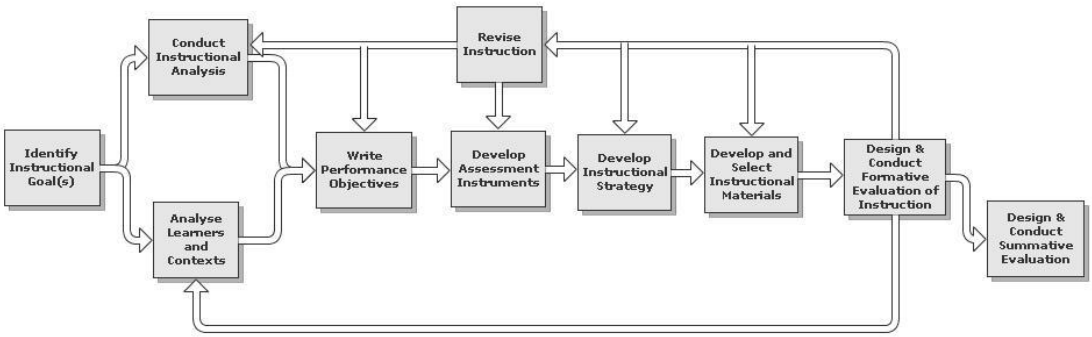


Figure 27 Dick & Carey instructional design model. (Dick, Carey and Carey, 2014)

Another common instructional design tool is the ADDIE model, named after the stages of its processes, Analyse, Design, Develop, Implement, and Evaluate. Although the ADDIE model is often thought to have roots in the US army, Molenda (2015) contends that the actual source of ADDIE is uncertain. Molenda emphasises how the ADDIE model shows the "interconnections between the development of instructional interventions and the development of performance improvement interventions." He recognises the lack of an "original, authoritative" version of the ADDIE model. It is most frequently represented in a sequential or interconnected manner, as shown in Figure 28.

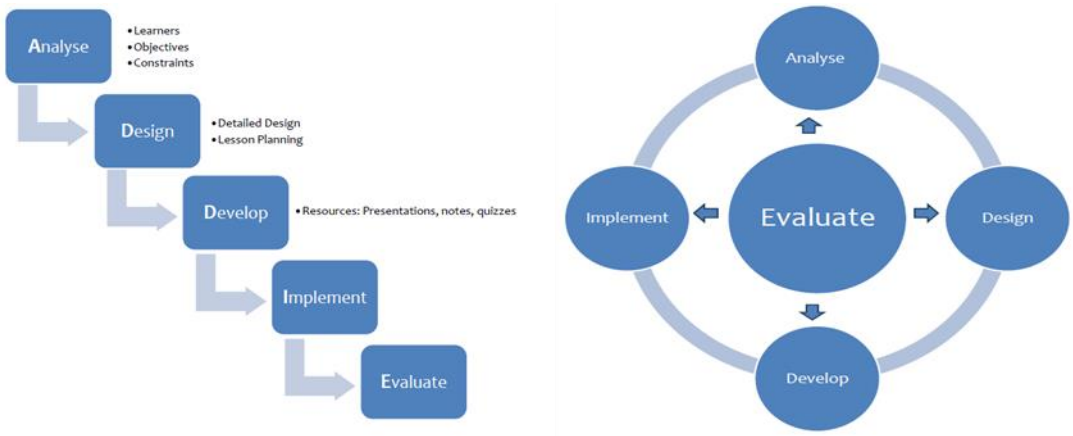


Figure 28: Sequential and cyclical representation of ADDIE

As this research was based on the cyclical action research model, the cyclical ADDIE model was chosen over the more structured sequential ADDIE approach or, the more detailed and structured approach proposed by Dick and Carey. The module was redesigned using the steps of the ADDIE model as outlined in the next sections

5.4.3.1 Module Redesign –Analyse existing Module

The original strategic management module is included as Appendix C. The original module was created when CIT moved to a module and semester format in 2010. It was a traditional style module: very much "chalk and talk", in its delivery and assessment. The student workload consisted of lectures and independent study. In the case of part-time delivery, a tutorial was also included in the workload, but for practical reasons, this tutorial time was combined with the

lecturing time on the student timetable. Therefore, it was difficult to differentiate between lecture time and tutorial time, and in reality, they were combined without distinction.

Workload: Part-time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lectures & Case Studies	1.5	Every Week	1.50
Independent & Directed Learning (Non-contact)	Private Study	5.0	Every Week	5.00
Tutorial	Case study application of principles	0.5	Every Week	0.50
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	2.00

Figure 29: Student workload breakdown for original strategic management module (before redesign)

The assessment was also traditional in its format. There was a project to be completed in week eight worth thirty percent, and the final exam was worth seventy percent. Although I did not design the original module, I delivered it since the 2010/2011 academic year. With no input into a module's design, a lecturer can manipulate a little but has to operate within the confines of the module as written. The module descriptor frames the students' expectations; therefore, deviation from content, workload or assessment as outlined is difficult.

From student feedback and my observations, it was clear that the module was not allowing students to engage deeply with the module content. The main assessment instrument was a seventy-percent summative final exam – students got no constructive feedback from this process other than a grade weeks later. It was emphasised that examples and applied discussion

were needed in the exam, and questions were phrased to elicit more meaningful and applied answers. However, as with any high-stakes exam assessment, there was not a lot of engagement from students.

The remaining assessment instrument was a thirty-percent assignment during the semester. Various formats were used for this assessment, and it was generally a case study distributed on paper with student responses submitted individually in document format. Student feedback was built into this assessment over the years. However, the weighting of this assignment at only thirty-percent, left little room for creating a more dynamic or challenging assignment.

During the 2015/2016 academic year the contrast in student feedback from the project management module, with its continuous assessment structured around experiential learning, and the "chalk and talk" strategic management module was very evident. This contrast can be seen in Chart 2. While, the results compare two different modules and therefore, can be distorted by the students' view on module content and delivery, I was confident that a well-designed change to the strategic management module would significantly change the students' view of the module.

Through my experience, research and reading, the benefits of experiential learning were explored, and a redesign was planned. Software simulation was chosen as the method to introduce experiential learning. My previous explorations with experiential learning in this module were outlined in the Research Context chapter. The benefits of simulations and their suitability for strategic management were discussed as part of the Literature Review chapter. While the redesign needed to be within the constraints of the existing learning outcomes, the

goal was to introduce a different environment, allowing students the opportunity to apply their learning from the module theory.

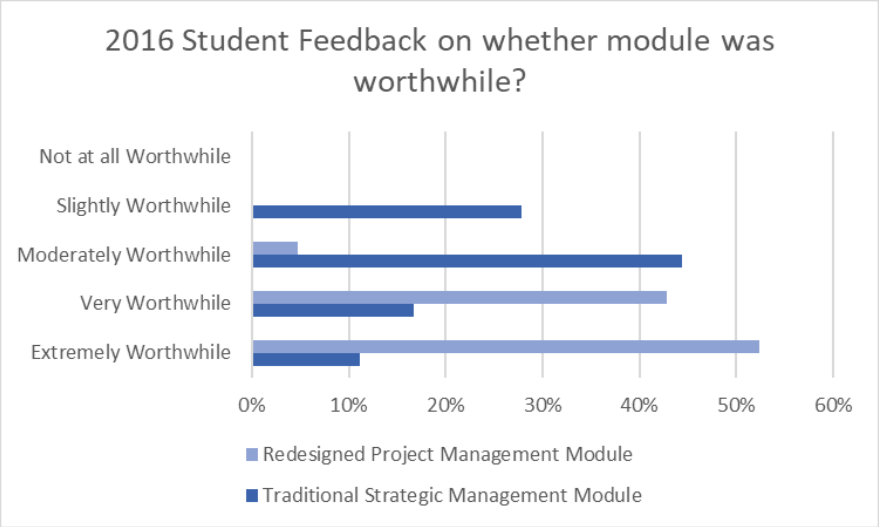


Chart 2: Contrast of student feedback from redesigned PM & existing strategic management modules

5.4.3.2 Module Redesign –Designing Updated Module

When designing a module, attention should be paid to the programme learning outcomes, to ensure the module fits with the overall aims of the programme. The module under discussion sits on the Bachelor of Business in Management, a degree for part-time students. From the programme description submitted as part of the 2016 programmatic review, the educational aim of the programme is:

> *"To produce graduates with the specialised education and training to apply a broad range of skills required in contemporary general management. This Degree is primarily for persons coming from a variety of backgrounds, who*

intend to develop or progress careers in management, covering a broad industry base."

(Cork Institute of Technology, 2016a).

This programme objective was considered when redesigning the module, while also bearing in mind that the students were part-time students, many already in the workplace with experience to share and draw upon throughout the strategy module.

There is much research and literature supporting the theory that in order to understand a topic, students need to be actively involved in it (Gibbs & Jenkins, 1992). Lectures remain the most common theory delivery format at third-level institutions, and their efficiency in disseminating information can be seen. However, the lecture time needs to be adapted to improve the students' learning experience, or lectures need to be supported with other activities that allow the students to apply and understand the theory being discussed.

Recognising lectures' efficiency, it was proposed to continue with the lecture as the primary contact format for the new strategic management module. The students would continue to have 1.5 hours of lectures per week, facilitating the delivery and discussion of strategic management theory. The lecture delivery would be supported with related video, case study discussion and group work.

Whilst the benefit of tutorials is well recognised (Bloom, 1984; Wiggins, Grafsgaard, Boyer, Wiebe, & Lester, 2017), part-time programmes in CIT have suffered from resourcing challenges. Due to tutors being unavailable, lecturers are assigned the tutorials. This results in little distinction between lectures and tutorials, indeed in many cases, the lectures and tutorials are incorporated, resulting in extended lecture time and no tutorials. Instead of the 30 minutes of

tutorial time previously allocated, which was difficult to separate from the lecture content, each week would now have 30 minutes allocated to a workshop format. The interactive workshop format cannot easily be merged into lecture time. It would allow students to work in groups to prepare for the simulation and participate in the simulation later in the semester. Towards the end of the semester, these workshops would also allow time to discuss feedback from the simulation sessions. It could also be possible to front-load some of the early lectures in the semester to deliver content across two-hour lectures and then allow additional workshop time when the students need to prepare and participate in the simulations.

Workload: Part-time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lecture & Discussion	1.5	Every Week	1.50
Lecturer-Supervised Learning (Contact)	Workshop session, student group work and interaction with simulation software.	0.5	Every Week	0.50
Independent & Directed Learning (Non-contact)	Reading, Case Studies, Interaction with material on Student Learning platform	5.0	Every Week	5.00
			Total Hours	8.50
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	2.00

Figure 30: Student workload breakdown for original strategic management module (after redesign)

When participating in the simulation, the students would either use their own devices or access computer laboratories to access the simulation software. The timing of the simulation sessions would vary depending on the format implemented. These interactive sessions would enable the

student groups to use the simulation software and make the necessary business decisions in their simulated environment. Feedback from the simulation on their decisions would be immediately available, and the share price following their decisions could be compared between student groups to introduce a competitive element to the exercise. AACSB has stated that business games can be used for assurance of learning programmes; however, I would agree with Wolfe's (2016) research that the game itself is an incomplete evaluation. Therefore, the simulation share price would have no impact on module assessment or grade.

5.4.3.3 Module Redesign –Developing Updated Module

The UCD model for an aligned curriculum was introduced in Figure 4 on page 36. The model is based on the principles of constructive alignment, and the first step in their proposed process to an aligned curriculum is the design of learning outcomes. All modules need to sit within the context of the overall programme structure and content. Therefore, while developing this module's learning outcomes, attention was paid to the overall programme learning outcomes. The newly designed module has four learning outcomes:

1. Analyse an organisation's external business environment to develop a competitive position.
2. Identify an organisation's internal sources of competitive advantage.
3. Use industry recognised tools and frameworks to plan, develop and implement strategies in a simulated business environment.
4. Evaluate the outcomes of the business simulation process to identify key aspects of the learning process.

Table 7 gives the overall programme outcomes for the Bachelor of Business in Management. Each module on the programme needs to map their learning outcomes to these programme learning outcomes. The newly designed Business Strategy Simulation module was able to record at least one of its learning outcomes against each of the programme outcomes. Therefore, the module will be a key element in enabling students to gain the overall programme learning outcomes. This mapping is shown in Figure 31.

Programme Outcome		Description
PO1	Knowledge – Breadth	A specialised knowledge across a range of Management disciplines covering theory, principles, processes, techniques, their applications and potential.
PO2	Knowledge - Kind	A critical awareness of current issues in Management and the ability to demonstrate flexibility and adaptability in order to contribute to the achievement of Organisational goals.
PO3	Skill - Range	A range of skills such as conceptual, diagnostic, analytical, problem-solving, decision-making and the ability to contribute to the strategic decision-making process within the organisation.
PO4	Skill - Selectivity	An ability to address both structured and unstructured problems and to identify, prioritise and solve issues of concern to the success of the organisation.
PO5	Competence - Context	An understanding and awareness of the different contexts and environments in which organisations operate and to be adaptable, flexible and responsive to change.
PO6	Competence - Role	An ability to assume a leadership role within the organisation & to create, initiate & stimulate an effective working environment within the organisation.
PO7	Competence - Learning to Learn	An understanding of the need to review and evaluate skills, abilities and knowledge base through an appreciation that continual professional development brings rewards, benefits and staff retention leading to organisational success.
PO8	Competence - Insight	An ability to act as a role model in the workplace, earn the respect of fellow employees and encourage them to offer new ideas and spread innovative knowledge and learning within the organisation

Table 7: Overall programme outcomes for Bachelor of Business in Management

Book of Modules for ProgrammeBachelor of Business in Management.pdf

Programme Outcomes		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
M/E	Supporting Modules								
M	MGMT7069: Business Strategy Simulation	✓4	✓4	✓6	✓4	✓5	✓4	✓4	✓4

Figure 31: Mapping of learning outcomes of newly designed module to programme learning outcomes

The next step towards an aligned curriculum was the design of the assessment. As with the project management module, an assessment-as-learning approach was taken to redesign the assessment elements. This approach is supported by Ramsden (2003, p. 68) when he states, "Unsuitable assessment methods impose irresistible pressures on students to take the wrong approach to learning tasks." Entwhistle and Entwhistle (1991) discuss how preparation for examinations can hamper a student's effort to understand and interpret the theory.

Course Work				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Presentation	Group presentation explaining strategy decisions taken to date and justifying future strategy decisions	1,2,3	30.0	Week 6
Presentation	Group presentation analysing strategy decisions taken to date and associated feedback received from the simulation	1,2,3,4	30.0	Week 10
Reflective Journal	Individual student reflection, critical analysis and further research on the strategy process and the performance of their firm within the business simulation.	1,2,3,4	40.0	Sem End
No End of Module Formal Examination				
Reassessment Requirement				
Coursework Only *This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination*				

Figure 32: Assessment breakdown for redesigned Business Strategy Simulation module

Applying the principles of assessment-as-learning meant a terminal exam was replaced with a continuous assessment approach. This approach ensured that students would have sufficient time to engage with the module material, and adequate processes could be included to facilitate constructive feedback. The redesigned assessment elements would support the module's learning outcomes, whilst also ensuring the opportunity for deep learning of the module content and authentic assessment of student learning.

The choice of a reflective journal as an assessment tool is supported by the importance of reflection to the experiential learning process. Also, a reflective assessment is supported by the research of Finch et al. (2015). They show that a reflective piece allows all students to learn from a simulation, even those that may have had a less positive experience. The full module description of the updated Business Strategy Simulation module is included in Appendix D. The final step in the implementation of a constructively aligned module is the design of the teaching. This step of the process will be addressed in greater detail during the implementation cycles.

5.4.3.4 Module Redesign –Implementing Updated Module

Modules are developed in CIT within a software solution known as Akari Curriculum Management. This software scaffolds the process around module creation, editing and approval, as well as managing module version control. Akari also enables CIT to link modules to programmes and to produce a book of modules that can then be prepared for panel approval of the updated programme. The newly designed module was entered into Akari in accordance with CIT module development procedures in time to submit as part of the programmatic review process.

5.4.3.5 Module Redesign –Evaluating Updated Module

In April 2016, the module was presented and discussed along with all elements of the updated Bachelor of Business in Management programme at the programmatic review panel meeting. The panel consisted of two academic members from other Institutes of Technology, two industry representatives and one representative of the Registrar's office in CIT.

The panel session recommended the updated programme to academic council for revalidation for five years, or until the next programmatic review. This decision took effect from 1st September 2016. The overall programme received positive feedback from the academic and industry panel members. In particular, the redesigned Business Strategy Simulation module received some positive comments. The following comments were noted:

"The simulation will allow the students to experience some of the everyday challenges they might meet in the workplace."

"I am pleased to see CIT implement a simulation within one of their modules, as it gives the students a more interactive and therefore more realistic view of the impact of their decisions."

Source: Meeting Notes, Programmatic Review Panel, April 12th & 13th 2016, Tourism & Hospitality Board Room, Cork Institute of Technology

There were also questions posed regarding the future plans for software simulation within the School of Business in CIT. A brief outline of this research was given, and whilst no commitment was made, it was mentioned that the outcome of this research might enable the rollout of simulation software to other modules in the future. The panel welcomed the prospect of more

widespread use of simulation software, and all expressed an interest in the outcome of this research.

5.4.4 Simulation software selection

Going back to the 1980s, when off-the-shelf simulation packages did not exist to the same extent, Christy & Watson (1983) established that most evaluation methods were informal, and most organisations were influenced by a product champion, external reference visit or discussion at an industry trade event. In Chapter Three, I discussed the variety of software available and the difficulty in objectively narrowing down the field.

In addition to the number of software solutions on the market, complexity is added by the variety of methods available to assess or evaluate the market. Alomair, Ahmad and Alghamdi (2015) analysed the various methods available to evaluate simulation packages. They identify eight distinct methods, which they expand to eleven, due to some methods having more than one variation. Summarising their research, they state how the first method, that of generating evaluation criteria, forms the basis of most other methods. In their words, “Criteria were the basics for most evaluation methods. Despite some limitations of such methods, it reduces bewilderment and dexterity in the presence of numerous simulation packages in the market.” (Alomair et al., 2015, p. 255). Jadhav and Sonar (2009), looked at software packages across many disciplines and analysed the evaluation technique recommended in the reviewed literature. This research also showed a leaning towards evaluation criteria.

The research cited above highlights the distinct preference for a list of evaluation criteria against which the various packages can be measured. As a result, it was proposed to follow a similar process in this research, and I duly began to prepare a list of evaluation criteria against which software packages could be assessed.

Tewoldeberhan, Verbraeck, & Hlupic (2010) also conducted a literature review with reference to simulation software selection frameworks. Their research on the consulting company Accenture's simulation software decision-making process summarises the main contributions from the relevant literature on simulation software selection. Many of the literature's criteria and frameworks support the selection of more complex simulation packages than the one envisaged in this research. In most cases, the simulation software under discussion is the software that would allow the creation/generation of a simulation. In particular, many of the articles are focused on software to simulate the manufacturing process.

The complexity of simulation software and the range of solutions available is evident from the research of Hlupic, Irani and Paul (1999) who produce a comprehensive list of 161 selection criteria. Seventy-two can be immediately discounted as they are not relevant to the type of simulation software solution envisaged in this research. Of the remaining eighty-nine criteria, only five were deemed relevant to this research's software selection process. Therefore a wide variety of selection criteria exist, but not all are relevant to each software selection process.

Similarly, Nikoukaran, Hlupic and Paul (1999) point out the challenge of getting the number of categories/groups for criteria correct. Research papers have varied from three categories of evaluation criteria to eleven categories. In addition, they recognise the lack of a common

standard or list of criteria; with this background, they produced a hierarchy of selection criteria shown in Figure 33.

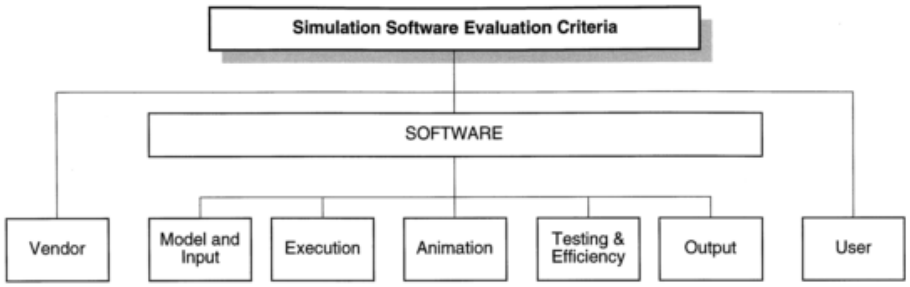


Figure 33 Main criteria groups of hierarchy - (Nikoukaran et al., 1999)

As with the research of Hlupic, Irani and Paul, the framework of Nikoukaran, Hlupic and Paul is more complex than was needed for this selection process, so the relevant parts were fed into the selection criteria for this research. In particular, their criteria under vendor and user were taken into the model for this research. Not all headings under these categories were relevant, so a subset of relevant criteria was included in the final selection shortlist.

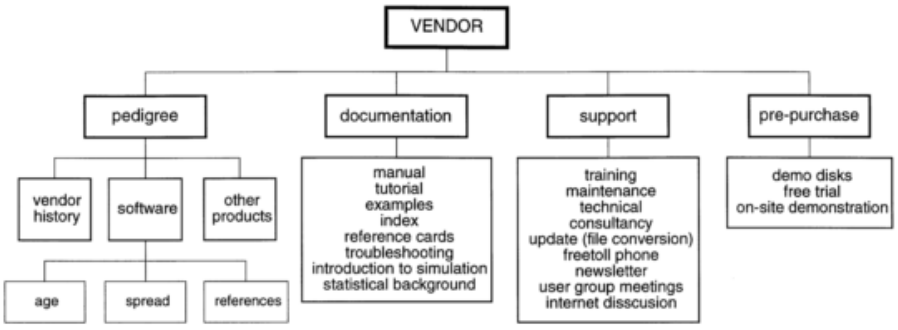


Figure 34: Criteria related for vendor group - (Nikoukaran, Hlupic and Paul., 1999)

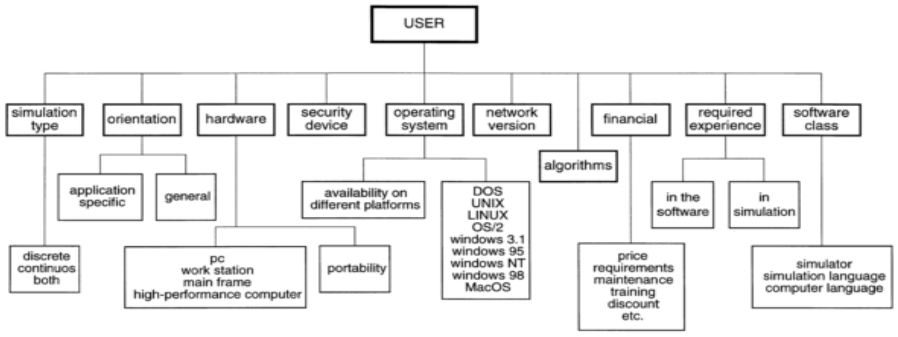


Figure 35 Criteria categorised in user group - - (Nikoukaran, Hlupic and Paul, 1999)

The research of Jadhav and Sonar (2009), Hlupic, Irani and Paul (1999) and Nikoukaran, Hlupic and Paul (1999) were used to create a list of relevant evaluation criteria for this research. In addition to this, a discussion with the IT department in CIT added some additional criteria. Finally, I also had my own evaluation criteria to include. These five sources of evaluation criteria were combined to produce a final list of criteria. These five sources and the criteria drawn from each are shown in Table 8.

Source	Criteria
(Nikoukaran et al., 1999)	Vendor Pedigree, Documentation, Post-Purchase Support, Pre-Purchase Support, Hardware independent, Web Front End, Price, Maintenance, Training
(Hlupic et al., 1999)	User-friendliness, Visual Display, Printing Facilities, Robustness, Level of Detail
(Jadhav & Sonar, 2009)	Scalability, Backup and Recovery, Number of installations, Cost Licence etc., Number of installations/users, Hardware Requirements, Reports
CIT IT Department	Cost, (Licence / Training / Upgrade / Maintenance), Maintenance & Upgrades, Service Level Agreement, Quality of support
Researcher Criteria	Match to LOs of module, Ease of Installation / Setup, Complexity of Simulation Scenario, Academic Roots, Links to employability competences, Student Admin Functions, References

Table 8: Sources and list of software selection criteria

Similar to the process of other researchers in this area, the criteria were categorised into three categories:

- Vendor Criteria
- Simulation Software Criteria
- Implementation Criteria.

These three categories were then populated with the relevant evaluation criteria. Duplicates were removed, and some titles were renamed for clarity. The criteria were then given a brief explanation to ensure understanding and a weighting was given to each criterion based on its relevance to delivering the research results. This categorisation of simulation software evaluation criteria is shown in Figure 36.

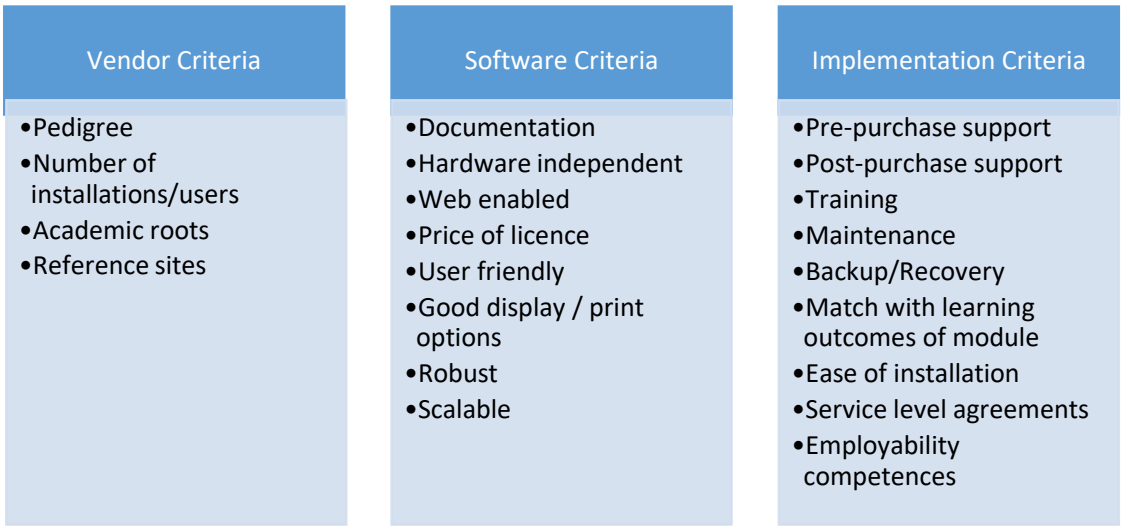


Figure 36: Categorisation of simulation software evaluation criteria

Three established software simulations were identified and assessed against the weighted evaluation criteria. The three market solutions assessed were:

- MyStrategyExperience from Pearson Publishing
- Airline – Strategy Simulation from Interpretive Simulations
- The Business Strategy Game from Glo-Bus Software Inc., marketed by McGraw-Hill Education

The software simulations were scored against each evaluation criteria. Each software solution was scored on a scale of 1 to 10 against each criterion. The maximum possible score was 3000, based on each category having a weight of 100 distributed across the criteria in the category. The scores of each software solution in each of the category groupings are shown in Chart 3. Table 9 shows the overall scores of each of the evaluated software simulations. Pearson's MyStrategyExperience scored highest overall and highest in each of the criteria groupings.

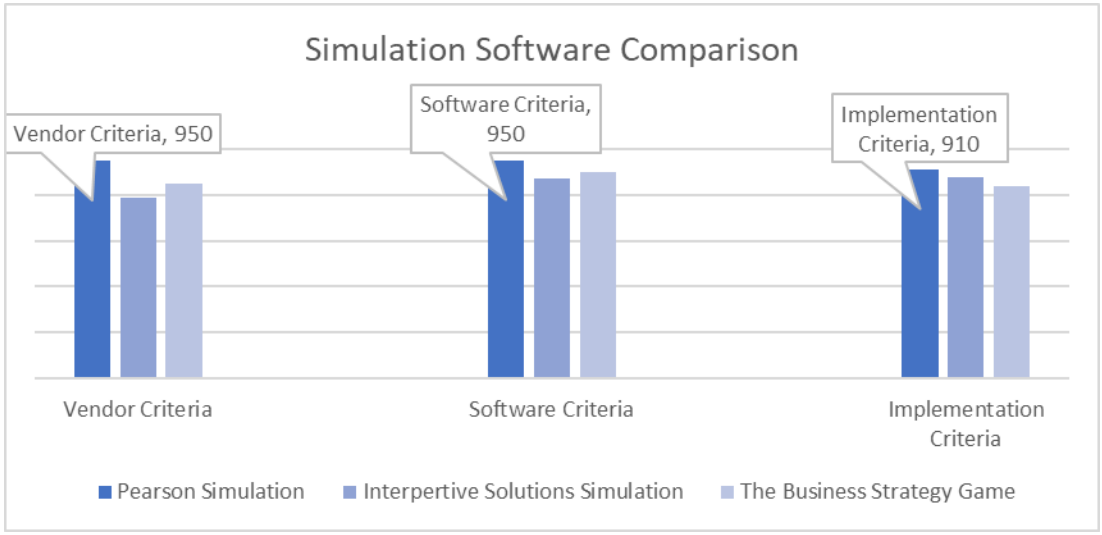


Chart 3: Comparison of evaluated software against evaluation categories

Strategy Simulation Software	Score	Ranking
Pearson – MyStrategyExperience	2810	1
Airline – Strategy Simulation from Interpretive Simulations	2535	3
The Business Strategy Game from Glo-Bus Software Inc.	2585	2

Table 9: Overall scores of evaluated software simulations

The decision was, therefore taken to use Pearson's MyStrategyExperience for this research. MyStrategyExperience is a web-based strategy simulation created by Learning Dynamics Ltd., on behalf of Pearson Publishing. It is structured similarly to Pearson's popular text *Exploring Strategy: Text and Cases* (Johnson, Whittington, Scholes, Angwin, & Regnér, 2014), but the software can also be used independently of the textbook. A more detailed explanation of the software simulation will be given in the next chapter.

5.4.5 Simulation purchase and installation

Contact was made with Pearson and the account representative for Ireland visited CIT in the autumn of 2016. Licence fees were agreed, and a rollout plan was prepared. I completed an online instructor tutorial, along with seeing a demonstration implementation. Funding for the first implementation was sought from the CIT Teaching and Learning Unit (TLU) Development Fund. This research was seen to match the TLU objectives, and the funding application was successful, which facilitated the purchase of the first set of licences from Pearson.

Pearson offers two options regarding the issue of licence keys. Each student can be given an individual licence key. This method is preferable when students pay individually for the licence, but it can result in more administration for the lecturer. As CIT's TLU Development Fund finance was sourced for this project, the students did not have to pay for the software. Therefore, the second option was selected, whereby a group licence key was issued. What is important to ensure with this option is that the licence key is only used once by each student. If a student uses the key twice, this will result in another student being refused access. I clearly communicated this requirement to students, and no difficulties were encountered with this process.

5.4.6 Questionnaire design

Key elements of this research study are the pre-and post-module surveys to assess participants' perception of their employability competences. A first draft of the questionnaire was prepared as part of the research ethics approval process, as discussed in the section on ethics in the Methodology Chapter (page 109). This questionnaire design was further fine-tuned as well as pilot tested before distribution to students for completion. The questionnaire is included as Appendix B. The questionnaire was designed with cognisance of the elements that affect a participant's involvement as outlined clearly by (Cohen et al., 2011, p. 377)

1. Informed Consent:
   Each participant in the study completed an informed consent form. The form gave the participant a clear, concise and understandable overview of the research and its implications for the participant. This form was discussed as part of the ethics approval process.

2. The participant's right to withdraw / not answer or complete sections:
   Therefore no element of the questionnaire was made compulsory and any question could be skipped or marked not applicable
3. Beneficence:
   This means the potential of the research to improve the participant's situation. As this research was funded by the TLU Development fund, students did not pay the licence fee. However, this benefit was not dependant on research participation, as non-participants also did not pay. Students were informed that they were not paying the licence fee, as the simulation was a pilot study and part of my PhD research. Additionally, it was explained to the students how their participation might benefit future student cohorts.
4. Non-maleficence:
   This is the guarantee that the research will not harm participants. It was made clear to participants that module assessment and results were independent of participation. There would be no adverse effects as a result of not participating or withdrawing.
5. Confidentiality, anonymity & non-traceability:
   A commitment to confidentiality was given, and measures were put in place to remove student names from any material to be included in the research. Additionally, the storage of research material was restricted to the CIT corporate network and machines. The questionnaire was completely anonymous. Anonymity was more difficult during the observation and thematic analysis phases. However, assurances were made that no student would be identified by name. Part of the consent process permitted the use of observation and recording techniques.
6. Degree of threat/sensitivity of question:
   This research did not fall into this category, as participants were not being asked overly sensitive questions, and their answers did not make them vulnerable in any way.
7. Questionnaire design/ methodological rigour:
   The participant needs to feel confident that the questionnaire captured their views on the research subject. If the questionnaire was seen to promote my agenda, participants could feel coerced. Particular attention was given to this point when creating the response scales for the employability competences, to ensure that the participants would have access to the option that best captured their response.

8. Reactions of the respondent can influence response rates:
   The questionnaire was designed to ensure that there were no surprises for the participants and no biased or misleading questions.

Cohen, Manion, & Morrison (2011) summarise the guide to questionnaire design provided by Sellitz, Wrightsman and Cook (1976). When designing the questionnaire for this study, significant attention was paid to the points raised in (1-8) above, in addition to the following design issues; question content, question wording, form of question response and sequencing of question. These four elements of questionnaire design will be discussed further in the following sections.

5.4.6.1 Question content

The questions fell into two main categories: a brief number of demographic questions and the rating of the twelve employability competences. The demographic questions were kept to a minimum and were asked purely to assess the students' age, work experience, and work roles. Questions were included only where necessary to avoid spurious, unnecessary questions spoiling participants' responses.

5.4.6.2 Question wording

The three demographic questions were clear and concise. The employability competences were all accompanied by a brief explanation or expansion in brackets. These are shown below in alphabetical order and aimed to minimise differences in students' interpretation of the competence headings.

- Analytical skills (use knowledge, facts, and data to solve workplace problems).
- Business acumen (understanding of drivers of business success).
- Creative / Innovative (generator of ideas).
- Communication skills (written / verbal).
- Cultural awareness (aware of business and environmental cultures).
- Decision making (choice of the best option from a range of alternatives).
- Entrepreneurship (uncover & develop opportunities).
- Flexible / Adaptable (be open to new ideas & prepared to change).
- Leadership skills (providing vision, setting goals & driving change).
- Organisational skills (organise work and manage time effectively).
- Self-management (motivated / accountable / able to work under pressure).
- Team-working (operate well and cooperate within a team).

5.4.6.3 Form of question response

In contrast to the more unstructured format of data collection from observation and the less structured student "voice" gathered from the thematic analysis of the reflective journals, the questionnaire's goal was to structure the participants' feedback. The question asked regarding the participants' understanding of their employability skills was not a dichotomous question with a binary answer (such as yes/no or true/false). The employability questions were designed around rating scales to better capture the participants' view of their employability competences.

Rating scales are common response formats in questionnaires, and Likert scales are one of the most popular (Chyung, Roberts, Swanson, & Hankinson, 2017). There is much discussion regarding the most appropriate number of questions to ask on each construct (i.e. employability competence) as well as the number of anchor points to use for a rating scale. Over forty years ago, Jacoby (1978) published an article challenging decades of previous marketing and consumer behaviour research, where complex concepts were measured with a single variable. He refers

to the “Folly of Single Incidents” and argues that multi-item scales offer a more accurate measure of participant response. His article prompted many responses. Some argued that the single variable response is accurate when the concept is tightly and clearly defined. The complexity of measuring more complex constructs through multiple measures and scales is documented by Diamantopoulos et al. (2012) and Anderson and Gerbing (1982). For this research, In the interest of keeping the questionnaire short, only one question on each competence was planned. However, recognising that the competences do not fit into the “tightly defined” category and as one of the objectives was to identify a trend from before to after the module a multi-item scale was the most appropriate response format. To assist with student understanding of each competence, an accompanying explanation was included, as shown in the Question Content section above on page 149.

The next decision was how many points to put on the scale. Diamantopoulos et al. (2012) researched various response scales, from single item responses to four-point scales. Their research demonstrated the benefits of a four-point scale. Fewer than four response points, they argue, threatens accuracy and more than four is both time consuming and does not generally add to accuracy as it is still open to participant interpretation. Research on the importance of word choice around the anchor points was also explored. While the scale could have been expanded to a five-point scale using very or extremely or other such superlatives, it was felt that these were still open to interpretation. The scale was ordered from left to right, as shown in Figure 37.

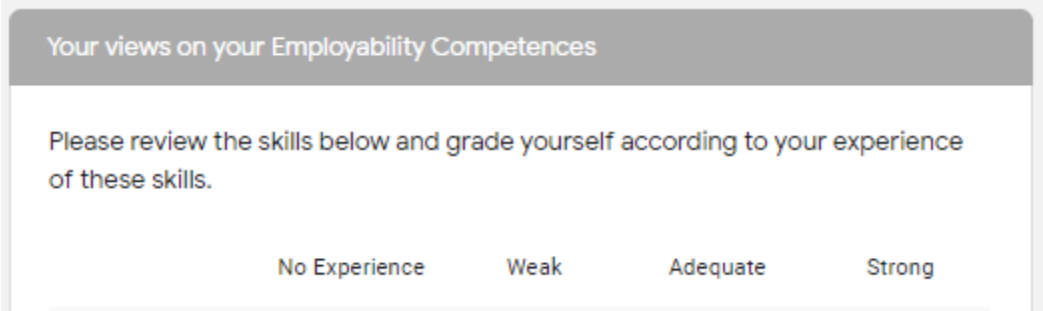


Figure 37: Questionnaire response scale

The use of a neutral midpoint on the scale was considered. There are some arguments that this avoids participants being forced into an answer, but alternative debate exists proposing that a neutral midpoint, allows participants to opt-out of answering the question. This opt-out habit is exacerbated by today's online surveys where participants often expect questions to be compulsory, so feel some answer is necessary. In the case of the anchor points chosen, it could be argued that “adequate” is a neutral point. However, it is still a participant’s value judgement on their competence so not entirely neutral.

5.5 Observe

Having now reached the observe step of this preparatory cycle, a review of my observations will follow, under the applicable headings below.

5.5.1 Competence shortlist

The process of creating a shortlist of competences was challenging. Consideration was given to alternative approaches, such as an interview or survey of local employers of CIT graduates. The survey could have been conducted during the CIT graduate recruitment day. However, the CIT careers office were reluctant to permit such a survey, due to the demands already placed on graduate employers at this event. Research interviews with a selection of employers were also considered. This interview approach was discounted due to the limited number of interviews that would have been feasible. The literature review process followed gave access to a comprehensive list of competences. The reports chosen, reflect the employers' perspective, the education perspective and the international perspective. Such a broad range of views would not have been possible in a limited number of interviews or a survey with locally-based graduate employers.

The option of surveying local employers would still have required a shortlist or a subset of competences, as it would not have been possible to have open-ended discussions at the very busy graduate recruitment fair. Therefore, this process was not a real alternative as the work that was done to create the shortlist would still have been necessary. The merit of surveying local employers has not been discounted. For instance, the option of getting these employers to rank the competences was considered as a means of shortening the list. However, it was decided to continue with the shortlist as created until such time as shortening it became necessary. The employer survey could then be revisited if required.

5.5.2 Module selection

This research was conducted at CIT, the institute where I am employed. The student cohort selected was a part-time undergraduate group. Part-time students are adult learners working by day and attending college by night, weekend or block release. In most Irish third-level institutions, the part-time undergraduate students make up a minority of undergraduate student numbers. The figures for four third-level institutions are shown in Table 10. CIT stands out with part-time students representing 42% of the undergraduate student population (CIT, 2018a).

Institution	Fulltime Undergraduates	Part-time Undergraduates	Percentage of Part-time Undergraduates	Source
DCU	8183	105	1%	(Dublin City University, 2015, p. 38)
UCC	12911	261	2%	(University College Cork, 2015, p. 2)
UCD	19818	1094	5.5%	(University College Dublin, 2019, pp. 10–15)
CIT	7927	6097	42%	(Cork Institute of Technology Annual Report 15/16 p94)

Table 10: Breakdown of student numbers for three Irish third-level institutions

In the case of CIT, therefore, the choice of a part-time student cohort is somewhat less surprising. The breakdown of part-time to full-time students is shown in Chart 4. An additional benefit of a part-time student cohort was their added understanding of employability competences, due to their jobs in the workforce.

For these reasons, it was not seen as a disadvantage that the participants were part-time students. However, upon completing this research, the plan would be to investigate the possibility of rolling out the simulation to full-time undergraduate students.

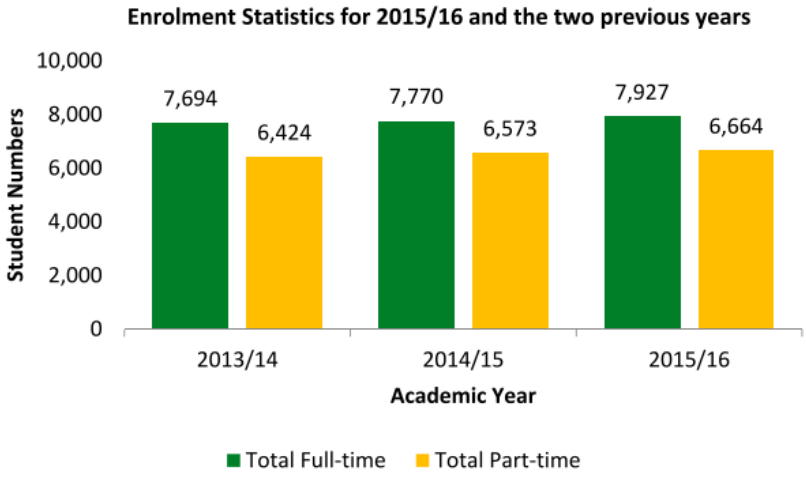


Chart 4: CIT student enrolment statistics 2013-2016 (CIT, 2018a, p. 92)

5.5.3 Module preparation

It was already mentioned that this research coincided with the programmatic review in the CIT School of Business, which facilitated the module changes required for this research. The timing of the programmatic review was helpful, as such a large module change would not have been easy to process otherwise. As this research used an existing module on an established programme, the module changes were somewhat constrained, in that, any changes had to accommodate any legacy students.

In contrast, CIT has recently introduced a new post-graduate programme, an MSc in International Business. I participated in the development of this programme, in particular the

Business Environment Simulation module. This was a new module in a new programme, so there was a greater opportunity to build on the benefits of the software simulation. The module was designed as a capstone module with little content delivery and focused on the students making strategic decisions within the simulation. The same software simulation was selected for this module, and the difference in outcome will be discussed later in the consolidation of findings.

5.5.4 Simulation software selection

The selection of evaluation criteria drew on research meta-studies and was also influenced by the module identified and the learning outcomes associated with this module. As mentioned in the previous section, there were some limitations in the module redesign because it was an existing module on an existing programme. If a module were designed from scratch to use a software simulation, it would be possible that different learning outcomes would be designed.

In particular, the fact that the module was a strategy module, meant that the simulation software selected could not be too far-reaching and had to keep strategy and strategy learning outcomes at its heart. This was one of the evaluation criteria that eliminated other simulation software. These other simulations were more complex and wide-ranging in their scope but were not sufficiently linked to a strategy module's content. This ruling out for complexity reflects more on the module chosen for this research than on the software simulations. They would be suited to a more wide-ranging and more extensive (perhaps double credit) module. This is something that could be revisited in the future.

5.5.5 Funding

While funding for this research was granted under the TLU development fund, a longer-term institute solution to the cost of such simulations will need to be developed. Asking students to pay the license fee is, of course, one option, but the administration of this could be challenging and how to address the issues of non-paying students would need to be considered. Fortunately, for the period of this research, this was not something that needed to be done as the license fees were paid by CIT each year. However, this problem will only become more significant if the module is rolled out to larger classes, so a solution must be developed.

5.5.6 Questionnaire design

A rigorous design and piloting process was undertaken when developing the questionnaire to overcome some of the challenges associated with this research method. The questionnaire was be kept under review to iron out any problems once it went live in the first implementation cycle.

5.7 Reflect

This final stage in the preparatory cycle will reflect on the previous stages to identify the items that might be considered in the next cycle. The preparatory cycle went well, and the groundwork was in place to begin the first implementation cycle. In line with Sharma and McShanes's (2008) view of practitioner research, it is appropriate to finish this section by reflecting on this, the first action research cycle, and plan for the next cycle of action research.

> *"It seem*ed that practitioner research and design-based research integrate at least two common characteristics; most notably the commitment to 'cycles' of improvement, and to reflection during and between each phase in *the cycles of both models."*
>
> (Sharma & McShane, 2008, p. 259)

The reflection on this preparatory cycle has identified several initiatives that could have been done differently or that could be approached differently in future. These can be categorised under four headings associated with research administration, employability competences, research methods and research rigour. Each of these is discussed in the sections that follow.

5.7.1 Reflection on research administration

All research requires a degree of organisation and administration to support the work being undertaken. This section looks at several areas relating to this research and considers their implications for the further action research cycles within this research and the implications for other research studies.

5.7.1.1 Module selection

The rationale behind the module selected for this research was outlined earlier in this chapter and whilst the module chosen was suitable for this research, it is noted that future research could consider a module undertaken by full-time students. It would be interesting to investigate

whether similar results would be found with a full-time student cohort. This discussion will be revisited in the Consolidations of Findings. On a third implementation cycle, I delivered a similar module, using the same simulation to a full-time class group. The difference, if any, will be discussed in Chapter Eight.

5.7.1.2 Module preparation

For this research, the simulation was successfully incorporated into an existing module that was updated to facilitate it. For future research, the benefits of creating a new module might be considered. This research had to fit within an existing programme and module learning outcomes. Should a new programme or module be created, a greater degree of flexibility would be available. After selecting this module for this research, the same software was integrated into a new module on a new postgraduate programme within the institute. This new ten-credit module was able to dedicate itself to the implementation of strategy within the simulation software. The strategy theory was separate so considerable time was allowed across a simulation week to the decision rounds and simulated board meetings. Again, this discussion will be revisited in the Consolidation of Findings chapter. I delivered this module in late spring 2018, and my observations and notes allow for some comparisons (discussed in Chapter Eight)

5.7.1.3 Software simulation selection

During the software selection phase of this research, a software selection checklist was created. This checklist ensured that the appropriate simulation software was selected for the module in question. Should a new module be used in future research, as discussed in the section above,

consideration could be given to the software selection checklist again. The same checklist could still be used, but the criteria weighting might differ depending on the module and programme learning outcomes. Therefore, whilst I am confident that the right software was chosen for this research, it is worth noting that the software selection criteria weightings should be revisited for future research.

5.7.1.4 Funding

Funding needs to be considered, as any software simulation solution will have cost implications for the third-level institution. This research was successful in securing initial TLU Development Fund support. Subsequent funding was supported by the home department responsible for the strategy simulation module. As student numbers were low, licence fee costs were manageable. This funding model, where the institution pays, will most likely have to be reconsidered if the software is rolled out to full-time students, with class sizes of more than two hundred.

Students are cost-sensitive and resist buying textbooks due to the associated costs (Hilton, 2016; Parry, 2013). A student's decision to purchase a textbook does not fundamentally affect their ability to sit the module assessment, unlike the situation with a software simulation licence fee. If the simulation is to be part of the module assessment, students could not undertake the module without paying the licence fee. This essentially mandatory purchase of the licence would have implications and could draw student union attention.

If the cost of software licence fees was forced on the students, it could face resistance and low uptake. There would be the associated administrative challenge of collecting the licence fees should a group licence structure be selected. Also, it needs to be considered how a student who

does not pay the licence fee can be assessed. These issues should be considered and solutions identified before a rollout of the software to larger class groups can be considered. The issues discussed above associated with research administration are summarised in Table 11.

Research Area	Implications for this research study	Implications for future research studies
Module Selection	Selection of a part-time research module considered representative as part-time students such a large part of CIT undergraduate body	Worth considering a full-time undergraduate module to understand if differences might exist – will be revisited in the Consolidation of Findings chapter.
Module preparation	Module redesign was restricted within the existing programme, but the inclusion of the simulation was achieved.	Creation of a new module would enable greater flexibility in learning outcome design and simulation integration – will be revisited in the Consolidation of Findings Chapter
Software Simulation Selection	Reusable software selection criteria developed.	If a new module was developed, a different software simulation might be chosen. Selection criteria are reusable with amended weightings.
Funding	Continued CIT/TLU Development Funding important to research study	If rolling out to larger groups, administering student funding of the license cost will need to be investigated.

Table 11: Summary of reflections on research administration issues - Preparatory Cycle

5.7.1.5 Researcher role

As discussed in the methodology chapter, I am embedded in this research, so reflection on my role at the end of each cycle is merited. In relation to the research administration, some key decisions were influenced by my role, particularly the module selected (due to allocation). However, timetabling and teaching schedules were not the only decision criteria behind the module selected. Class size was a significant element of the decision process connected to funding concerns regarding the licence fee. Therefore, whilst the module chosen may be the correct one for this research, further consideration of other and new modules should be considered in the future to examine and exploit the benefits of the software simulations fully.

5.7.2 Reflection on employability competences

This chapter outlined in detail how the competence shortlist was prepared. The five studies used in creating the shortlist were selected for their ability to reflect the employer's view, the educational institution's view and the regulatory or governmental view. They also provide national, the UK and European perspectives. The competence shortlist is therefore relevant and related to the skills needed by Irish third-level graduates.

Whilst not an "issue" per se, consideration could be given to a more in-depth understanding of employers' views on these competences. This could be achieved via an employer survey or structured interviews with several key graduate employers. This process might offer the opportunity to prioritise the shortlist, as twelve competences with equal weighting are difficult to administer. These suggestions could be reviewed if further research and evaluation are to be undertaken; however, the competence list identified was both relevant and comprehensive for this research.

Research Area	Implications for this research study	Implications for future research studies
Competence Shortlist		Worth considering a survey of graduate employers to prioritise the competences and perhaps thereby shorten the list. Alternatively, an employer interview process could be conducted to gather further feedback on the competence list.

Table 12: Summary of reflections on employability competence issues - Preparatory Cycle

5.7.3 Reflection on research methods

The previous chapter (Methodology) and this chapter (Questionnaire Design) reviewed the best practice in methods suited to this research study. Action research was chosen due to its

reflective cycles of research, enabling a continuing process of improvement throughout the research. In line with the cycles of improvement, the questionnaire design will be evaluated in each cycle to ensure that any necessary changes are implemented. This evaluation will be aware of the need to compare results from one action research cycle to the next.

Research Area	Implications for this research study	Implications for future research studies
Questionnaire	The questionnaire design will remain under review throughout the research study to ensure any changes needed are implemented.	

Table 13: Summary of reflections on research methods issues - Preparatory cycle

5.7.4 Reflection on research rigour

As discussed in the Methodology chapter, Winter's (1989) six principles of action research ensure that the action research process being followed demonstrates rigour. This preparatory cycle will now be reviewed against each of Winter's principles.

5.7.4.1 Reflexive critique

- My central role in this research study was recognised, and my influence on module selection was highlighted.

- My background in industry should be remembered. The desire to give students a "real-life" experience of the academic theory drives this research.

5.7.4.2 Dialectical critique

- Creating the employability competence list was challenging, balancing the need to be understandable, while not too vague or detailed for future readers. To address this, the competences are explained with a descriptive by-line to aid understanding.

5.7.4.3 Collaborative resource

- The programmatic review process ensured that the views of CIT colleagues and industry representatives were reflected in the new module design. Feedback received from the review panel included assessment suggestions that were included in the new module design.

- A paper was submitted and presented at the EAI International Conference on e-Learning e-Education and Online Training in UCD, September 2016 (Crowley et al., 2017). Feedback included suggestions for the proposed thematic analysis planned for the second implementation cycle.

- Regular attendance at CIT's staff doctoral support group and monthly breakfast "*comhluadar*" (gathering). This forum for staff undertaking PhD research encouraged participants to simultaneously support and challenge each other. Regular presentations at this forum was an invaluable validation resource.
- A further informal source of collaborative validation was a smaller group of CIT staff from within my own department. In particular, a colleague who was undertaking and has now completed a research study using critical pedagogy and constructive-developmental theory (Butler, 2018). The regular and constant questioning of each other's research

process was an invaluable support and validation opportunity, contributing to this study's rigour.

5.7.4.4 Risk

- Any research involves risk, but my participation in and support of the staff doctorate group helped reassure me that the risks were manageable and that any issues or problems would be supported.

- Within administration in CIT there has been concern expressed regarding how licence fees would be paid if the simulation were to be used in larger classes. This risk has been addressed by keeping the current research to the part-time group where class sizes are smaller. However, a solution to the licence fee issue will need to be addressed if the simulation is to be extended within the institute.

5.7.4.5 Plural structure

- As can be seen from the individual reflection and the extensive consultation discussed in the previous four points, every effort has been made to ensure all stakeholders' views are included in this research. It is not feasible to document every input within the confines of this document; however, these views were recorded across the research and considered at every point.

5.7.4.6 Theory, practice, transformation

- This principle recognises how theory needs to consider practice, and this can be seen in the selection of the class group for this research. Whilst sampling principles suggested

that the class group chosen was suitable, the reality is that staff timetable, and software licence costs dictated the smaller group chosen.

5.8 Conclusion

In this chapter, the groundwork has been laid for the two implementation cycles that follow. This chapter, along with the next two follow the structure of an action research cycle. A plan was prepared with recognition of the problem that needed to be investigated and addressed. The act phase created an employability competence shortlist, identified a suitable module, redesigned the chosen module, selected suitable software through a structured evaluation process and finally designed a robust questionnaire for use during the implementation phase. The chapter finished with a discussion of the researcher's observations and reflection on the cycle overall. The foundations are now in place for the first implementation cycle using the software simulation.

6. The First Implementation Cycle

6.1 Introduction

This chapter is the second of three action research cycles represented in this thesis (Chapters Five, Six and Seven). The preparatory groundwork was completed in Chapter Five. The employability competences have been identified, the appropriate module has been selected and redesigned, suitable software selected, and associated funding sourced. Finally, the questionnaire was designed in preparation for this the first implementation cycle. This chapter begins with an overview of the strategy simulation, so the reader can understand the process the students followed. Once the software overview is complete, this chapter follows the format of the action research model. This chapter covers the first implementation cycle, which involved delivering the module to a student cohort and gathering and analysing the associated data.

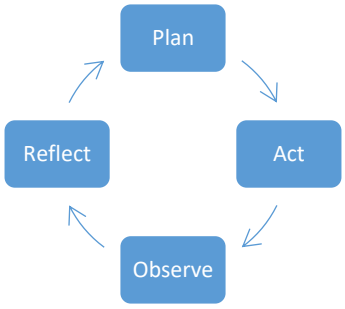


Figure 38: Action research cycle

6.2 Simulation Software Overview

Before discussing the two implementation cycles in this chapter and the next, it is necessary to give a little more information on the selected software simulation. In the last chapter, the software selection process discussed the software selection criteria and explained the

MyStrategyExperience simulation decision. Pearson Publishing promotes MyStrategyExperience, which was developed through their partnership with Learning Dynamics Ltd. The simulation can be used in conjunction with their well-established (11th edition) *Exploring Strategy* textbook (Johnson et al., 2014). The simulation and book structure is similar; however, the simulation also sits independently of the textbook if preferred.

The simulation is accessed via a web browser on any device. The simulation begins with a briefing session that appoints the student (student group) to the board of directors of a global advertising agency called WRSX. The briefing phase includes a video and audio welcome as well as a detailed company and industry overview. This information sets the scene for the students going into the subsequent stages. The simulation is then structured around three phases: phase one, Strategic Position; phase two, Strategic Choices; and phase three, Strategy in Action.

The first phase, the Strategic Position, in both the text and the simulation, gives the students the information to prepare an external and internal analysis of the organisation. The second phase, the Strategic Choices, gives the students information on possible development options for WRSX. These two phases are released to the students across the initial weeks of the semester, and this material forms the basis of their first module assessment, a strategic analysis of WRSX.

Having analysed the company in detail, the students are then ready to engage with phase three, Strategy in Action. As with the earlier ones, this phase gives the students a video and audio update before the students enter the simulated boardroom sessions. The software presents six simulated boardroom sessions, and each session follows the same pattern. Figure 39 shows graphically the process of one simulated board meeting. An audio environmental update and six agenda topics are presented to students with short summaries. These are debated and only

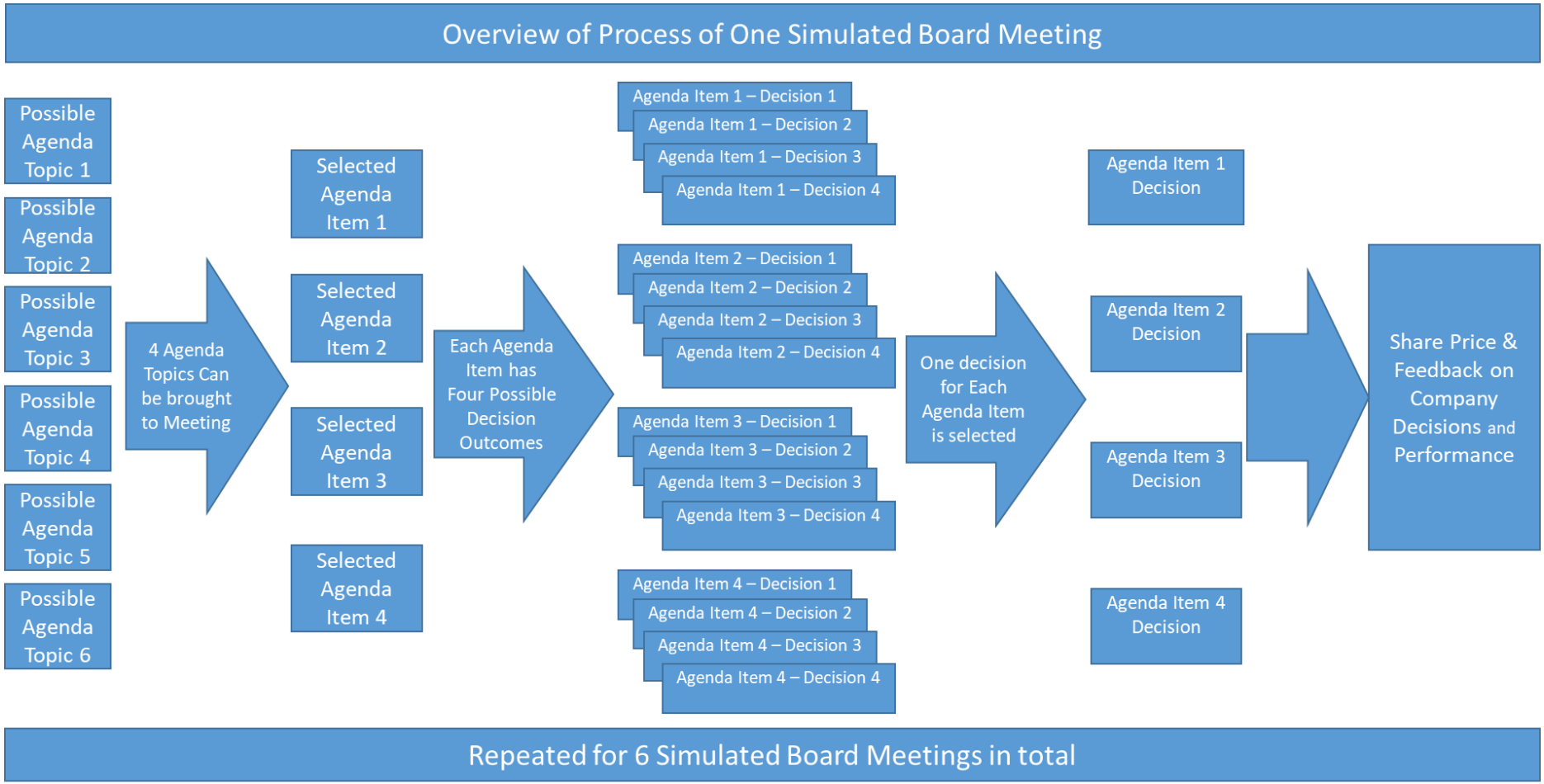
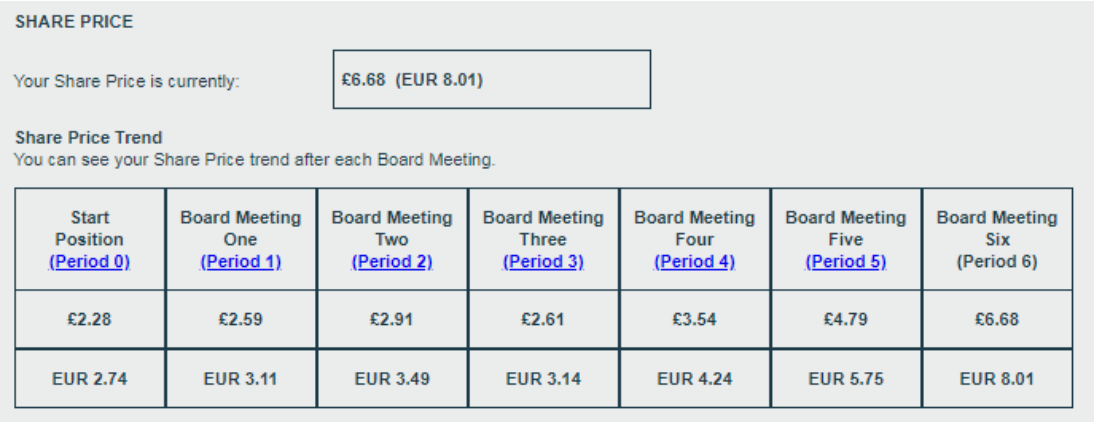


Figure 39: Overview of process for one simulated board meeting in simulation software

four can be selected to bring to the simulated board meeting. The students then receive more details on the four agenda topics brought to the meeting and four possible decision outcomes. For each of the four agenda items, a selection of one of the four outcomes is made, and these four decisions form the basis of the updated company share price.

An example of the summary information provided on an agenda topic before a simulated board meeting is shown in Appendix G. The more detailed information provided on an agenda topic once it is selected to be brought to a board meeting is shown in Appendix H. After each board meeting, the company share price and other feedback is provided to the students.

The feedback within the simulation software gives the student groups their share price after each meeting and the trend over the course of the board meetings can be seen at the end, Figure 40. There is also feedback on key performance ratios after each meeting, and these can be seen in Figure 41. Each group wrote their share price on the whiteboard after each boardroom session, and this was sufficient to introduce an element of competition between the groups. The simulation is hosted on a web platform that can be accessed from any device – students used their own devices.



SHARE PRICE

Your Share Price is currently: £6.68 (EUR 8.01)

Share Price Trend

You can see your Share Price trend after each Board Meeting.

Start Position (Period 0)	Board Meeting One (Period 1)	Board Meeting Two (Period 2)	Board Meeting Three (Period 3)	Board Meeting Four (Period 4)	Board Meeting Five (Period 5)	Board Meeting Six (Period 6)
£2.28	£2.59	£2.91	£2.61	£3.54	£4.79	£6.68
EUR 2.74	EUR 3.11	EUR 3.49	EUR 3.14	EUR 4.24	EUR 5.75	EUR 8.01

Figure 40: Example share price trends across the board meetings

Key Ratios:

	Start Position (Period 0)	Board Meeting 1 (Period 1)	Board Meeting 2 (Period 2)	Board Meeting 3 (Period 3)	Board Meeting 4 (Period 4)	Board Meeting 5 (Period 5)	Board Meeting 6 (Period 6)
PBIT (%)	16.5%	16.3%	16.8%	14.4%	15.5%	17.1%	19.1%
Staff Costs Ratio (%)	63.0%	62.8%	62.9%	63.9%	60.7%	57.7%	54.9%

Non-financial Performance Indicators
Your non-financial performance is shown in terms of indices on this table:

	Start Position (Period 0)	Board Meeting 1 (Period 1)	Board Meeting 2 (Period 2)	Board Meeting 3 (Period 3)	Board Meeting 4 (Period 4)	Board Meeting 5 (Period 5)	Board Meeting 6 (Period 6)
1. Management of Growth	43.5	47.8	49.3	48.3	48.8	48.3	51.5
2. Management of Risk	41.3	41.0	40.0	37.3	38.3	34.0	31.3
3. Leadership Capability	39.2	41.2	42.0	39.4	41.0	38.0	39.8
4. Corporate Social Responsibility	38.5	41.0	39.5	38.0	38.3	37.0	37.8
5. Client Attraction & Retention	52.0	54.4	55.6	54.6	56.6	60.8	63.2
6. Procurement & Supplier Mgt	38.7	39.0	39.7	39.7	40.7	40.7	42.7
Index Average	**42.2**	**44.1**	**44.3**	**42.9**	**43.9**	**43.1**	**44.4**

Price / Earnings Ratio:

	Start Position (Period 0)	Board Meeting 1 (Period 1)	Board Meeting 2 (Period 2)	Board Meeting 3 (Period 3)	Board Meeting 4 (Period 4)	Board Meeting 5 (Period 5)	Board Meeting 6 (Period 6)
P/E ratio (%)	15.0	15.7	15.8	15.2	15.6	15.3	15.8

Figure 41: Example key ratios after each board meeting

6.3 Plan

This initial stage of the first implementation cycle aimed to identify the steps necessary for the subsequent stages and a timeline of activities was developed. The newly designed strategic management module went live in September 2016 and was planned for delivery with the first student cohort in the second semester (spring 2017). In the planning phase, I identified the necessary steps for the subsequent act phase, and these activities were as follows:

- Simulation Session Preparation
- Observation plan
- Delivery of Simulation Sessions (two sessions were planned)

6.3.2 Simulation session plan

The simulation software can be used on any device, and as the student cohort were part-time (working) students, all had access to laptops or tablets. Therefore it was planned to allow the student groups to use their own devices. As a result, there was no need for a computer laboratory. A room was selected that allowed students to sit in their groups around a table to discuss the decisions during the simulation sessions. This layout meant that some reorganisation of the furniture was needed, and this was completed before every simulation session. Each student group was provided with a flip chart, to allow them to present their prepared strategy documents, or develop new documents throughout the session. A speaker and Wi-Fi access was used to facilitate the playing of the multimedia clips associated with the different board meetings in the simulation software.

Figure 42: Room layout - Implementation cycle one

The sessions were video-recorded using a discreet video camera which was placed in the corner of the room. Any student who had chosen not to participate was located in such a way as to ensure they were not recorded whilst sitting with their groups. A member of the CIT photography society was present to take some still photographs. This photographer was also discreetly made aware of any students who chose not to be photographed. The students were made aware of the recording and reminded how neither was connected with the module assessment but was solely for the purpose of this research.

6.3.3 Observation plan

Two observation forms were created. The first was a form that rated the amount of every competence present in each group. The competence could be rated as being present on a scale from “not at all” to “most of the time”. The second observation form created was to capture participant quotations in support of the competences. These forms are shown in Appendix E and

Appendix F. They were completed both during the simulation sessions and further expanded following review of the video recording of the simulation sessions. In addition, I also had a research diary that was used throughout this research to capture my thoughts or comments throughout the research cycles.

6.3.4 First and second simulation session plan

As mentioned under Simulation Session Preparation above, the simulation sessions were planned in a room with flexible seating, allowing the students to use their own devices. Additionally, flip charts were made available to the students, and the room was set up to enable students to sit in their groups. The six simulated board meetings were split across the two planned simulation sessions with three simulated board meetings taking place at each of the two sessions. The simulations were timed appropriately in the semester so that students had sufficient theory covered and time to prepare the strategies for their simulated advertising agency. The benefit of understanding the strategy theory before undertaking the simulation is highlighted by the research of Corry, Kinney and Farren (2018).

6.4 Act

This second phase of this implementation cycle puts into place all the activities planned in the previous phase.

6.4.1 Participant consent

The students were given a short ten-minute presentation introducing the research and the consent forms, including the plain language explanation. They were asked to take the forms home and return them the following week so that all students had time to digest the information, and felt under no pressure to complete the forms. The separation between research participation and module completion for their programme of study was emphasised at all times. For the first implementation cycle, all but one student consented to the research. Arrangements were put in place to ensure that this student was not included in the subsequent research communication and process.

6.4.2 Simulation session preparation

As designed, the module allows for six hours of software simulation sessions across the semester. The format proposed gave the students two three hour sessions working through three board meetings in each session. The proposed format expected the students to do some preparation in advance of each simulation session, and the remainder happened during the sessions. Students were shown how to login into the simulation software, and the information in the simulation was released to the students on a phased basis. The simulation provided the students with detailed information on the simulated organisation (WRSX) and its internal and external environment.

The students used the information from the simulation software to create a strategic analysis, giving them a clear picture of the organisation and its strategic position. As the first simulation session approached, students were given the summary information for the first agenda topics

and encouraged to read and debate their options in advance of the first session. The first session included simulated board meetings one, two and three.

This process was repeated for the fourth, fifth and sixth simulated board meetings. As with the previous session, students were given the agenda topics for board meeting four and encouraged to read and debate their options in advance of the second simulation session. This pre-reading meant that students entered the second set of simulated board meetings ready to enter the agenda selection and debate agenda decision points. The agenda for both simulation sessions is shown in Table 14.

Agenda for Simulation Sessions: 3 Simulated Board Meetings at each Session
• Login and set-up etc. (10 minutes). • Revision of environment update – audio recording (10 minutes). • Debate and finalisation of four agenda topics to take to meeting (10 minutes). • Debate of decision options for four agenda topics at meeting (20 minutes). • Discussion on share price and other indicators after meeting (10 minutes). • New environment update – audio recording (10 minutes). • Finalisation of four agenda topics to bring to meeting (15 minutes). • Debate of decisions options for four agenda topics at meeting (25 minutes). • Discussion on share price and other indicators after meeting (10 minutes). • New environment update – audio recording (10 minutes). • Finalisation of four agenda topics to bring to meeting (15 minutes). • Debate of decisions options for four agenda topics at meeting (25 minutes). • Discussion on share price and other indicators after meeting (10 minutes).

Table 14: Agenda for simulation sessions - Implementation cycle one

6.4.3 First set of simulated board meetings

All the necessary preparation was in place, and the first simulation session could begin. Students were advised to bring their own devices to access the simulation software. The session was video recorded and photographed, and I completed a structured observation form and noted comments on a comments sheet. The observation form was completed at the session and also following review of the video recording. These observation forms are included in Appendix E and Appendix F

Date & Time	March 30th 2017, 6pm – 9.30pm
Number of Students	26
Number of Student Groups	7

Table 15: Summary details of first set of simulated board meetings (Implementation cycle one)

The first session enabled the students to attend three simulated board meetings and receive the associated feedback from their decisions. The agenda and structure of these sessions were outlined in the previous section.

6.4.3.1 Simulation group setup

Students participated in the simulation as a group. Most groups were made up of four students. This group structure needed to be recreated within the software simulation. The groups could be created by the instructor, or each group of students could be given a unique group identifier that enabled them to register with their group. This second option was chosen for this

implementation, and students self-registered into their groups using the unique group identifier given by the instructor.

A slight flaw in the simulation system design was that although students were organised into groups, the decisions made do not reflect across the group members. Therefore, two members of the same group could select different decision options. This would result in different outcomes in future decision rounds. Students were frequently reminded that all group members had to ensure that they made the same decisions to avoid this happening. There was an advantage to the above also, in that it enabled groups to step through the decision process again with a group member's unused account to re-read the feedback etc.

Figure 43: Student groups at first software simulation session

6.4.3.2 Initial observations

The summary observation form listed all competences against each group (Appendix E). I scored the degree of each competence observed against each group. It became clear that some competences were easier to identify/observe than others. Competences such as

entrepreneurship or creativity/innovation skills were not as clearly identifiable through observation as teamwork or decision making. Each competence was scored, with the scale allowing competences not witnessed to be scored a zero.

In the case of leadership, the competence could be observed at an individual level within groups but not always as an overall group competence, i.e. leadership was within-group rather than by group. Therefore, it was rated on the summary sheet based on the number of times it was seen within the group. Some team members were clearly seen taking the initiative and championing certain decision items or agenda topics.

Another more general observation was that a lot of reading was necessary before the groups could debate the agenda items and decisions points. This was avoided for the first board meeting as the students had this material in advance, but it was unavoidable for the second and third board meetings based on how the sessions were planned. The material had to be read before it could be discussed. This led to difficulties in some groups as there were non-native speakers who needed more time to read the material than other members in their team etc.

A final logistical observation was that the students wanted to print their feedback from the system to keep it. This was not possible as there was no printer in the room and no wireless printing was available in CIT at this time. Students took screenshots of their feedback or logged into the system as another group member and made the same decisions to recreate their feedback. It is a shortcoming in the system that students cannot retrospectively review their feedback from previous rounds – the only feedback available was from the latest decision round completed. Students needed to work around this issue when preparing for their assessments later in the semester.

6.4.4 Second set of simulated board meetings

Again, students used their own devices and sat in their groups to facilitate discussion. As before, the session was video recorded and photographed. I completed a structured observation form and noted any comments from groups in relation to the competences under observation. The observation form was completed at the session and also following review of the video recording.

Date & Time	April 20th 2017, 6pm – 9.30pm
Number of Students	28
Number of Student Groups	7

Table 16: Summary details of the second set of simulated board meetings (Implementation cycle one)

6.4.1 Initial observations

As with the last session, the summary observation form did not record some competences. However, evidence of their presence was recorded on the more detailed observation (comments) form. Students had the material for the fourth board meeting in advance of the session, but there was again a lot of reading associated with the fifth and sixth board meetings. This took time and meant there was less time for debate and discussion. Students also felt that the workaround solutions for printing were not sufficient and that they should have access to a printer.

Figure 44: Student groups at second software simulation session

6.5 Observe

This section will outline my observations from this first implementation cycle. The data is from two sources, my observation of the simulation sessions and the pre- and post-semester student questionnaires. As part of the preparation for the first implementation, an observation sheet was prepared. This listed all the employability competences against each group. The competences were scored as follows:

0 = Competence not observed.

1 = Competence observed once or twice.

2 = Competence observed some of the time.

3 = Competence observed most or all of the time.

This form (Appendix G) was completed during the simulation sessions and further completed on reviewing the session video and photographs.

The scoring observation form described above was supplemented with a "Student Comments/Quotations" observation form (Appendix F). This form was used to note any comments/quotations or conversations observed that supported a particular competence. This form did not track the comments to individual groups. It was completed during the two simulation sessions and following analysis of the video recordings.

The student pre- and post-questionnaires were implemented using Google forms. Nearly all students chose to participate in the research with a participation rate of 90%. All the research participants responded to the survey before the simulation began (100% response rate). After the module was completed, the survey had a response rate of 88%, again a very high response rate from the students who agreed to participate in the research. The survey data were combined into an excel sheet and analysis of each of the employability competences was completed. This will be discussed below under each of the competence headings.

6.5.1 Analytical skills

All student groups were observed reading the information provided. They looked for further information from the system when available and interacted with their own prepared material. *"Hang on, I'm not finished reading all the information*" or *"Give me another few minutes to read the last bit",* and similar comments were heard. Students wanted as much information as possible when making their decisions.

Students had prepared two analytical models in advance of the board meetings, either a PESTEL or Porter's Five Forces external analysis model and a Value Chain or Competences internal analysis model. These were present on flip charts, or the table in front of the groups. The groups

were seen to refer back to this material throughout the simulation sessions. Students were heard referring to this material during their decision discussions

"One of our strengths that we identified is our staff – I don't think it makes sense to do a restructuring programme."

"But what about big data? We said it was an opportunity for us; surely, this would be the way to get into it."

"We've loads of cash on our balance sheet, so we can afford to do it."

Students actively analysed the decisions presented and eagerly sought as much information as possible before making their decisions.

The survey pre- and post-module showed an improvement in the students' perception of their analytical skills. In advance of the module, only 40% of students rated their analytical skills as strong while afterwards, this had risen to 65%. The remainder rated their analytical skills as adequate. An overall positive trend on the students' perception of their analytical skills was recorded and is shown in Chart 5.

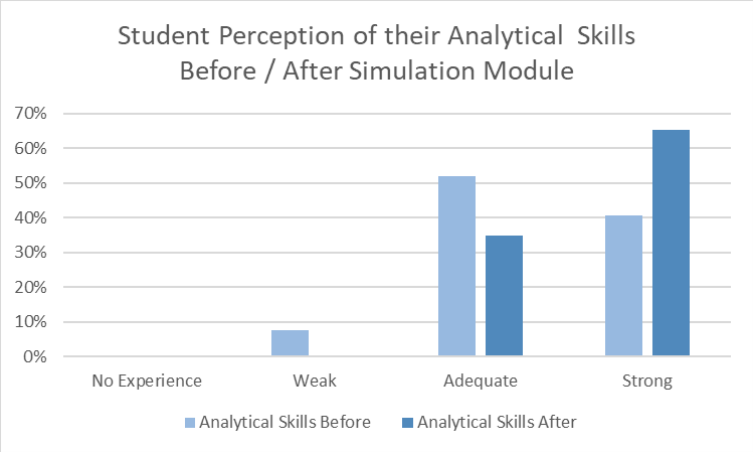


Chart 5: Student perception of their analytical skills before/after simulation module – First implementation cycle

6.5.2 Business acumen

Understanding the drivers of business success is important to graduates as they enter the workplace. They need to know the elements that deliver for businesses and allow growth into the future. The simulation design allowed students to make many decisions across the six board meetings, and the resultant share price reflected the outcome of these decisions. The share price was put on the whiteboard, which introduced an element of competition between the groups. Students wanted to understand the relationship between their share price and their decisions.

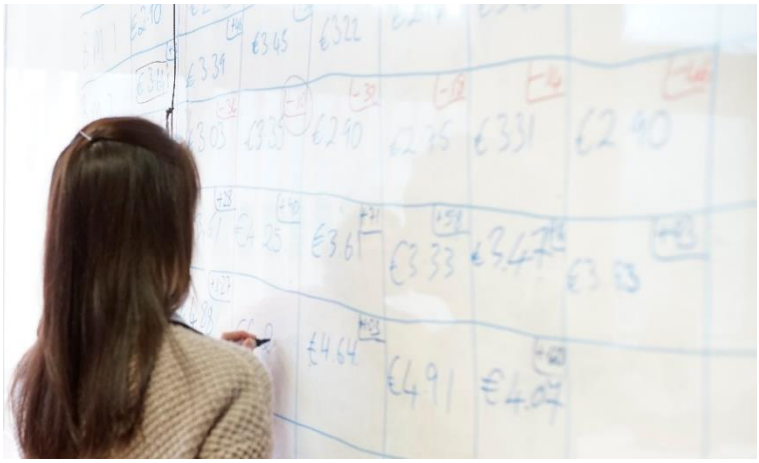


Figure 45: Students were eager to compare their share prices on the whiteboard

Each group was eager to add their share price to the board at the end of each board meeting round. All teams analysed the whiteboard and the final whiteboard was photographed by most student teams as they left the second session. Students were aware that their decisions influenced their share price, and they were eager to understand how this relationship worked. Groups compared decisions and share prices. Some groups were observed not disclosing their decisions, demonstrating strong competitive skills.

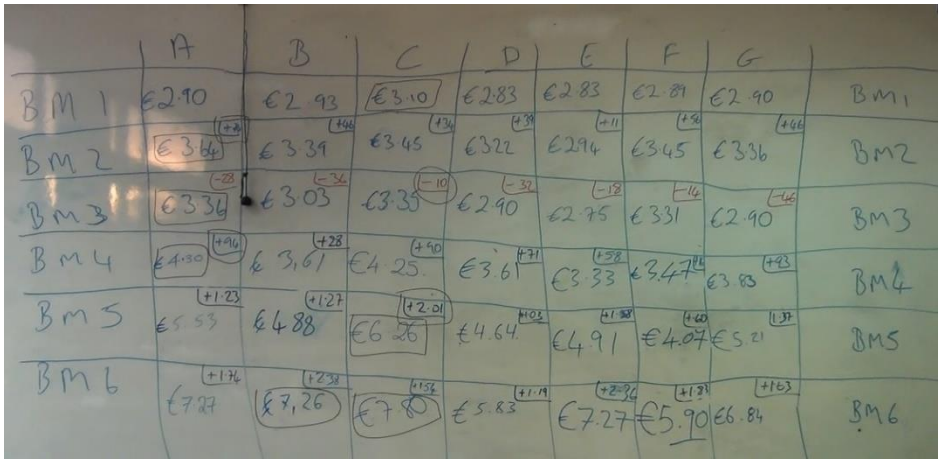


Figure 46: Share prices on whiteboard introduced competition

In addition to the share price trends and ratio trends discussed in the simulation software overview earlier in this chapter, the student groups were given an income statement showing their starting position and position after the most recent board meeting (Figure 47). Students could be heard discussing these statements in some detail. “Our staff costs have gone up significantly,” was heard as one group analysed this statement. Groups analysed the share price and ratio trends to understand them and their influence on future decision-making rounds. Reference was also made to these ratios in the subsequent presentation given by students explaining their business decisions.

INCOME STATEMENT for Period 6	Start Position (Period 5) £m	Start Position (Period 5) €m	Board Meeting 6 (Period 6) £m	Board Meeting 6 (Period 6) €m
Revenue	**347.4**	**416.9**	**400.4**	**480.4**
Direct costs	(26.9)	(32.2)	(31.3)	(37.6)
Gross profit	**320.5**	**384.6**	**369.0**	**442.8**
Operating costs:				
Staff costs	(200.4)	(240.5)	(219.8)	(263.8)
Establishment costs	(29.5)	(35.4)	(35.9)	(43.0)
Other operating costs	(31.2)	(37.5)	(36.9)	(44.2)
Total operating costs	**(261.1)**	**(313.4)**	**(292.5)**	**(351.0)**
Profit before interest and taxation	**59.4**	**71.3**	**76.5**	**91.8**
Finance income	8.1	9.7	9.7	11.6
Finance costs	(10.0)	(12.0)	(10.0)	(12.0)
Total finance costs	**(1.9)**	**(2.3)**	**(0.3)**	**(0.4)**
Profit before taxation	**57.5**	**69.0**	**76.1**	**91.4**
Taxation	(18.4)	(22.1)	(24.4)	(29.2)
Profit for Period	**39.1**	**46.9**	**51.8**	**62.1**

Figure 47: Income statement before/after each board meeting

Following observation of the student interaction with the drivers of business success in the simulation sessions, it was interesting to see that these observations were supported by the students' perception of their business acumen from before and after the simulation module.

Before commencing the module, 15% of students felt their business acumen was weak, and 7% had no experience in this area. After completing the module, all students felt their business acumen was at least adequate with 74% saying it was strong, increasing from 44% before the module began.

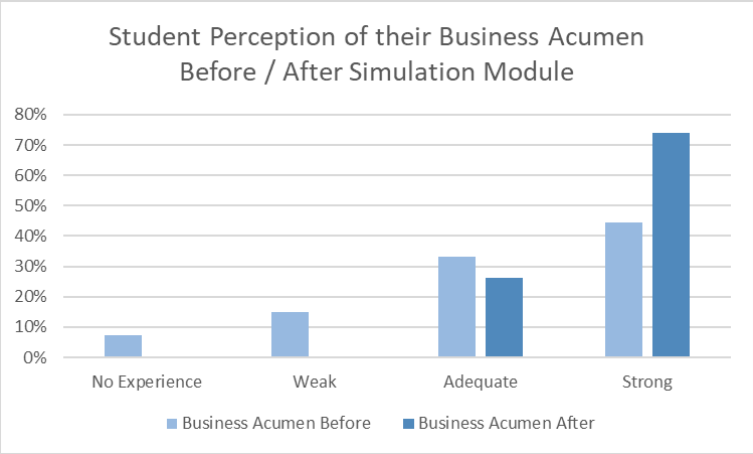


Chart 6: Student perception of their business acumen before/after simulation module - First implementation Cycle

6.5.3 Communication skills (written/verbal)

Across both simulation sessions, significant communication skills were observed; all student groups demonstrated verbal and written communication skills. Written communication took the format of prepared copies of the group's strategy, which was put on flip charts by some groups and was on computer in other cases. All groups referred back to this material throughout their discussion. Students could also be seen taking handwritten as well as typed notes.

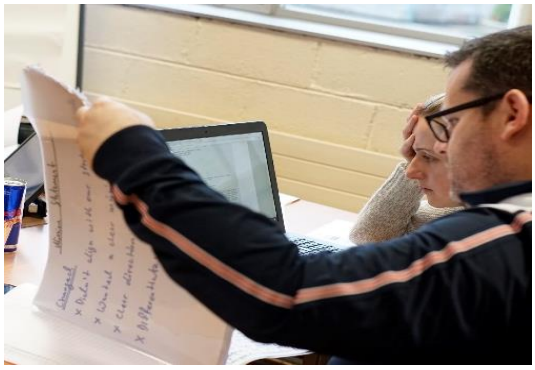


Figure 48: Written documents on flip charts

Figure 49: Handwritten notes

Figure 50: Discussion of group documents on laptop

Figure 51: Multiple forms of communication

Most groups were observed to use multiple forms of communication. The groups that scored lower for communication skills were the smaller groups. Due to absences, there were some groups of two across both sessions. What was consistent about these groups is that they did not experience the same level of discussion or communication. They were observed to have lower levels of discussion and debate and less interaction with written material.

Figure 52: Less communication observed in groups of two

Figure 53: Communication observed in a group of four

It was observed that this was not connected with the individuals, as in one group of two, there was a different second member in one session to the other. In the other group of two, the low levels of communication observed were in direct contrast to the interaction and communication seen in the first simulation session when four group members were present.

Another group that demonstrated a low level of communications was one that struggled with its group dynamic. Two group members approached me separately saying that there were motivation and commitment issues in the group. Several steps to address these problems were put in place. However, it was clear that there were tensions in the group, and a subsequent lack of communication was observed despite all group members being present.

The questionnaire results show that students felt their communication skills had improved across the semester. At the start of the semester, 6% felt their communication was weak and only slightly more than half the students felt their communication skills were strong. After completing the module, no student believed their communication skills to be weak and the percentage believing their communication skills to be strong had risen to 74%. This represents a significant rise in students' confidence in their communication skills. Following the completion of the module, all students felt their communication skills were at least adequate.

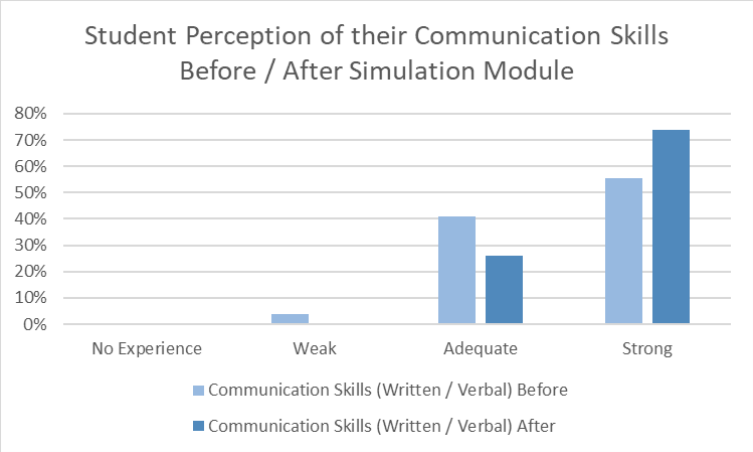


Chart 7: Student perception of their communication skills before/after simulation module - First implementation cycle

6.5.4 Creativity/Innovation

This competence was explained to students as being the generator of ideas. The students were restricted to the options within the software, so generating new ideas was not possible. This was supported to a large degree by the observation during the simulation sessions. Students did try to be creative within the confines of the options available to them.

"I think we need to move with the times and embrace new technologies."

However, due to the software's design no matter how innovative the students wanted to be, they could only choose the options available to them in the software. The students' perceptions of their skills in this area were very similar before and after the module. So the students showed a good ability to assess their own competences and could see that they had not been given the opportunity to improve their creativity/innovation competences. Chart 8 shows the students' perceptions and how their creativity/innovation did not alter much across the module.

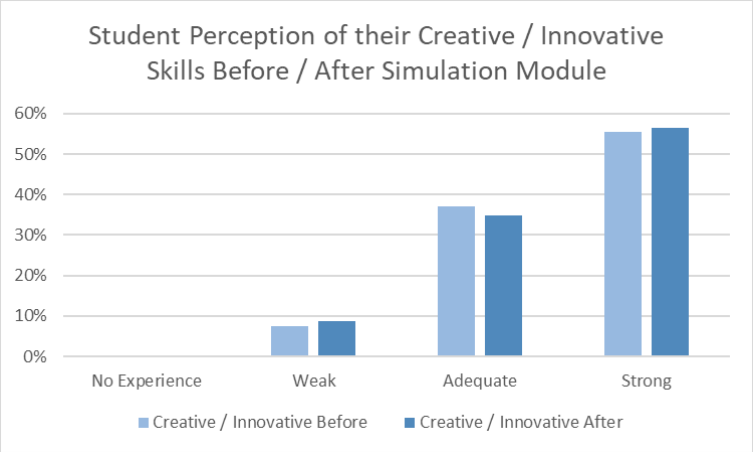


Chart 8: Student perception of their creative/innovative skills before/after simulation module - First Implementation cycle

6.5.5 Cultural awareness

In their article in the *MIT Sloan Management Review*, Govindarajan and Gupta (2001) explain the importance of recognizing culture and its influence on creating successful teams and hence effective organisations. As with many strategic management texts, Volberda et al., emphasise the importance of an awareness of both organisational (internal) and environmental (external) culture. Successful negotiation of both internal and external environments will lead to successful overall strategies; "shaping the context within which the firm formulates and implements its strategies – that is, shaping the organisational culture – is an essential strategic leadership action" (2011, p. 416). Observation across the two sets of simulated board meetings supported the presence of cultural awareness across all groups – decisions were discussed with reference to both the internal and external culture.

"That doesn't fit with our organisation, as we are a people-led business."

"The audio clip said that there's been a downturn – we need to keep that in mind."

The participants were observed, understanding both internal and external environments and considering this when making decisions.

My observations were supported by the students' perception of their cultural awareness. The questionnaire responses show an increase from before to after the module. This is shown in Chart 9. After completing the module, there were no longer any students categorising their cultural awareness as weak and the number of students ranking this competence as strong more than doubled with an increase from 30% before the module to 70% afterwards.

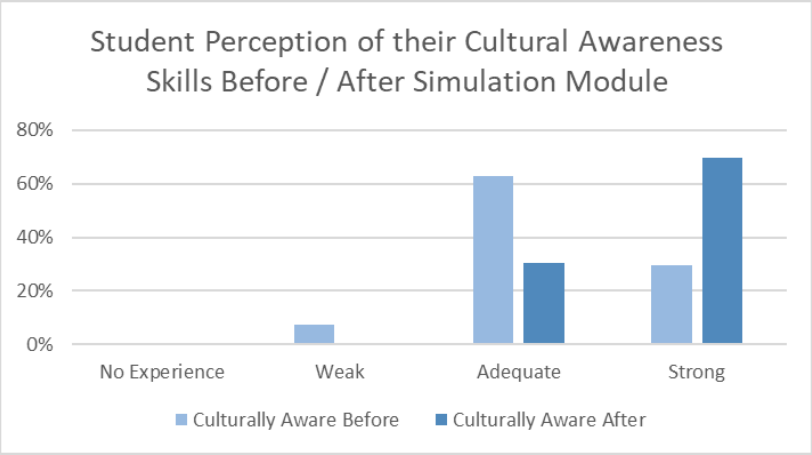


Chart 9: Student perception of their cultural awareness skills before/after simulation module – First implementation cycle

6.5.6 Decision making

The whole simulation process involved decision making. There were decisions regarding which four of the possible six agenda topics to take to the board meetings, in addition to decisions regarding the four alternatives for each of the four agenda items at each meeting. The decisions

required during the simulated board meeting were shown visually in Figure 39. Each boardroom presented the groups with twenty-two decisions. The groups went to six meetings in total; therefore, 132 decisions were made. This calculation of total decisions is shown in Table 17.

Using the structured observation form, I recorded decision making happening some or all of the time across all groups. While some group's decisions could be perceived as resulting in a better share price, it is clear that all students made a significant number of decisions. Groups were also observed comparing their share prices and trying to understand the reasons for their price compared to that of other groups. Groups were heard asking:

"Did you take the sustainability profile of the group to the first Board meeting?"

"What option did you chose for the market entry into China?"

Therefore, students learned from the outcome of their own decisions but also from the outcomes from other groups.

Selecting Board Agenda Items		**Options**	**Decision**
Possible Agenda Topic One		Y/N	1
Possible Agenda Topic Two		Y/N	1
Possible Agenda Topic Three		Y/N	1
Possible Agenda Topic Four		Y/N	1
Possible Agenda Topic Five		Y/N	1
Possible Agenda Topic Six		Y/N	1
Board Meeting Decisions		**Options**	**Decision**
Selected Agenda Topic One	Option One	Y/N	1
	Option Two	Y/N	1
	Option Three	Y/N	1
	Option Four	Y/N	1
Selected Agenda Topic Two	Option One	Y/N	1
	Option Two	Y/N	1
	Option Three	Y/N	1
	Option Four	Y/N	1
Selected Agenda Topic Three	Option One	Y/N	1
	Option Two	Y/N	1
	Option Three	Y/N	1
	Option Four	Y/N	1
Selected Agenda Topic Four	Option One	Y/N	1
	Option Two	Y/N	1
	Option Three	Y/N	1
	Option Four	Y/N	1
Total Decisions for One Simulated Board Meeting			**22**
Total Decisions for Six Simulated Board Meetings (22x6)			**132**

Table 17: Overview of decisions undertaken during strategy simulation

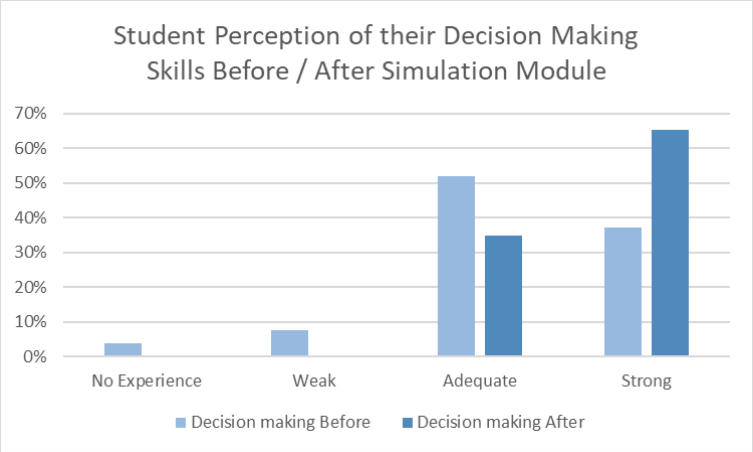


Chart 10: Student perception of their decision-making skills before/after simulation module - First implementation cycle

The observed decision making and learning from decision outcomes was supported by the students' perspective of their decision-making skills. Eleven percent of students felt they had weak or no decision-making skills before beginning the module, with only 37% of students considering their decision-making skills to be strong. After the module, all students felt their decision-making skills were adequate, with 65% of students rating their decision-making skills as strong. The students' perception of their decision-making skills supported my observations across the simulation session.

6.5.7 Entrepreneurship

This competence was outlined to the students as the ability to uncover and develop opportunities. Given this definition, I recognised that this competence might not be attained through the simulation. The students are restricted to the agenda topics and decision options within the software. Students can't pursue their own choices or develop new opportunities.

However, the competence was included in the survey and the observation sheets to assess the outcome.

Observation across the two simulation sessions showed no evidence of this competence as the nature of the simulation did not allow for innovation outside of the opportunities in the software. Additionally, in the more detailed observation sheet recording students' comments, no particularly entrepreneurial comments were recorded. In support of these observations, it was interesting to note that the students' perceptions of their skill level in this competence did not alter. Chart 11 shows how similar the students' assessment of this competence was before and after the module.

The correlation between my observations and the students' perceptions support the lack of opportunity to develop new opportunities within the simulation process. This is a reflection on the fact that the simulation software is not designed to accommodate new ideas. This competence will be reviewed in the reflect section later to determine future research steps.

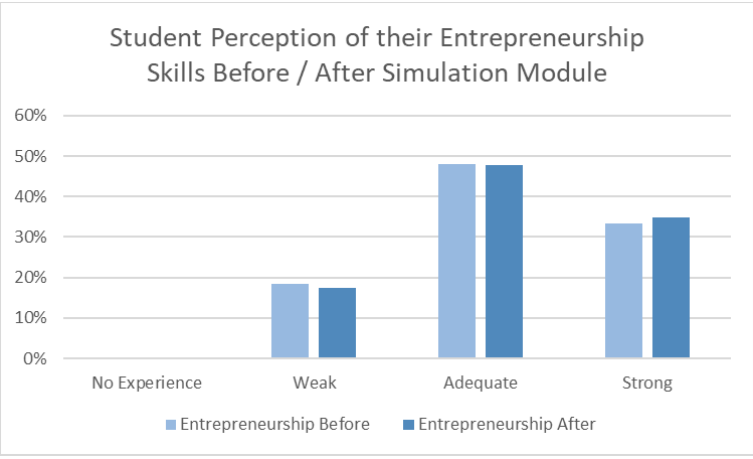


Chart 11: Student perception of their entrepreneurship skills before/after simulation module - First implementation cycle

6.5.8 Flexibility/Adaptability

This competence was explained to the students as being open to new ideas and prepared to change. The observation sheets showed an increased degree of flexibility/adaptability across the two sets of simulated board meetings. Teams began the board meetings with a developed strategy and were often slow to deviate from this plan despite opportunities that emerged during the board meetings. One comment overheard supports this observation; “we need to stick to the plan.”

The observation form records a more significant degree of flexibility/adaptability in the second set of board meetings. Teams were more prepared to pursue a new opportunity as it emerged and were more prepared to debate where this opportunity sat with their strategy. Some opportunities were still unpursued but following dismissal based on other criteria than just the fact that it was not in the initial plan. While discussing the “West Coast Acquisition” agenda topic, one group initially dismissed it by saying that Asian expansion had been the priority in their strategy. However, the group did revisit the topic and discussed it on its merits – “I think we should at least discuss it – we didn’t think we’d be given a chance to increase our presence in America.” The group discussed the agenda item and dismissed it due to cost and cash flow concerns. This example shows an overall observation on the part of student groups, to have an open mind and discuss all opportunities.

Interestingly the students’ perception of their flexibility/adaptability does not show an increase from the pre- and post-surveys. This does not support my observations of flexibility/adaptability across the simulation sessions. This disparity will be discussed later in the reflection part of this chapter.

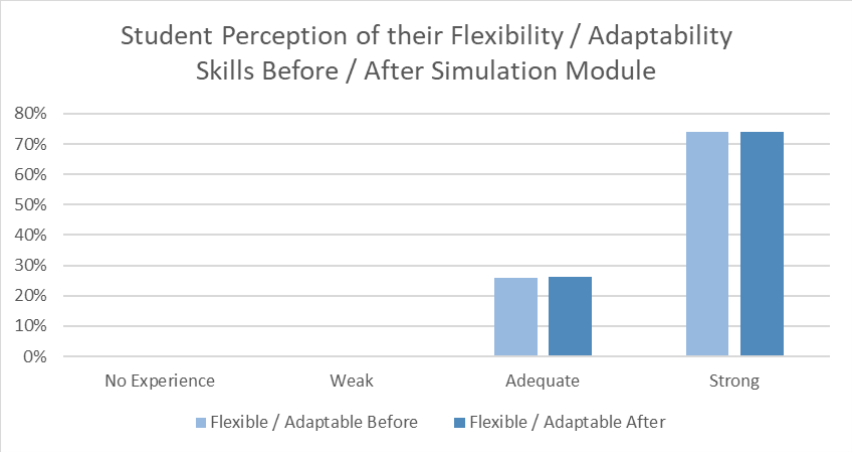


Chart 12: Student perception of their flexibility/adaptability skills before/after simulation module - First implementation cycle

6.5.9 Leadership

Student groups self-selected and were not instructed to appoint a leader. Although no assigned leader role was created, leadership was observed in most student groups. The group that experienced conflict was observed to have several members taking a stronger organisational and directive role leading to conflicting opinions. In all other student groups, the leadership role was seen in several group members with the role rotating depending on the topic.

"I'm the one that did the PESTEL analysis, so will I take the lead on the Big Data question?"

It was also observed that the student groups that ended up working in pairs lacked this leadership dynamic. The pairs operated side by side, and as communication was lower in these student pairs, it was less evident that there was clear leadership.

The students themselves reported an increase in their leadership skills. A cohort of students (7%) felt they had no leadership experience in advance of the module. In contrast, all participants noted that they had at least some leadership experience after completing the module. The vast majority of students reported adequate (43%) or strong (48%) leadership skills having completed the module. This is due to an additional 10% of students believing their leadership skills were adequate after the module. This trend is shown graphically in Chart 13.

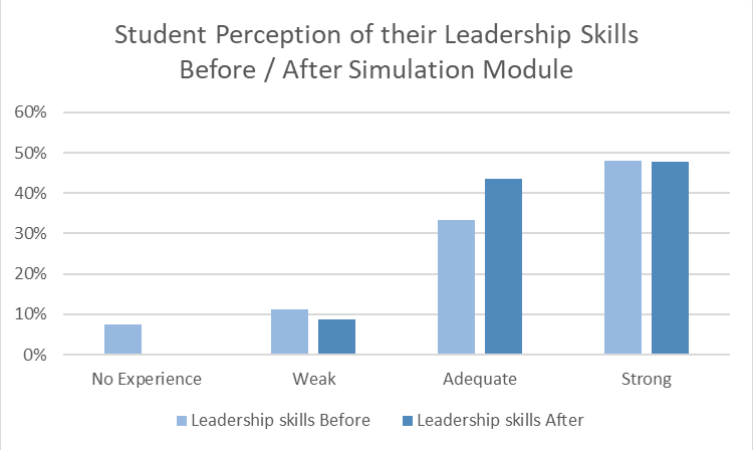


Chart 13: Student perception of their leadership skills before/after simulation module - First implementation cycle

6.5.10 Organisational skills

This competence was explained to students as the ability to organise work and manage time effectively. This is a competence that you would expect part-time students to possess; they are juggling family, studying and working while undertaking their degree. Some students still felt there was room to improve their organisational skills, and the trend was towards an improvement from student perceptions before and after the module. This is apparent in Chart 14.

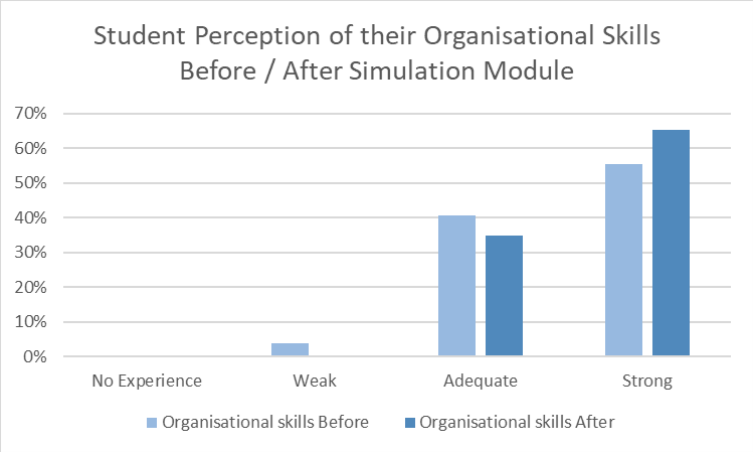


Chart 14: Student perception of their organisational skills before/after simulation module - First implementation cycle

I was also able to observe these organisational skills through the simulation sessions. Student groups were seen to structure their approach to each board meeting and to divide the decisions and time in an organised fashion. Time was divided across the decisions that needed to be made, and in some groups, decisions were allocated to group members based on areas of expertise. This was particularly evident as the decision rounds progressed. Groups were also seen to improve across the module. In the first simulation session, four groups asked for more time in order to complete their decisions. This had dropped to none by the final board meeting.

Despite the student cohort already possessing strong organisational skills, due to the multiple demands from work, college, and family. These students still recorded an improvement in their organisational skills across the module, an improvement that was supported by my observations.

6.5.11 Self-management

This competence was explained to students as the ability to motivate themselves, be accountable for their work, and work under pressure. I was able to observe this competence across both sets of simulated board meetings. There was a reduced level of this competence seen in the two-person groups as well as the group with internal conflict. However, across the other groups, self-management was seen to improve across the two sets of board meetings.

In particular, the ability to work under pressure was seen to improve, with more and more student groups being ready to progress to the next meeting/decision round when asked to do so. The student groups were observed to become better at organising themselves in the allotted time. It was more common for student groups in the first session to ask for more time to read and debate the new information. In the second set of simulated board meetings, students were observed to better manage their time between reading, debating and decision making.

"We need to make a decision on this one as we have to move on."

"Let's all review the info for the next five minutes before we discuss."

Despite my observations of self-management during the simulation sessions, the students' perception was that the module did not improve this competence. This could result from the high levels of self-management perceived by the students before the module, allowing less room for improvement. These are part-time students juggling, family, work and study, so it is probably no surprise that they can organise themselves and their time well. The students' perception of their self-management competence can be seen in Chart 15.

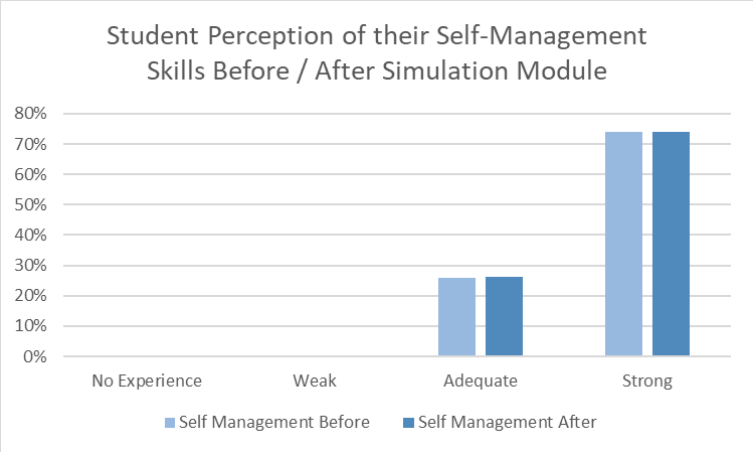


Chart 15: Student perception of their self-management skills before/after simulation module - First implementation cycle

The lack of correlation between my observations and the student survey results will be revisited in this chapter's reflection section.

6.5.12 Team-working

The vast majority of graduates will have to work as part of a team at some point in their career, so working collectively to solve a problem is an important competence for undergraduates to develop. The literature proposes that simulations support teamwork. It was therefore not surprising that strong teamwork was observed across all groups during the simulation, except the two-person groups and the group that appeared to be having issues with group dynamics.

Figure 54: Share prices on the whiteboard introduces competition

There appeared to be one member more motivated in the two-person groups, and the other member appeared to be carried. This dynamic was not observed in the larger groups, where the motivation levels were higher and seemed to elevate all members' interest. In the group with the tension, there appeared to be issues with respect, listening and motivation. All other groups demonstrated strong teamwork elements, and the whiteboard with the share prices introduced an element of competition that enhanced team cohesiveness and motivation.

The competition element was enhanced by presenting a packet of jellies to the team with the winning share price after each round – nothing more was necessary to introduce an element of competition!

Figure 55: Prizes do not have to be large to enhance inter-team rivalry

Significant teamwork was observed during the simulation session. The student responses to the questionnaires showed that all students believed they had at least adequate teamwork competences in advance of the module; afterwards, the number of students who felt their teamwork skills were strong had risen from 78% to 91%, demonstrating an increase in teamwork skills from the students' perspective.

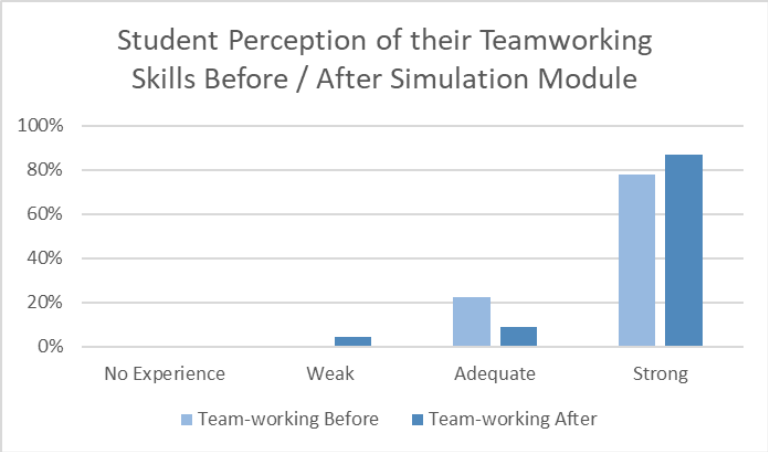


Chart 16: Student perception of their team-working skills before/after simulation module - First implementation cycle

6.5.13 Summary of observations

It is worth also noting the overall trend across all competences, as shown by the student survey. To do this, the average across all competence responses for each point on the scale was calculated. This average for each point on the scale was calculated for both before and after scores. Using these averages across the competences, a general trend towards improved competences can be seen from before the module to afterwards.

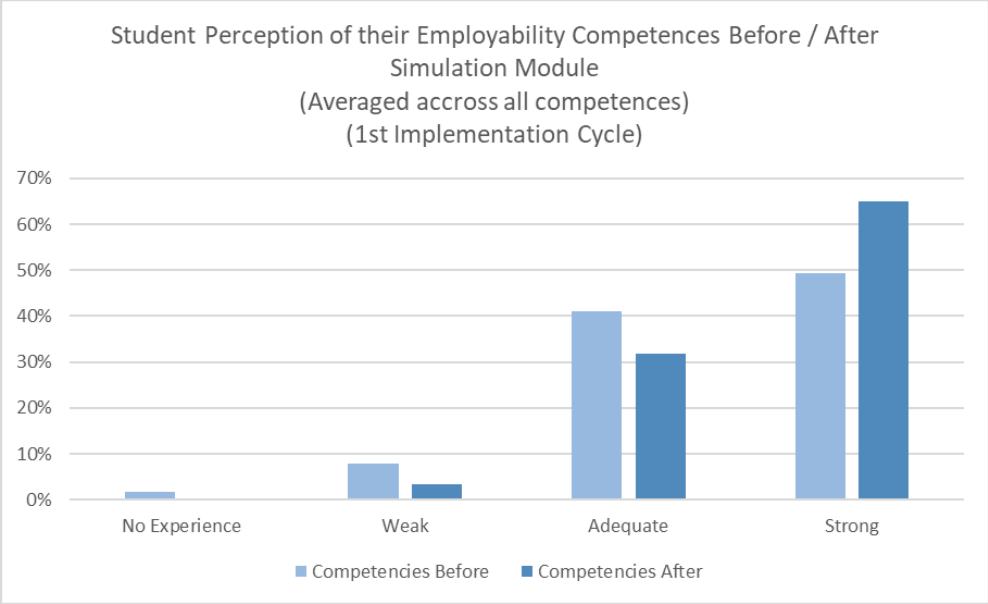


Chart 17: Student perception of their competences (averaged) - First implementation cycle

Additionally, it is worth noting the correlation between my observations and the student survey responses. This is shown in Table 18.

Employability Competences	Observed by Researcher	Improvement Noted by Students (Survey)
1. Analytical skills	YES	YES
2. Business acumen	YES	YES
3. Communication skills	YES	YES
4. Creativity/Innovation	NO	NO
5. Cultural awareness	YES	YES
6. Decision-making skills	YES	YES
7. Entrepreneurship	NO	NO
8. Flexibility/Adaptability	YES	NO
9. Leadership	YES	YES
10. Organisational skills	YES	YES
11. Self- management	YES	NO
12. Team working	YES	YES

Table 18: Comparison of researcher observations and student survey responses - First implementation cycle

In ten of the twelve employability competences, a consistent result was found between my observations and student perceptions. I did not observe two competences, nor were they perceived as improved by the student – creativity/innovation and entrepreneurship. There were two competences where I observed their presence while the students did not perceive them. These are flexibility/adaptability and self-management. I observed these traits across the simulation sessions, but students did not record an improvement in these competences.

These results will be discussed in more detail in the next section. Overall, it is worth noting the consistency between my observations and student perceptions. Of note also is the number of competences (75%) seen to be enhanced by the strategy simulation module.

6.6 Reflect

This final stage of this implementation cycle will reflect on the previous stages to identify possible issues for consideration in the next cycle. A number of areas were identified for reflection and further thought before the second implementation cycle. These topics are divided into four categories (in no particular order):

1. Issues relating to research administration.
2. Issues relating to employability competences.
3. Issues relating to research methods.
4. Issues relating to research rigour

These categories are discussed in the remainder of this section. Following these discussions, a summary of action points for the next implementation cycle will be finalised.

6.6.1 Reflection on research administration

6.6.1.1 Teams with only two members

Across the competences, the two-member teams were observed to behave differently. The pairs did not have the same level of discussion and debate, and they demonstrated less interaction with prepared written material. Their communication competences were notably lower than those of the larger teams. Nor did these two-member teams demonstrate leadership competences, as no clear leadership role was observed. They also had a distinct reduction in motivation and team dynamics.

These two-member teams were not planned but developed when a team member could not attend on the night of the simulation. When teams due to size and/or time constraints cannot divide labour and specialise, the team's associated communication and performance benefits are not realised (Mao, Mason, Suri, & Watts, 2016; Sutter & Strassmair, 2009). According to Kaplan and Ruffle (2012), team size also influences how teams co-operate, with two-person teams showing less co-operation and individuals employing a cut-off or opt-out strategy. The research of Laughlin et al. (2006) across various group sizes shows groups of three, four and five performing better than the best of an equivalent number of individuals. This was not found for pairs or groups of two.

In their study on effective group size for a marketing simulation, Treen et al. (2016) support the discussion above and suggest an optimum team size of four. In light of the observed issues with a number of the competences in the groups of two and the supporting research, it was proposed to ensure that groups of two do not happen in future implementation cycles. This could be achieved by asking any group of two to sit the simulation session later or through early planning and subsequent insistence that attendance at the simulation session is essential for all group

members. Additionally, it is proposed to avoid groups of three so that the possibility of groups of two through absence is reduced.

6.6.1.2 Teams with conflict

One team experienced conflict across the two simulation sessions. This led to an inability to reach consensus on decisions, and decisions were made against some group members' wishes. I was aware of the conflict and made interventions, including discussing the decision-making process and the importance of all voices being heard. While this intervention helped the team, one team member, in particular, felt overlooked and spoke to me at the end of the process in this regard.

This team was the only team that did not self-select. It consisted of the remaining class members that had not formed a group independently. These remaining five students then formed a group, and this formation process could have been the foundation of the subsequent conflict. There are various ways of forming teams, self-selection is one and is shown by Chen & Gong (2018) as resulting in more effective teams than those randomly selected or those selected by algorithm. Chen and Gong explain that self-selection is based on social connections that can mitigate free-riding and other team issues. Pociask, Gross and Shih, in their 2017 study, did not see an improvement in the performance of self-selected teams. However, they do conclude that self-selected teams lead to reduced student resistance and reduced instructor administration (Pociask, Gross, & Shih, 2017).

The proposal for the next implementation cycle would be to avoid the situation of “forced” group formation. If it arose again that some students had no team, an avoidance strategy would be to

ask the class to form pairs and randomly assign the pairs into groups to avoid the “forced” group. Another alternative would be to use resources such as the emotional self-leadership framework proposed by Flores, Jiang and Manz (2018). In their research, Flores, Jiang and Manz recognise the benefits to outcomes of cognitive or task conflict. They introduce a framework to avoid the more negative affective conflict related to personality and/or emotional antagonism between team members.

6.6.1.3 General student feedback

Student feedback stated that two simulation sessions with three board meetings in each resulted in a lot of reading. The students felt that if the simulation sessions were broken down into shorter sessions, they would have had more time to digest the material and debate their decisions. These students' concerns were considered in light of the research with marketing simulations, conducted by Treen et al. (2016). Their results confirm that team performance improves as time spent on decision-making increases. There is no benefit to putting the teams under undue pressure to complete decisions rounds.

In addition, students felt that access to printing during the simulation session would have been useful. This was not possible as the students were using their own devices, and wireless printing was not yet active on the CIT wireless network. The lack of a printout was felt most specifically in relation to the share price feedback information available after the board meetings. This feedback is only available until you move on to the next board meeting. Therefore the students wanted to print it while it was available to them.

In later board meetings, students were encouraged to save the feedback as a PDF file that they could print later, but students still felt that access to a printer would have been useful. On the next implementation cycle, the simulation sessions could be situated in a computer laboratory to be on the network and print if needed.

6.6.1.4 Reflection on researcher role

As discussed in the literature review, I am embedded in this research. Considering this unique role is important to ensure that any unnecessary bias or influence can be reduced and/or documented. This implementation cycle was completed in the second semester, so I knew the student cohort on the first day, having completed the previously mentioned project management module with them in semester one. There was a degree of trust between us which may have influenced students' participation. This does not necessarily mean this relationship influenced the student responses, but initial consent may have been easier due to the established relationship.

Otherwise, I felt the visibility of my research role was minimised as much as possible throughout the implementation cycle. Observations were noted unobtrusively on the structured pre-prepared sheets. The video and photography were conducted by a member of CIT photography society, thereby reducing my role in this aspect of the observation. Overall I was confident that my influence on the student responses and behaviour was minimised as much as possible.

6.6.2 Reflection on employability competences

For eight of the twelve competences, I observed them during the simulation, and the students' reported an increase in these competences at the end of the module. There were only four competences where this was not the case.

In the case of creativity/innovation and entrepreneurship, I did not observe this competence and the students did not record increases in these competences. The discussion of these two competences below will aim to understand why this might be the case and propose a response for the next implementation cycle.

Employability Competences	Observed by Researcher	Improvement noted by Students (Survey)
Creativity/Innovation	NO	NO
Entrepreneurship	NO	NO
Flexibility/Adaptability	YES	NO
Self- management	YES	NO

Table 19: Employability competences for discussion before second implementation cycle

In the case of flexibility/adaptability and self-management, there are conflicting outcomes. I recorded observing these competences, while the students reported no increase in their abilities in these areas. The discussion under these headings below will aim to understand why this might have occurred and propose a research modification for the next implementation cycle.

6.6.2.1 Creativity/Innovation

The explanation of creativity/innovation used for this research was “generator of ideas”. This explanation was shown in the survey when the competence was mentioned. Students did not report an increase in their creativity/innovation competences across the module, and the research observations supported this view, as it was not widely observed. However, upon reflection, it is possible that the explanation of creativity/innovation used, i.e., the generator of ideas, may have limited the students’ perception of their innovation. Looking at the outcome of both survey and observation, I began to question whether there was merit in bundling both creativity and innovation together and whether the explanation given might have influenced the student results and my observations.

While creativity and innovation are connected within the same process, they nevertheless represent different parts of the process. Amabile (1998) and others concur that there are multiple definitions of both creativity and innovation. Cropley (2011) devotes a chapter of the *Encyclopaedia of Creativity* to definitions of creativity, while Sawyer (2006) proposes throughout his text that multiple interpretations of creativity are seen across the fields of art, music, science and business, to name a few. Albert and Runco (1998) present a comprehensive overview of the research on creativity but begin the chapter by saying it is “a” history rather than “the” history of the concept due to the challenges in defining creativity itself.

Innovation is also subject to many definitions. Baregheh, Rowley and Sambrook (2009) conducted an extensive literature review to produce a comprehensive definition of innovation that integrates the many diverse definitions found in the literature:

"Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace"

(Baregheh et al., 2009, p. 1334)

This comprehensive definition is difficult to distil down to the short explanatory sentence for use in this research. To find a more succinct definition, two further definitions were consulted. Firstly that of Talukder (2014, p. 8) who defines innovation as:

"Any technology or system is considered an innovation if it is new to the individual who plans to adopt it even though the technology has be*en in existence for a long time."*

This definition is also supported by others as referenced by Talukder such as Zaltman, Duncan and Holbek (1973, p. 8),

"Innovation can be defined as an idea, practice, or material artefact perceived to be new by the relevant unit of adoption."

Following this reading and reflection, the proposal for the next implementation cycle would be to drop creativity from the title of this competence. This is due to the lack of clarity regarding a definition of creativity and the challenge in finding a succinct definition of the combination of both innovation and creativity. The combined competence will be replaced with innovation and an explanation taken from the research discussed above.

Innovation (Adoption of new ideas/practices)

This competence title and explanation would be used on the survey for the next implementation cycle and on the observation sheets. The competence has not been completely redefined so much as narrowed to clarify and remove the possibility of misinterpretation.

6.6.2.2 Entrepreneurship

According to the data gathered in this implementation cycle, the students felt they experienced no improvement in their entrepreneurial competences. My observations supported this that little entrepreneurial competence was observed at the simulation sessions. Entrepreneurship was explained in the survey as the ability to uncover and develop opportunities. While students were, of course, limited by the options available within the simulation software, and therefore unable to develop their own opportunities, some decisions options within the simulation were more entrepreneurial than others. The current research methods of observation and survey did not capture the data concerning decisions made by the student teams, and as a result, these entrepreneurial activities were not captured.

Shane and Venkataraman (2000) produced a conceptual framework for the field of entrepreneurship. They acknowledged that conflicting definitions for entrepreneurship complicated the initial steps in this process. They also identified an over-reliance in definitions on "who the entrepreneur is and what he or she does". A definition with this focus does not recognise the importance of opportunities for the entrepreneur to exploit. Shane and Venkataraman define the phenomenon of entrepreneurship as being based on the individual-opportunity nexus. Entrepreneurship can be seen in the qualities of the individual, but also in the decisions taken or opportunities exploited by an individual.

Taking this definition, I noted that entrepreneurship could be identified by the students' decisions as well as their observable behaviours. In the next implementation cycle, I propose to note students' more entrepreneurial decisions on the detailed comment observation sheet. Also, some thought was given to how these entrepreneurial decisions might be captured. The proposal was to include an analysis of the students' reflective journals, thereby identifying students' more entrepreneurial decisions. This analysis could identify the presence of entrepreneurship, unseen by both student and observer with the current data gathering methods.

6.6.2.3 Flexibility/Adaptability

This competence was the first of two, where there was a difference between what I observed and what the students recorded. The competence was explained to students as being open to new ideas and prepared to change. The research notes show flexibility and adaptability in the student groups, but the students do not perceive an improvement in this competence after the module.

However, it is worth noting that high levels of this competence were recorded by students in advance of the module, with nearly three-quarters of the class (74%) rating their flexibility/adaptability as strong. The remaining 26% rated themselves as adequate both before and after the module. Therefore, it is possible that no improvement was made as the group were a flexible and adaptable group, to begin with. The proposal for this competence is to revisit the results after a further research cycle so see if a different student cohort would give a different result against this competence.

6.6.2.4 Self-management

Self-Management was explained to students as being motivated, accountable, and able to work under pressure. This was the second competence where there was a difference between my observations and the students' perception of their competence. Students recorded no increase in this competence. Like flexibility/adaptability, very high levels of this competence were reported before the module, with 74% of students reporting strong self-management skills beforehand. This figure remained the same after the module, with 26% of students marking their self-management as adequate both before and after the module.

As with flexibility/adaptability, the proposal would be to re-examine this competence in another student cohort. This would allow me to establish whether this particular student cohort influenced the variance between my observation of this competence during the module and student perception regarding an improvement in the competence.

6.6.3 Reflection on research methods

A key element of action research cycles is the ability to reflect on each cycle and refine and amend the process as fits the issues that emerge. Following the discussion above, several items emerged relating to research methods which are discussed in this section.

6.6.3.1 Further triangulation

In discussing the research methodology in Chapter Four, the concept of research credibility on page 100 mentions the triangulation proposed in this research. The first implementation cycle addressed triangulation through the two data-gathering methods of observation and student

survey. However, as outlined in the discussion above, particularly in relation to the entrepreneurial competence, there is now some merit in including a third data source.

The third data source proposed for the next implementation cycle is a thematic analysis of the student reflective journals. The reflective journals will be analysed against the 12 employability competences and will represent a second voice of the student in the data-gathering process.

6.6.4 Reflection on research rigour

As with the preparatory cycle, this implementation cycle will be analysed using Winter's (1989) six principles of action research. While all six principles cannot necessarily be achieved at all times, any principles addressed will enhance research rigour.

6.6.4.1 Reflexive critique

- As a researcher and lecturer, I play a central role in this study, and in particular, my relationship with this student cohort should be noted. As this research was conducted in semester two, the students knew me when I first introduced participation and the consent form. This trust may very well be reflected in the high levels of participation and may also have influenced student responses.

6.6.4.2 Dialectical critique

- The concept that the phenomena are being observed at the correct level continues to challenge in this research. If one student shows leadership, does this mean the group has shown leadership? Are the competences being observed at the individual or group level? The two observations forms helped address these concerns. The summary

observation form tracked competences at a group level, while the supporting student comments sheet captured individuals demonstrating a competence.

6.6.4.3 Collaborative resource

The importance of social validation remained a focus for me and review, and discussion with colleagues continued throughout this implementation cycle. Some examples of this include:

- Regular attendance at CIT staff doctoral "*comhluadar*" (gathering) discussing research stages with staff doctoral cohort. This forum offered excellent support as well as feedback throughout the research process.

- As different research stages were planned and completed, these were discussed and debated with departmental research colleagues. This collaborative group offered a supportive environment with great insight across the research process. In this period, a second module was designed incorporating the same simulation software. This colleague's experience with the simulation was an invaluable source of feedback and validation.

- The annual Pearson, Exploring Strategy Workshop, London, June 2017, offered another opportunity to discuss the simulation and its use with peers across Europe.

6.6.4.4 Risk

- Undertaking a change to teaching methods is always stressful, but the first simulation session undertaken in this cycle was particularly daunting. To address my concerns, I

undertook training with Pearson in advance. Despite this, little can be done once the preparation is complete than jump in on the first night of a new teaching method.

6.6.4.5 Plural structure

- Hearing the different stakeholders' voices is important in action research; the students' feedback can clearly be seen in this cycle. Feedback following regular consultation with peers and other stakeholder was also an essential part of this research. This wiliness to listen and confer can be seen in the collaborative resource paragraph above. Whilst not always separately listed, other voices and opinions were considered throughout the research process.

5.6.4.6 Theory, Practice, Transformation

- A recognition that theory needs to inform practice but with an understanding of implementation challenges can be seen in this cycle. In particular, this can be seen in some of the challenges faced with the group work. Despite research-informed planning, group conflict and groups of two emerged through this cycle. Each presented problems for the process, so further research has informed the plan for the next research cycle.

6.6.5 Summary of measures to be carried forward to implementation cycle two

As discussed above, the issues in each of the four categories have been discussed with proposals put forward for the next implementation cycle. A summary of these proposals for implementation cycle two is shown in Figure 56.

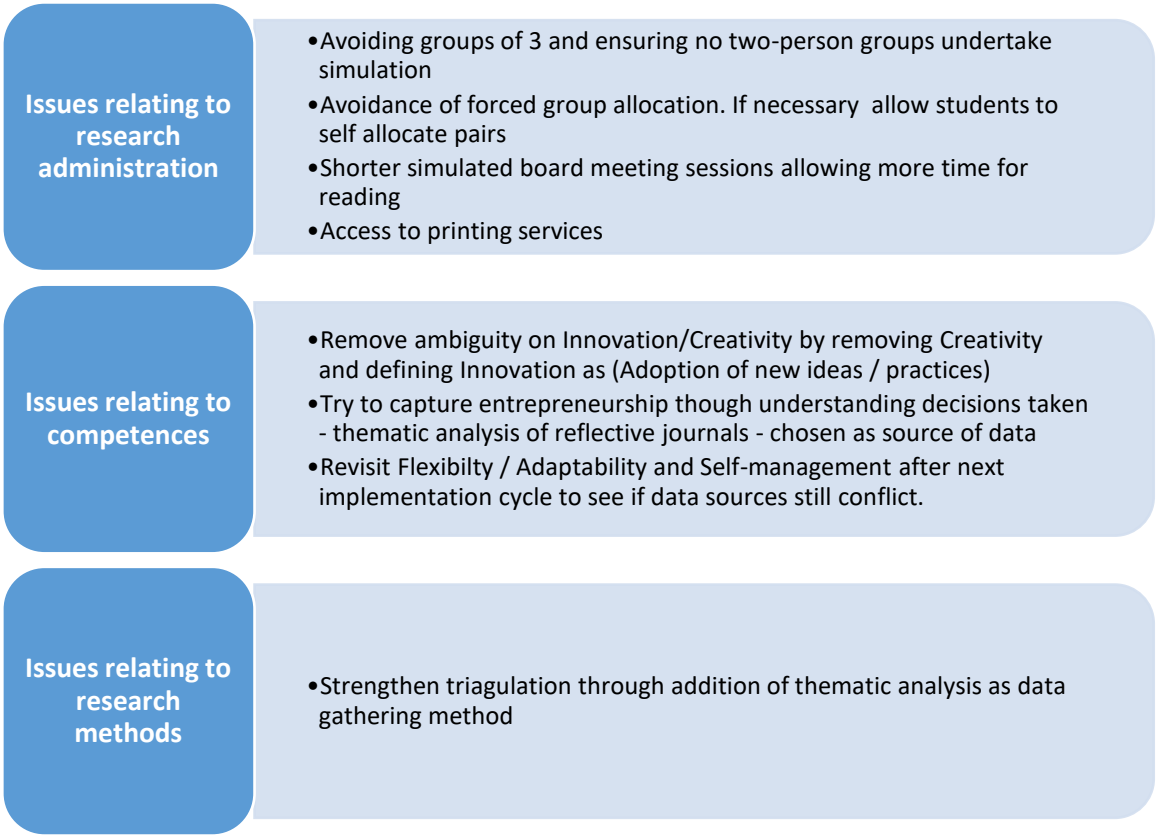


Figure 56: Summary of measures to be carried forward to implementation cycle two

6.7 Conclusion

This first implementation cycle was seen as successful. The module ran smoothly, and there was a strong support of the research amongst the student cohort. Whilst one action research cycle is just a part of this research; there were some interesting and positive findings to date. In the case of issues and conflicting results, these were reflected upon referring to additional literature as needed, and proposals have been established for the second implementation cycle. No significant issues halted the delivery of the newly created module or the early research. With this first implementation cycle completed, it is with greater confidence and clarity that the next implementation cycle was planned.

7. The Second Implementation Cycle

7.1 Introduction

The second opportunity to run the strategy simulation module was the first semester of the 2017/2018 academic year. The module was swapped from the second to the first semester to facilitate this research. This enabled a second implementation cycle within as short a timeframe as possible. This chapter will discuss the four stages of the action research cycle undertaken as part of the second implementation cycle. The feedback from the first cycle was fed into the planning process before the act phase was undertaken. As with the previous research cycle, the act phase was followed by observation and reflection. This chapter is structured around the four stages of the action research cycle.

7.2 Plan

In preparing for the second implementation cycle, the feedback from the first cycle was considered. A plan was put in place for each category of issues identified.

7.2.1 Plan relating to research administration issues

Farren (2008), in her action research study using e-learning, shows collaborative group work demonstrating a "web of betweenness" or group synergy by encouraging intergroup discussion and debate. As a first step towards achieving these more functioning groups, a more proactive approach to group formation was planned. Concrete interventions were devised to avoid issues previously experienced. Two of the key areas for consideration were the issues around two-person groups and group conflict. Whilst group work will always

present some challenges, those encountered in the first implementation cycle were reviewed and addressed with several defined measures to ensure they did not recur. The proposals planned are outlined below:

- A voluntary process of group formation would again be followed. However, the process was prefaced with a clarification that a random process would be introduced if all groups could not form voluntarily. This process meant that students were given the opportunity to self-select, which is the more successful group formation method, but that students were prepared for an alternative group formation process if necessary.
- If a lecturer-assigned group allocation became necessary, the proposal was to allow students to form pairs and randomly allocate the pairs into groups. This would avoid the difficulties experienced with forced group assignments, and it aimed to ensure students had some control over their group allocation. This process recognised the benefits of allowing the students some element of self-selection to enhance motivation and commitment.
- Students would be given a clear guideline that two-person groups would not be allowed and that three-person groups could only be created due to dropout. That is, they could not initially be proposed but might materialise as the module progresses. This aimed to guard against the difficulties experienced with two- and three-person groups.
- All groups would be told that a minimum of three group members must attend the simulation sessions to facilitate suitable debate and learning.
- In addition to interventions regarding group size, plans were put in place to assist in team development. In particular, it was planned to encourage the creation of a team contract that focused on conflict handling and resolution. Some team-building

exercises were also planned for early in the semester to assist in the team formation process.

Additional more general actions were also planned following other feedback from the first implementation cycle.

- Instead of two three hour simulation sessions with three board meetings at each session, the simulated board meetings were planned across four sessions of two hours each. This allowed students more time for preparation in advance of board meetings and allowed more time for discussion and debate between the simulated meetings at each session.
- To give students access to printing the simulation session were scheduled in a computer laboratory rather than a classroom. This decision was taken with some reservations on my part. My concerns centred on the success of the round-table format in the first implementation cycle, which was conducive to discussion. The computer laboratory option would mean student teams would be sitting alongside each other rather than around a table. However, there was strong feedback from the students that printing was necessary, so computer laboratories were used.

7.2.2 Plan relating to competence issues

The feedback from the first implementation cycle had some specific planning implications. Firstly, the survey needed to be altered to reflect the changes proposed. It was updated to remove the creativity/innovation competence, replacing it with innovation explained as (Adoption of new ideas/practices). This change aimed to remove any possible confusion regarding the competence definition, as explained in the previous chapter.

Regarding the entrepreneurship competence, it was proposed to include a thematic analysis of the students' reflective journals in the data-gathering phase. This additional data gathering source was communicated to the students as part of the consent process. The plain language statement and the introductory presentation were updated to reflect this additional data source. This additional data-gathering exercise aimed to capture information on students' decisions to identify the presence of entrepreneurship and other competences.

The two competences that showed conflicting results from my observation versus student perceptions in the first implementation cycle were the competences of flexibility/adaptability and self-management. No specific changes were planned for these competences, but they were revisited later in the observation and reflection phases to see if the inconsistency between my observation and student view remains.

7.2.3 Plan relating to research method issues

Implementation cycle one had triangulation through the gathering of both researcher observation and student perceptions through survey responses. As discussed in the reflection of the first implementation cycle, a thematic analysis of student journals was proposed for this cycle. Student consent for this thematic analysis was included on the consent form, and I completed Nvivo training. This ensured I had the right skills and relevant consent in place before the data-gathering phase.

All students completed a reflective journal as part of the assessment of the strategy module. These reflective journals were imported into NVivo and coded against each of the twelve employment competences. All text demonstrating a particular competence was highlighted and assigned to that competence (node within NVivo). Following the completion of the

coding, statistics and analysis of the various competences' occurrence was possible and was included in the discussion in the observe phase of this cycle.

The planning steps outlined here were conducted along with the more general planning steps to ensure the module was ready for student entry in September 2017. The second cycle of implementation data gathering then began.

7.3 Act

7.3.1 Student group formation

The observations regarding group formation from the previous cycle were kept to the forefront when assigning student groups in this implementation cycle:

- All groups formed voluntarily without my intervention. This happened by itself, but the process was prefaced by saying that if all groups could not form voluntarily, a random process of assigning pairs would be followed. This ensured that students were prepared for an alternative group formation process if necessary.
- While three-person groups were not avoided following student dropout from four-person groups, it was explained to these groups, that they would all have to attend the simulation sessions. They were given the choice of being disbanded or continuing and chose to continue as a three-person group. A commitment was given from all, to attend each simulation session.
- Preparatory team-building work was done in the early weeks of the semester. Groups were encouraged to draw up a team contract and agree on ground rules. In particular, students were asked to consider how all views would be heard, how agreement would be reached and how conflicts would be resolved when agreement

could not be reached. Templates for this process were distributed, and the process was discussed both during lecture time and in my informal walkabouts during group breakout sessions.

7.3.2 Class and group breakdown

The student cohort was a similar size for this implementation cycle to the one for implementation cycle one. There were 29 registered students after dropouts and no-shows. The student groups were created according to the plan outlined above, and seven groups were formed. The majority of these groups remained four-person groups across the semester, with only two three-person groups materialising due to student dropout. There was no simulation session where any student group was less than three members.

7.3.3 Participant consent

The consent forms created as part of the preparatory cycle's ethics approval process were again used for this process. The thematic analysis of student journals was included in the list of participant requirements. As before, the research was introduced to the participants in plain language, via both a short ten minute PowerPoint presentation and a plain language explanation document.

Students took the forms home and returned them the following week so that all students had time to digest the information and felt under no pressure to complete the forms. All but two students consented to the research. Arrangements were put in place to ensure that these students were not included in subsequent research communication and process.

7.3.4 Simulation session preparation

The simulation sessions were scheduled in a computer laboratory which gave the students access to a printer. The students sat in their groups clustered around one or two machines. The six simulated board meetings were spread across four sessions, as shown in Table 20. The material for the first meeting at each session was released the week before. Therefore, students did not need as much time to decide on the agenda topics to bring to the first simulated meeting at each session. This allowed more time for debate and reduced the amount of reading required during the sessions.

Semester Week	Details
Week 7	**Simulation session one** One board meeting/decision round
Week 8	**Simulation session two** Two board meetings/decision rounds
Week 9	**Simulation session three** Two board meetings/decision rounds
Week 10	**Simulation session four** One board meeting/decision round

Table 20: Simulation session plan - Implementation cycle two

Only one simulated boardroom took place at the first session in week seven. This allowed the students more time to become acquainted with the boardroom process and allowed ample time for debate and discussion. Two board meetings were completed at the next two sessions during weeks eight and nine. The final simulated boardroom session also took place on its own in week ten, allowing the students time after the final simulated board meeting to review and assess their decisions and outcomes across all the board meetings. The agendas for the simulation sessions are shown in Table 21.

Agenda for one meeting/decision round 2 hours allowed	Agenda for two meetings/decision Rounds 2 hours allocated
• Log in and set up etc. (15 minutes). • Revision of environment update – audio recording (10 minutes). • Finalisation of four agenda topics to take to meeting (20 minutes). • Debate of decision options for four agenda topics at meeting (30 minutes). • Discussion on share price and other indicators after meeting (15 minutes).	• Log in and set up etc. (10 minutes). • External environment– audio recording (10 minutes). • Finalisation of four agenda topics to take to meeting (10 minutes). • Debate of decision options for four agenda topics at meeting (20 minutes). • Discussion on share price and other indicators after meeting (10 minutes). • Environment update – audio recording (15 minutes). • Finalisation of four agenda topics to bring to meeting (15 minutes). • Debate of decisions options for four agenda topics at meeting (20 minutes). • Discussion on share price and other indicators after meeting (10 minutes).

Table 21: Agenda for simulation sessions - Implementation cycle two

Student groups used one or two of their available simulation login accounts to work through their decisions. They then had the option of revisiting their decisions using their simulation login accounts that had not been used. Students were encouraged to take notes on their decisions and reasoning to aid them with their subsequent assessment elements.

7.3.5 Simulation session one

All the necessary preparation was in place, and the first simulation session could begin. The session was video recorded, photographed, and I completed a structured observation form and completed the supporting comments sheet. The observation form was completed at the session and also following review of the video recording.

Date & Time	October 26th 2017, 8pm – 10pm
Number of students	29 (full attendance)
Number of student groups	7

Table 22: Summary details of first simulation session - Board meeting one (implementation cycle two)

The first session enabled the students to attend one simulated board meeting and to receive the associated feedback from their decision.

7.3.5.1 Initial observations

All students attended the session, and the atmosphere was very positive. Students were excited to get started and curious about how the simulated meetings would work. Despite requesting the largest computer laboratory, it was cramped for students. Students groups were sitting with two groups to each row of computers. There was no problem with the number of computers, as all groups were content to just use two of their available logins. It did, however, mean that groups were very close together.

The two main issues observed with the sessions now based in a computer laboratory were that students were more cramped, and some groups found it difficult to debate and discuss their topics. However, all groups admitted that there was also a sense of urgency and competitiveness created because all groups were side by side, making similar and competing decisions.

Students did not use the printer, choosing instead in most cases to save to PDF and distribute the post-meeting feedback electronically. This method was more environmentally friendly but also meant that a computer laboratory was not essential to the running of the session. A review of the location was discussed at the end of the class to see if students would prefer to be based around a table and sacrifice the printer which they were not using. However, the students wanted to remain with the computer laboratory arrangement, citing a possible future printer need.

Arranging the initial session only to include one board meeting was positive. Students had plenty of time to log in and become familiar with the logic of the board room functionality within the simulation software. Additionally, there was adequate time for debate and discussion.

7.3.6 Simulation session two

The second simulation session took place one week later in the same computer laboratory. Details of student numbers and groups are given on the table below. Students were given access to the material on the six agenda topics for board meeting two in advance. The associated reading and initial group discussion could be done before the session. Students were reminded of the environment update as the audio update was played. The groups were then allowed ten minutes to discuss and finalise their four agenda topics for board meeting

two. Students then moved on to the decision options for each of board meeting two's agenda options.

Date & Time	November 2nd 2017, 8pm – 10pm
Number of students	27
Number of student groups	7 (all three members or more)

Table 23: Summary details of second simulation session - Board meetings two & three (implementation cycle two)

Once board meeting two was complete students had ten minutes to review the feedback and discuss the changes to their share price relative to the other group results. The groups then moved on to board meeting three. An audio update was followed by the allocated ten minutes to narrow the agenda topics down from a possible six to the four to be brought to the third board meeting.

Groups then completed the third board meeting by deciding on a decision option for each of their selected agenda topics. The resulting share price was again written up on the whiteboard, and the final few minutes was spent reviewing the share price results and associated boardroom feedback.

7.3.6.1 Initial observations

As with the first session, the computer laboratory was full and busy. There were two student groups gathered around one or two selected machines on each row. There was active discussion and debate. The intergroup competition was evident with groups now actively

trying to achieve the best share price. Although share price was not an element of the module assessment, it offered student groups a quick benchmark on how their decisions affected the simulated company (WRSX).

One student group asked to be relocated to another room, saying that it was difficult to debate/hear due to the background noise. Other groups were offered a similar opportunity, but all the rest chose to remain in the room. The group that relocated returned to enter their results in the larger group but felt that they needed fewer disruptions in order to discuss and debate the options.

7.3.7 Simulation session three

The third simulation session was also one where two simulated board meetings were completed. As with the second session, the students had access to the six agenda topics in advance, and the associated reading and discussion could take place before the session. Students were again reminded of the environment update and given ten minutes to finalise their agenda item selection for the fourth board meeting.

The students then debated the four options for each of the board meeting agenda items for twenty minutes, followed by a ten-minute discussion of the share price and feedback. The agenda then moved on to the fifth board meeting. The students were played the update to the environment and then selected with four agenda topics before finally deciding on an option for each of the agenda items brought to the board meeting. The share price was reviewed and discussed before the session ended.

Date & Time	November 9th 2017, 8pm – 10pm
Number of students	26
Number of student groups	7 (all three members or more)

Table 24 Summary details of third simulation session - Board meetings four and five (implementation cycle two)

7.3.7.1 Initial observations

As before, the room was busy and noisy. The same student group requested to use a quieter room for their debates, but the other students were happy to remain where they were. The initial reading was reduced by allowing the students access to the preparatory material in advance of the session. However, there remained a lot of reading for the students in advance of their debate and decision.

7.3.8 Simulation session four

This session featured only one board meeting – the final one. Students had access to the agenda material in advance and read the material. The groups were allowed to debate and discuss further at the start of the session. Once the chosen agenda items were entered, the student groups began to debate the decision options for their four agenda items.

Date & Time	November 16th 2017, 8pm – 10pm
Number of students	28
Number of student groups	7 (all three members or more)

Table 25: Summary details of first simulation session - Board meeting six (implementation cycle two)

The groups debated their decision options for their final simulated board meeting, and all entered their final decisions simultaneously. Final share prices were written on the whiteboard, and an analysis of the outcome and feedback began. Students worked for the remainder of the session to analyse the trend of their share price and their decisions. This work would feed into the two assessment elements, the first being a board meeting in CIT's School of Business board room. This was essentially a seventh board meeting where the student groups met with me and needed to rationalise their decisions and outcomes. The other assessment element, where students reviewed their performance across the simulation, was the student reflective journal.

7.3.8.1 Initial observations

The competition between groups was high with all groups showing great interest in their location on the league chart of share prices. Students knew the share price did not influence the assessment grade. Still, an underlying sense of competition generated a high level of interest and excitement for the final share price round.

Overall the change in the breakdown of the simulation sessions appeared more successful; students had more time to read the material and debate the options. The room was noisy and loud, which added to the level of excitement but did mean one group felt the need to

debate and discuss in a nearby classroom. The students did not use the printer with the vast majority of student groups selecting to save to PDF, allowing for subsequent distribution via email.

7.4 Observe

The second Implementation cycle involved data analysis from three sources. As with the first implementation cycle, the simulation sessions were observed, and pre- and post-module student surveys were completed. In line with the recommendation from the first implementation cycle, the students' reflective journals were also thematically analysed for evidence of the employability competences. Each of these methods will be discussed below.

As in the first implementation cycle, observation was supported with two observation sheets. The same summary sheet was used, listing all the employability competences on a grid with the groups listed as columns. The competences were scored depending on whether they were seen at all, seen once or twice, seen some of the time, and the highest score was when a competence was seen a lot or all of the time within the group. This form is shown in Appendix E and was completed during the simulation sessions and also further completed after reviewing the session video and photographs.

Again, as with the first implementation cycle, the observation form was supplemented with a "Student Comments/Quotations" form Appendix F. This form was used to detail any comments/quotations or conversations observed that supported a particular competence. This form was used during the four simulation sessions as well as completed following subsequent analysis of the video recordings.

A member of the CIT student photographic society was again present during some of the sessions and gathered photographic evidence of the simulation sessions. There was also a video recorder in a discreet corner recording the sessions, thereby allowing some retrospective review of the sessions.

The student pre- and post-questionnaires were completed using Google forms. The response rate to the survey before the simulation began was 85% of the students who agreed to participate (27 participants in total). The post-module survey was completed by 63% of participating students. The survey data was imported into a Microsoft Excel sheet, and analysis of each of the employability competences was completed. This analysis looked at each employability competence and identified the percentage of students that chose each point of the response scale. The change (if any) in these percentages were tracked from before to after the module. This will be discussed below under each of the competence headings.

The competences will be discussed in alphabetical order, with reference to the students' pre- and post-module survey, my observations, and the additional data obtained from the thematic review of the students' reflective journals.

7.4.1 Analytical skills

As in the first implementation cycle, analytical skills were explained to the students as, using knowledge, facts, and data to solve workplace problems. This skill is well represented in the simulation. Although students do not necessarily have all information required; they have access to various forms of information to assist with their decisions. The available information is both financial and non-financial. The information was also available to

students in different formats such as video, audio, and financial and non-financial documentation.

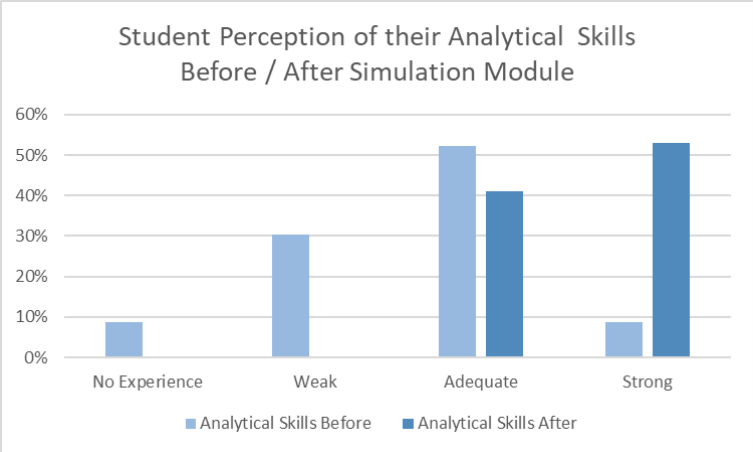


Chart 18: Student perception of their analytical skills before/after simulation module – Second implementation cycle

Students clearly felt that the simulation improved their ability to absorb information and solve business problems. Chart 18 shows this improvement with all students rating their analytical skills as adequate or strong after the simulation. The percentage of student rating this skill as strong rose from under 10% before the module to over 50% afterwards.

The student perspective is supported by my observations. My rating on the structured observation sheet showed some groups as having demonstrated analytical skills a lot of the time, with most groups showing analytical skills most of the time. Additionally students were heard referring to their analysis

"Hang on, let's look over the PESTEL again to see if there's something we missed."

"Did you get what he said about growth rates?"

Students completed a company and industry analysis as their first assignment. This alone would have required their analytical skills, but they continued this analysis throughout the simulation, referring back and updating the analysis documents.

Thematic analysis of the students' reflective journals showed that all of the students demonstrated some degree of analytical skill. The percentage of document coded for analytical skills started at 13% of the document text and rose to a maximum of 57% of the document showing analytical competences. The mean and median are both close to 30%, so nearly one-third of the student journals showed analytical skills. This analysis is shown in Chart 19.

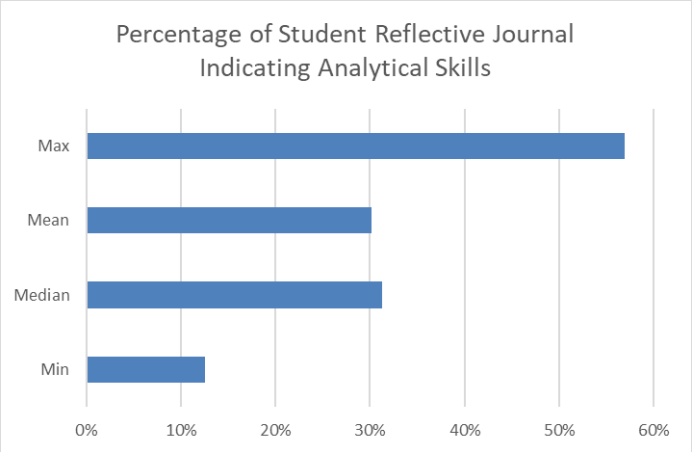


Chart 19: Percentage of student reflective journal demonstrating analytical skills – Second implementation cycle

Across the reflective journals, there were examples of students using facts and data to solve workplace problems. Some examples include.

"With a predicted maintained growth of 4% in the

following year, economy downturn due to consumer debt and rising oil

prices, investors find it difficult to depend on the US market in the long term."

"To compete with low-cost manufacturers and service providers from Eastern Europe and Asia-Pacific, many companies are looking towards mergers and acquisitions to drive down costs and enjoy economies of scale."

"It scores our 'Procurement and Supplier Management' at 38.7, the industry average being 50. This was a poor reflection on how WRSX manages production buying and how it exploits good relationship with suppliers."

"We constantly referred back to our PESTEL Analysis which was an important factor in our boardroom decisions."

Therefore, observation and thematic analysis both supported the presence of analytical skills. The student survey recorded an increase in the students' perception of their analytical skills from before to after the module.

7.4.2 Business acumen

This competence was explained to participants as understanding the drivers of business success. Students' perception of their business acumen showed an improvement across the module. Following the completion of the module, all students rated their business acumen as either adequate or strong. The percentage of students rating their business acumen as

strong rose by over 37 percentage points, from 22% before the module, to 59% after the module. This increase can be seen in Chart 20.

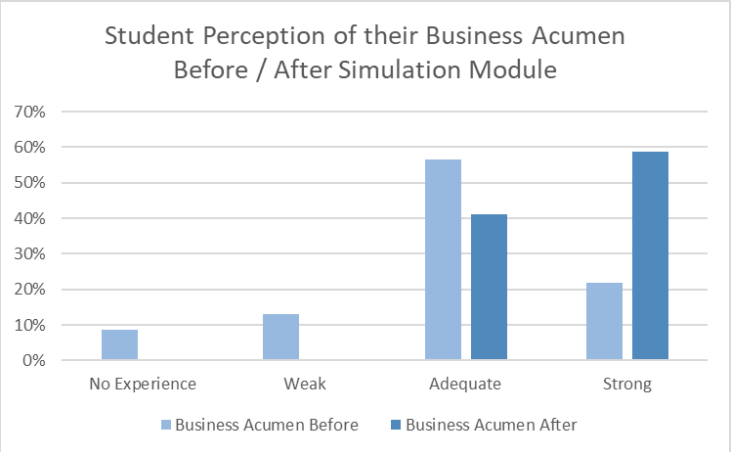


Chart 20: Student perception of their business acumen before/after simulation module – Second implementation cycle

My observations supported the student perspective. On the structured observation sheet, all student groups were rated as showing business acumen a lot of the time, or most of the time. Students were heard discussing their share price and trying to understand why their result was different from others.

"I think our lower share price is ok. We have made decisions that will take a while to come in."

When the student journals were thematically coded for material demonstrating this competence, a wide range from 10% to 59% was found. The mean and median were close to 30% showing good levels of this competence in most cases. This is shown in Chart 21.

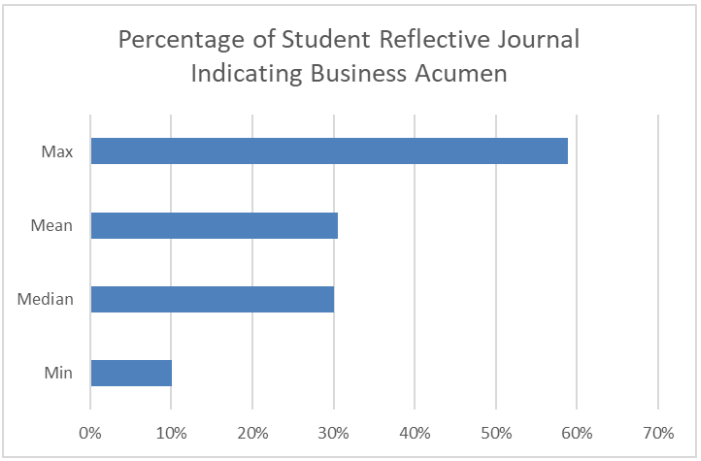


Chart 21: Percentage of student reflective journal demonstrating business acumen - Second implementation cycle:

Material from the journals showing an understanding of the drivers of business success was varied, but some examples are included here. The first shows a general understanding of the drivers of business success whilst the second gives an example with reference to WRSX the simulated advertising agency.

"With the increased significance of Corporate Social Responsibility (CSR), many corporations are promoting their CSR policies vigorously through investment in education and other social projects."

"Several other issues include[d] the lack of corporate governance and the corruption scandal that adversely affected WRSX's reputation. Competitors were able to offer price-sensitive clients more attractive prices due to their cost-efficiency, and these affected WRSX's profit margins."

The student evaluation, my observation and thematic analysis all point to the presence of business acumen and the improvement of this competence across the module.

7.4.3 Communication skills

The communication skills competence was expanded to clarify that both written and verbal communication skills were being assessed. The students' perception of their communication skills showed an increase from before to after the module. All students rated their communication skills as either adequate or strong after the module, with 71% of students rating their communication skills as strong.

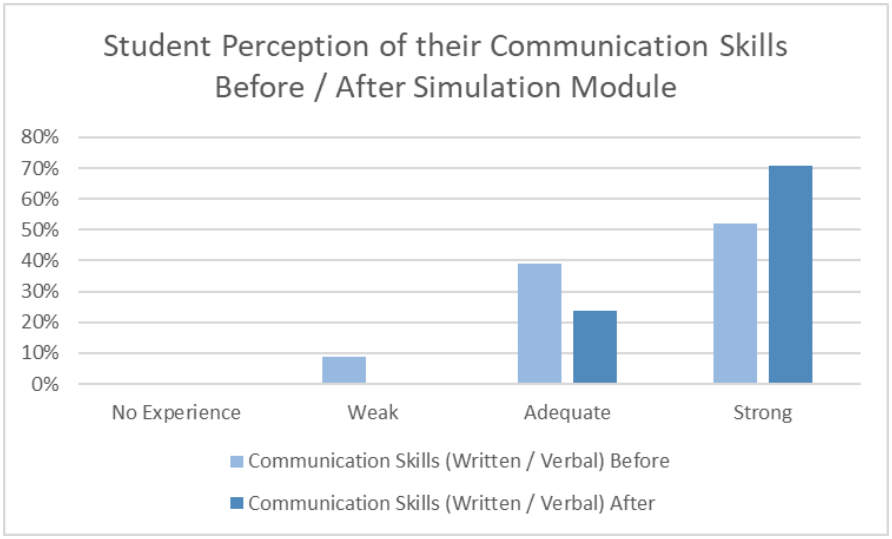


Chart 22: Student perception of their communication skills before/after simulation module – Second implementation cycle

Student communication was observed across the simulation sessions. On the structured observation sheet, all groups attained a score indicating evidence of communication most of the time. All groups had at least three members for all sessions, and this ensured that the issues with two-person groups in the first implementation cycle were avoided. Figure 65

below shows how students were seen to refer to hand-written notes and prepared material as well as the material provided on-screen during the simulation sessions.

Figure 57: Written and oral communication - Implementation cycle two

In the case of communication skills, the analysis of the student reflective journals was completed in two ways. Firstly, looking at written communication skills, the fact that all students submitted a written journal indicates that all possess some written communication skills. However, this does not indicate the quality of the students' written communication skills. To fine-tune this assessment of written communication skills, an analysis of student grades was undertaken. A portion of the overall grade assigned for the reflective journal was available for the writing quality. This portion of the grade was assigned with reference to document structure, writing skills, academic referencing and overall professionalism of the written document.

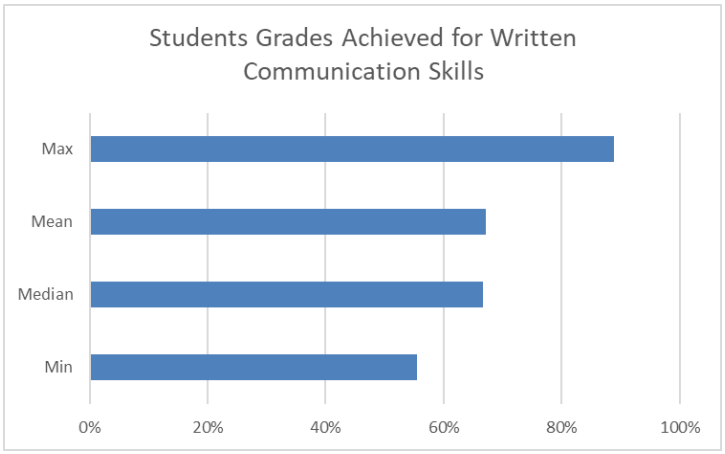


Chart 23: Student grades achieved for written communication skills - Second implementation cycle

This written communication portion of the overall grade was analysed and the percentage achieved by each student for their writing skills calculated. All students scored over 50% for their written communication skills, and the summary statistics are shown in Chart 23. What should be noted here is that the majority of marks lost by students in this writing grade was for referencing and citation. Only six students scored above 60% for citation and referencing skills. One could argue that the ability to cite and reference correctly is not a general written communication skill but specific to the academic context. Although it clearly needs improvement, it does not reflect written communication skills in general. Considering the proportion of grade lost for academic writing skills, the overall grades still show reasonably strong written communication skills.

The second element of the communication skills analysis was a thematic analysis of the student journals for verbal or non-written communication references. As with other competences, this analysis was done using NVivo software, and the results of this analysis are shown in Chart 24. The analysis here does not indicate a very high level of verbal communication skills. This percentage was generated by identifying the material referencing discussion, debate, presentations and any other form of non-written communication.

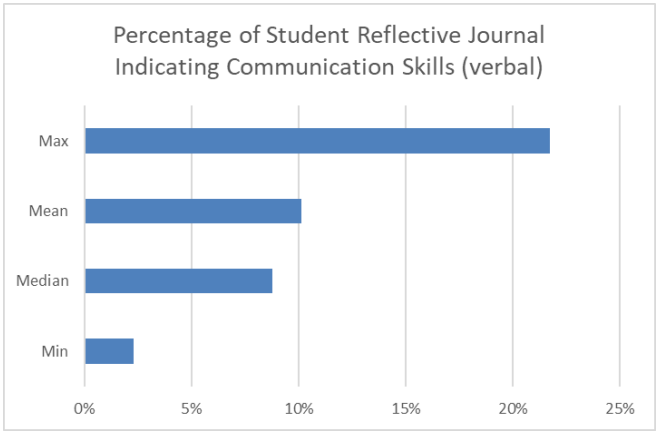


Chart 24: Percentage of student reflective journal Indicating communication skills (verbal) - Implementation cycle two

Examples of the material from the reflective journals referencing communication are included below:

"We could see the disappointment on our faces, and at the same time we are relieved that we are no longer responsible for WRXS Company."

"The exercise involved working as a team and group dynamics, as we had to make a lot of decisions and in doing so, involved a lot of negotiation and compromising."

"I didn't want to cause any conflict with team members and was willing to compromise."

In the case of non-written communication skills, there is a variance between the thematic analysis of the reflective journals on the one hand and my observations and student perceptions on the other hand. This variance will be discussed in the reflection section later in this chapter.

7.4.4 Cultural awareness

This competence was explained to students as an awareness of business and environmental cultures. This competence was closely linked to the first assessment element, a strategic analysis of WRSX (the simulated company). All groups completed this assignment, with most groups submitting a PowerPoint presentation. However, one group chose an alternative method and presented their analysis as post-its on a map related to WRSX's global offices.

Figure 58: Cultural awareness - Student assignment submission in implementation cycle two

The survey results indicate that students appear to have perceived the use of this competence. A clear move towards an improvement in this competence can be seen in the students' perception of their cultural awareness. This can be seen in Chart 25. All students felt they had some degree of competence in this area, with just over half declaring their competence as adequate and 47% describing their competence as strong.

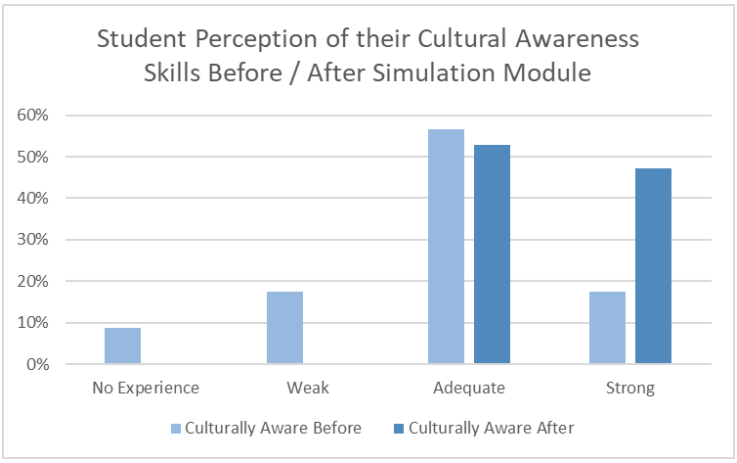


Chart 25: Student perception of their cultural awareness skills before/after simulation module - Second implementation cycle

I also observed cultural awareness, and all groups scored for the presence of this competence, some or most of the time on the summary observation sheet. Additionally, on the sheet capturing supporting student comments, there were examples of students considering the internal and external environment and culture.

"Will that really work in a service organisation like ours?"

"Before we decide will we have another look over our PESTLE?"

All participants' reflective journals were analysed for material demonstrating cultural awareness. All journals demonstrated cultural awareness, indicating an understanding of business and environmental cultures. The percentage of relevant content ranges from a minimum of 15% of journal content to a maximum of 61% of journal content. This is shown graphically on Chart 26.

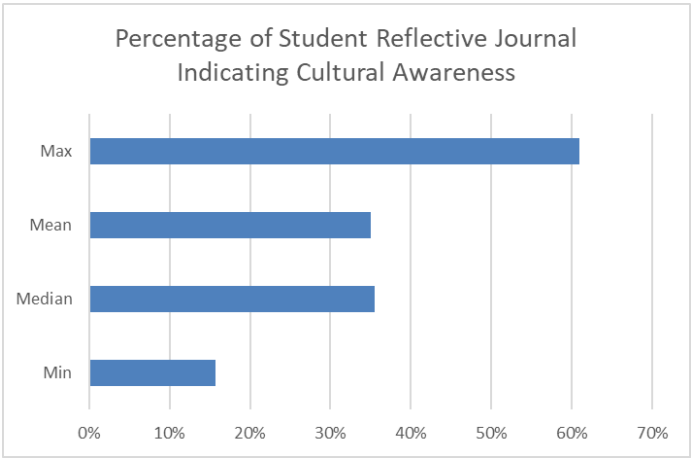


Chart 26: Percentage of student reflective journal indicating cultural awareness - Implementation cycle two

The mean for the content showing cultural awareness is 35% whilst the median is 36%, demonstrating that over a third of journal content demonstrated cultural awareness. This

would support both my observations and students' perception of their improved cultural awareness.

Material in the journals ranged from content showing a general understanding of business and environmental cultures (example one), examples showing an awareness of the culture of the simulated organisation (example two) to content showing an understanding of the students' own organisation's environment and culture (example three).

"Firstly, we examined the organisation internally by carrying out building blocks to competitive advantage to find out WRSX strengths and weaknesses. Secondly, we examined the environment externally by PESTEL analysis."

"Because of the economic downturn in the previous few years, WRSX has managed to sustain growth in the short term. For the future, it is harder to predict. Normally during or after economic downturns, marketing and advertising budgets are tight. This can affect the profits and the market share price of WRSX."

"However, top-level executives and middle managers are not the only ones involved in the strategy process. This is the case within the Irish Defense Forces, as all members of the organisation are an important part in the strategic planning process."

7.4.5 Decision making

The simulated board meetings throughout this module offered the participants multiple decisions points. For each of the six board meetings, four agenda topics had to be selected from a possible six. For each of these four agenda topics, four possible options had to be reviewed and one selected. Table 17 in the last chapter summarised the decisions undertaken across the simulation with a total of 132 decisions completed by the students across the simulation process.

The experience of these decisions ensured that the students' perception showed a move towards a stronger competence after the module. Seventeen percent of students said they had no decision-making experience before the module, with the same percentage rating their skills as weak. This represents over a third of students with little or no decision-making experience beforehand. After the module, all students felt their decision-making skills were adequate or strong. This can be seen in Chart 27.

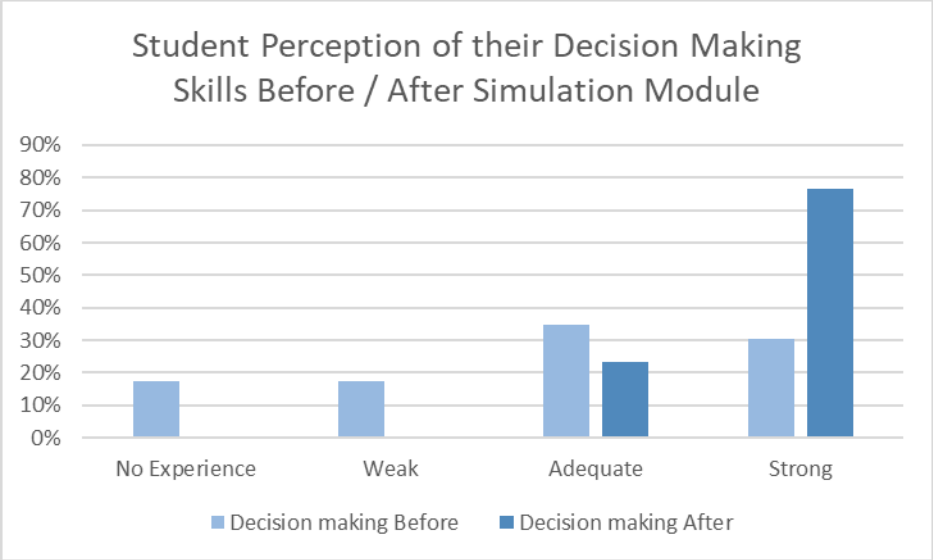


Chart 27: Student perception of their decision-making skills before/after simulation module - Second implementation cycle

My observations supported the presence of decision making across the simulation sessions. All groups were observed to be making and discussing decisions most of the time, with groups seen to discuss decisions in detail and undertake polls or votes when a majority decision was difficult to achieve. Groups were observed aiming to achieve consensus and where consensus was not possible democratic votes or polls were used. One group was seen to implement a ranking system that allowed all members to rank the options, and a total was created for all options with the top four being the chosen options. This ranking method can be seen in Figure 59.

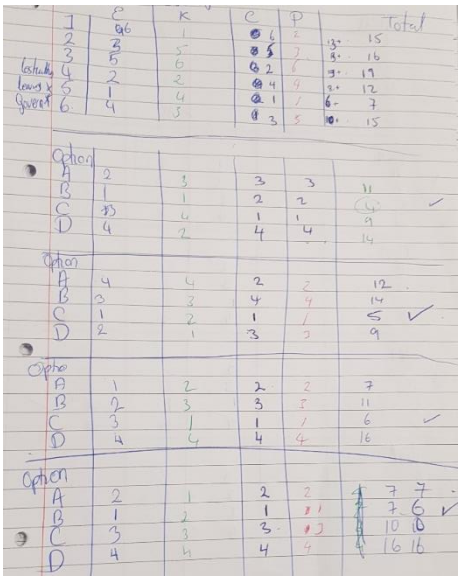


Figure 59: Decision ranking system implemented by one student group - Implementation cycle two

Tensions were avoided due to team development work completed before the simulation sessions. Conflict was discussed in advance, and an agreed process was created to handle situations where agreement could not be reached. Most groups had prepared for this situation by agreeing to one member having a veto or final decision.

"We are not going to be able to get agreement on this – X needs to use their final say again."

In addition to observation and survey, thematic analysis data supports the presence of decision-making content in the reflective journals. All journals had content supporting decision-making skills, with the range of such content rising from 15% to 54%. Due to a reasonably even distribution across the range, the mean and median are again close at 28% and 26% respectively. The thematic analysis data is shown graphically in Chart 28.

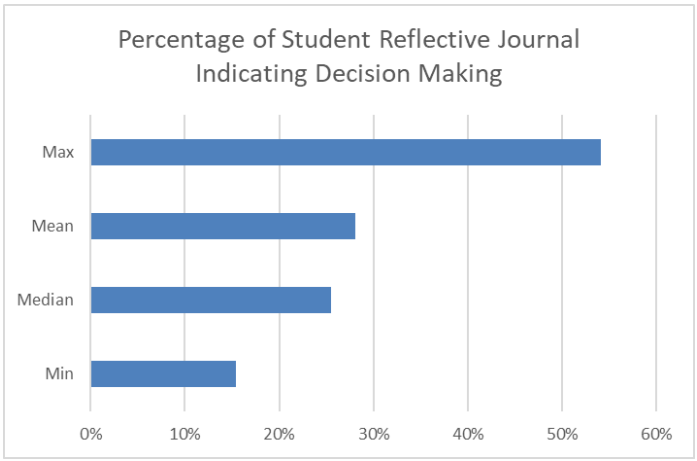


Chart 28: Percentage of student reflective journal indicating decision making - Implementation cycle two

The material from the journals varied in the type of references made to decision making, but some examples are given below.

"A consensus that WRSX need[s] to place emphasis on building their internal communications and corporate governance was achieved. Considerations of expanding WRSX were secondary, seeing that WRSX's position was already matured within the US market."

"The more decisions we made, the more we felt the real directors of the company who bear the consequences for our actions."

"The WRSX simulation allowed myself as an individual and also the group which I was in to understand the importance of carrying out the analysis and understanding the models to enable us to make educated decisions whilst having the knowledge from the module to make a decision which we could be confident in."

The selected quotations above and the overall trend indicated in the previous graph show the level of decision making to which students were exposed. The observations on this competence will be revisited in the reflection section of this chapter later.

7.4.6 Entrepreneurship

As with the first implementation cycle, the students' perception of their entrepreneurial skills did not change significantly from before to after the module. This is shown in Chart 29. My observation showed some conflicting evidence of entrepreneurial competences. The summary document recorded no evidence of entrepreneurship at a group level. This result reflected the difficulty of observing an entrepreneurial decision at the group level. However, the supporting quotation/comment sheet, completed during the session and added to following a review of video recordings, did indicate some more entrepreneurial thought during the simulation sessions. Comments that were recorded include:

"We have to venture out into new areas, so I think we have to consider the Muslim market."

"We can't just keep doing the same thing; we need to try something new."

In addition to the observations and student survey, it was proposed for this second implementation cycle, to review the reflective journals to see if entrepreneurship could be identified by the decisions documented by the students in their journals (as discussed on page 216). This thematic analysis aimed to identify evidence of entrepreneurial decisions uncaptured by both the students' survey and my observations.

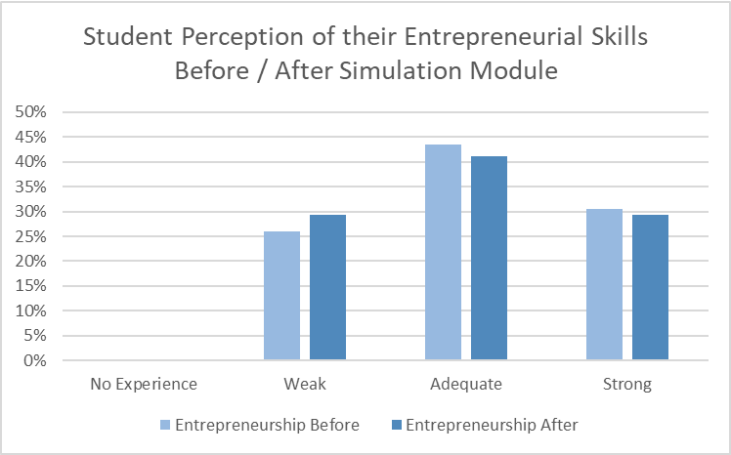


Chart 29: Student perception of their entrepreneurial skills before/after simulation module - Second implementation cycle

The variation in journal content indicating entrepreneurship was broad, ranging from only 9% to 50%. The results can be seen in Chart 30. Despite this wide range, the mean and median still do not vary significantly. The mean of journal content demonstrating entrepreneurship was 20%, whilst the median was 17%. Neither of these figures is high, but they do indicate that some exposure to entrepreneurship, defined as uncovering and

developing new opportunities, was present in the simulation whilst still difficult for the observer and student to perceive.

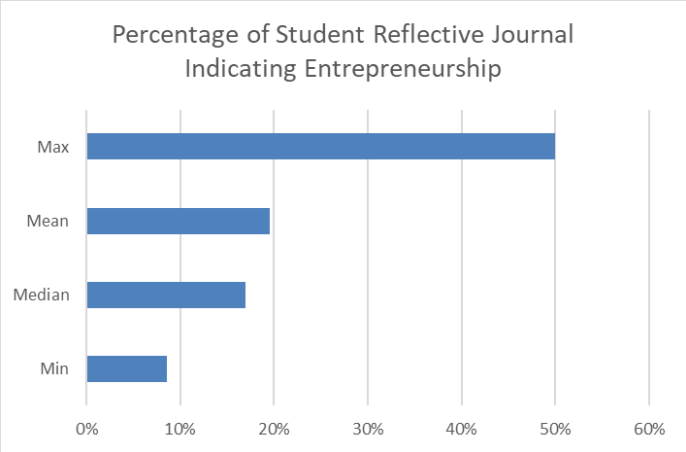


Chart 30: Percentage of student reflective journal indicating entrepreneurship - Implementation cycle two

The journal content demonstrating entrepreneurship varied. Example one below demonstrates an understanding of the concept. Example two describes entrepreneurial activity, or in this case, a decision not to take the entrepreneurial route. Example three exhibits clear entrepreneurial activity.

"Preparing a business strategy in the early stages of developing or establish[ing a] business can save time, money and headache[s], by showing where the weaknesses in the idea lies and giving [a] chance to correct them before making any serious mistakes with the organisation's or investors' money."

"We had the opportunity of investing in the Asian market several times, throughout this exercise, but we choose not to, as we already had an

office in Singapore. In hindsight, I felt that we would have performed better if we decided to invest further in the Asian markets, as these markets are growing at a rapid rate."

"I was now more aware of what needed to be done before any plan could be put in place and executed. I mentioned a few of my thoughts to a partner in my firm, and they were very happy with my input, and I will now be involved in the strategic planning process in my organisation."

The differences between the thematic analysis, survey and observation results with reference to entrepreneurial content will be revisited in the reflection section of this chapter.

7.4.7 Flexibility/Adaptability

Explained to students as "being open to new ideas and prepared to change", students were observed across the simulation sessions to consider new opportunities. "I know we didn't think we would do this, but at least let's thrash it out" or, "I think we need to rethink the restructuring. Our staff are very important to us. Is there an option that won't affect morale?" These demonstrate the students' willingness to discuss different options, including those not previously considered.

These quotations are supported by the summary observation form, where all groups demonstrated flexibility/adaptability. There was healthy debate observed, but no entrenched or strong views were seen to override a group consensus. Therefore, all groups were noted as demonstrating flexibility and adaptability.

The student perception also indicates an increase in this competence from before to after the simulation module. Although one student (6%) still ranked this competence as weak, the overall trend was towards greater degrees of this competence after the module.

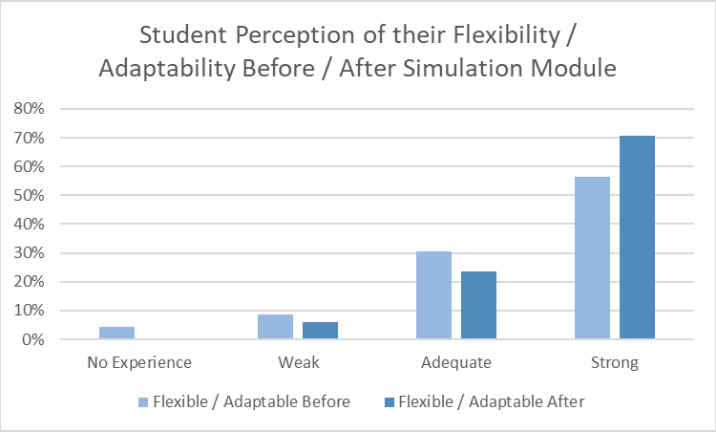


Chart 31: Student perception of their flexibility/adaptability before/after simulation module - Second implementation cycle

The thematic analysis of the student journals demonstrated some degree of adaptability and flexibility in all journals. Starting at 7% of the content and rising to a maximum of 25% of the content. The mean and median are both the same sitting at 15% of content demonstrating flexibility and adaptability. These figures are shown in Chart 32.

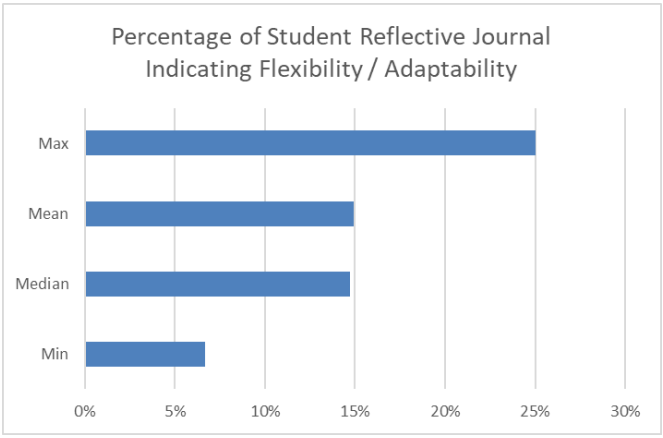


Chart 32: Percentage of student reflective journal indicating flexibility/adaptability - Implementation cycle two

The statistics shown in Chart 32 can be supported with quotations from journals supporting the concept of flexibility/adaptability. The first quotation reveals a general understanding of flexibility within an organisation. The second provides an example of the need for the simulated advertising agency to exercise flexibility. The third shows a student's individual desire to revisit decisions and re-evaluate.

"It is vital that managers analyse their environments carefully to anticipate and influence environmental change."

"A threat that faces WRSX is that social media and digital marketing is expanding, making it easier for smaller companies and individuals to use the advertising tools that have been made widely available to advertising global and niche markets. With the use of these becoming successful, it can make redundant the use of big advertising companies such as WRSX."

"I decided to investigate what went wrong during the board meetings and . . . . re-analysed most of the decisions we made during the class board meetings. . . . [I] also came up with the strategy which we didn't have at the start. We made many mistakes regarding choices of the right agenda, and also our decisions on chosen agendas were incorrect. This drove our share price down."

Whilst the student perception of the competence improvement is present, it is not as significant as it is with other competences. Nonetheless, an improvement is seen, and this supports my observations and the thematic analysis of the reflective journals. As with the other competences, these observations will be revisited in the reflection section later in this chapter.

7.4.8 Innovation

This competence was renamed from the first implementation cycle. Previously called creativity/innovation, it was not observed nor noted by the student on the last implementation cycle. For this cycle, it was chosen to focus on innovation, explained as "the adoption of new ideas and practices". It has been previously discussed that students could not generate their own or new ideas within the simulation. However, the available agenda topics and decisions options did offer some room for the selection of innovative alternatives.

Rephrasing and tweaking the definition of the competence did change the observation results. I observed innovation during the simulation sessions, and student groups were seen to be cognisant of new and emerging trends.

"We can't drop the data analytics option, or we will be left behind."

"But what about the investment in New Media / Digital Marketing?

Surely, we can't ignore that, as it is the future."

The trend seen in the student perception of innovation was also positive. However, two students (12%) still categorised their innovation competence as weak in the post-module survey; there was an overall trend towards stronger innovation after the module. This can be seen in Chart 33.

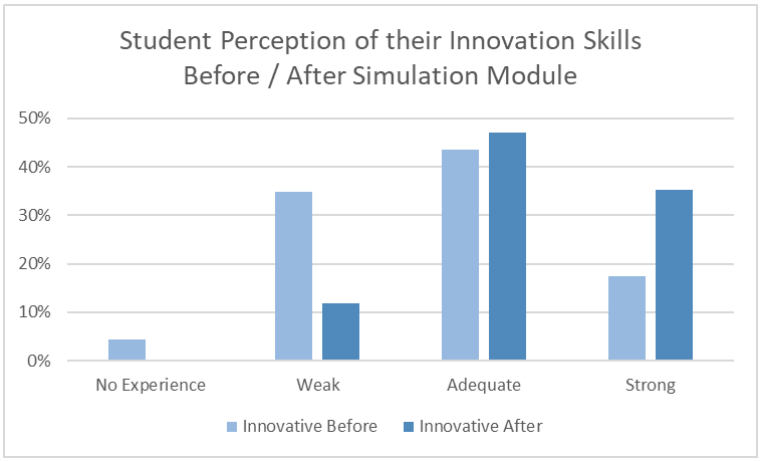


Chart 33: Student perception of their innovation skills before/after simulation module - Second implementation cycle

The thematic analysis of student journals indicated that all journals included content suggesting innovation or the adoption of new ideas and practices. The range of innovative content varied from a minimum of 5% to a maximum of 34%. The mean and median were the same at 19% of content indicating innovation. This is shown in Chart 34.

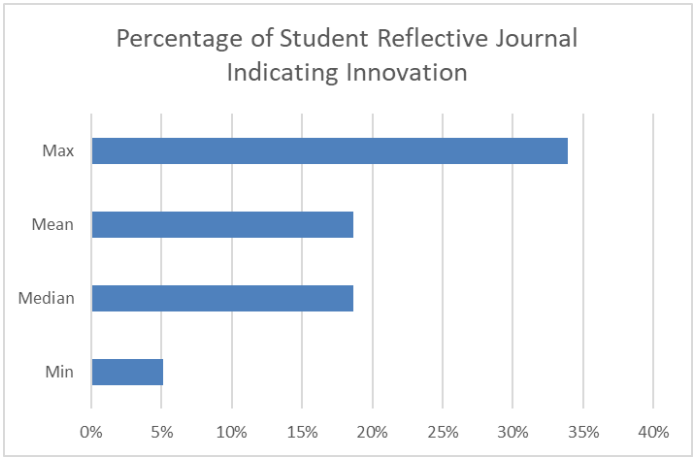


Chart 34: Percentage of student reflective journal indicating innovation - Implementation cycle two

The journal material indicating innovation varied, but some examples are included below. The first shows a generic understanding of innovation; the second provides an example of innovation within the context of the simulation, and the third offers an example of innovation from within a student's own workplace.

"Innovation can be defined as creating new products or process, which, when implemented, leads to positive effective change."

"The industry structure is continuing to change, as big clients don't need big global agencies anymore. Also, Digital Advertising is growing rapidly, which means that we need to keep modernising, and we need to get our own reputation back to its' maximum, following the recent difficulties that we encountered."

"Our goal is/was to become the go-to brand for water-based compression gear. In the next paragraph, we will look at what we did to get to there."

All the above examples demonstrate a student understanding of innovation and a willingness to innovate within both the simulated environment and their own work environments. The thematic analysis concurred with the students' perception and my observations that the students were receptive to new ideas and practices throughout the simulation exercise. These observations will be revisited in the reflection section of this chapter.

7.4.9 Leadership

As with the first implementation cycle, students perceived an improvement in their leadership skills. There was a positive trend towards stronger leadership competences after the module, with all students perceiving their leadership skills as adequate (35%) or strong (65%) following completion of the simulation module. This trend can be seen in Chart 35.

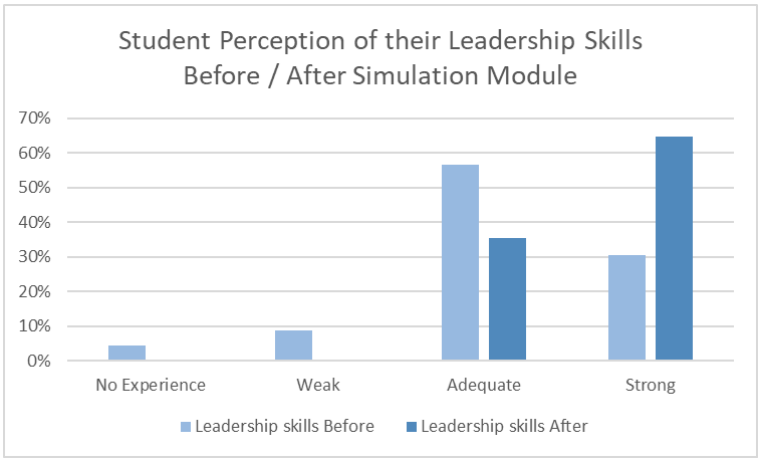


Chart 35: Student perception of their leadership skills before/after simulation module - Second implementation cycle

The module exposed students to leadership on two levels. There was leadership within the student group itself. This was perhaps more formalised on this cycle due to the team building and team contract work the student groups completed before the simulation

sessions. Although team leaders were not created, the idea of a casting vote to overcome conflict and other discussions did develop a more formalised team structure.

The second exposure to leadership was the corporate leadership central to the simulation itself. The students did not overlook this leadership role of the simulated organisation, and they were observed taking it seriously across the simulation sessions.

"We have to deal with the South American corruption. We can't be seen to condone that behaviour."

"We need to restructure the New York office or else we won't fix the problems there."

I observed student groups stepping up to the task of handling the leadership of their simulated enterprise. They were prepared to tackle difficult questions in the simulated board meetings. As the comments above demonstrate, the student groups chose to restructure and handle governance issues to address the leadership issues within the advertising agency WRSX.

The final analysis for leadership was the thematic analysis of the student journals. All the journals presented content supporting leadership within a range from 15% to 62% of the content. This is shown in Chart 36. There was a difference between the mean at 29% versus the median at 24%.

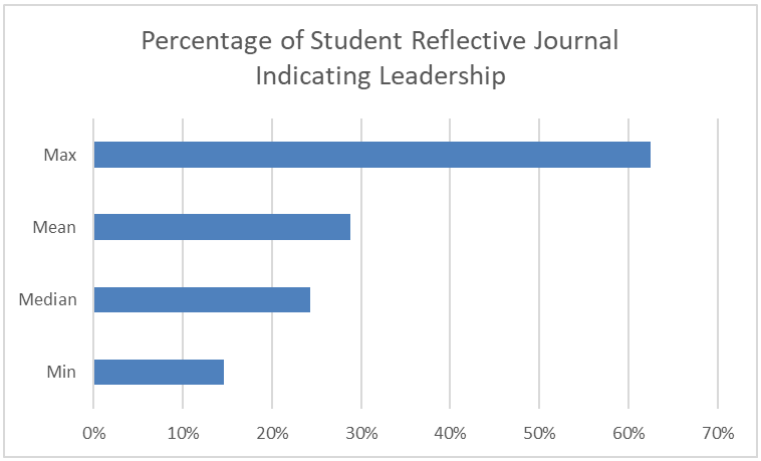


Chart 36: Percentage of student reflective journal indicating leadership - Implementation cycle two

It is fair to say content from the journals indicated leadership competences with examples such as the two following. The first example below gives a practical example of how a student demonstrated leadership within the simulation. The second demonstrates a clear understanding of the role of a leader within an organisation.

"In our simulation exercise, an example of how we implemented our strategy for WRSX was through a takeover when we decided to purchase our UK competitor at a cost of €25million. Another example of how we implemented our strategy for WRSX was when we decided to invest in data analytics and new digital technologies at a cost of €3 million."

"Leadership is about creating a vision for the future, and vision is the ability to see things clearly. There needs to be a purpose or a goal. Leaders shape the organisation by determining the force structure, allocating resources, communicating vision and preparing for future roles."

All three data sources supported the presence of leadership competences; my observations, the students' perception of their competence, and the thematic analysis of the students' reflective journals.

7.4.10 Organisational skills

This competence was explained to students as the ability to organise work and manage time effectively. Students perceived an increase in this competence across the module. After the module, the percentage of students rating their organisational skills as strong more than doubled from 35% beforehand to 76% afterwards. This trend can be seen in Chart 37.

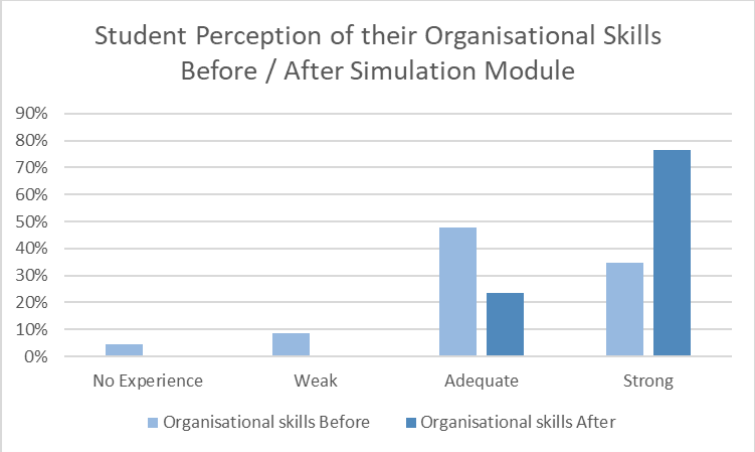


Chart 37: Student perception of their organisational skills before/after simulation module - Second implementation cycle

My observations supported the presence of organisational skills in the student teams. Each session was structured with an agenda, and the students often referred to this to structure their time.

"We have made only two decisions and have only five minutes left. We need to move on."

"OK, this time let's manage our time a bit better so that we don't get caught out by the clock."

I also saw a decreasing need from the student groups for additional time, as the board meetings progressed. Students became better at organising themselves within the time allowed. The observations would therefore support an improvement in student organisational skills across the module.

Thematic analysis of the student reflective journals showed that all journals included material indicating organisational skills with the percentage range of relevant content stretching from a minimum of 12% to an upper limit of 25% of the content. The mean and median are the same at 17% of the content. The result of this analysis can be seen in Chart 38.

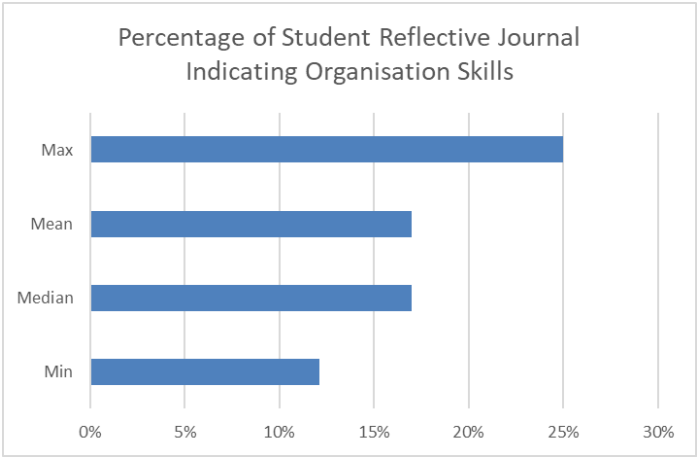


Chart 38: Percentage of student reflective journal indicating organisation skills - Implementation cycle two

Some examples from the student journals that demonstrate organisational skill, include:

"We felt that if we incorporated this better within the company, it would have a positive effect, not just externally but internally also."

"[The] next decision was [the] UK Government contracts potential account conflict [issue]. It was very impressive experience when all members of the team found the same basis of thinking how we can solve problem."

The mean and median of 17% of content indicating organisational skills is not very high. It does not really support either the student perceptions or my observations as much as might be expected. This could be related to the students' interpretation of what the journal was meant to contain (i.e. more reflection than a diary of activities). However, these figures will be discussed again in the reflection section of this chapter.

7.4.11 Self-management skills

This competence is explained as the ability to work under pressure, to be motivated and accountable. The design of the module for the second implementation cycle differed from the first. The students had shorter but more frequent simulation sessions. This reduced the time pressure to some extent, although some students were still observed paying attention to time and ensuring that all decisions were made within the allotted time.

Students were observed clearly paying attention to the agenda and the timing of the sessions. Their comments included:

"I'll look after time management and make sure we get all the decisions made."

"I did the internal analysis, so I guess this should be my area of expertise. I reckon we should take this rationalisation and cost-cutting agenda item to the board meeting."

Students were seen to take responsibility for their analysis areas, and team encouragement and motivation were also clearly observed.

These observations were not supported by the students' perception of their self-management. As in the first implementation cycle, students did not perceive an improvement in this competence. Therefore, it is possible that the self-management I observed is a competence students had in advance of the module and that the module is not necessarily improving the competence. The students' perception of this competence is shown in Chart 39.

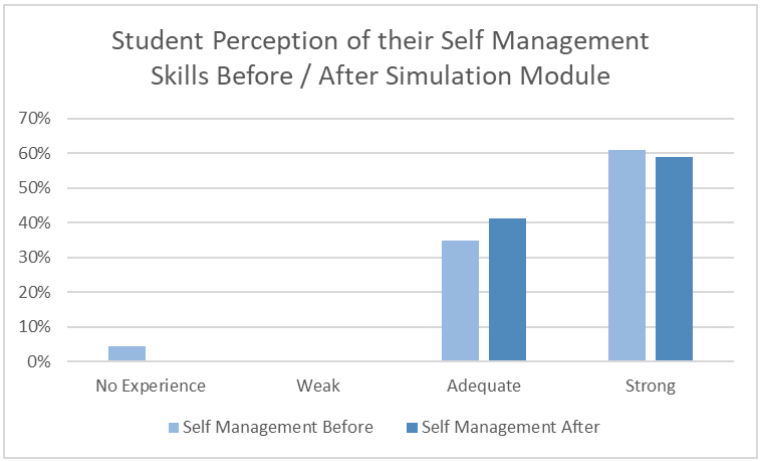


Chart 39: Student perception of their self-management skills before/after simulation module - Implementation cycle two

Analysis of the students' reflective journals indicated that all journals contained some material demonstrating self-management skill. This ranged from 10% to 35%, with the median and mean the same at 19%. These results can be seen in Chart 40.

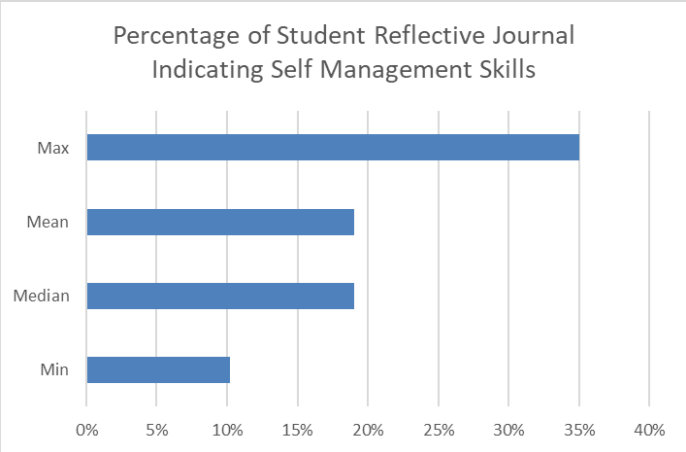


Chart 40: Percentage of student reflective journal indicating self-management skills - Implementation Cycle Two

Some specific examples of self-management from the journals include the following:

"The key to effective teamwork is to exploit each teams unique abilities [and] to motivate them to play up strengths and avoid their weaknesses with a proper balance. Through teamwork, I clearly recognize my role characteristics, learn to develop my strong points and circumvent weaknesses in the team, and draw lessons and reflections on how to deal with different opinions."

"Many practical life lessons were discovered as I embarked on a journey to link the theoretical business strategy course with practical and strategical experiences, including the simulation."

"In conclusion, I feel that the course has provided great value to me as a person, as it has completely changed the way I think. I had never before been exposed to so many decision-making situations and then see the result (e.g. the share price drop or rise.)"

The above quotations demonstrate the students' motivation, accountability, and ability to work under pressure. The results regarding self-management will be revisited in the reflection section of this chapter.

7.4.12 Team-working skills

Explained as operating well and co-operating in a team. I observed this competence throughout the simulations, and all groups were seen to work well together. On the summary observation sheet, high scores for teamwork were registered for all groups, and comments from students supported the evidence of teamwork during the simulation sessions. Students' comments included:

"Let's all work on this one together, as it influences all the other decisions."

"Let's take a vote on it to decide, and we will go with the majority decision."

As with the previous implementation cycle, small incentives (i.e. jellies) were given for the highest share price after each board meeting. Although the share price was unrelated to student grades, much attention was paid to it amongst the student groups generating a

healthy inter-team rivalry. The inter-team competition assisted with the internal team dynamic. Teams were seen huddled together, not wanting to be overheard.

The student survey data indicates that the students believed their team-working competence had improved with the experience of the module. Before the module 65% of participants regarded their team-working skills to be strong. After the module, this had increased to 82%.

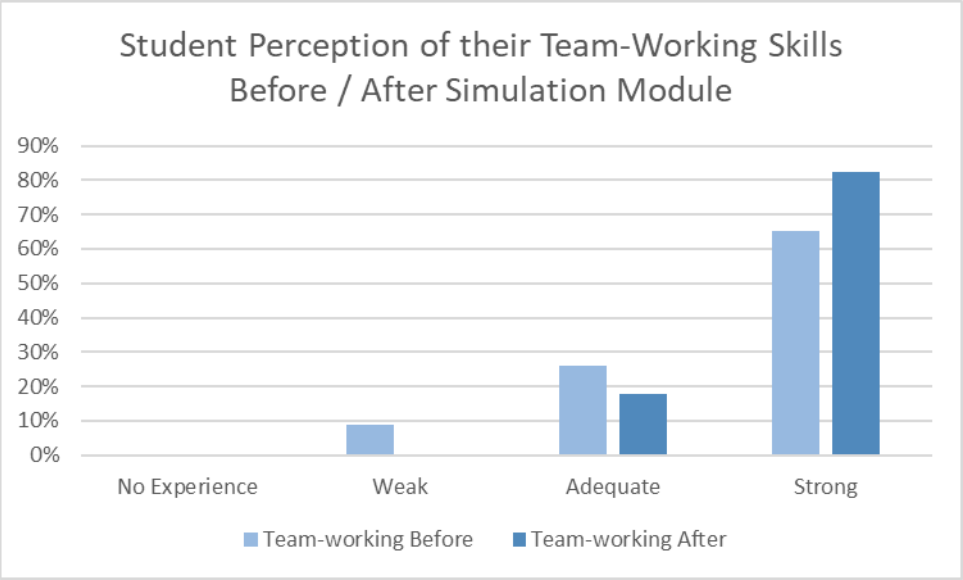


Chart 41: Student perception of their team-working skills before/after simulation module - Implementation cycle two

The analysis of student journals showed that all students included material demonstrating team-working skills, with the percentage of content ranging from 11% to 49%. The mean was 22% and median 19%.

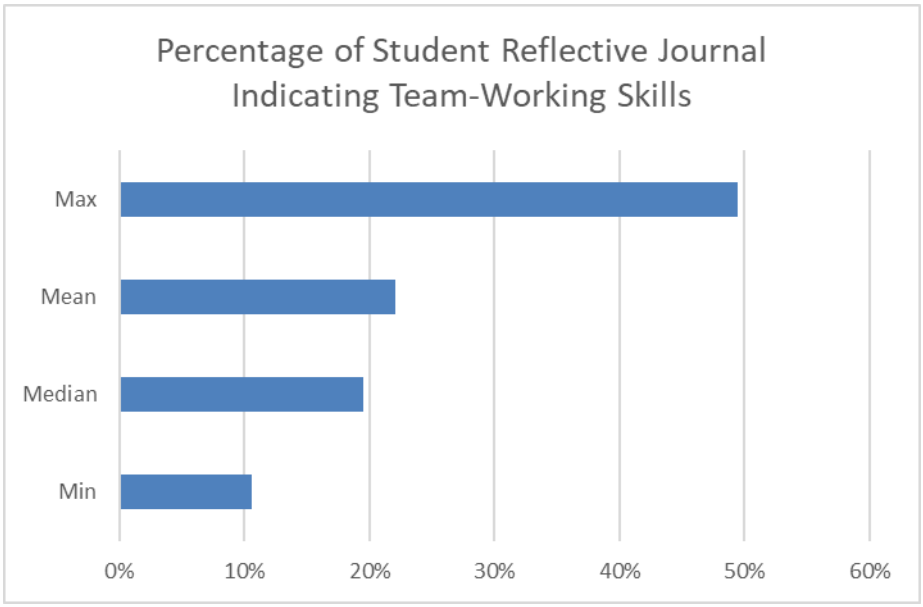


Chart 42: Percentage of student reflective journal indicating team-working skills - Implementation cycle two

Some examples of the content from the students' reflective journals demonstrating teamwork are included below. The material shows discussion of the student team, as well as the team within WRSX, and also the team within their own organisation.

"This was a constructive meeting because there was a lot of negotiating involved to make sure all four of us were happy with the initial strategy."

"The WRSX simulation allowed me as an individual and also the group I was in, to understand the importance of carrying out the analysis and understanding the models to enable us to make educated decisions whilst having the knowledge from the module to make a decision which we could be confident in."

"So, while it is clear that all members of an organisation have an input into strategic planning, it is management at the top level of the

organisation who have the overall responsibility in outlining and deciding on strategy and its implementation."

As with the other competences discussed here, these observations will be revisited as part of this chapter's reflect section.

7.4.13 Summary of observations

As in the previous implementation cycle, an analysis was completed to calculate a comparative overview of all competences before and after the simulation. The average for each point on the scale for all competences was calculated, as shown in Chart 43.

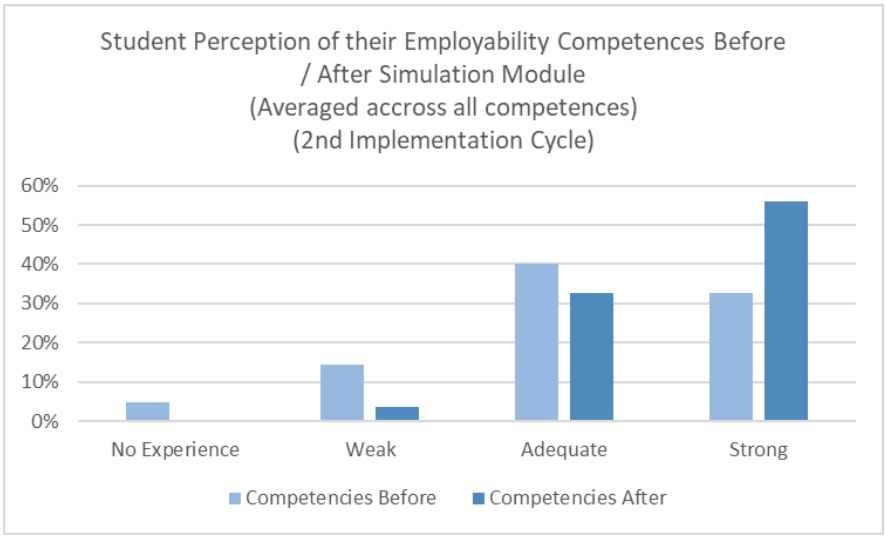


Chart 43: Student perception of their competences (averaged) - Second implementation cycle

The trend across all competences is towards stronger competences after the module. However, the chart shows 4% of participants indicating a weak competence after the

module. Nine of the twelve competences have no students perceiving their skills as weak. This 4% is influenced by three competences only. These competences are shown in Table 26.

Competence	% of students evaluating competence weak after the simulation Module
Flexibility/Adaptability	6%
Innovation	12%
Entrepreneurship	29%

Table 26: Competences evaluated by students as weak after the simulation module

The 6% for flexibility/adaptability represents one student, and 12% for innovation represents two students, so these results shouldn't necessarily be given too much attention. The 29% for entrepreneurship is the main contributor to the 4% average for weak competences after the module. Entrepreneurship was discussed earlier in this section and will be revisited when discussing Table 27. There is a difference between what the student perceived, what I observed and what the thematic analysis uncovered.

Table 27 summaries the three data sources used for this research. The first column notes whether I observed the competence – a yes in this column implies it was noticed via both the summary observation form and the more detailed comments form. The "conflicting" result for entrepreneurship is due to the competence not being observed at a group level (summary sheet), whilst comments recorded on the comment observation sheet show entrepreneurship.

The second column represents the results of the students' pre- and post-module surveys. If a positive trend was observed after the module, then a "Yes" is entered in this column. The

only competences that did not record a positive trend in the students' pre- and post-module survey were entrepreneurship and self-management. The final column shows the average percentage of journal content reflecting each particular competence.

Employability Competence	Observed by Researcher	Improvement Noted by Students (Survey)	Average % of Reflective Journal Content
1. Analytical skills	YES	YES	30%
2. Business acumen	YES	YES	31%
3. Communication skills	YES	YES	10%
4. Cultural awareness	YES	YES	35%
5. Decision making	YES	YES	28%
6. Entrepreneurship	Conflicting	NO	20%
7. Flexibility/Adaptability	YES	YES	15%
8. Innovation	YES	YES	19%
9. Leadership	YES	YES	29%
10. Organisational skills	YES	YES	17%
11. Self- management	YES	NO	19%
12. Team working	YES	YES	22%

Table 27: Comparison of researcher observations, student survey responses and thematic analysis - Second implementation cycle

There are consistent results from each data source for the first two competences analytical skills and business acumen. The first competence that presents an inconsistency is communication skills. Communication skills is the competence with the lowest average score from the reflective journals, with only 10% of journal content reflecting communication. This would initially appear to be a contradiction when each journal is in itself a communication

instrument, meaning that 100% of it should represent communication. However, a different approach was taken in the analysis, as discussed earlier in this chapter.

The participants' written communication skills were assessed though the grade received for the quality of their submission. All students scored above 50% for written communication skills. The 10% average listed in Table 27 shows the content in the journal that refers to verbal communication skills. It would seem that students did not write or reflect extensively on their verbal communication skills in the reflective journals. This anomaly will be discussed further in the reflect section of this chapter.

Cultural awareness and decision making are shown in Table 27 to have consistent results from all data sources; all sources show an increase in the participants' cultural awareness and decision-making skills. The next competence that shows an inconsistency is entrepreneurship. The students did not record an improvement in their entrepreneurial skills, and I report "conflicting" results from my observations. The conflicting results stem from the difference between the summary group observation sheets versus the more detailed comment sheet, where observed comments were recorded. Entrepreneurship was not recorded as observed at the group level, but the comment sheet did reveal evidence of entrepreneurship taking place within the groups. The reflective journal analysis also shows an average of 20% entrepreneurial content. This result will be discussed further in the reflection section of this chapter.

Flexibility/adaptability is apparent in both the student surveys and the observation results. This competence does, however, score the lowest result in the reflective journal content. This difference across the data sources is worth revisiting and will be discussed again in this chapter's reflect section.

Innovation, leadership, team-working and organisational skills all have consistent results from all data sources. Although the thematic analysis average of 17% for organisational skills is on the lower end of the range. This lower result for organisational skills will be revisited in the Reflect section of this chapter.

Self-management shows some inconsistencies across the data sources. The observations support the presence of self-management, the journals show an average of 19% content demonstrating self-management, but the students did not think these skills had been enhanced. This is the final competence that will be revisited in the Issues relating to employability competences subsection coming later in this chapter.

7.5 Reflect

This second implementation cycle allowed for fine-tuning to address issues that were raised in the first cycle. For the most part, these amendments led to a more effective intervention. A summary and further reflection will be included in this section. As in the previous chapters, the reflection on the implementation cycle will be grouped under four subheadings

1. Reflection on Research Administration.
2. Reflection on Employability Competences.
3. Reflection on Research methods.
4. Reflection on Research Rigour

7.5.1 Reflection on research administration.

7.5.1.1 Group work initiatives

In general, it was observed that fewer issues associated with group work were encountered. This improvement was credited to several initiatives

- The management of the group formation process:
    - Ensuring that groups of four were created from the start and that groups of three resulted from dropout rather than a reluctance on the part of members to include a fourth member.
    - Developing team cohesion through team-building activities and the implementation of a team contract that helped diminish conflict and decision-making issues, in addition to, outlining processes to address inconclusive decisions.
    - Students were given a clear message that should any class member not be able to form a group that I would form groups from pairs of individuals. This did not need to happen, but it focused the class on the group formation process and ensured that all students actively sought a group.

The outcome of this research indicates that successful group work needs to be managed from the outset, from group forming to bonding and continue through collaborative work during the simulation sessions. The proposal would be to continue with team building and bonding activities in this module into the future.

7.5.1.2 Logistics of simulation sessions

The first implementation cycle scheduled the simulation session in a room allowing groups to sit in circles and use their own devices. The feedback from these sessions was that the groups wanted access to a printer to print group feedback following each simulated board meeting. As a result, the simulation sessions for the second implementation cycle were planned in a computer laboratory that allowed access to a printer.

Both observation and student feedback concurred that the computer laboratory was both cramped and noisy. One student group felt conditions were so noisy that they requested to do their simulation in a room nearby. It was also observed that, despite students saying they wanted access to a printer, few actually used it. Those that did were subsequently asked how much they used their printouts, and they agreed that the material could have been received electronically.

For these reasons, it would be my recommendation that in the absence of a room with flexible seating and a printer, the next best alternative would be to split the class across two computer laboratories, allowing everyone more space and reducing noise levels. This would allow the students to retain access to a printer. Another alternative would be to return the simulation sessions to a flexible classroom where the groups can sit in circles, and students can use their own devices. The feedback at the end of each simulated boardroom can be saved to PDF and distributed by email rather than printed. A final point on this topic is that CIT is implementing a wireless printing solution, so this will remove access to a printer as a requirement from the room selection.

7.5.1.3 General student feedback

The shorter simulation sessions seemed to work well for students in that no one complained that the sessions were too long. There were still some comments regarding the amount of material that needed to be read for each board meeting, but it was recognised that some of this was possible in advance due to the scheduling of the board meetings across four sessions.

Students did express concerns about the simulation sessions in advance. The module and simulation concept is new and relatively unknown to students. In discussing the student feedback in class, it was mentioned that if students were allowed access to a simulated board meeting earlier in the semester, they would become more familiar with how the system worked before the simulations began.

With this feedback in mind, the proposal in the next implementation would be to introduce the first simulation session earlier in the semester to ease student concerns regarding the simulation process.

7.5.1.4 Reflection on researcher role

My influence on the data gathering process cannot be removed. However, by ensuring a third party undertook photographs and video, this data was gathered without my intervention at the time of recording. What also emerged in this implementation cycle was the importance of the researcher/participant relationship. In this cycle, the module was delivered in the first semester. So I walked into the lecture hall on the first night in September introducing both the module and my research and looking for participation consent. In my research diary, I

noted that in general the research was greeted with a degree of caution. Several students approached me on a personal basis to assess the implications of not participating.

As the students did not know me when consent was requested, there was a trust issue to overcome. This was different from the previous cycle, where the module was in the second semester, and the students already knew me. Several chapters of *An Ethical Approach to Practitioner Research: Dealing with Issues and Dilemmas in Action Research* edited by Campbell and Groundwater-Smith (2007) discuss ethical approaches to practitioner research. Gorman (2007, p. 14), in her chapter, outlines the central importance of the relationship between participants and researcher to the quality of any human-based research. The importance of trust is discussed in Mockler's chapter (2007, p. 96), emphasising how an institution-wide culture of trust needs to support practitioner research. Groundwater-Smith (2007, p. 124) in her own chapter emphasises the good relationships necessary to establish trust between the researcher and participants. This element of participant trust will be revisited in the Consolidation of Findings chapter.

7.5.2 Reflection on employability competences

7.5.2.1 Communication skills

As was seen in Table 27, I observed communication skills, students reported an improvement, but an average of only 10% of journal content was identified as referring to communication skills. The thematic analysis of journals was handled differently in the case of communication skills. Communication skills were explained to participants as being both written and verbal. When assessing journals for written communication skills, each reflective journal in its entirety proved an example of written skills, and could therefore be given 100%. This percentage does not give any understanding of the quality of the written skills, so an

evaluation of grades given for the written work was undertaken as outlined earlier in this chapter.

Having assessed the written communication, the thematic analysis of journals then focused on verbal communication. The journal material making reference to discussions, debates, presentations or any other verbal communication was coded using NVivo. It was this journal material, which scored an average content value of 10%. As stated previously, this is a low percentage but may reflect more on the assessment instrument. Students did not document in their journal what they said and discussed. Observations and student surveys both indicated the presence of verbal communication, and the students' view was that it had improved as a result of the module.

Lundquist et al. (2013) show that the students' assessment of their communication skills can be lower than academic evaluation. Additionally, the low score for verbal communication in the reflective journal may result from the journal being an incorrect tool to assess verbal communication skills. The challenge of rating communication skills is evident from the comprehensive analysis of oral communication assessment conducted by Morreale et al. (2011). On this basis, the contradictory result of the thematic analysis result versus the observations and surveys can be discounted, given the strong presence of communication skills I observed and the students' supporting view regarding their increased communication skills following completion of the module.

7.5.2.2 Entrepreneurship

Entrepreneurship was explained to participants as uncovering and developing new opportunities. In the reflection section in the previous chapter (first implementation cycle), the definition of entrepreneurship was expanded to include entrepreneurial decisions. The

simulation provides opportunities to uncover new markets as well as more cautious options. To capture these decisions, it was proposed that the observation comment sheet be used, as well as the introduction of an additional data source, in the form of a thematic analysis of reflective journals.

As with the first implementation cycle, the students recorded no improvement in their entrepreneurial skills. The complexity of assessing entrepreneurship is much documented ((Henry, 2015; Kamovich & Foss, 2017; Warhuus, Blenker, & Elmholdt, 2018). While students are a good judge of their skills (Wraae, Tigerstedt, & Kratzer, 2018), perhaps a simple before-after Likert scale will always need supporting data sources to demonstrate entrepreneurial learning or skills acquisition.

In the second source of data, I reported "conflicting" results from observations. The observation results differed from the summary group observation sheet, where little entrepreneurship was observed. The comment sheets, however, suggested significant entrepreneurial skill. This difference in observations could be related to the design of the observation forms or the ability to observe entrepreneurship at a group level. Entrepreneurship, could not be assessed at a group level, as group decisions were difficult to observe. However, when it came to recording comments heard within the group discussions, more entrepreneurial discussion was apparent. Groups had the opportunity to stay with more conservative options or make riskier decisions, like entering into new markets. Therefore, entrepreneurial activities were considered and undertaken, but observing these decisions at a group level was difficult to achieve.

The new data source for this implementation cycle was the thematic analysis of the reflective journals. On average, 20% of the journal content demonstrated entrepreneurial decisions and skills. This is a positive result for the presence of entrepreneurship. Reflective journals

are not the most common method to evaluate entrepreneurial skills (Table 28), coming towards the bottom of the list of assessment types and their popularity, as shown by Pittaway and Edwards. (2012, p. 788). Many other tools are deemed more suitable to measure entrepreneurial skills; therefore, 20% of journal content would seem a positive result.

Rank	Form of assessment	No.	%
1	Business plans and business reports	92	20.00
2	Presentations	73	15.87
3	In class	73	15.87
4	Tests and exams	70	15.22
5	Essays	44	9.57
6	Case studies	43	9.35
7	Reflective assessment	36	7.83
8	Peer assessment	18	3.91
9	Interviews	11	2.39
		460	100

Table 28: Summary of entrepreneurship assessment methods. Source: Pittaway & Edwards (2012)

Heinonen and Poikkijoki (2006, p. 86) proposed that both learning about entrepreneurship and learning to become entrepreneurial are individual activities and decisions. Their paper is supported by the findings of this research that, at the group level, entrepreneurship was not observed, but at the individual level, it was possible to identify entrepreneurial activity. This would also explain why, despite its lack of suitability as an assessment tool, the reflective journals demonstrated the presence of entrepreneurial thinking. Therefore, the conflicting data for entrepreneurship can be explained by the difficulty in assessing the skill, combined with the challenge of identifying it at a group level. Entrepreneurial skills have been shown to be present through both observation and thematic analysis of the journals. In support of this view are studies confirming the enhancement of entrepreneurial skills via simulation (Isabelle, 2020; Milohnic & Licul, 2018).

7.5.2.3 Flexibility/Adaptability

Flexibility/adaptability is discussed in this section due to the results of the analysis of reflective journals. The flexibility/adaptability competence had the lowest average content score (15%) from the reflective journals. This could simply be a result of the suitability of a journal to record this competence. It was possible students did not see the need to discuss changes and alterations they made in their thoughts and plans throughout the strategy process.

In contrast, the trend in the students' pre- and post-module surveys was towards an improvement in flexibility/adaptability. The post-module survey shows that only 6% of the participating students categorised this competence as weak. This percentage represents one student. Despite one student reporting their flexibility/adaptability skills as weak following the module, this still represents an improvement from the pre-module results. On the pre-module survey, 4% recorded no experience of this competence, and 9% recorded their flexibility/adaptability skills as weak. Combining these two scores would imply that 13% had no or weak skills before the module, which reduces to 6% after the module supporting the overall trend towards improvement mentioned above. These trends can also be seen on Chart 31 earlier in this chapter.

My observations also supported the presence of flexibility/adaptability in the participants. Therefore, two of the three data sources support the presence of the competence with the third source also showing it, albeit in lower amounts than other competences.

7.5.2.4 Organisational skills & self-management Skills

These two sets of competences were carried into this section as they both earned an average journal content score of less than 20%. Similar to the arguments put forward for flexibility/adaptability above, whilst the lower percentage is noted. There is still content in all journals showing these competences. The remaining two data sources of observation and student survey support the presence of these competences, so overall, the data triangulates to show these competences in the research.

7.5.3 Reflection on research methods

This cycle of action research analysed data from three sources, survey data (pre- and post-intervention), observation data (group rating form and comment recording form) and thematic analysis. The triangulation of these three sources represents strong "within method" triangulation as defined by Denscombe (2010, p. 347). Data triangulation was also achieved by gathering data from two different student cohorts, but further triangulation could be considered in future action research cycles. In particular, investigator triangulation could be considered by requesting the support of colleagues, in gathering data during their use of the strategy software simulation with other student cohorts. The introduction of investigator triangulation would also address concerns regarding my role in the study. The other researchers would also be subject to the same challenges regarding their role in the research study. Still, by different researchers carrying out the studies, the ability of one particular researcher's approach or motivation influencing the results could be removed.

7.5.4 Reflection on research rigour

As with the two previous action research cycles, Winter's (1989) six principles of action research will be discussed to show where rigour was addressed across this research process.

7.5.4.1 Reflexive critique

- My role and, in particular, my relationship with the students/participants were highlighted by this research cycle. I did not know the students when I introduced my research and sought participation. A reluctance not experienced in the previous cycle was noted.

7.5.4.2 Dialectical critique

- The conflict associated with dialectic critique can be seen in this cycle in relation to a few of the employability competences. In particular, in relation to communication and entrepreneurship. The two observations forms continue to be helpful in that the competence is observed differently with each form. Also, the further triangulation through the inclusion of the reflective journals helped capture competences presented in different ways.

7.5.4.3 Collaborative resource

As in the previous cycles, I welcomed every opportunity to discuss and validate this research. Some examples through this cycle include:

- Feedback from students regarding simulation timing and agenda schedule is reflected in this research's findings and have been incorporated in future module deliveries.

- Submission and presentation of a paper at the International Conference of Engaging Pedagogy, DCU, December 2018. (Crowley, 2018)

- Regular attendance at CIT staff doctoral "*comhluadar*" (gathering) discussing and debating relevant research stages with staff doctoral cohort. Also a constant discussion took place with departmental research colleagues, as well as my research supervisor

- Participation at the Pearson Exploring Strategy Workshop, London, June 2018 allowed for an exchange of best practice regarding simulation usage by participants from across Europe.

7.5.4.4 Risk

- As this research progressed through this second implementation cycle, my investment in time and energy in both the process and the preliminary results from the first cycle can jeopardise further cycles. In recognition of this danger, the data from this second cycle was analysed independently of the earlier data. There was a gap of some months, aiming to avoid results from the first implementation cycle influencing the second.

7.5.4.5 Plural structure

- The inclusion of the student reflective journals increased the student voice in this document. Throughout this chapter, the students can be heard in the quotations from the reflective journals and the observation sheet. The voice of the student, one of the key stakeholders, is well represented in this cycle.

7.5.4.6 Theory, practice, transformation

- The literature review around group work and group formation directed some of the interventions in this cycle. The result was more functional teams and better outcomes for the students. One practical issue that needs further investigation is the effect of room type on the research output. This cycle was undertaken in a very different room to the last cycle, and the research behind room suitability is worth investigating.

7.6 Conclusion

This second implementation cycle further developed the findings of the previous implementation cycle. This cycle was planned, taking the observations and findings from the previous cycle into account. The key inputs were reflections in the areas of research administration, research method and the competence findings. A plan was put in place to address the feedback in each of these areas, which resulted in an improved delivery for the students and more detailed findings. The findings from this second implementation cycle will be discussed further in the next chapter where findings across the research will be consolidated.

8. Consolidation of Findings and Contribution to Knowledge

8.1 Introduction

This chapter aims to consolidate the findings from the three cycles of action research detailed in the preceding three chapters. First, the preparatory cycle findings will be discussed, followed by the findings of the two implementation cycles, which will be discussed together. The purpose of this chapter is to highlight the key outcomes of this research. This research enquiry formally began in 2015 and spanned three academic years finishing in 2018. This chapter aims to draw together the learning across this complete enquiry process of planning, acting, observing and reflecting. In addition, some further findings from more recent delivery cycles will be included where relevant.

8.2 Findings Arising from the Preparatory Cycle

As a lecturer and reflective practitioner, there are always changes, alterations, updates, and amendments that emerge from student feedback, as well as my end-of-class and end-of-module review notes. Also, there are more formal sources of inspiration, such as continuing professional development opportunities. These can be in the form of short seminars or conferences or a significant undertaking, such as postgraduate certificate or award. The smaller and less significant of these ideas can be implemented quickly and discarded if unsuccessful without adverse effects. Indeed, many of these smaller tweaks are part of an educator's day-to-day classroom activities. It is when the intervention is more significant that a structured approach becomes so crucial to success.

The action research cycle chosen for this study is simple yet effective. As shown in the Methodology chapter, many more complex action research models exist, but they can all be mapped back to this simple yet effective four-stage model. This model is simple to remember, straight-forward to implement, yet effective in its results. As well as recommending the action-reflection cycle, the importance of repeated cycles of research and action is emphasised. A genuinely reflective practitioner is never done but always reviewing the last cycle in order to achieve improvements.

Preparation for action research such as this cannot be underestimated, and this begins in the planning stage of the cycle. The importance of informed interventions with reference to literature and research is key to the planning phase. Inspiration may come from the literature itself, but if coming from elsewhere, the ideas should be initially explored in the literature to ensure informed interventions are made.

8.2.1 Constructive alignment

Any significant intervention will require the redesign of an existing module or the creation of a new module. This research emphasises the importance of the concept of constructive alignment when implementing substantial module changes. The ability to trace student learning from the learning outcomes through to the teaching and assessment methods leads to better outcomes for all stakeholders. The principles of constructive alignment were discussed in both the Literature Review chapter and the preparatory cycle when the module was redesigned to accommodate the new learning environment. ADDIE is one such instructional design tool. When implementing a significant module redesign, ADDIE's use ensures that students understand their

end goal and that teaching and assessment are structured to enable the student to best reach these outcomes.

8.2.2 Licence fee funding

Any software simulation implementation will require a licence fee and the source of this funding needs to be clarified. Due to small class sizes throughout this research, the licence fee was funded by CIT, initially from their TLU development fund and subsequently from the module's home department. In an era where budgets are under pressure and scrutinised, it would be important to clarify who would pay the licence fee should the simulation be used in a larger class. If the decision is that the student should pay, then consideration needs to be given to the situation where a student cannot or does not pay. How would that student be accommodated during module delivery and subsequently assessed if they do not pay the fee?

The administration around gathering student payment and issuing licence keys also needs some thought. There are two licence key models for the simulation software used in this research. The first method is where one licence string is issued and can be used a set number of times. In this scenario, each student must be trusted to use the string once and only once. This becomes a challenge in larger classes, where ownership of the licence code becomes more difficult to control. The second method is that a set number of licence strings are given, and the administrator has to give each student their own licence string once they have paid their fee. This process would ensure that only students who have paid have access to the software, but an administration overhead needs to be considered and planned.

8.2.3 Software simulation selection

A structured approach to software selection was designed in this research. Selection criteria were developed with reference to reputable meta-studies, in addition to CIT's IT department and my own criteria. These criteria were divided into three categories and could be used in future selection processes. This software selection criteria model was discussed in more detail in Chapter Five and is shown again in Figure 60.

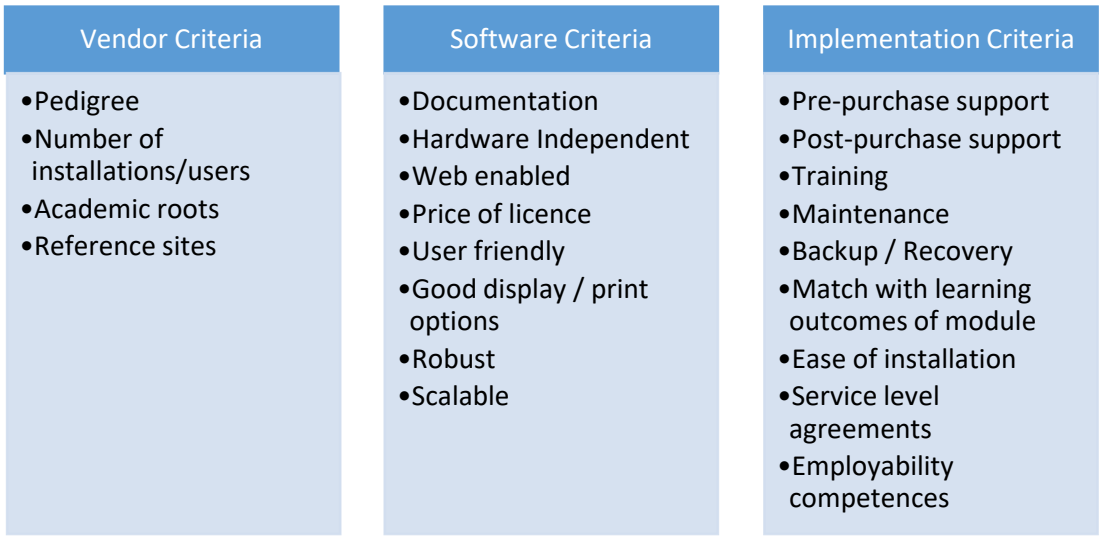


Figure 60: Categorisation of simulation software evaluation criteria

When using the evaluation criteria, it is also important to give some thought to each criterion's weighting. This would need to be done in conjunction with any stakeholders involved in the selection process.

8.2.4 Employability competence identification

The shortlist of employability competences created in this research was developed following a review of research studies representing educational and industry stakeholders in Ireland, the UK and the EU. A long list of competences was clustered to create the 12 competences used in this research. A further fine-tuning of this list of competences would be worthwhile, and two suggested methods could be via an employer survey or through employer interviews. In particular, the survey would be an interesting method of getting further validation of the competences and ensuring there were no gaps in the eyes of graduate employers.

8.3 Findings Arising from the Implementation Cycles

Each of the implementation cycles began with a planning phase, a well-designed and informed act phase was then undertaken with structured observation throughout. Following this, the findings were reflected upon to inform the next cycle of research. The findings relating to the two implementation cycles fell into three categories, issues relating to research administration, research methods, and employability competences. These three categories will be discussed under separate headings below.

8.3.1 Findings relating to research administration

The administration and logistics of research often have an impact on research outcomes. Some key aspects of the administration of this research are worth noting and planning for in future similar research cycles.

8.3.1.1 Teamwork findings

The dynamics of teams and groups are important considerations when undertaking educational research, as little research in this field is undertaken without the influence of other students in teams, groups or at the very least in the classroom. The key findings in this area were:

- The importance of setting expectations at the outset, as well as early team formation exercises, including the creation of team contracts in the preliminary stages of group formation.
- The benefits of self-selecting teams were also documented. Furthermore, preparation for the situation where self-selection is not possible is also important. In this research, the backup plan was that students would form pairs. Each pair would then be randomly allocated to a group. This was found to be the best compromise when a full self-selected team solution was not possible.
- The benefits of team participation were also observed in this research. When team members were absent reducing team members to two participants, the benefit of the simulation and teamwork were not observed to the same extent. To avoid the possibility of pairs undertaking the simulation, teams of three were not allowed from the outset. Thereby reducing the likelihood of dropouts resulting in team numbers dropping to two.

8.3.1.2 Room layout findings

Across this research, two room layouts were used. The initial implementation cycle was undertaken in a room with flexible seating allowing the students to sit in their groups in a round table fashion. The students' concern regarding the lack of printing facilities influenced the

decision to move to a computer laboratory for the second implementation cycle. Teams were then in a row using either one or two PCs. This solution certainly gave access to printing, but in my view, this was a price to pay for the less interactive seating arrangement.

Further implementation cycles have taken place since this research was concluded, and in each of these implementation cycles, other room formats have been assessed. In June 2018, with a small class group of just 14 students, it was possible to give each group their own laboratory. This was seen to have the advantages of access to printing services while not being subject to the distraction/noise issues experienced when one laboratory was used, as in the second implementation cycle discussed above. However, this solution is not realistic for larger classes, particularly during semester time. There just would not be the resources to allocate a different laboratory for each group. I also felt some tension and inter-team rivalry were lost when teams were separated into different rooms.

Figure 61: Flexible seating versus computer laboratory seating for simulation session

In the 2018/2019 academic year, the simulation module took place in the second semester, and the class groups were divided between two laboratories across the corridor from each other. Students still felt strongly that they wanted to have access to a printer. The division between

two laboratories was intended to reduce noise and distraction levels, while still generating a sense of competition and rivalry between the teams. This layout was definitely an improvement on one computer laboratory (implementation cycle two) where space was tight, and noise levels were high. However, the loss of the round table aspect of the first implementation cycle was still a significant compromise.

For the 2019/2020 academic year, the plan was to return to a flexible room format where students could sit in their groups around “round tables”. The printing issue was to be overcome by saving to PDF, by students printing later at home or at work, or perhaps (ideally) not printing at all. Just as the semester began in February 2020, access was granted to CIT’s new flexible group working space. This is a purpose-built room allowing student groups to sit at separate tables with access to a PC and other facilities.

Figure 62: CITs new collaborative classroom space

The first simulation session was planned for late March 2020 in this new collaborative classroom space. While the 2020 module delivery was not intended to be part of this thesis, I looked forward to seeing the difference a purpose-built space might mean to research results. However, due to the Covid-19 pandemic, on 12th March 2020, CIT, like all other third-level institutions in Ireland, sent their students and lecturers home. The initial disappointment of not using the state-of-the-art collaborative classroom was quickly forgotten, as the challenge of moving the simulation sessions online was investigated.

Across March and April 2020, three sets of two simulated board meeting sessions were run remotely. Each student was at home and connected via the CIT learning management platform conference facility. A separate conference using the software Big Blue Button was set up for each student group. They all had access to the simulation on their own device and used the online conference to debate and decide on their boardroom choices. Whilst this implementation is not formally part of this research, with headphones and the ability to listen directly into each group's discussion and debate, it is worth noting that many of the employability competences were heard despite the move to a "virtual room".

Across the different rooms used, including the online delivery, it was observed that the creation of a space conducive to student debate and discussion was of paramount importance. This was seen most successfully when students were gathered around a table as in the first implementation cycle, and it was also observed online as each group had their own virtual room. The laboratory format was less successful, particularly when there were too many groups in the laboratory, as groups were not in a round table format.

8.3.1.3 Simulation session planning

This research arranged the simulation sessions in two different ways. The first cycle had two three-hour sessions with three simulated board meetings in each. The second cycle had four two hour simulation sessions with one meeting at the first and last, and the second and third sessions had two meetings each. I have also delivered the simulation module again, and the approach of the second research implementation cycle was used. The only change was that the first simulation session was brought forward to earlier in the semester. The reason for this change was in response to student feedback. Students reported being anxious and worried about the module and the simulation sessions due to the different format.

In addition to the module used in this research, I have also delivered a simulation module (using the same software) in an intensive week-long format. This was a ten-credit module focused on the strategy implementation part of the simulation. No theory or lectures were given; it focused on preparing a strategy and implementing it across the six simulated board meetings. This format allowed more time for each board room and resulted in substantially more discussion and debate.

At the time of writing, the delivery of the simulation sessions via CIT's online platform has just concluded. Three online sessions of two simulated board meetings were conducted using CIT's learning platform and its conference facility. Therefore, to date, I have used several different approaches regarding scheduling the simulated board meetings. When planning the simulation sessions, there are two components for consideration, the degree of concern/uncertainty students experience in advance of the first session, and the amount of reading presented to students as part of the simulation.

8.3.1.3.1 Student concern regarding the simulation format

There is a feeling of the unknown about the simulation, and students got quite concerned about how the sessions would work, despite my reassurances and explanations. Taking account of the research of Snow et al. (2002), which shows that the method of introducing the students to the simulation has an impact on the outcome. It was proposed that during the 2018/2019 academic year, the first simulation session would be brought forward in the semester to enable students to understand what a simulated board meeting entailed. As the session was earlier in the semester, there was less concern about this first session. Students were then reassured heading into the remaining simulation sessions.

The advantage of completing one simulated boardroom meeting early in the semester is that the mystery and associated concerns are removed for students. Students are reassured about the simulation software format and can focus on the content of their strategic plan. The disadvantage of bringing forward a simulation session is that students complete the first simulated boardroom meeting without having completed all the necessary theory and analysis. As a result, early decisions in the simulation are less informed, and students had to live with the outcome of these decisions across the remaining five board meetings. The feedback received from students on this delivery was that although it was nice to get into the boardroom early, having to live with the outcome of earlier less informed decisions was a little frustrating. The benefit of understanding the associated theory in advance of undertaking the simulation is also supported by the research of Crotty, Kinney and Farren (2018).

Observation also indicated that although students get quite concerned about the simulation sessions, this concern feeds into interest levels and engagement. Therefore, while waiting for the first simulation has some negative aspects, it also has some positive outcomes. The proposal

for the 2019/2020 delivery was to return all simulation sessions to later in the semester. Students will then be adequately prepared regarding the theory. To overcome student concerns regarding the format, a detailed introduction to the simulation will be given at the start of the semester. This overview will include screenshots and an overview of simulation logic; the screenshots should reassure students that the simulation is not complicated or tricky. Students need to understand that the simulation is more about their decisions and the associated outcomes than the software.

8.3.1.3.2 Quantity of reading material included in simulation sessions

The simulation requires a significant amount of reading in advance of the decision discussions. The volume of this reading has often been mentioned in student feedback on the simulation sessions and is probably the only negative student feedback directed towards the simulation software. To reduce the reading, three possible solutions will be discussed. The first solution is to encourage the redesign of the simulation software to ensure more audio and video updates are implemented in the next release. The second and third solutions are more in the lecturer's control and involve the design/timetabling of the simulation sessions.

Regarding the first suggested solution; to redesign the software, this process has already started. Both the Pearson Publishing Ireland representative and the directors of Learning Dynamics, the company that designed the software, have visited CIT and received feedback on the implementation cycles that have taken place. This feedback has been documented and has been forwarded to the software design teams. At the time of writing, a new version of the simulation

software is under development, and it is hoped some of this feedback will be incorporated into the new version.

Future updates to the simulation software are expected to include audio/video briefings on all decisions. All students would hear the material simultaneously, and the audio/video clip could be accompanied by supporting text documents. While seen as the best one, this solution is likely to take some time and is, therefore, a longer-term solution. Both Pearson Publishing and Learning Dynamics have confirmed that there are no immediate plans to implement audio/video for all agenda topics for all meetings. There are cost implications for such an extensive rollout of audio and video, but there are plans to extend the simulation's audio/video elements in the next release. In the meantime, the second and third proposals below are seen as more immediate solutions to the quantity of reading required of students.

The second proposal is to ensure that sufficient time is scheduled to facilitate the reading within the simulation sessions. This was achieved in the week-long delivery I undertook in June 2018. The student cohort was on campus for an intensive week for the simulation. The simulated board meeting sessions were arranged such that each reading block was timetabled before or after a coffee or lunch break. This reduced the pressure on students to group read, each student had more of a chance to read at their own pace, but the students' presence on campus ensured that the reading did occur.

Students had the support of their groups should any reading material need clarification. The groups were all equally well informed when the debates and discussion over agenda topics were undertaken. This delivery was observed using the research instruments used for the two implementation cycles above. The immersive nature of the delivery was seen as positive from

both a timetabling and engagement perspective. However, such an immersive delivery will not always be possible, particularly in the case of part-time students.

The third proposal is that the students do the reading in advance of the simulation session and meet to make the decisions with all reading complete. This structure has the advantage that everyone gets to read the material in their own time, and the pressure of group reading is removed. There are three clear disadvantages to this approach. The first is that, when not in the classroom, other pressures can mean that students do not have the reading done when they return to the next simulation session. This can result in students making simulation decisions without having read the full information. This can devalue the process, as students are debating where some may have read the information and some not. The second disadvantage of reading alone is that the opportunity for discussion and clarification is removed. These discussions were observed when the students sat together whilst reading and were seen to add to the subsequent debate. All group members were on the same page regarding the company information when decision discussion began.

A final disadvantage of this third approach is that it would not be possible to achieve all reading in advance unless all six simulated board meetings were scheduled separately. This is not a realistic scheduling approach and could also reduce the build-up and excitement of the simulation sessions. Students are also more likely to miss a session if they are spread across six different timeslots. A more realistic approach would be that achieved in the second implementation cycle, where the reading for the first simulated board meeting at each session took place at home and the reading for the second meeting took place during the simulation sessions.

When an intensive immersion approach cannot be used, the recommendation would be to use an approach similar to that used in the second implementation cycle. The simulations sessions were planned with one simulated board meeting at the first session, two simulated board meetings in the next two sessions and the final board meeting at the last session. With this approach, the advantages of reading at home are achieved for four of the six board meetings. Several reminders were sent to ensure that all students had read the material in advance, and students were given a short time at the start to refresh their familiarity with the material. Before the discussion begins on the decisions to be made, a clarification session should be timetabled to ensure that all participants understand the reading material.

The reading for the two board meetings that need to occur during the simulation sessions should be planned around a coffee break allowing students to read at their own pace. Again, a clarification session should be timetabled into the agenda to ensure that everyone is clear on the decision information before the decision discussion begins. This proposal achieves the best balance based on the timetable requirements of a part-time delivery.

8.3.1.4 Researcher role findings

The researcher's influence on an action research study such as this one cannot be avoided. I am part of the dynamic within the classroom. The drive to conduct the research comes from my own passion for giving the students real-world learning experiences. My passion and enthusiasm for the research topic drove both the research and to a degree, the student enthusiasm. What was interesting to note was the difference in response levels to the research in the second

implementation cycle from the first. The response rates to the questionnaires are shown in Chart 44, and a drop in student participation on both the pre- and post-survey can be seen.

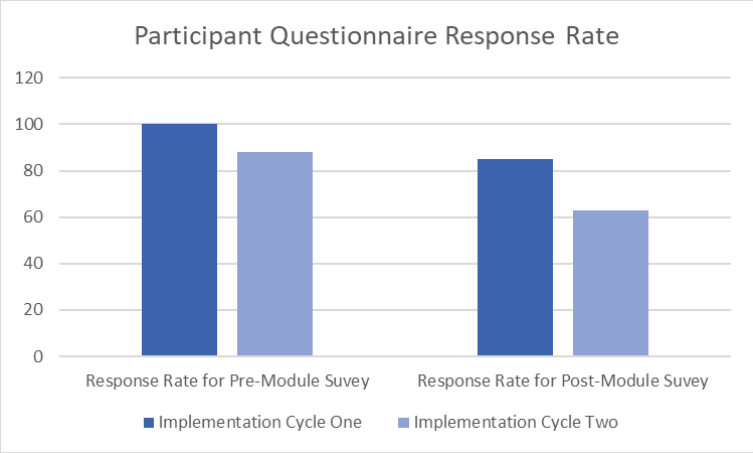


Chart 44: Comparison of participant response rate to questionnaire from both implementation cycles.

The change in participation rates from the first to the second could be explained by several factors, including perhaps, the change in the classroom or the change of student cohort. What was the same for both implementation cycles was my interest and motivation levels. Although no two deliveries from a teacher are the same, the research was explained to the students in the same format as in the first cycle. What was different in the second cycle was my relationship with the students.

The second implementation cycle took place in the first semester. Students came to their first lecture to discover a new module, a new module format, a new lecturer and the concept of being a research participant. The first implementation cycle was done in the second semester, and the students already met me in the first semester for the project management module mentioned earlier in this thesis. This project management module has a substantial amount of experiential

learning and is usually well received by the students. Their feedback was previously shown in Chart 1 on page 115. When the students returned to the second semester and were introduced to the strategy simulation module, there was an existing relationship with me from semester one. This trust contributed to the higher participation rates from students. Additionally, there was less concern from students regarding the simulation sessions, also due to the existing relationship.

Therefore, in the future, it is proposed that the strategy simulation should ideally be conducted by a lecturer the students already know, to reduce student concerns regarding the new format. Practitioner research, such as the action research cycles presented in this thesis, completely depends on the researcher's relationship with the participants. It is not possible to completely separate the lecturer/student relationship from the researcher/participant relationship. In the early stages of research, there are some benefits to this overlap, as discussed above.

Once research begins, it helps to remove some of the data gathering roles from the lecturer and researcher. This was achieved in this research by ensuring photographs and videos were undertaken by a third party. Although I took notes and other observations during class time, this was less intrusive and somewhat hidden from the students/participants. The separation of the research questions and research data collection from the module assessment was also essential. Students needed to be confident that their module grade was in no way influenced by the research being undertaken in the classroom. This was made clear to students at all times, and the option of withdrawing from the research without penalty was always available. Getting the balance right between the lecturer role and researcher role was seen as crucial to this research.

8.3.2 Findings relating to research methods

The selection of an action research model was particularly suited to this research due to alignment between the action research model and the teaching process underway in the classroom. All teachers undertake modifications and adjustments to their teaching style, teaching plan, teaching material and other aspects of their classroom environment. The action research model puts a robust yet straightforward framework around all teachers' ongoing research work, no matter how large or small the intervention.

8.3.2.1 Triangulation of data findings

The first implementation cycle used two observation forms, a summary group form and a comment gathering form (Appendix E & Appendix F). These forms were completed during the simulation sessions themselves and following review of the recordings of the simulation sessions. The views of the students were gathered via a pre- and post-module online survey (Appendix B). The data gathered was further triangulated through a thematic analysis of the students' reflective journals in the second implementation cycle.

In his book on small scale social research, Denscombe (2010, p. 346) outlines five triangulation types.

1. Methodological Triangulation between methods; using different methods to strengthen confidence in data findings.

2. Methodological Triangulation within methods; using similar methods for comparison can also increase confidence in data findings.
3. Data Triangulation; contrasting sources of information. The different sources can be respondents, or time periods etc.
4. Investigator Triangulation; using different researchers can address issues relating to bias and interpretation.
5. Theory triangulation; interpreting data from different theoretical perspectives. Triangulating in this way can influence the data collected and way the data is interpreted.

This research achieved triangulation in the first three categories. The use of three methods in the form of questionnaires, observation and thematic analysis demonstrates methodological triangulation between methods. The use of two types of observation form shows methodological triangulation within observation. The use of two different student cohorts and observation across several different simulation sessions shows data triangulation.

The remaining two triangulation types were not available to me as part of this project, as there was no other researcher available to gather the data. Future investigator triangulation could be achieved with the co-operation of two colleagues who now use the same software within CIT. The final triangulation type, theory triangulation, would involve revisiting the research question, gathering different data and interpreting it differently. This is not currently planned.

Along with plans to run the research with different investigators, it is proposed to investigate gathering data via a focus group or a number of interviews. This would include data from the fourth of the four social research methods identified by Denscombe (2010, p. 153). In that data

would be gathered via questionnaires, interviews, observation and documents ensuring an even more substantial degree of methodological triangulation between methods would be achieved.

What can be seen from the above discussion is that reliable triangulation on three of the five categories was achieved. Should further triangulation be deemed necessary, a strengthening of the triangulation between methods could be achieved by including interviews. Investigator triangulation could be achieved through co-operation with colleagues now using the software within the institute. These further steps would instil additional confidence in the data analysis and data findings.

8.3.2.2 Findings relating to research sampling

In this research, as with any action research study, purposive sampling is difficult to apply, and sampling is more likely to resemble convenience or opportunistic sampling. Identifying a suitable class group is influenced by institutional factors just as much as by research theory. Despite these restrictions, results generated can be tested on other class groups. Already I have conducted a further research cycle with a full-time, postgraduate (level-nine) student cohort. This represents a different sample to the level-seven part-time students featured in this research. Sampling in action research is not always about the generalisability of the result but about the aims of the intervention being proposed. Each classroom and class group is different in their own right, so generalisation in an educational action research study is not a realistic aim.

8.3.2.3 Findings relating to ethics

Regarding ethics, two administrative issues are worth noting following this research. Firstly, the time needed to achieve institutional approval should not be underestimated. In this case, approval from two institutions was required. Early planning and preparation for ethics approval are recommended. Secondly, when requesting participant consent, there is merit in allowing the students to take the consent form home for review. Many will opt not to, but it allows those who wish to read it in more detail to do so. It may mean that you have fewer participants but may reduce the likelihood of subsequent research dropouts.

8.3.3 Findings relating to employability competences.

All twelve competences observed across the two implementation cycles have all been shown to improve to a greater or lesser degree in the two sets of student cohorts. The aim of this research was never to focus on a sub-set of competences but to study all the competences identified as needed in our graduates. In this section, however, the findings from the two implementation cycles will be analysed further to identify the most significantly improved competences.

In order to achieve this, a table of results against each competence was created. The results of the thematic analysis, the results of the pre- and post-module survey, and the results of the group observation sheets were tabulated. The group observations sheets had been prepared on a numbered scale as observation was undertaken. This scale was as follows

- 0 = Competence not observed in group
- 50 = Competence observed – once/twice
- 100 = Competence observed – some of the time
- 150 = Competence observed – Most/all of the time

The scale chosen was a means of determining the competences most frequently observed. The entries against each competence were totalled for each simulation session, the two from the first implementation cycle and the four from the second implementation cycle. This total is shown in the Observation Score Column in Table 29.

The survey score from the pre- and post-module survey was also analysed. Again, a weighting factor was used for the degree of experience recorded by students against each competence. The weighting factor was as follows:

- No Experience was scored as 0
- Weak was scored as 50
- Adequate was scored at 100
- Strong was scored at 150

For the purpose of the final summary chart shown below, the score aimed to track and rank the improvements in competences as recorded by the students. To achieve this, as with the observation frequency, a weighting was allocated to each experience level recorded by a student against each competence. The student ranked their level of experience against a competence before and after the module, and the weighting was used in each case. The total score for each competence before and after the module was then calculated. The difference in these scores indicates the degree of improvement in the competence overall. This difference in the before and after total score is shown in the survey score column in Table 29.

The final data source included in the summary table below is the thematic analysis of the student journals. For this score, the total taken was the total number of references recorded against each competence or node as they are called in NVivo.

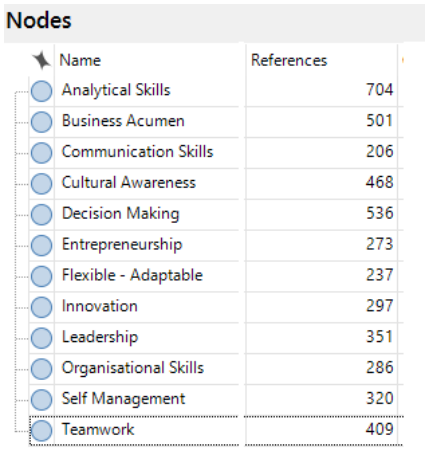


Figure 63: Summary of nodes from Nvivo software

This summary detail from NVivo is shown in Figure 63 and the Reflective Journal Score column of Table 29.

	Observation Score	Survey Score	Reflective Journal Score	Combined Total	Rank
Analytical skills	5150	5763	704	11617	2
Business acumen	4500	5526	501	10527	3
Communication skills	5150	2459	206	7815	6
Cultural awareness	3150	5155	468	8773	4
Decision making	5100	6005	536	11641	1
Entrepreneurship	1200	-89	273	1384	12
Flexible - Adaptable	2600	1053	237	3890	10
Innovation	3650	2247	297	6194	8
Leadership	300	2841	351	3492	11
Organisational skills	4600	3171	286	8057	5
Self-management	4700	401	320	5421	9
Teamwork	5000	1968	409	7377	7

Table 29: Summary of observation, survey and reflective journal analysis

The combined total column is the sum of the results from the three data sources; the observation score, the survey score and the reflective journal score. This combined total column aims to indicate the degree to which the competence was observed, the degree to which students recorded an improvement in the competence and the degree to which this competence was seen in the students' reflective journals. The observation and survey results are after two implementation cycles as opposed to the reflective journal score from the second implementation cycle only. Overall the combined total gives an indication of the competence that was observed most, recorded as improved most by students and seen most frequently in the students' reflective journals.

Table 30 shows the same table sorted by total score. The results indicate that decision making was the competence most observed and recorded by both researcher and student. Entrepreneurship is recorded as the competence least observed or recorded. This, however, is not to say that entrepreneurship was not present, just that it is the competence least improved by the simulation experience.

The scoring and weighting could have been allocated in other ways. The scale was created without favouring either observations or surveys, as the same scale was used for the categories in both the observation sheet and the questionnaire responses. It could be argued that the reflective journal is not weighted sufficiently. However, it was only analysed in the second implementation cycle so the lower weighing can be justified. The ranking above is not definitive, but it does provide insight into the competences most impacted by this intervention.

	Observation Score	Survey Score	Reflective Journal Score	Combined Total	Rank
Decision making	5100	6005	536	11641	1
Analytical skills	5150	5763	704	11617	2
Business acumen	4500	5526	501	10527	3
Cultural awareness	3150	5155	468	8773	4
Organisational skills	4600	3171	286	8057	5
Communication skills	5150	2459	206	7815	6
Teamwork	5000	1968	409	7377	7
Innovation	3650	2247	297	6194	8
Self-management	4700	401	320	5421	9
Flexible - Adaptable	2600	1053	237	3890	10
Leadership	300	2841	351	3492	11
Entrepreneurship	1200	-89	273	1384	12

Table 30: Summary of observation, survey and reflective journal analysis sorted

8.3 Contributions to Knowledge

8.3.1 Answer to research question

All research aims to contribute to knowledge, and this study was no exception. The second chapter in this document discussed how an action research study, such as this often does not have a specific destination or research question. An action research study can, by its design take a researcher in unexpected directions. Despite this uncertainty, the research study did propose a research question which was:

"Can third-level student employability competences be influenced through the implementation of a business strategy software simulation?"

In response to this question, this study has shown that using a strategy software simulation can enhance students' employability competences. This answer, however, oversimplifies the research contribution and much more is contributed by this study as outlined below.

8.3.2 Achievement of research goals

It is worthwhile at this point to remind ourselves of the goal at the outset, shown in Figure 1, in the Introduction to Study chapter. This overview is shown again in Figure 64 to remind us of our aims regarding knowledge contribution at the intersection of best practice in the areas of teaching learning and assessment, employability competences and simulations/serious games. I would argue that I have achieved this goal. This research study has redesigned a strategic management module using the principles of constructive alignment to incorporate a strategy software simulation (chosen from the market using research-based evaluation criteria) and demonstrated the enhancement of students' employability competences.

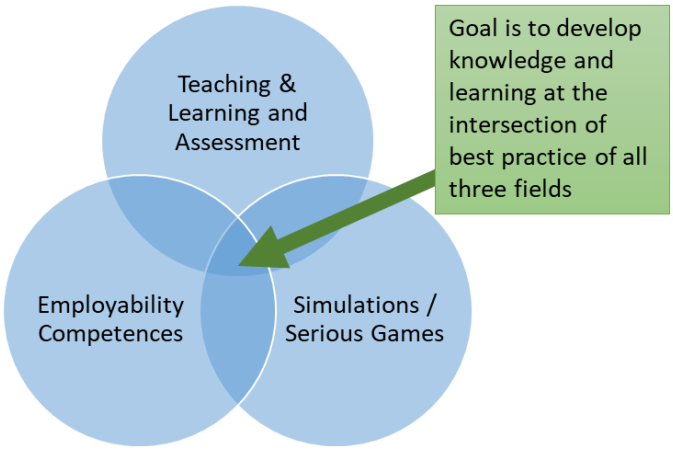


Figure 64: Overview of research aims of the study

In reaching this central goal, further knowledge contributions have been achieved in each of the core areas of research, and are shown in Figure 65. In the area of Teaching, Learning and Assessment, this research has demonstrated how to design a constructively aligned strategic management module and introduce experiential learning, thereby enhancing the student learning experience. This redesign was still possible within the restrictions of an existing

programme with established programme and module learning outcomes. This shows that new learning, teaching and assessment mechanisms can be achieved in legacy modules and programmes. Lecturers do not need a clean slate to implement significant enhancements such as this one.

Regarding the contribution of this research to my teaching practice, the transformation of a traditional "chalk and talk" module to an experiential, interactive and active learning environment has been a rewarding journey. The proven benefits of this simulation will strengthen my resolve to continue to strive to bring experiential learning into my third-level learning environments. A passion for experiential learning has been strengthened. This passion is shared with colleagues at every opportunity, through internal CIT pedagogy discussions, departmental meetings, and any other CIT Teaching and Learning forum that facilitates sharing of the lessons learnt across these cycles of action research.

The benefits of this research have also stretched beyond my teaching and learning practice. Since the development and implementation of the strategy simulation module, two further modules have been created incorporating this strategy simulation. The first is live and running successfully since 2018, the second is still under development and plans to introduce the simulation to the larger full-time student cohorts (200 students per year approx.). This second development represents a significant investment by CIT and is an exciting proposal to which I am delighted to have contributed.

Regarding existing literature, this study has shown the benefits of structured and informed interventions, thereby supporting the literature recommending the use of action research as a research approach. This study also supports the literature recommending constructive

alignment as a means of developing and improving modules. The approach in this study ensured that teaching learning and assessment were designed in a consistent manner which was an essential element of the intervention's success.

In the area of employability competences, a list of twelve competences was developed, representing the views of industry employers, accreditation bodies and the Department of Education within Ireland. Additionally, both a British and a European report were included to reflect the views of the foreign markets where CIT graduates most frequently seek employment. From these five reports, following a clustering and prioritisation process, twelve employability competences were identified. Other researchers and practitioners can use these twelve competences with confidence, knowing they are reflective of the employer and educator perspectives.

This research aligns with the literature recognising the importance of employability competences, especially in our third level graduates. As was discussed in the literature review, a shortlist of key competences is challenging to identify from the library of existing research. This study adds an informed and well-sourced list of 12 employability competences relevant, in particular, to the Irish third-level graduate.

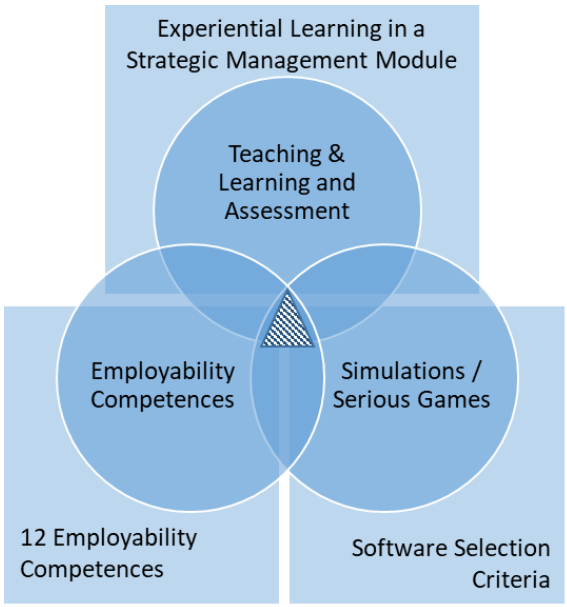


Figure 65: Knowledge contributions in each of key research areas

The third research area of simulation and serious games also sees a knowledge contribution from this research. This contribution is in the form of a set of simulation software evaluation criteria to assist in selecting possible simulations packages from the market. These evaluation criteria were developed with reference to key research meta-studies in the area of simulation software selection. In addition, the perspective of CIT's IT department and my teaching and learning perspectives were included. What was developed is a reusable set of twenty-one evaluation criteria grouped into three categories, vendor criteria, software criteria and implementation criteria. These criteria can be used by other researchers and practitioners. Each organisation, researcher, or practitioner may have different priorities. Still, the underlying evaluation criteria can remain the same with the criteria given a weighting to reflect the priorities of the stakeholders in question. These simulation software evaluation criteria were developed as part of the preparatory cycle and are shown again in Figure 66

In reviewing the literature on simulations and games, there are studies which dispute the benefits of simulations. This study, on the other hand, sides with the research supporting their use, whilst still recognising both their challenges and limitations. The challenge of selecting the appropriate simulation was discussed during this thesis. While existing literature aims to assist in this process, this study adds to the existing literature by providing a well-researched set of selection criteria, to support the identification of a suitable software simulation.

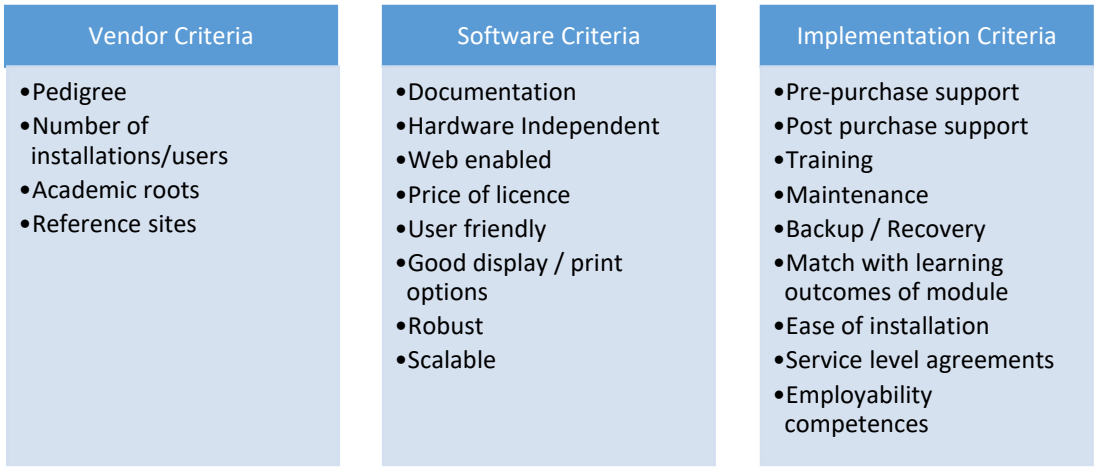


Figure 66: Simulation software evaluation criteria

8.3.3 Additional components to successful simulation implementation

In addition to knowledge contributed at the intersection of the three research areas and contributions in each of the individual areas, this research has also identified some further research findings. All knowledge contributed from this research study is presented in Figure 67. This model shows the previously discussed knowledge contributions, surrounded by four further

essential components to the success of a strategy simulation implementation. These four success factors were identified across the research implementation cycles.

In no particular order of importance, the first of these is the learning space. It was seen across this research that the room used for the simulation influences the simulation's success. Flexible learning environments are preferable, allowing students to sit in their groups in round table format with access to a digital device and printing services. It became increasingly evident across the research that the learning environment had an impact on the student experience. The structured format of computer laboratories did not lend itself to the discussion and debate that the simulation thrives on, indeed in the most recent delivery of the module, online, the “virtual room” was seen as more suitable than a computer laboratory.

The second influencing factor is the relationship between lecturer and student. Using a software simulation is a jump into the unknown for many students, and many express concern regarding the format, the degree of technical knowledge needed etc. In a situation where the students have an existing relationship with the lecturer, many of these fears can be addressed, leading to better outcomes overall.

The third area influencing the intervention's success has to do with the supports put in place around group formation, group development and group work in general. The second implementation cycle implemented some best practices in these areas to ensure groups formed and bonded more smoothly. This led to better outcomes for the intervention overall.

The final area influencing success was the timing/duration and frequency of simulation sessions. The research showed that students did not enjoy the experience when too many simulated board meetings took place together. Some thought and planning need to be given to the

duration of the simulation sessions to maintain student interest and motivation. Simulation sessions with two board meetings were seen as more successful across this research.

In line with the views of Hammond (2018) regarding the theoretical contribution of a piece of research, this research did not seek to create a single theory or proof but rather as he suggests, it sought out something "interesting", to observe and investigate and filled out the theory in this context. In line with Hammond's advice, the value of this research is in the integration of its findings and the contribution it makes to discussion in each of its key research areas.

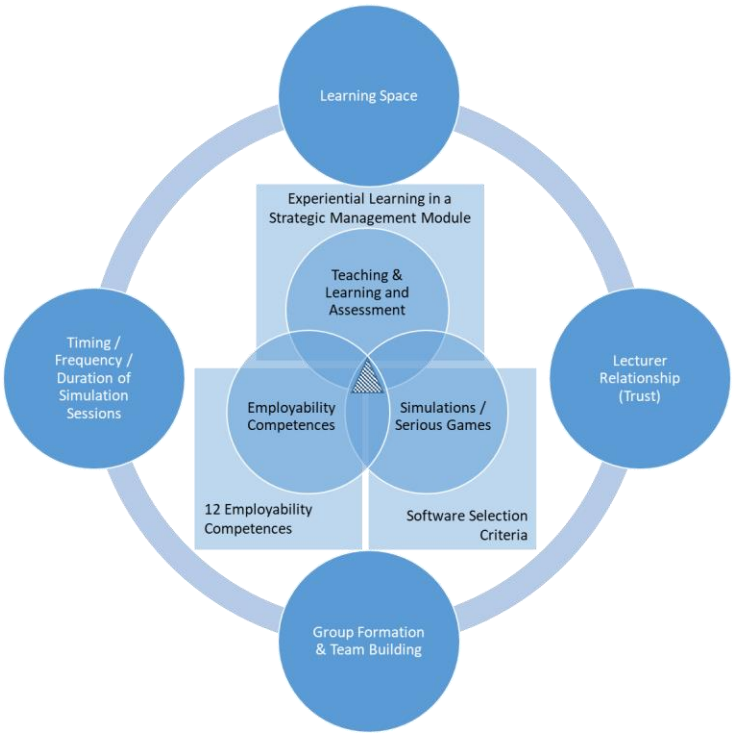


Figure 67: Summary of full knowledge contribution of research study

8.4 Conclusion

This chapter aimed to consolidate the findings across the three action research cycles; there were noteworthy findings and conclusions in each of the research cycles. These findings were combined to give the reader a holistic view of the research outputs. In addition, some discussion highlighted findings from more recent deliveries of the strategic management module. As with any practitioner research, this thesis is not the end of the research process, and further cycles of research will be undertaken in the years ahead. Some of this will be discussed in the next and final chapter of this thesis.

9. Conclusion and Recommendations

9.1 Introduction

As a practitioner dedicated to continuous improvement and innovation, it is not logical in many ways to write a chapter titled conclusions. This research has not concluded. The module featured in this research continues to be a core module on the Bachelor of Business in Management part-time degree programme. Every time I deliver the module, further cycles of Plan, Act, Observe and Reflect are undertaken. However, for the purpose of the research bounded by this thesis, some clear outcomes are discussed in this chapter along with recommendations to any other researcher investigating this field.

This chapter summarises the research undertaken to give a final overview of all the interventions and analysis conducted. The strengths and limitations of this study are discussed, along with the recommendations for future research. The chapter concludes with some final thoughts on the research field.

9.2 Summary of Work

This research journey spanned over seven years, from the successful redesign of the project management module in 2013, which drove the initiative to seek a more experiential learning environment for my strategic management module. The earliest investigations, as part of my MA programme, analysed students' perception of strategy software simulations. This MA research, undertaken in 2014, identified positive student interest in simulations but a lingering reluctance by students towards adapting to simulations. A drive to overcome this reluctance led to the question that initially drove this study. Were there further benefits to the use of simulation that might overcome students' reservations towards their use?

This research followed a structured approach to implementing a strategy software simulation into a strategic management module. The research began with a study of the relevant literature with particular attention paid to research in the areas of teaching, learning and assessment; employability competences; and simulations/serious games. In the review of key literature in teaching, learning and assessment, the benefits of key concepts, such as assessment design and constructive alignment, were explored. The teaching of strategic management remains overly reliant on the case study, and the challenge of introducing experiential learning methods was investigated.

The growing importance of student transferrable skills, soft skills or employability competences was identified by the literature, in addition to the challenges in developing these skills in our students. All stakeholders agree to their importance, but the challenge is often how to incorporate employability competences into higher education programmes. This enquiry explored if these competences could be developed using a strategy simulation. Discussion on simulations and serious games identified the need to adjust to the generation of students in our lecture halls. This generation communicate, socialise and entertain themselves digitally: their education is the only area where they are asked to sit still and listen, and then put pen to paper in an exam hall. The benefits of software simulation use are well researched, and this study aims to deliver these benefits in the teaching of strategic management. The literature review identified the intersection of these three areas as being the focus of this research study.

Before the research activities commenced, consideration was given to the research philosophies unpinning the research study. Firmly rooted in a pragmatic paradigm, the structure of the research onion was used to identify the suitable research strategy and tools to be used. Action research was chosen as the appropriate approach to a practitioner-led study such as this, and questionnaires, structured observation, and document review were

the selected data collection instruments. With these fundamental decisions finalised, it was then possible to move into the first cycle of action research and the initial definition of the problem to be addressed.

The preparatory cycle prepared the chosen module by redesigning the module as part of CITs 2015/2016 programmatic review process within the School of Business. The module was redesigned following the principles of constructive alignment, ensuring a mapping from learning outcomes to assessment methods was achieved. Whilst the redesign was restricted by the need to accommodate legacy students; it was still possible to accommodate all the changes needed to incorporate a strategy simulation. The newly redesigned module went live in the 2016/2017 academic year and has been running since.

The employability competences were identified by looking at government, education and industry publications from Ireland, the UK and Europe. These reports gave a good overview of competence requirements from the perspective of educational institutions, accreditation bodies, and employers. The choice of Irish, UK and European publications reflects the destination of CIT's graduates, who for the most part, would be employed in these markets. The long list of competences was narrowed down by way of a clustering process that involved several passes through the list to group similar items. The outcome of this process was the twelve employability competences which formed the basis of this research.

A simulation package was chosen by developing selection criteria and ranking three possible software packages from the market against the chosen criteria. The selection criteria were developed by identifying three suitable meta-studies and shortlisting the relevant selection criteria for this process. This shortlist was then combined with requirements from CIT's IT department. The final source of selection criteria were my criteria which were mainly related to the module's requirements and programme within which the software simulation would

be used. A Final list of 21 selection criteria was grouped into three categories, vendor criteria, simulation software criteria and implementation criteria. A weighting for each criterion was developed, and three market simulation packages were scored against the weighted criteria. Following this process, Pearson' MyStrategyExperience software simulation was selected.

The process of achieving ethical approval in both the research and teaching institutions was also completed. This involved initially following DCU's ethics approval process, submitting an application to the Research and Ethics committee with a copy of the proposed consent form as well as a draft questionnaire. Once DCU ethics approval was achieved, the research also had to be registered within CIT and passed by the CIT research ethics board. This was a reasonably straightforward process, as this research was categorised as low risk. Still, sufficient time and planning needed to be allowed as the process is influenced by the timing of research board meetings.

The final element of the preparatory cycle was creating the participant questionnaire that was to be completed by participants in advance of starting and after completing the module. The questionnaire was designed with reference to best practice from the literature, with attention paid to the question formats and the scale used to gather responses. Every effort was made to keep the questionnaire as straightforward as possible to ensure a good response rate was achieved. A plain language statement giving an overview of the research preceded the questionnaire. In addition, reassurance was given that participation was unrelated to module grade and assessment. Participants had to complete a consent checkbox to proceed to the questionnaire and were again informed that they could withdraw at any point without adverse consequences. The questionnaire was developed on Google forms, and a pilot was undertaken to identify any possible rollout or data analysis issues.

The first of two implementation cycles followed, structured around the four stages of the action research cycle. The first cycle took place in the second semester of 2016/2017. The simulation was successfully implemented, and data gathered via questionnaire and structured observation. Eight of the twelve competences saw a positive trend in the participants' view of their experience from before to after the module. This was supported by my observation of these competences. Two competences (creativity/innovation and entrepreneurship) were not observed nor was any improvement recorded by the participants. Two competences (flexibility/adaptability and self-management) had conflicting results. I recorded observations of these competences, but students did not perceive any improvement. The reflection stage of this first implementation cycle considered the findings in the areas of research administration, research methods and competences and these findings were incorporated into the planning stage of the second implementation cycle.

The planning stage of the second implementation cycle started in the summer of 2017. The module was delivered in the first semester for 2017/2018. Following the reflections on the first implementation cycle, amendments were planned. These included changes to the structure and location of the simulation sessions and alterations to the group formation and team-building process. One of the competences was rephrased to ensure participant understanding and an additional data source in the form a thematic analysis of reflective journals was planned. Data were analysed from the participant pre- and post-module survey, my structured observations, and the student reflective journals.

Further findings regarding room layout and simulation session timing were noted. Some of these findings have been incorporated into more recent implementations of the simulation. The research has continued through to the most recent delivery via CIT's online learning platform. An online delivery was necessary due to the Covid-19 restrictions in place since

March 2020. With each delivery, I continue to gather evidence to enhance the student experience.

Following the three cycles of action research, the research findings were consolidated in the previous chapter. Whilst all action research is unique and influenced by both the participants and the environment; there are still recommendations and findings from this research study that can inform other researchers looking to undertake a similar intervention. These recommendations will be addressed later in this chapter.

9.3 Strengths and Limitations of Research Study

This research is the output of over a decade of engagement in the fields of teaching pedagogy, technology-enhanced learning and industry-focused teaching. The enquiry is not necessarily bounded by this thesis. The enquiry began from my first day in the lecture hall when students were asked for feedback on the lecture and module. This research continues to this day as student feedback continues to be gathered and reviewed on a regular basis. This long-term engagement with the research area has led to an informed study now available to other researchers.

This research study demonstrates what can be achieved with a willingness to innovate. The easy option might be to do nothing, but this study shows the benefits to all stakeholders of investigating and implementing knowledgeable and controlled interventions. The cycles of research in this study demonstrate how research can be structured and systematic. The action cycles were not complex and followed the simple plan, act, observe and reflect cycle. This informed, structured and staged approach to interventions is shown clearly to the reader, and its benefits can be seen.

This research study was conducted at the Cork Institute of Technology with part-time students on their Bachelor of Business in Management programme. The student cohorts on the two implementation cycles documented in this thesis, were on both occasions, fewer than thirty students. Following a successful pilot such as this study, it would be beneficial to expand the study to larger class sizes and also to full-time students. This process is already underway, and plans are in place to roll out the simulation for a fulltime student cohort where student numbers would be more than 200 each year.

Practitioner research is conducted by the lecturer in his/her classroom, and it is therefore naturally limited by the lecturer's timetable, module allocation and teaching discipline. Therefore this research was limited to a strategic management module within the School of Business in CIT. However, the findings are still valid in this context and can be built upon as discussed in the section which follows.

The module chosen for this research was an existing module on an existing programme. The creation of an entirely new module was not possible within the confines of the existing programme. The module was redesigned to accommodate the simulation, but it still needed to deliver strategy theory and concepts. As there was no other strategy module on the programme, strategic management theory still needed to be delivered, thereby reducing the time available for strategy implementation via the simulation software.

This research has drawn data from observation, questionnaires, and student reflective journals. These sources all have their merits, and all contributed to the research findings. One weakness might be the difference between these data sources. My observations assessed the level of a competence, while the questionnaires assessed students' perception of a change in a competence. Finally, the analysis of student reflective journals assessed the degree to which students discussed a competence in their documents. It is possible that each

of these data sources was measuring a slightly different aspect of each competence. This possible discrepancy between the data sources could be explored by using alternative data sources in future research.

9.4 Recommendations for Future Work

This research has confirmed that student employability competences are enhanced by incorporating a strategy simulation in the teaching of strategic management. There are merits in expanding on the work of this thesis in a number of directions. To address the different recommendations, it is worth discussing them with reference to the relevant audiences.

9.4.1 Recommendations for this researcher

There was no prioritisation of the list of twelve employability competences within this research. Although the research did develop a ranking of the competences showing the degree to which the competence was enhanced through the research implementation cycles. It would be useful to understand if employers would rank or prioritise the competences as this might allow selection of a simulation more focused on the top-ranking competences. To achieve this, an employer survey could be conducted to achieve a ranking of the existing competences.

Another recommendation would be to consider the effects of a different simulation package. Each simulation has a different emphasis and therefore, may develop different employability competences. In support of the previous recommendation of creating a prioritisation of the competences, a different simulation package might then be merited to develop the competences prioritised by employers.

9.4.2 Recommendations for other lecturers/practitioners

Feedback in the classroom is ever-present, lecturers can see the engagement in their students through the quality and quantity of discussion, questions or debate. However, it is not always as easy to determine if the engagement is just “fun” or if there is academic merit or other benefits to the activity underway. This research shows that the benefits of an intervention need not always be limited to or bounded by the module learning outcomes. Of course, it is important to remain focussed on the module subject material, activities that enhance student soft-skills, and competences should also be encouraged. Practitioners should take from this research that activities can be relevant to the module and deliver benefits beyond the module learning outcome, and these activities should be encouraged for the benefit of students’ current and future careers.

This study shows the merit of informed and structured cycles of research and implementation and the benefits of reviewing and tweaking subsequent cycles. I would recommend that all practitioners use some iteration of an action research cycle to structure their classroom interventions no matter how large or small. Use of a structured approach reduces the possibility of poor interventions enables learning and continuous improvement of ongoing or established interventions.

A recommendation for lecturers or practitioners who might not yet consider themselves researchers would be to take the jump into the research community. Perhaps without realising it lecturers are gathering data through observation, surveys, student engagement and other methods. This data can become the foundation of your future research. If more practitioners begin to research and share their experiences, the window into the successful lecture hall will be opened for others.

9.4.3 Recommendations for other researchers

There is merit in expanding the research participant demographic to include full-time students. The students in this research were part-time students who are usually older than their full-time equivalents. The research could be expanded to examine the use of a software simulation with full-time student cohorts. In addition to looking at a different demographic, this recommendation would also most likely involve larger class sizes. Full-time student class groups in CIT, for example, number over 200 and would therefore generate more research data.

An area identified in this research that would be worth further exploration is that of the underperformance of the groups of two. In the first implementation cycle, there were several occasions where students undertook the simulation in groups of two. These groups were observed to be less effective than the groups of three and four. The reasons for this underperformance merits further investigation.

Another area worth further investigation would be the degree to which student employability competences could be enhanced by using simulations in other subject areas. In the School of Business in CIT, there is a marketing simulation in use, and co-operation has begun on understanding whether this marketing simulation has any influence on student employability competences. The employability benefits may not be connected with the subject area (strategic management) of this research. If the benefit to employability competences can be shown to be subject area independent, this might lead to the recommendation of a larger capstone simulation module. This could enable implementation of a more complex simulation environment, perhaps further enhancing student employability.

9.4.4 Recommendations for the research institution (CIT)

To overcome the limitations imposed by using an existing module within an existing programme, there is merit in designing a module from scratch to accommodate a strategy simulation. Such a module design has been incorporated into the BSc in International Business programme for post-graduate students. A new module design would allow for a greater focus on strategy implementation, giving more time to the simulation and less emphasis on the delivery of strategic management content. Additional research could then establish if this further enhances the students' competences.

Further progress with recommendations, such as those mentioned above, require mention of the need for supporting second-order action research or meta-action research initiatives, which is described by Trevitt (2005, p. 60) as "inquiry into effective ways of supporting others' action research." Some initiatives are in place in CIT such as the Teaching and Learning Unit and the Teaching and Learning Fund for research in this area, but more initiatives like these are needed in all institutions hoping to drive practitioner-led change.

9.5 Final Thoughts

There is no doubt that our students are more digitally demanding than their predecessors. They use their handheld devices and laptops for so much of their everyday activities; it is, therefore, no surprise that they are beginning to expect and demand their third-level institutions to catch up with them. Handing out a printed case study and asking students to write a strategy report or prepare a presentation is still a common assessment method within strategic management but so much more can be gained by giving the students an interactive

environment where the outcomes of their decisions can be quickly seen. The research is there to show that the use of simulations can enhance learning. This research has shown that along with enhanced learning; students are picking up additional employability competences valued by their future employers.

The starting point of this thesis was my MA thesis. Students had a positive perception of strategy simulations but still reported a reluctance citing two main concerns: a fear of the unknown along with a concern that there would be more effort involved and whether this would be worth it. This research has shown that it is worth this effort, simulations give students a better understanding of strategy but also give them a skill set that will make them more employable.

"No research without action, no action without research."

Kurt Lewin

(Marrow, 1972, p. 90)

References

Abbott, M., & McKinney, J. (2013). Learning from populations: Censuses and samples. In *Understanding and Applying Research Design* (pp. 121–124). Somerset: John Wiley & Sons.

Agee, J. (2009). Developing qualitative research questions: A reflective process. *International Journal of Qualitative Studies in Education*, *22*(4), 431–447. https://doi.org/10.1080/09518390902736512

Ahmed, F., Capretz, L. F., & Campbell, P. (2012). Evaluating the demand for soft skills in software development. *IT Professional*, *14*(1), 44–49. https://doi.org/10.1109/MITP.2012.7

Albert, R. S., & Runco, M. A. (1998). A history of research on creativity. In R. Sternberg (Ed.), *Handbook of Creativity* (pp. 16–34). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511807916.004

Alexander, L. D., O'Neill, H. M., Synder, N. H., & Townsend, J. B. (1986). How academy members teach the Business Policy / Strategic Management case course. *Journal of Management Case Studies*, *2*(3), 333–344.

Alomair, Y., Ahmad, I., & Alghamdi, A. (2015). A review of evaluation methods and techniques for simulation packages. *Procedia Computer Science*, *62*, 249–256. https://doi.org/10.1016/j.procs.2015.08.447

Altrichter, H., Kemmis, S., McTaggart, R., & Zuber-Skerritt, O. (2002). The concept of action research. *The Learning Organization*, *9*(3), 125–131. https://doi.org/10.1108/09696470210428840

Amabile, T. M. (1998). A model of creativity and innovation in organisations. *Research in Organizational Behavior*, *10*, 123–167. https://doi.org/10.1067/mob.2002.127128

Ancona, D. G., & Caldwell, D. F. (1992). Bridging the boundary: External activity and performance in organizational teams. *Administrative Science Quarterly*, *37*(4), 634–665. Retrieved from https://www.jstor.org/stable/2393475

Anderson, G. L., & Herr, K. (1999). The new paradigm wars: Is there room for rigorous practitioner knowledge in schools and universities? *Educational Researcher*, *28*(5), 12–21.

Anderson, J. C., & Gerbing, D. W. (1982). Some methods for respecifying measurement models to obtain unidimensional construct measurement. *Journal of Marketing Research*, *19*(4), 453. https://doi.org/10.2307/3151719

Anderson, P. H., & Lawton, L. (2009). Business simulations and cognitive learning. *Simulation & Gaming*, *40*(2), 193–216. https://doi.org/10.1177/1046878108321624

Anderson, P. H., & Woodhouse, R. H. (1984). The perceived relationship between pedagogies

and attaining objectives in the Business Policy course. In *Developments in Business Simulation & Experiential Learning* (Vol. 11, pp. 152–156).

Argyris, C. (1980). Some limitations of the Case Method: Experiences in a management development program. *Academy of Management Review*, *5(2)*(2), 291–298.

Arias-Aranda, D. (2007). Simulating reality for teaching strategic management. *Innovations in Education and Teaching International*, *44*(3), 273–286. https://doi.org/10.1080/14703290701486662

Attar, R., O 'Brien, W., Nikolovska, L., & Khan, A. (2014). Special issue on simulation for architecture and urban design. *Modeling and Simulation International*, *90*(8), 855–856. https://doi.org/10.1177/0037549714546487

Aveyard, H. (2014). *Doing a literature review in Health and Social Care : A practical guide* (3rd ed.). Berkshire: McGraw-Hill Education.

Balcar, J., Šimek, M., & Filipová, L. (2018). Soft skills of Czech graduates. *Review of Economic Perspectives*, *18*(1), 45–60. https://doi.org/10.2478/revecp-2018-0003

Baldwin, T. T., Pierce, J. R., Joines, R. C., & Farouk, S. (2011). The elusiveness of applied management knowledge: A critical challenge for management educators. *Academy of Management Learning and Education*, *10*(4), 583–605. https://doi.org/10.5465/amle.2010.0045

Baregheh, A., Rowley, J., & Sambrook, S. (2009). Towards a multidisciplinary definition of Innovation. *Management Decision*, *47*(8), 1323–1339. https://doi.org/10.1108/02651330910960799

Barnes, L. B., Christensen, C. R., & Hansen, A. J. (1994). Teaching with cases at the Harvard Business School. In *Teaching and the Case Method* (3rd ed.). Harvard Business School Press.

Barrett, G. V, & Depinet, R. L. (1991). A reconsideration of testing for competence rather than for intelligence. *The American Psychologist*, *46*(10), 1012–1024. https://doi.org/doi: 10.1037//0003-066X.46.10.1012

Bassey, M. (1998). Action research for improving educational practice. In Open University Press (Ed.), *Teacher Research and School Improvement* (pp. 167–178). Buckingham.

Bassey, Michael. (1992). Creating education through research. *British Educational Research Journal*, *18*(1), 3–16. Retrieved from www.jstor.org/stable/1500589

Beauchamp, C. (2015). Reflection in teacher education: Issues emerging from a review of current literature. *Reflective Practice*, *16*(1), 123–141. https://doi.org/10.1080/14623943.2014.982525

Bedwell, W. L., Fiore, S. M., & Salas, E. (2014). Developing the future workforce: An approach for

integrating interpersonal skills Into the MBA classroom. *Academy of Management Learning and Education*, *13*(2), 171–186. https://doi.org/10.5465/amle.2011.0138

Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research*, *15*(2), 219–234. https://doi.org/10.1177/1468794112468475

Biggs, J. (n.d.). Constructive alignment. Retrieved May 23, 2019, from http://www.johnbiggs.com.au/academic/constructive-alignment/

Biggs, J. B. (2003). *Teaching for quality learning at university.* (Second). Buckingham: Open University Press/Society for Research into Higher Education.

Biggs, W. D. (1979). Who is using computerized business games?: A view from Publishers' adoption lists. *Insights into Experiential Pedagogy*, *6*, 202–206.

Bishop, C. F., Caston, M. I., & King, C. A. (2014). Learner-centered environments: Creating effective strategies based on student attitudes and Faculty reflection. *Journal of the Scholarship of Teaching and Learning*, *14*(3), 46. https://doi.org/10.14434/josotl.v14i3.5065

Bloom, B. S. (1984). The 2 sigma problem: The search for methods of group instruction as effective as One-to-One tutoring. *Educational Researcher*, *13*(6), 4–16. https://doi.org/10.3102/0013189X013006004

Bloomer, J. (1973). What have simulation and gaming got to do with programmed learning and educational technology? *Programmed Learning & Educational Technology*, *10*(4), 224.

Bloxham, S., & Boyd, P. (2007). *Developing effective assessment in Higher Education: A practical guide*. Milton Keynes: Open University Press.

Blum, F. H. (1955). Action research - A scientific approach?, *22*(1), 1–7. Retrieved from http://www.jstor.org.dcu.idm.oclc.org/stable/pdf/185762.pdf?refreqid=excelsior%3Ae8db2f6e112def74387cf5c60260d179

Bonwell, C., & Eison, J. (1991). *Active learning: Creating excitement in the classroom.* Washington DC.: ASHE-ERIC Higher Education Reports.

Boyle, E. A., Hainey, T., Connolly, T. M., Gray, G., Earp, J., Ott, M., … Pereira, J. (2016). An update to the systematic literature review of empirical evidence of the impacts and outcomes of computer games and serious games. *Computers and Education*, *94*, 178–192. https://doi.org/10.1016/j.compedu.2015.11.003

Boyne, S. M. (2012). Crisis in the Classroom: Using Simulations to Enhance Decision-making Skills. *Journal of Legal Education*, *62*(November 2012), 1–10. Retrieved from http://ssrn.com/abstrack=2103603

Brace, I. (2013). *Questionnaire design : How to plan, structure and write survey material for effective market research* (3rd ed.). London: Kogan Page, Limited. Retrieved from http://ebookcentral.proquest.com/lib/dcu/detail.action?docID=1190431.

Brady, M. P. (2013). Multiple roles of student and instructor in university teaching and learning processes. *International Journal of Management Education*, *11*(2), 93–106. https://doi.org/10.1016/j.ijme.2013.03.002

Brame, C. (2016). Active learning. Retrieved from https://cft.vanderbilt.edu/active-learning/.

Bridges, P., Cooper, A., Evanson, P., Haines, C., Jenkins, D., Scurry, D., … Yorke, M. (2002). Coursework marks high, examination marks low: Discuss. *Assessment and Evaluation in Higher Education*, *27*(1), 35–48. https://doi.org/10.1080/02602930120105045

Brown, S. (2004). Assessment for learning. *Learning and Teaching in Higher Education*, (1), 81–89. https://doi.org/10.1187/cbe.11-03-0025

Brydon-Miller, M., Greenwood, D., & Maguire, P. (2003). Why action research? *Action Research*, *11*(11), 9–28. Retrieved from https://www.civitas.edu.pl/pub/nasza_uczelnia/projekty_badawcze/Taylor/Brydon-Miller.pdf

Burrell, G., & Morgan, G. (1979). *Sociological paradigms and organisational analysis*. London: Heinemann Educational.

Butler, S. (2018). *Practising critical pedagogy through the lens of constructive-developmental theory*. University College Cork. Retrieved from http://hdl.handle.net/10468/7624

Campbell, A., & Groundwater-Smith, S. (Eds.). (2007). *An ethical approach to Practitioner Research: Dealing with issues and dilemmas in action research*. London: Routledge.

Carr, W., & Kemmis, S. (1986). *Becoming critical: Education, knowledge and action research*. Abingdon, Oxon: RoutledgeFalmer.

Carson, J. R. (1969). Business games: A technique for teaching Decision-Making. In R. G. Graham & C. F. Gray (Eds.), *Business Games Handbook* (1st ed., pp. 39–47). American Management Association.

Caruana, A., La Rocca, A., & Snehota, I. (2016). Learner satisfaction in marketing simulation games: Antecedents and Influencers. *Journal of Marketing Education*, *38*(2), 107–118. https://doi.org/10.1177/0273475316652442

Ceschi, A., Dorofeeva, K., & Sartori, R. (2014). Studying teamwork and team climate by using a business simulation: How communication and innovation can improve group learning and decision-making performance. *European Journal of Training and Development*, *38*(3), 211–230. https://doi.org/10.1108/EJTD-01-2013-0004

Chen, R., & Gong, J. (2018). Can self selection create high-performing teams? *Journal of Economic Behavior and Organization*, *148*, 20–33. https://doi.org/10.1016/j.jebo.2018.02.004

Christy, D. P., & Watson, H. J. (1983). The application of simulation: A survey of Industry practice. *Interfaces*, *13*(5), 47–52. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=6688077&site=ehost-live

Chyung, S. Y. (Yonnie), Roberts, K., Swanson, I., & Hankinson, A. (2017). Evidence-based survey design: The use of a midpoint on the Likert scale. *Performance Improvement*, *56*(10), 15–23. https://doi.org/10.1002/pfi.21727

CIT. (2018a). *Cork Institute of Technology Annual Report 15/16*. Cork.

CIT. (2018b). *Empowering & Enriching through knowledge: CIT Strategic Plan, 2018-2023*. Cork.

CIT Teaching & Learning Unit. (2020). CIT Teaching and Learning Unit. Retrieved from https://tlu.cit.ie/

Coghlan, D. (2019). *Doing action research in your own organisation* (5th ed.). SAGE Publications Ltd.

Coghlan, D., & Brannick, T. (2014). *Doing action research in your own organization* (4th ed.). London: Sage Publications.

Cohen, David, K. (2011). *Teaching and its predicaments*. Harvard University Press.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). London ; New York: Routledge.

Collet, C., Hine, D., & du Plessis, K. (2015). Employability skills: Perspectives from a knowledge-intensive industry. *Education and Training*, *57*(5), 532–559. https://doi.org/10.1108/ET-07-2014-0076

CollinsDictionary.com. (2020). Competence. Retrieved from https://www.collinsdictionary.com/dictionary/english/competence

Confederation of British Industry / Pearson. (2015). *Inspiring Growth CBI/Pearson Education and Skills Survey 2015*.

Connolly, T. M., Boyle, E., Hainey, T., & Boyle, J. M. (2012). A systematic literature review of empirical evidence on computer games and serious games. *Computers and Education*, *59*(2), 661–686. https://doi.org/10.1016/j.compedu.2012.03.004

Cork Institute of Technology. (2016a). *Book of Modules - Bachelor of Business in Management*. Retrieved from http://www.ucc.ie/modules/descriptions/page081.html

Cork Institute of Technology. (2016b). *Class of 2015 - Final Destinations Survey*. Cork. Retrieved from http://www.cit.ie/currentnews?id=1161

Cosse, T. J., Ashworth, D. N., & Weisenberger, T. M. (1999). The effects of team size in a marketing simulation. *Journal of Marketing Theory and Practice*. Retrieved from https://search.proquest.com/docview/212204135/fulltextwithgraphics/embedded/85HL0PZ1CCJZLG9B?source=fedsrch

Costa, C., Hammond, M., & Younie, S. (2019). Theorising technology in education: an introduction. *Technology, Pedagogy and Education*, *28*(4), 395–399. https://doi.org/10.1080/1475939X.2019.1660089

Coughlan, M. (2011). *National Strategy for Higher Education to 2030*.

Creswell, J. W. (2003). *Research Design - Qualitative, quantitative, and mixed methods approaches* (2nd ed.). SAGE Publications Ltd.

Cronbach, L. J. (1980). Validity on parole: How can we go straight. *New Directions for Testing and Measurement*, *5*(1), 99-108.

Crookall, D. (2010). Serious games, debriefing, and simulation/gaming as a discipline. *Simulation & Gaming*, *41*(6), 898–920. https://doi.org/http://dx.doi.org/10.1177/1046878110390784

Cropley, A. J. (2011). Definitions of Creativity. In *Encyclopedia of Creativity* (pp. 358–368). Online Version, Elsevier Science & Technology. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=710676.

Crotty, Y., Kinney, T., & Farren, M. (2018). Using the Business Model Canvas (BMC) strategy tool to support the Play4Guidance online entrepreneurial game. *International Journal for Transformative Research*, *4*(1), 34–41. https://doi.org/10.1515/ijtr-2017-0005

Crowley, A. (2014). *Understanding student perspectives of the use of business simulation in the teaching of strategic management*. Cork Institute of Technology.

Crowley, A. (2018). Student employability competences : Action research using strategy simulation software in a strategic management module. In *ICEP Proceedings*. Dublin. Retrieved from http://icep.ie/wp-content/uploads/2019/01/ICEP_2018_paper_25.pdf

Crowley, A., Farren, M., & OSúilleabháin, G. (2017). Strategy simulation games: The student perspective and an investigation of employability competencies gained through the use of strategy simulations in Higher Education. In G. Vincenti, A. Bucciero, M. Helfert, & M. Glowatz (Eds.), *eLEOT2016*. Springer International Publishing. https://doi.org/10.1007/978-3-319-49625-2_25

Cunliffe, A. L. (2016). Republication of “On Becoming a Critically Reflexive Practitioner.” *Journal of Management Education*, *40*(6), 747–768. https://doi.org/10.1177/1052562916674465

Dacre Pool, L., & Sewell, P. (2007). The key to employability: developing a practical model of graduate employability. *Education + Training*, *49*(4), 277–289.

De Freitas, S., & Liarokapis, F. (2011). Serious games: A new paradigm for Education? *Serious Games and Edutainment Applications*, 9–23. https://doi.org/10.1007/978-1-4471-2161-9

Dearing, R. (1997). *Higher Education in the learning society*. London. Retrieved from http://www.educationengland.org.uk/documents/dearing1997/

Dekkers, J., & Donatti, S. (1981). The integration of research studies on the use of simulation as an instructional strategy. *Journal of Educational Research*, *74*(6), 424–427. https://doi.org/10.1080/00220671.1981.10885343

Delaney, L., & Farren, M. (2016). No 'self' left behind? Part-time distance learning university graduates: social class, graduate identity and employability. *Open Learning*, *31*(3), 194–208. https://doi.org/10.1080/02680513.2016.1208553

Denscombe, M. (2010). *The good research guide - For small scale social research projects* (4th ed.). Berkshire: Open University Press, McGraw-Hill.

Department of Education and Skills. (2016). *Ireland's National Skills Strategy 2025*.

Deshpande, A. A., & Huang, S. H. (2011). Simulation games in engineering education: A state-of-the-art review. *Computer Applications in Engineering Education*, *19*(3), 399–410. https://doi.org/10.1002/cae.20323

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to Gamefulness: Defining "Gamification." *Proceedings of the 2011 Annual Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '11*, 2425. https://doi.org/10.1145/1979742.1979575

Devitt, A., Brady, M., Lamest, M., Dalton, G., Newman, N., & Gomez, S. (2015). Serious games in marketing education: Developing higher order cognitive skills through collaboration in a simulation game. In *INTED2015 Proceedings* (pp. 6340–6349).

DeWalt, K. M., & DeWalt, B. R. (2010). *Participant observation : A guide for Fieldworkers*. AltaMira Press. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=1021969.

Dewey, J. (1938). *Experience and education*. New York, NY: Touchstone.

Dewey, J. (1944). *Democracy and education*. New York: Macmillan Company.

Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: A predictive validity perspective. *Journal of the Academy of Marketing Science*, *40*(3), 434–449. https://doi.org/10.1007/s11747-011-0300-3

Dick, W., Carey, L., & Carey, J. O. (2014). *The systematic design of instruction* (7th ed.). Edinburgh: Pearson Education.

Doyle, D., & Brown, F. W. (2000). Using a business simulation to teach applied skills – the benefits and the challenges of using student teams from multiple countries. *Journal of European Industrial Training*, *24*(6), 330–336. https://doi.org/10.1108/03090590010373316

Doyle, T. (2008). *Helping students learn in a Learner-Centered Environment: A guide to facilitating learning in Higher Education*. Sterling, Virginia: Stylus Publishing.

Doyle, T. (2011). *Learner-Centered Teaching : Putting the Research on Learning into Practice*. Stylus Publishing. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=987041.

Dublin City University. (2015). *President's Annual Report - October 2014 to September 2015*. Dublin.

Dwyer, R., Davis, I., & Emerald, E. (2017). *Narrative research in practice, stories from the field*. *Narrative Research in Practice*. Singapore: Springer. https://doi.org/10.1007/978-981-10-1579-3

Eales-Reynolds, L. J., Gillham, D., Grech, C., Clarke, C., & Cornell, J. (2012). A study of the development of critical thinking skills using an innovative web 2.0 tool. *Nurse Education Today*, *32*(7), 752–756. https://doi.org/10.1016/j.nedt.2012.05.017

Eikeland, O. (2006). The validity of action research - validity in action research. In K. Aagaard Nielsen & L. Svensson (Eds.), *Action and Interactive Research–Beyond Practice and Theory*. Maastricht and Aachen: Shaker Publishing.

Ellington, H., Addinall, E., & Percival, F. (1981). *Games and simulations in Science Education*. London: Kogan Page Limited.

Elliott, J. (1991). *Action research for educational change* (1st ed.). Buckingham: Open University Press.

Entwistle, N. J., & Entwistle, A. (1991). Contrasting forms of understanding for degree examinations: The student experience and its implications, *22*(3), 205–227.

Entwistle, N., & Karagiannopoulou, E. (2014). Perceptions of assessment and their influences on learning. In C. Kreber, C. Anderson, N. Entwhistle, & J. McArthur (Eds.), *Advances and Innovations in University Assessment and Feedback* (pp. 75–98). Edinburgh: Edinburgh University Press. https://doi.org/10.3366/edinburgh/9780748694549.003.0005

Entwistle, N., & Tait, H. (1990). Approaches to learning, evaluations of teaching, and preferences for contrasting academic environments. *Higher Education*, *19*(2), 169–194. Retrieved from http://www.jstor.org/stable/3447162 Accessed : 15-04-2016 16 : 42 UT

Faria, A. J. (1987). A survey of the use of business games in Academia and Business. *Simulation and Games*, *18*(2), 207–224.

Faria, A. J. (1998). Business Simulation Games: Current Usage Levels--An Update. *Simulation & Gaming*, *29*(3), 295–308. https://doi.org/10.1177/1046878198293002

Faria, A. J. (2001). The changing nature of business simulation/ gaming research: A brief history. *Simulation & Gaming*, *32*(1), 97–110. https://doi.org/10.1177/104687810103200108

Farren, M. (2008). e-Learning and action research as transformative practice. *Innovate: Journal of Online Education*, *5*(1), 132–133. https://doi.org/10.4016/10011.01

Farren, M., & Crotty, Y. (2010). Learning through action research and technology. Retrieved from http://doras.dcu.ie/15261/

Finch, D. J., Hamilton, L. K., Baldwin, R., & Zehner, M. (2013). An exploratory study of factors affecting undergraduate employability. *Education and Training*, *55*(7), 681–704. https://doi.org/10.1108/ET-07-2012-0077

Finch, D., Peacock, M., Lazdowski, D., & Hwang, M. (2015). Managing emotions: A case study exploring the relationship between experiential learning, emotions, and student performance. *International Journal of Management Education*, *13*(1), 23–36. https://doi.org/10.1016/j.ijme.2014.12.001

Fisher, C. M. (2007). *Researching and writing a dissertation: A guidebook for business students* (2nd ed.). Harlow, Essex: Prentice-Hall.

Fletcher, J. D., & Tobias, S. (2006). Using computer games and simulations for instruction: A research review. In *Society for Applied Learning Technology Meeting, New Learning Technologies*. Orlando, FL. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Using+Computer+Games+and+Simulations+for+Instruction+:+A+Research+Review#0

Flores, H. R., Jiang, X., & Manz, C. C. (2018). Intra-team conflict: the moderating effect of emotional self-leadership. *International Journal of Conflict Management*, *29*(3), 424–444. https://doi.org/10.1108/IJCMA-07-2017-0065

Foresman, G. A., Fosl, P. S., & Watson, J. C. (2017). *The critical thinking toolkit*. Chichester, UK: John Wiley & Sons, Incorporated. Retrieved from ProQuest Ebook Central

Frankfort-Nachmias, C., & Nachmias, D. (1992). *Research methods in the social sciences* (4th ed.). London: Edward Arnold.

Freedman, R. D., & Stumpf, S. a. (1980). Learning style theory: Less than meets the eye. *Academy of Management Review*, *5*(3), 445–448. https://doi.org/10.5465/AMR.1980.4288873

Freeman, S., Eddy, S. L., Mcdonough, M., Smith, M. K., Jordt, H., Wenderoth, M. P., … Wenderoth,

M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, *111*(23), 8410–8415. https://doi.org/10.1073/pnas.some

GALLUP on behalf of the European Commission - Directorate-General for Education and Culture. (2010). *Employers' perception of graduate employability - Analytical report*.

Galvin, P., & Arndt, F. (2014). Strategic management: Building depth as well as breadth. *Journal of Management and Organization*, *20*(2), 139–147. https://doi.org/10.1017/jmo.2014.35

Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York, NY: Basic Books.

Geithner, S., & Menzel, D. (2016). Effectiveness of learning through experience and reflection in a project management simulation. *Simulation & Gaming*, *47*(2), 228–256. https://doi.org/10.1177/1046878115624312

Gentry, J. W. (1990). What is experiential learning? In J. W. Gentry (Ed.), *Guide to Business Gaming and Experiential Learning* (pp. 9–20). Nichols/GP Publishing.

Gentry, J. V., & Burns, A. C. (1981). Operationalizing a test of a model of the use of simulation games and experiential exercises. In *Developments in Business Simulation & Experiential Exercises* (Vol. 8, pp. 48–52). Available from http://ABSEL.org.

Geoffrey, M., & Ryan, C. S. (2014). *Research methods in social relations*. ProQuest Ebook Central: John Wiley & Sons, Incorporated. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=1712221.

Gibbs, G., & Jenkins, A. (Eds.). (1992). *Teaching large classes in Higher Education: How to maintain quality with reduced resources*. London: Kogan Page.

Gibbs, G., & Lucas, L. (1997). Coursework assessment, class size and student performance: 1984-94. *Journal of Further and Higher Education*, *21*(2), 183–192. https://doi.org/10.1080/0309877970210204

Gillham, B. (2000). *Case study research methods*. London: Bloomsbury Publishing Plc. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=564247

Gonzalez, M. A. G., Abu Kasim, N. H., & Naimie, Z. (2013). Soft skills and dental education. *European Journal of Dental Education*, *17*(2), 73–82. https://doi.org/10.1111/eje.12017

Gorman, S. (2007). Managing research ethics: A head-on collision? In A. Campbell & S. Groundwater-Smith (Eds.), *An Ethical Approach to Practitioner Research: Dealing with Issues and Dilemmas in Action Research* (pp. 8–23). London: Routledge.

Gosen, J., & Washbush, J. (2004). A review of scholarship on assessing experiential learning effectiveness. *Simulation and Gaming*, *35*(2), 270–293.

https://doi.org/10.1177/1046878104263544

Govindarajan, V., & Gupta, A. K. (2001). Building an effective global business team. *MIT Sloan Management Review*, *42*, 63–71. https://doi.org/10.1109/EMR.2002.1022419

Grant, V. J., Wolff, M., & Adler, M. (2016). The past, present, and future of simulation-based education for pediatric emergency medicine. *Clinical Pediatric Emergency Medicine*, *17*(3), 159–168. https://doi.org/10.1016/j.cpem.2016.05.005

Greckhamer, T., & Koro-Ljungberg, M. (2005). The erosion of a method: Examples from grounded theory. *International Journal of Qualitative Studies in Education*, *18*(6), 729–750. https://doi.org/10.1080/09518390500298204

Gredler, M. E. (2004). Games and simulations and their relationships to learning. *Handbook of Research on Educational Communications and Technology*, *2*, 571–581. Retrieved from http://www.coulthard.com/library/Files/gredler_2004_gamesandsimsandrelationtolearning.pdf

Greene, H. (2011). Freshmen marketing: A first-year experience with experiential learning. *Marketing Education Review*, *21*(1), 79–87. https://doi.org/10.2753/MER1052-8008210111

Greenlaw, P. S., & Wyman, F. P. (1973). The teaching effectiveness of games in collegiate business courses. *Simulation & Games: An International Journal*, *4*(2), 259–294.

Groundwater-Smith, S. (2007). Student voice: Essential testimony for intelligent schools. In A. Campbell & S. Groundwater-Smith (Eds.), *An Ethical Approach to Practitioner Research: Dealing with Issues and Dilemmas in Action Research* (pp. 113–128). London: Routledge.

Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches.* Jossey-Bass.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Beverly Hills, CA: Sage.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105–117). CA: Sage.

Gummesson, E. (2007). Access to reality: Observations on observational methods. *Qualitative Market Research*, *10*(2), 130–134. https://doi.org/10.1108/13522750710740808

Gustafson, K. L., & Branch, R. M. (2002). *Survey of instructional development models* (4th ed.). Syracuse, NY: ERIC Clearinghouse on Information & Technology.

Hammond, M. (2013). The contribution of pragmatism to understanding educational action research: Value and consequences. *Educational Action Research*, *21*(4), 603–618. https://doi.org/10.1080/09650792.2013.832632

Hammond, M. (2018). 'An interesting paper but not sufficiently theoretical': What does theorising in social research look like? *Methodological Innovations*, *11*(2), 205979911878775. https://doi.org/10.1177/2059799118787756

Harvard Business School. (2016). Harvard Business School. Retrieved October 8, 2016, from http://www.hbs.edu/faculty/Pages/default.aspx

Hawtrey, K. (2007). Using experiential learning techniques. *Journal of Economic Education*, *38*(2), 143–152. https://doi.org/10.3200/JECE.38.2.143-152

Heinonen, J., & Poikkijoki, S. A. (2006). An entrepreneurial-directed approach to entrepreneurship education: Mission impossible? *Journal of Management Development*, *25*(1), 80–94. https://doi.org/10.1108/02621710610637981

Henry, C. (2015). Entrepreneurship education evaluation : revisiting Storey to hunt for the heffalump. *Education and Training*, *57*(89), 816–833. https://doi.org/10.1108/ET-05-2015-0035

Herr, K., & Anderson, G. L. (2005). *The action research dissertation: A Guide for Students and Faculty*. London; California; New Delhi: SAGE Publications Ltd.

Higher Education Authority and SOLAS and, & Quality and Qualifications Ireland. (2015). *National Employer Survey - Employers' Views on Irish Further and Higher Education Outcomes*.

Hillage, J., & Pollard, E. (1998). *Employability: Developing a framework for policy analysis*.

Hilton, J. (2016). Open educational resources and college textbook choices: a review of research on efficacy and perceptions. *Educational Technology Research and Development*, *64*(4), 573–590. https://doi.org/10.1007/s11423-016-9434-9

Hlupic, V., Irani, Z., & Paul, R. J. (1999). Evaluation framework for simulation software. *The International Journal of Advanced Manufacturing Technology*, *15*(5), 366–382. https://doi.org/10.1007/s001700050079

Horn, R. E. (1980). *The guide to simulations/games for education and training*. (A. Cleves, Ed.) (4th ed.). Sage Publications.

Hsu, E. (1989). Role-event gaming simulation in management education: A conceptual framework and review. *Simulation & Gaming*, *20*(4), 409–438.

IBEC. (2012). *National Survey of Employers' Views of Irish Higher Education Outcomes*.

Isabelle, D. A. (2020). Gamification of entrepreneurship education. *Decision Sciences Journal of Innovative Education*, *18*(2), 203–223. https://doi.org/10.1111/dsji.12203

Jackson, D., & Tomlinson, M. (2019). Career values and proactive career behaviour among contemporary higher education students. *Journal of Education and Work*, *32*(5), 449–464.

https://doi.org/10.1080/13639080.2019.1679730

Jackson, G. (2011). Rethinking the Case Method. *Journal of Management Policy and Practice*, *12*(1), 142–165.

Jackson, J. R. (1959). Learning from experience in business decision games. *California Management Review*, *1*(2), 92–107. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=6521173&site=ehost-live

Jacoby, J. (1978). Consumer research: A state of the art review. *Journal of Marketing*, *42*(2), 87–96.

Jadhav, A. S., & Sonar, R. M. (2009). Evaluating and selecting software packages: A review. *Information and Software Technology*, *51*(3), 555–563. https://doi.org/10.1016/j.infsof.2008.09.003

Jarvis, S. (2019). Practice-focused, constructivist grounded theory methodology in Higher Education leadership research. *Theory and Method in Higher Education Research*, *4*, 189–207. https://doi.org/10.1108/s2056-375220180000004012

Jennings, D. (1996). Strategic management and the case method. *Journal of Management Development*, *15*(9), 4–12. https://doi.org/10.1108/02621719610146211

Jennings, D., Surgenor, P., & McMahon, T. (2013). Using Biggs' model of constructive alignment in curriculum design. Retrieved May 20, 2020, from http://www.ucdoer.ie/index.php/Using_Biggs%27_Model_of_Constructive_Alignment_in_Curriculum_Design/Introduction

Johnson, G., Whittington, R., Scholes, K., Angwin, D., & Regnér, P. (2014). *Exploring strategy: Text and cases* (10th ed.). Harlow, Essex: Pearson.

Kamovich, U., & Foss, L. (2017). In search of alignment: A review of impact studies in entrepreneurship education. *Education Research International*, *2017*, 1–15. https://doi.org/10.1155/2017/1450102

Kaplan, T. R., & Ruffle, B. J. (2012). Which way to cooperate. *The Economic Journal*, *122*(563), 1042–1068. https://doi.org/10.1111/j. 1468-0297.2011.02485.x

Karagozoglu, N. (2017). Antecedents of team performance on case studies in a strategic management capstone course. *International Journal of Management Education*, *15*(1), 13–25. https://doi.org/10.1016/j.ijme.2016.11.001

Karau, S., & Williams, K. (1993). Social Loafing: A meta-analytic review and theoretical integration. *Journal of Personality and Social Psychology*, *65*(4), 681–706. https://doi.org/citeulike-article-id:1260763

Kayes, A. B., Kayes, D. C., & Kolb, D. A. (2005). Experiential learning in teams. *Simulation and Gaming*, *36*(3), 330–354. https://doi.org/10.1177/1046878105279012

Kemmis, S., McTaggart, R., & Nixon, R. (2013). *Action research planner : Doing critical participatory action research* (3rd ed.). Singapore: Springer Singapore Pte. Limited. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=3092981.

Kemmis, Stephen. (2009). Action research as a practice-based practice. *Educational Action Research*, *17*(3), 463–474. https://doi.org/10.1080/09650790903093284

Kemmis, Stephen, & McTaggart, R. (1982). *The action research planner* (2nd ed.). Deakin University.

Keys, B., & Wolfe, J. (1990). The role of management games and simulation in education research. *Journal of Management*. https://doi.org/10.1177/014920639001600205

Keys, J. B., & Biggs, W. B. (1990). A review of business games. In J. W. Gentry (Ed.), *Guide to Business Gaming and Experiential Learning* (pp. 48–73). East Brunswick, NJ: Nichols/GP Publishing.

Kincheloe, J. L. (1991). *Teachers as researchers: Qualitative enquiry as a path to empowerment* (Classic Ed). Oxon: Routledge.

Kindon, S. L., Pain, R., & Kesby, M. (2007). *Participatory action research approaches and methods: Connecting people, participation and place*. London: Routledge.

Knight, P. T., & Yorke, M. (2003). *Employability: Judging and communicating achievements*. York.

Knotts Jr., U. S., & Keys, J. B. (1997). Teaching strategic management with a business game. *Simulation & Gaming*, *28*(4), 377–394.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces : Enhancing experiential learning in Higher Education. *Academy of Management Learning & Education*, *4*(2), 193–212. https://doi.org/10.5465/AMLE.2005.17268566

Kolb, D. (1981). Experiential learning theory and the Learning Style Inventory: A reply to Freedman and Stumpf. *Academy of Management Review*, *6*(2), 289–296. https://doi.org/10.5465/AMR.1981.4287844

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. NJ: Prentice-Hall.

Kolb, David A. (2014). Introduction. In *Experiential learning : Experience as the source of learning and development* (2nd ed.). Upper Saddle River, New Jersey: Pearson Education.

Koshy, V. (2005). *Action research for improving practice*. *British Journal of Educational*

Technology (Vol. 36). https://doi.org/2004117261

Kumar, S., & Bhandarker, A. (2017). Experiential learning and its relevance in business school curriculum. *Developments in Business Simulation and Experiential Learning*, *44*, 244–251.

Laker, D. R., & Powell, J. L. (2011). The differences between hard and soft skills and their relative impact on training transfer. *Human Resource Development Quarterly*, *22*(1), 111–121. https://doi.org/10.1002/hrdq.20063

Lather, P. (1991). *Getting smart: Feminist research and pedagogy with/in the postmodern.* Routledge.

Laughlin, P. R., Hatch, E. C., Silver, J. S., & Boh, L. (2006). Groups perform better than the best individuals on Letters-to-Numbers problems: Effects of group size. *Journal of Personality and Social Psychology*, *90*(4), 644–651. https://doi.org/10.1037/0022-3514.90.4.644

Lazarus, A. (2013). Soften up: The importance of soft skills for job success. *Physician Executive*, *39*(5), 40–45. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/24180187

Leaning, M. (2019). An approach to digital literacy through the integration of media and information literacy. *Media and Communication*, *7*(2 Critical Perspectives), 4–13. https://doi.org/10.17645/mac.v7i2.1931

Leech, N. L., & Onwuegbuzie, A. J. (2011). Beyond constant comparison qualitative data analysis: Using NVivo. *School Psychology Quarterly*, *26*(1), 70–84. https://doi.org/10.1037/a0022711

Levy, F., & Rodkin, J. (2015). The Bloomberg recruiter report: Job skills companies want but can't get. Retrieved January 20, 2017, from https://www.bloomberg.com/graphics/2015-job-skills-report/

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry* (1st ed.). SAGE Publications Ltd.

Lohmann, G., Pratt, M. A., Benckendorff, P., Strickland, P., Reynolds, P., & Whitelaw, P. A. (2019). Online business simulations: authentic teamwork, learning outcomes, and satisfaction. *Higher Education*, *77*(3), 455–472. https://doi.org/10.1007/s10734-018-0282-x

London Business School. (2016). London Business School. Retrieved October 8, 2016, from https://www.london.edu/faculty-and-research/subject-areas

Lovelace, K. J., Eggers, F., & Dyck, L. R. (2016). I do and I understand: Assessing the utility of web-based management simulations to develop critical thinking skills. *Academy of Management Learning and Education*, *15*(1), 100–121. https://doi.org/10.5465/amle.2013.0203

Lowy, A., & Hood, P. (2005). *The power of the 2x2 matrix; Using the 2 x 2 thinking to solve business problems and make better decisions*. San Francisco: Jossey-Bass.

Lu, J., Hallinger, P., & Showanasai, P. (2014). Simulation-based learning in management education: A longitudinal quasi-experimental evaluation of instructional effectiveness. *Journal of Management Development*, *33*(3), 218–244. https://doi.org/10.1108/JMD-11-2011-0115

Lund Dean, K., & Wright, S. (2017). Embedding engaged learning in high enrollment lecture-based classes. *Higher Education*, *74*(4), 651–668. https://doi.org/10.1007/s10734-016-0070-4

Lundquist, L. M., Shogbon, A. O., Momary, K. M., & Rogers, H. K. (2013). A comparison of students' self-assessments with faculty evaluations of their communication skills. *American Journal of Pharmaceutical Education*, *77*(4). https://doi.org/10.5688/ajpe77472

Mao, A., Mason, W., Suri, S., & Watts, D. J. (2016). An experimental study of team size and performance on a complex task. *PloS One*, *11*(4), e0153048. https://doi.org/10.1371/journal.pone.0153048

Marrow, A. J. (1972). The effects of participation on performance. In A. J. Marrow (Ed.), *The failure of success* (pp. 90–102). New York: AMACOM.

Marton, F., & Booth, S. (1997). *Learning and awareness*. New York, NY: Routledge.

Maxcy, S. J. (2003). Pragmatic threads in mixed methods research in the social sciences: The search for multiple modes of inquiry and the end of the philosophy of formalism. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioural Research* (pp. 51–90). CA: Sage.

Mays, N., & Pope, C. (1995). Rigour and qualitative research. *British Medical Journal*, *311*(6997), 109–112. Retrieved from https://www.jstor.org/stable/29728039

McClelland, D. . (1973). Testing for competence rather than for "intelligence". *The American Psychologist*, *28*(1), 1–14. https://doi.org/10.1037/h0038240

McCord, M., Houseworth, M., & Michaelsen, L. K. (2015). The integrative business experience: Real choices and real consequences create real thinking. *Decision Sciences Journal of Innovative Education*, *13*(3), 411–429. https://doi.org/10.1111/dsji.12070

McKernan, J. (1996). *Curriculum action research: A handbook of methods and resources for the reflective practitioner* (2nd ed.). London: Kogan Page.

McMurray, S., Dutton, M., McQuaid, R., & Richard, A. (2016). Employer demands from business graduates. *Education and Training*, *58*(1), 112–132. https://doi.org/10.1108/ET-02-2014-0017

McNiff, J. (2002). Action research for professional development : Concise advice for new Action Researchers. In *Resource Booklets, Teaching and Development Unit, The University of Waikato* (3rd ed.). Teaching Development Unit, The University of Waikato.

https://doi.org/0419

McNiff, J. (2013). *Action research: Principles and practice* (3rd ed.). Routledge.

McNiff, J. (2016). *Writing up your action research project* (1st ed.). Oxon: Routledge.

McQuaid, R. W., & Lindsay, C. D. (2005). The concept of employability. *Urban Studies*, *42*(2), 197–219. https://doi.org/10.1080/0042098042000316100

Mertens, D. M. (2015). *Research and evaluation in education and psychology* (4th ed.). SAGE Publications Ltd.

Miles, W. G. J., Biggs, W. D., & Schubert, J. N. (1986). Student perceptions of skill acquisition through cases and a general management simulation - A comparison. *Simulation and Games*, *17*(1), 7–24.

Milohnic, I., & Licul, I. (2018). Entrepreneurial management and education: Experiences in the application of business simulations. *Informatologia*, *51*(3–4), 172–181. https://doi.org/10.32914/i.51.3-4.5

Mintzberg, H., & Quinn, J. B. (1991). *The strategy process, concepts, contexts and cases*. Englewood Cliffs, NJ: Prentice-Hall.

Mintzberg, Henry. (1975). The Manager's job: Folklore and fact. *Harvard*, (July-August), 49–61.

Mintzberg, Henry. (1990). The Manager's job: Folklore and fact. *Harvard Business Review*, *68*(2), 163–176. https://doi.org/10.1016/S0267-3649(00)88914-1

Mitchell, R. C. (2004). Combining cases and computer simulations in strategic management courses. *Journal of Education for Business*, *79*(4), 198–204. Retrieved from http://www.tandfonline.com/toc/vjeb20/79/4#.U5jLefldUdc

Mockler, N. (2007). Ethics in Practitioner research: Dilemmas from the field. In A. Campbell & S. Groundwater-Smith (Eds.), *An Ethical Approach to Practitioner Research: Dealing with Issues and Dilemmas in Action Research* (pp. 88–98). London.

Mohsen, K., Abdollahi, S., & Omar, S. (2019). Evaluating the educational value of simulation games: Learners' perspective. *Innovations in Education and Teaching International*, *56*(4), 517–528. https://doi.org/10.1080/14703297.2018.1515646

Molenda, M. (2015). In search of the elusive ADDIE model. Performance Improvement. *Performance Improvement, 54*(2), 40–42. https://doi.org/10.1002/pfi.21461

Moore, D. R., Cheng, M., & Dainty, A. R. J. (2002). Competence, competency and competencies: performance assessment in organisations. *Work Study*, *51*(6), 314–319. https://doi.org/10.1108/00438020210441876

Morgan, D. L. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry*, *20*(8), 1045–1053. https://doi.org/DOI: 10.1177/1077800413513733

Morreale, S., Backlund, P., Hay, E., & Moore, M. (2011). Assessment of oral communication: A major review of the historical development and trends in the movement from 1975 to 2009. *Communication Education*, *60*(2), 255–278. https://doi.org/10.1080/03634523.2010.516395

Morris, H. (2000). The origins, forms and effects of modularisation and semesterisation in ten UK-based business schools. *Higher Education Quarterly*, *54*(3), 239–258. https://doi.org/10.1111/1468-2273.00158

Morris, M. H., Webb, J. W., Fu, J., & Singhal, S. (2013). A competency-based perspective on entrepreneurship education: Conceptual and empirical insights. *Journal of Small Business Management*, *51*(3), 352–369. https://doi.org/10.1111/jsbm.12023

Mouly, G. J. (1970). *The science of educational research* (2d ed.). New York: Van Nostrand Reinhold Co.

Murray, N., & Beglar, D. (2009). *Writing dissertations and theses* (1st ed.). Harlow, Essex: Pearson Education.

Murray, R. (2006). *How to write a thesis*. Open University Press.

Nag, R., Hambrick, D. C., & Chen, M.-J. (2007). What is strategic management, really? Inductive derivation of a consensus definition of the field. *Strategic Management Journal*, *28*, 935–955. https://doi.org/10.1002/smj

National Council, & for Curriculum and Assessment. (2009). *Aistear - The Early Childhood Curriculum Framework - Principles and themes*. Dublin. Retrieved from https://curriculumonline.ie/getmedia/484bcc30-28cf-4b24-90c8-502a868bb53a/Aistear-Principles-and-Themes_EN.pdf

Newman, I., & Benz, C. R. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale and Edwardsville: Southern Illinois University Press.

Newton, P., & Burgess, D. (2008). Exploring types of educational action research: Implications for research validity. *International Journal of Qualitative Methods*, *7*(4), 33–46. https://doi.org/10.1007/978-94-6300-438-1_3

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers and Education*, *59*(3), 1065–1078. https://doi.org/10.1016/j.compedu.2012.04.016

Nikoukaran, J., Hlupic, V., & Paul, R. J. (1999). A hierarchical framework for evaluating simulation software. *Simulation Practice and Theory*, *7*(3), 219–231. https://doi.org/10.1016/S0928-4869(98)00028-7

November, P. (1997). Learning to teach experientially: a pilgrim's progress. *Studies in Higher Education*, *22*(3), 289–299. https://doi.org/10.1080/03075079712331380906

O'Leary, M. (2014). *Classroom observation: A guide to the effective observation of teaching and learning* (1st ed.). Oxon: Routledge. https://doi.org/10.4324/9781315545806-11

OECD. (2019). *Education at a Glance 2019: OECD Indicators*. Paris. https://doi.org/10.1787/f6dc8198-es

Ormerod, R. (2006). The history and ideas of pragmatism. *The Journal of the Operational Research Society*, *57*, 892–909. https://doi.org/10.1057/palgrave.jors.2602065

Parry, M. (2013). Students get savvier about textbook buying. *The Chronicle of Higher Education*, 1–8. Retrieved from http://chronicle.com/article/Students-Get-Savvier-About/136827/

Perea, E., & Brady, M. (2017). Research rigor and the gap between academic journals and business practitioners. *Journal of Management Development*, *36*(8), 1052–1062. https://doi.org/10.1108/JMD-12-2016-0332

Peters, C. J. (1996). On equality, integrity, and justice in Stare Decisis. *The Yale Law Journal*, *105*(8), 2031–2115. Retrieved from http://www.jstor.org/stable/797285

Pfeffer, J., & Fong, C. T. (2002). The end of Business Schools? Less success than meets the eye. *Academy of Management Learning & Education*, *1*(1), 78–95. https://doi.org/10.5465/amle.2002.7373679

Phillips, E., & Pugh, D. S. (2010). *How to get a PhD : A handbook for students and their supervisors* (5th ed.). McGraw-Hill Education.

Piaget, J., & Cook, M. (1952). Conclusions: "Sensorimotor" or "practical" intelligence and the theories of intelligence. In *The origins of intelligence in children.* (pp. 357–419). New York, NY: W W Norton & Co. https://doi.org/10.1037/11494-008

Pittaway, L., & Edwards, C. (2012). Assessment: Examining practice in entrepreneurship education. *Education and Training*, *54*(8), 778–800. https://doi.org/10.1108/00400911211274882

Pivec, M. (2007). Editorial: Play and learn: Potentials of game-based learning. *British Journal of Educational Technology*, *38*(3), 387–393. https://doi.org/10.1111/j.1467-8535.2007.00722.x

Pociask, S. E., Gross, D., & Shih, M.-Y. (2017). Does team formation impact student performance, effort and attitudes in a college course employing collaborative learning? *Journal of the Scholarship of Teaching and Learning*, *17*(3), 19. https://doi.org/10.14434/josotl.v17i3.21158

Pole, C., & Morrison, M. (2003). *Ethnography for education*. (P. Sikes, Ed.) (1st ed.). Berkshire:

McGraw-Hill Education.

Pope, C. (2001). Take the soft options. *Professional Engineering*, *14*(2), 34.

Popper, K. (2005). *The logic of scientific discovery*. London ; New York: Routledge.

Power, E. J. (1991). *A legacy of learning: A history of Western Education*. Albany.

Pratt, S. L. (2014). *Logic : Inquiry, argument, and order*. Somerset: John Wiley & Sons, Incorporated.

Prensky, M. (2001). Digital Native, Digital Immigrant Part 1. *On the Horizon*, *9*(5), 1–6.

Race, P. (2009). Towards assessment as learning. *Assessment*, *1*(1), 1–11. Retrieved from http://ojs.aishe.org/index.php/aishe-j/article/view/6/6

Ramsden, P. (2003). *Learning to teach in higher education* (2nd Editio). London ; New York: RoutledgeFalmer.

Ray, J. L., & Smith, A. D. (2012). Using photographs to research organizations: Evidence, considerations, and application in a field study. *Organizational Research Methods*, *15*(2), 288–315. https://doi.org/10.1177/1094428111431110

Raybould, J., & Sheedy, V. (2005). Are graduates equipped with the right skills in the employability stakes? *Industrial and Commercial Training*, *37*(5), 259–263. https://doi.org/10.1108/00197850510609694

Reason, P., & Rowan, J. (1981). *Human inquiry: A sourcebook of new paradigm research.* Chichester, UK: J. Wiley.

Rebele, J. E., & St. Pierre, E. K. (2019). A commentary on learning objectives for accounting education programs: The importance of soft skills and technical knowledge. *Journal of Accounting Education*, *48*, 71–79. https://doi.org/10.1016/j.jaccedu.2019.07.002

Reichertz, B. J. (2013). Induction, deduction, abduction. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data Analysis* (pp. 123–135). London: SAGE Publications Ltd. https://doi.org/https://dx.doi.org/10.4135/9781446282243

Rode, J. L., Callihan, M. L., & Barnes, B. L. (2016). Assessing the value of large-group simulation in the classroom. *Clinical Simulation in Nursing*, *12*(7), 251–259. https://doi.org/10.1016/j.ecns.2016.02.012

Rosen, L. D. (2010a). *Rewired: Understanding the iGeneration and the way they learn* (1st ed.). New York: Palgrave Macmillan.

Rosen, L. D. (2010b). Welcome to the iGeneration! *Education Digest: Essential Readings Condensed for Quick Review*, *75*(8), 8–12.

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom*. New York: Holt, Reinhart, and Winston, Inc.

Salas, E., Wildman, J., & Piccolo, R. (2009). Using simulation-based training to enhance management education. *Academy of Management Learning and Education*, *8*(4), 559–573. https://doi.org/10.5465/AMLE.2009.47785474

Sanger, J. (Ed.). (1996). The Compleat Observer? : A field research guide to observation. Routledge. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=178753.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Harrow, Essex: Pearson.

Sawyer, K. R. (2006). *Explaining creativity: The science of human innovation*. New York: Oxford University Press.

Schendel, D., & Hofer, C. (Eds.). (1979). *Strategic management: A new view of business policy and planning*. Boston, MA.: Little Brown.

Schuell, T. J. (1986). Cognitive conceptions of learning. *Review of Educational Research*, *56*(4), 411–436.

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior : A path model of individual innovation in the workplace. *The Academy of Management Journal*, *37*(3), 580–607. Retrieved from https://www.jstor.org/stable/256701

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, *25*(1), 217–227. https://doi.org/10.5465/AMR.2000.2791611

Sharma, M. D., & McShane, K. (2008). A methodological framework for understanding and describing discipline-based scholarship of teaching in higher education through design-based research. *Higher Education Research and Development*, *27*(3), 257–270. https://doi.org/10.1080/07294360802183812

Shugan, S. M. (2006). Save research — Abandon the case method of teaching. *Marketing Science*, *25*(2), 109–115. https://doi.org/10.1287/mksc.1060.0202

Sifuna, D., & Otiende, J. E. (2005). *Introductory history of education*. University of Nairobi Press.

Sigler, T. H., & Rhee, K. S. (2014). Unlocking learning: Discovering the keys to effective assessment. *Journal of Management Education*, *38*(3), 303–312. https://doi.org/10.1177/1052562914531397

Smith, M. K. (2001). Kurt Lewin: Groups, experiential learning and action research. *The Encyclopedia of Informal Education*, (1930), 1–14.

https://doi.org/http://www.infed.org/thinkers/et-lewin.htm

Snow, S. C., Gehlen, F. L., & Green, J. C. (2002). Different ways to introduce a business simulation : The effect on student performance. *Simulation & Gaming*, *33*(4), 526–532. https://doi.org/10.1177/1046878102238617

Somekh, B. (1995). The contribution of action research to development in social endeavours: A position paper on action research methodology. *British Educational Research Journal*, *21*(3), 339–355. Retrieved from http://www.jstor.org/stable/1501651

Sripala, B., & Praveen, G. V. (2011). Soft skills in engineering education: Industry perspective. *Language in India*, *11*(10), 277–283. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=ufh&AN=70566256&site=ehost-live

Stainton, A. J., Johnson, J. E., & Borodicz, E. P. (2010). Educational validity of business gaming simulation: A research methodology framework. *Simulation & Gaming*, *41*(5), 705–723. https://doi.org/10.1177/1046878109353467

Stake, Robert, E. (1995). *The art of case study research*. London; California; New Delhi: SAGE Publications Ltd.

Stanford. (2020). Promoting active learning. Retrieved from https://teachingcommons.stanford.edu/resources/learning-resources/promoting-active-learning

Stenhouse, L. (1975). *An introduction to curriculum research and development*. London: Heinemann.

Sugges, P. R. (1983). How to use business games in the business policy course: The students' perspective. In *Developments in Business Simulation & Experiential Exercises* (Vol. 10, p. 82). Retrieved from http://sbaweb.wayne.edu/~absel/bkl/19cov.pdf%5Cnhttp://sbaweb.wayne.edu/~absel/bkl/vol16/16ar.pdf

Sutter, M., & Strassmair, C. (2009). Communication, cooperation and collusion in team tournaments – An experimental study. *Games and Economic Behavior*, *66*(1), 506–525. https://doi.org/10.1016/j.geb.2008.02.014

Talukder, M. (2014). *Managing innovation adoption : From innovation to implementation*. Routledge. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=1643843.

Taylor, K., & Marienau, C. (2016). *Facilitating learning with the adult brain in mind : A conceptual and practical guide*. John Wiley & Sons.

Technology Enhanced Learning. (2020). Technology Enhanced Learning. Retrieved from

https://tel.cit.ie/

Tewoldeberhan, T. W., Verbraeck, A., & Hlupic, V. (2010). Implementing a discrete-event simulation software selection methodology for supporting decision making at Accenture. *Journal of the Operational Research Society*, *61*(10), 1446–1458. https://doi.org/10.1057/jors.2009.119

Tharenou, P., Donohue, R., & Cooper, B. (2007). Action research designs. In *Management Research Methods* (pp. 88–98). Cambridge: Cambridge University Press. https://doi.org/https://doi-org.dcu.idm.oclc.org/10.1017/CBO9780511810527

The Derek Bok Centre for Teaching and Learning. (2020). Active Learning. Retrieved from https://bokcenter.harvard.edu/active-learning

The Higher Education Authority. (2018). *What do graduates do? The Class of 2016*. Dublin.

The Merriam-Webster.com Dictionary. (2020). Ethnography. In The Merriam-Webster.com Dictionary. Retrieved January 25, 2020, from www.merriam-webster.com/dictionary/ethnography

Thomas, E., & Magilvy, J. K. (2011). Qualitative rigor or research validity in qualitative research. *Journal for Specialists in Pediatric Nursing*, *16*(2), 151–155. https://doi.org/10.1111/j.1744-6155.2011.00283.x

Thomas, P., Wilson, J., & Leeds, O. (2013). Constructing 'the history of strategic management': A critical analysis of the academic discourse. *Business History*, *55*(7), 1119–1142. https://doi.org/10.1080/00076791.2013.838039

Thompson, N., & Pascal, J. (2012). Developing critically reflective practice. *Reflective Practice*, *13*(2), 311–325. https://doi.org/10.1080/14623943.2012.657795

Tiernan, P., & Farren, M. (2017). Digital literacy and online video: Undergraduate students' use of online video for coursework. *Education and Information Technologies*, *22*(6), 3167–3185. https://doi.org/10.1007/s10639-017-9575-4

Tomlinson, M. (2012). Graduate employability: A review of conceptual and empirical themes. *Higher Education Policy*, *25*(4), 407–431. https://doi.org/10.1057/hep.2011.26

Treen, E., Atanasova, C., Pitt, L., & Johnson, M. (2016). Evidence from a large sample on the effects of group size and decision-making time on performance in a marketing simulation game. *Journal of Marketing Education*, *38*(2), 130–137. https://doi.org/10.1177/0273475316653433

Trevitt, C. (2005). Universities learning to learn? Inventing flexible (E)learning through first- and second-order action research. *Educational Action Research*, *13*(1), 57–84. https://doi.org/10.1080/09650790500200277

Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press. Retrieved from 978-0-226-08664-4

Tymon, A. (2013). The student perspective on employability. *Studies in Higher Education*, *38*(6), 1–16. https://doi.org/10.1080/03075079.2011.604408

UCD Teaching and Learning. (2020). Learning opportunities for active engagement. Retrieved from http://www.ucdoer.ie/index.php/Learning_Opportunities_for_Active_Engagement

Ulewicz, M., & Beatty, A. (2001). *The power of video technology in International comparative research in education*. *The Power of Video Technology in International Comparative Research in Education*. Washington DC.: National Academy Press. https://doi.org/10.17226/10150

University College Cork. (2015). *President's Report 2015-16: A Tradition of Independent Thinking*.

University College Dublin. (2019). *Report of the President - September 2017 - August 2018*. https://doi.org/10.1037/h0054879

van Oord, L., & Corn, K. (2013). Fostering criticality for the iGeneration. *International Schools Journal*, *32*(2), 51–56.

Ventresca, M. J., & Mohr, J. W. (2017). Archival research methods. In J. A. C. Baum (Ed.), *The Blackwell Companion to Organizations* (pp. 805–28). Oxford: Blackwell Publishers Ltd.

Volberda, H. W., Morgan, R. E., Reinmoeller, P., Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2011). *Strategic management: Competitiveness & globalisation: Concepts & cases*. Hampshire: Cengage Learning.

Walker, M. (2006). *Higher education pedagogies: A capabilities approach*. Berkshire: SRHE and Open University Press.

Walsh, J. (2018). *Higher Education in Ireland, 1922-2016: Politics, policy and power - A history of Higher Education in the Irish State*. Palgrave Macmillan.

Warhuus, J. P., Blenker, P., & Elmholdt, S. T. (2018). Feedback and assessment in higher-education, practice-based entrepreneurship courses: How can we build legitimacy? *Industry and Higher Education*, *32*(1), 23–32. https://doi.org/10.1177/0950422217750795

Watson, H. J. (1981). *Computer simulation in business*. New York: John Wiley & Sons.

Wellington, J., & Szczerbinski, M. (2007). *Research methods for the social sciences*. Bloomsbury Publishing Plc. Retrieved from https://ebookcentral-proquest-com.dcu.idm.oclc.org/lib/dcu/detail.action?docID=711013.

Whitehead, J. (2017). Practice and theory in action research: Living-Theories as frameworks for action. In L. L. Rowell, C. D. Bruce, J. M. Shosh, & M. M. Riel (Eds.), *The Palgrave*

International Handbook of Action Research (pp. 387–402). New York: Palgrave Macmillan. https://doi.org/10.1057

Wiggins, J. B., Grafsgaard, J. F., Boyer, K. E., Wiebe, E. N., & Lester, J. C. (2017). Do you think you can? The influence of student self-efficacy on the effectiveness of tutorial dialogue for computer science. *International Journal of Artificial Intelligence in Education*, *27*(1), 130–153. https://doi.org/10.1007/s40593-015-0091-7

Wikle, T. A., & Fagin, T. D. (2015). Hard and soft skills in preparing GIS professionals: Comparing perceptions of employers and educators. *Transactions in GIS*, *19*(5), 641–652. https://doi.org/10.1111/tgis.12126

Wiliam, D. (2011). What is assessment for learning? *Studies in Educational Evaluation*, *37*(1), 3–14. https://doi.org/10.1016/j.stueduc.2011.03.001

Williams, S., Dodd, L. J., Steele, C., & Randall, R. (2016). A systematic review of current understandings of employability. *Journal of Education and Work*, *29*(8), 877–901. https://doi.org/10.1080/13639080.2015.1102210

Winter, R. (1989). *Learning from experience: Principles and practice in action-research* (1st ed.). Lewes, Philadelphia: Falmer Press.

Wolfe, J. (1985). The teaching effectiveness of games in collegiate business courses - A 1973-1983 update. *Simulation and Games*, *16*(3), 251–288.

Wolfe, J. (2016). Assuring business school learning with games. *Simulation & Gaming*, *47*(2), 206–227. https://doi.org/10.1177/1046878116632872

Wolfe, J., & Chacko, T. I. (1982). The effects of different team sizes on business game performance. *Developments in Business Simulation & Experiential Exercises*, *9*, 200–203.

Wraae, B., Tigerstedt, C., & Kratzer, J. (2018). Introducing student self-assessment as a new assessment tool in entrepreneurship education. *Journal of Higher Education Theory and Practice*, *18*(3), 86–101.

Wu, W. W. (2009). A competency-based model for the success of an entrepreneurial start-up. *WSEAS Transactions on Business and Economics*, *6*(6), 279–291.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). SAGE Publications Ltd.

Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations*. New York: Wiley.

Zuber-Skerritt, O. (1992). *Action research in Higher Education: Examples and reflections*. London: Kogan Page.

Appendix A: Plain Language Statement & Consent Form

DUBLIN CITY UNIVERSITY

Cork Institute of Technology

Informed Consent Form

I. Research Study Title

An investigation of strategy simulation games and the development of third-level student employability competences

II. Clarification of the purpose of the research

This research aims to understand the connection (if any) between teaching with Strategy Simulation Software and the development of student employability competences. Should a connection be established, it would make a case for the wider use of simulation software in the teaching of strategic management.

III. Confirmation of particular requirements as highlighted in the Plain Language Statement

Participant – please complete the following (Circle Yes or No for each question)

I have read the Plain Language Statement (or had it read to me)	*Yes / No*
I understand the information provided	*Yes / No*
I have had an opportunity to ask questions and discuss this study	*Yes / No*
I have received satisfactory answers to all my questions	*Yes / No*
I am aware that	
I will need to complete a number of surveys	*Yes / No*
I will be observed in class/breakout sessions	*Yes / No*
video / photographs will be used to facilitate this observation	*Yes / No*
breakout / team discussions may be recorded (video)	*Yes / No*
the researcher will analyse my reflective journal	*Yes / No*

IV. Confirmation that involvement in the Research Study is voluntary

I understand that participation in this study is voluntary	*Yes / No*
I understand that I may withdraw from the Research Study at any point.	*Yes / No*

V. Advice as to arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations

Data will be stored securely (password protected) at all times, and participants will remain anonymous. Participant quotations or comments will be used where appropriate but without reference to names. Researchers' observations may also form part of the research but without reference to names. Permission will be obtained before any photographic or video evidence of participants is published by the researcher.

All data gathered, and information provided will be treated confidentially, within the realms of the Law. Analysis and reporting of research results may appear in published journals, conferences and other academic settings, but participants will be anonymous at all times.

To further research in this area, it is possible that future collaborative research may be undertaken, but this will always be done with reference to and in adherence to Irish Data protection laws and the commitment to confidentiality just outlined.

VI. Any other relevant information

There is no connection between module assessment and student participation/non-participation in the research study.

Any participant interested in seeing the final outcome of the research is welcome to inform the researcher and information will be sent on when available.

VII. <u>Signature:</u>

I have read and understood the information in this form. My questions and concerns have been answered by the researcher, and I have a copy of this consent form. Therefore, I consent to take part in this research project

Participants Signature: _____

Name in Block Capitals: _____

Witness: _____

Date: _____

Appendix B: Questionnaire

Student Perceptions of their Employability Competences

I am undertaking a PhD programme in Dublin City University. As part of this programme I am investigating the connection between teaching using strategy simulation software and the development of students' employability competences or soft skills.

I would like to understand your views on your employability skills before you begin the module. You will be surveyed again at the end of the module to assess your views on your employability skills.

Students' participation in this research is voluntary and withdrawal of participation at any stage is possible without any repercussions. There is no connection between module assessment and student participation/non-participation in the research study.

To participate confirm that you agree to the terms of participation. To withdraw at any stage please email the researcher at anne.crowley@cit.ie

Thank you for your help with this research and your responses to this questionnaire are completely confidential.

* Required

Please confirm you understand and agree to the conditions above. *

☐ Yes

Student Perceptions of their Employability Competences

Student Demographics

Please select your age range below.

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

Please indicate how many years work experience you have

- ◯ None
- ◯ less than 5
- ◯ less than 15
- ◯ More than 15

Please indicate the level that best describes your role at work

- ◯ Junior member of staff
- ◯ Team or Group Leader
- ◯ Middle Manager with one or two teams reporting to you
- ◯ Senior Manager with middle managers reporting to you
- ◯ Other: _____

Back Next

Student Perceptions of their Employability Competences

Your views on your Employability Competences

Please review the skills below and grade yourself according to your experience of these skills.

	No Experience	Weak	Adequate	Strong
Communication Skills (Written / Verbal)	○	○	○	○
Team-working (operate well and cooperate within a team)	○	○	○	○
Business Acumen (Understanding of drivers of business success)	○	○	○	○
Decision making (choice of the best option from a range of alternatives)	○	○	○	○
Analytical Skills (Use knowledge, facts, and data to solve workplace problems)	○	○	○	○
Flexible / Adaptable (Be open to new ideas & prepared to change)	○	○	○	○

Please review the skills below and grade yourself according to your experience of these skills.

	No Experience	Weak	Adequate	Strong
Culturally Aware (Aware of business and environmental cultures)	○	○	○	○
Self Management (Motivated / Accountable / Able to work under pressure)	○	○	○	○
Leadership skills (Providing vision, setting goals & driving change)	○	○	○	○
Entrepreneurship (uncover & develop opportunities)	○	○	○	○
Creative / Innovative (Generator of ideas)	○	○	○	○
Organisational skills (organise work and manage time effectively)	○	○	○	○

Back Next

Student Perceptions of their Employability Competences

Final Views

Please tick the competencies that you believe you need for your current role or likely future role if currently seeking work

- [ ] Communication Skills (Written / Verbal)
- [ ] Team-working (operate well and cooperate within a team)
- [ ] Business Acumen (Understanding of drivers of business success)
- [ ] Decision making (choice of the best option from a range of alternatives)
- [ ] Analytical Skills (Use knowledge, facts, and data to solve workplace problems)
- [ ] Flexible / Adaptable (Be open to new ideas & prepared to change)
- [ ] Culturally Aware (Aware of business and environmental cultures)
- [ ] Self Management (Motivated / Accountable / Able to work under pressure)
- [ ] Leadership skills (Providing vision, setting goals & driving change)
- [ ] Entrepreneurship (uncover & develop opportunities)
- [ ] Innovative (Adopter of new ideas / practices)
- [ ] Organisational skills (organise work and manage time effectively)

Back Submit

Appendix C: Original Strategic Management Module

CIT Institiúid Teicneolaíochta Chorcaí Cork Institute of Technology

MGMT7088: Strategic Management

Module Details

Title:	Strategic Management ARCHIVED		
Long Title:	Strategic Management		
Module Code:	MGMT7069	**Duration:**	1 Semester
Credits:	5		
NFQ Level:	Intermediate		
Field of Study:	Business & Management		
Valid From:	Semester 1 - 2010/11 (September 2010)		
Module Delivered In	no programmes		
Module Coordinator:	DON CROWLEY		
Module Author:	BERNARD VALLELY		
Module Description:	This module enables learners to appreciate the role of strategic planning in modern business, and apply the main strategic management models to case study scenarios.		

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Describe the strategic planning process
LO2	Evaluate the external environment and internal capability of organisations
LO3	Evaluate strategic options
LO4	Describe the drivers of change and those forces restraining change.
LO5	Advise on how to proactively and professionally manage change
LO6	Advise on how to create competitive advantage

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.*
No requirements listed
Co-Requisites
No Co Requisites listed

Module Content & Assessment

Indicative Content
Strategic Planning Process Mission, setting strategic objectives, The relevance of Corporate Social Responsibility (CSR), Stakeholder Analysis
Environmental Analysis Industry attraction, Porter's 5 Competitive Forces, PESTEL Analysis
Internal Analysis Resource Audit, Porter's Value Chain, SWOT Analysis
Strategy Option Generation and Evaluation Ansoff's Growth Matrix, Organic and Acquisitive Growth, Limited Growth, Neutral and Recovery Strategies. Portfolio management, Boston Consulting Group Matrix, Johnson & Scholes 3 Hurdle Test.
Change Management Resisting and driving forces, Lewin's Force-Field Analysis and 3-Step methodology, Conflict management
Creating Competitive Advantage Porter's 3 Generic Strategies, Managing for Quality.

Assessment Breakdown	%
Course Work	30.00%
End of Module Formal Examination	70.00%

Course Work

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Case Study	1,2,3	30.0	Week 8

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	End-of-Semester Final Examination	1,2,3,4,5,6	70.0	End-of-Semester

Reassessment Requirement
Repeat examination *Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.*

The Institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
WorkLoad Type	*WorkLoad Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lectures	3.0	Every Week	3.00
Independent & Directed Learning (Non-contact)	Private Study	4.0	Every Week	4.00
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	3.00

Workload: Part Time				
WorkLoad Type	*WorkLoad Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lectures & Case Studies	1.5	Every Week	1.50
Independent & Directed Learning (Non-contact)	Private Study	5.0	Every Week	5.00
Tutorial	Case study application of principles	0.5	Every Week	0.50
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	2.00

Module Resources

Recommended Book Resources

- Kaplan Publishing 2007, *P3 Business Analysis BA: Complete Text*, 3rd Ed., 14, Kaplan Publishing London [ISBN: 978 1 84710 247 8]

Supplementary Book Resources

- Johnson G, Scholes K, Whittington R 2008, *Exploring Corporate Strategy*, 8th Ed., Prentice Hall London [ISBN: 9780273711926]

This module does not have any article/paper resources

Other Resources

- Website: Chartered Association of Certified Accountantsaccaglobal.com
- website: Chartered Institute of Management Accountantswww.cimaglobal.com
- Website: Institute of Certified Public Accountantswww.cpaireland.ie

Appendix D: Redesigned Strategic Management Module

CIT Institiúid Teicneolaíochta Chorcaí Cork Institute of Technology

MGMT7069: Business Strategy Simulation

Module Details

Title:	Business Strategy Simulation ARCHIVED
Long Title:	Business Strategy Simulation
Module Code:	MGMT7069
Duration:	1 Semester
Credits:	5
NFQ Level:	Intermediate
Field of Study:	Business & Management
Valid From:	Semester 1 - 2016/17 (September 2016)
Module Delivered In	1 programme(s)
Module Coordinator:	Breda Kenny
Module Author:	ANNE CROWLEY
Module Description:	An organization's strategic decisions addresses it's competitive position, scope of operations and development directions. In this module the student will become competent with the frameworks and concepts associated with strategy decisions. Students will participate in a strategy simulation and will experience the challenges of designing and implementing strategy in a dynamic competitive market.

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Analyse an organisation's external business environment to develop a competitive position
LO2	Identify an organisation's internal sources of competitive advantage
LO3	Use industry recognised tools and frameworks to plan, develop and implement strategies in a simulated business environment
LO4	Evaluate outcomes of the business simulation process to identify key aspects of the learning process.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.*
No requirements listed
Co-Requisites
No Co Requisites listed

Module Content & Assessment

Indicative Content
Strategic Planning Process Mission, Vision, Strategic Objectives, Stakeholder Analysis, The relevance of Corporate Social Responsibility (CSR)
Environmental Analysis Porter's 5 Competitive Forces, Strategic Group Analysis, Industry Lifecycle Analysis, PESTLE Analysis
Internal Analysis Roots of Competitive Advantage - distinctive competencies, resources & capabilities. Generic Building Blocks of Competitive Advantage, Value Chain Analysis, Durability of Competitive Advantage.
Strategy Choices Business Strategy, Corporate Strategy, International Strategy, Innovation & Entrepreurship, Mergers, Acquisitions & Alliances
Reflective Learning Introduction to lifelong learning and ability to learn from experience. Development of critical thinking skills and methods of improving future performance by analysing experience.

Assessment Breakdown	%
Course Work	100.00%

Course Work

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Presentation	Group presentation explaining strategy decisions taken to date and justifying future strategy decisions	1,3	30.0	Week 5
Presentation	Group presentation analysing strategy decisions taken to date and associated feedback received from the simulation	1,2,3	30.0	Week 10
Reflective Journal	Individual student reflection, critical analysis and further research on the performance of their firm within the business simulation.	1,2,3,4	40.0	Sem End

No End of Module Formal Examination

Reassessment Requirement
Coursework Only *This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.*

The Institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
WorkLoad Type	*WorkLoad Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lecture & Discussion	3.0	Every Week	3.00
Directed Learning	Workshop session with simulation software. Conducted monthly, three times during semester	2.0	Every Month	0.50
Independent & Directed Learning (Non-contact)	Reading, Case Studies, Interaction with material on Student Learning platform	3.5	Every Week	3.50
			Total Hours	8.50
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	3.00

Workload: Part Time				
WorkLoad Type	*WorkLoad Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lecture & Discussion	1.5	Every Week	1.50
Lecturer-Supervised Learning (Contact)	Workshop session with simulation software. Conducted monthly, three times during semester	2.0	Every Month	0.50
Independent & Directed Learning (Non-contact)	Reading, Case Studies, Interaction with material on Student Learning platform	5.0	Every Week	5.00
			Total Hours	8.50
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	2.00

Module Resources

Recommended Book Resources

- Gerry Johnson, Richard Whittington, Kevan Scholes, Dunoan Angwin, Patrick Regnér 2014, *Exploring Strategy Text & Cases*, 10 Ed., Pearson Harlow, Essex, England [ISBN: 9781292002545]

Supplementary Book Resources

- Charles W.L. Hill, Gareth R. Jones, Melissa A. Schilling. 2015, *Strategic management theory*, 11 Ed., Cengage Learning [ISBN: 1285184481]
- Gillie Bolton 2014, *Reflective Practice*, 4 Ed., Sage [ISBN: 9781446282359]

Recommended Article/Paper Resources

- Michael E. Porter 2008, *The Five Competitive Forces that Shape Strategy*, Harvard Business Review, January 2008, 79
  www.hbr.org

Other Resources

- Website: Harvard Business Review*Harvard Business Review*
  http://www.hbr.org
- Website: MIT Sloan*MIT Sloan Management Review*
  http://sloanreview.mit.edu/

Appendix E: Group Summary Observation Sheet

Competence Observation Form – Simulated Board Meetings

DATE:							
	Group A	Group B	Group C	Group D	Group E	Group F	Group G
Analytical Skills (Use knowledge, facts, and data to solve workplace problems)							
Business Acumen (Understanding of drivers of business success)							
Communication Skills (Written/Verbal)							
Creative/Innovative (Generator of ideas)							
Culturally Aware (Aware of business and environmental cultures)							
Decision making (choice of the best option from a range of alternatives)							
Entrepreneurship (uncover & develop opportunities)							
Flexible/Adaptable (Be open to new ideas & prepared to change)							
Leadership skills (Providing vision, setting goals & driving change)							
Organisational skills (organise work and manage time effectively)							
Self-Management (Motivated/Accountable/Able to work under pressure)							
Team-working (operate well and cooperate within a team)							

0 = Competence not observed

1 = Competence observed – once/twice

2 = Competence Observed – some of the time

3 = Competence Observed – Most/all of the time

Completed by: _____ Date: _____

Appendix F: Detailed Comments Observation Sheet

Competence Observation/Supporting Student Comments/Quotes

DATE:	
Analytical Skills (Use knowledge, facts, and data to solve workplace problems)	
Business Acumen (Understanding of drivers of business success)	
Communication Skills (Written/Verbal)	
Creative/Innovative (Generator of ideas)	

Culturally Aware (Aware of business and environmental cultures)
Decision making (choice of the best option from a range of alternatives)
Entrepreneurship (uncover & develop opportunities)
Flexible/Adaptable (Be open to new ideas & prepared to change)
Leadership skills (Providing vision, setting goals & driving change)
Organisational skills (organise work and manage time effectively)

Self-Management (Motivated/Accountable/Able to work under pressure)
Team-working (operate well and cooperate within a team)

Completed by: _____ Date: _____

Appendix G: Example Executive Summary for One Simulated Agenda Topic

Board Meeting One
Board Agenda Item: 1

WRSX

From: Sylvie Tourre, Head of PR, Paris Office
To: Board Directors

Market Opportunity in China

We have had a number of meetings with clients recently where they have expressed surprise that WRSX is not in China currently. Many of our competitors are already established there and it is seen by some as the market opportunity of the future.

There Are Two Issues for the Board to Consider:

- Should WRSX consider China as a suitable opportunity for expansion in this financial year?
- What is an appropriate way for WRSX to enter the Chinese market?

This is a major decision for WRSX with potentially significant long-term implications for the business. We need to think about the purpose of our entering this market. Also, how we can position ourselves in a way that delivers value for our clients and where we can be competitive against other global players and against the local Chinese agencies. The Board will need to decide if it should put the resources into developing a presence in China and also, if it does decide to go ahead, how to ensure success.

Appendix H: Example Decision Detail for One Simulated Agenda

Topic

Board Meeting One
Board Agenda Item: 1

WRSX

From: Sylvie Tourre, Head of PR, Paris Office
To: Board Directors

Market Opportunity in China

We have had a number of meetings with clients recently where they have expressed surprise that WRSX is not in China currently. Many of our competitors are already established there and it is seen by some as the market opportunity of the future.

There Are Two Issues for the Board to Consider:

- Should WRSX consider China as a suitable opportunity for expansion in this financial year?
- What is an appropriate way for WRSX to enter the Chinese market?

This is a major decision for WRSX with potentially significant long-term implications for the business. We need to think about the purpose of our entering this market. Also, how we can position ourselves in a way that delivers value for our clients and where we can be competitive against other global players and against the local Chinese agencies. The Board will need to decide if it should put the resources into developing a presence in China and also, if it does decide to go ahead, how to ensure success.

China – The Opportunity

China has grown to become one of the world's largest advertising markets under the drive of continued economic growth. China is expected to become the world's second largest advertising market next to the USA within the next three years. Hard evidence for this has been produced by our own WRSX market insights team.

Our WRSX research and market insights team has just completed a major market research study that has taken three months to complete, which forecasts 16% ad spending increase for China next year – and a likely minimum year-on-year increase over the next five years of 8% per annum. Their forecast shows that measured media advertising spending in China is expected to reach US$45 billion this year.

Their study, 'This Year, Next Year: China Media Growth', is part of our new in-depth media and marketing forecasting series and is drawn from data supplied by the top 1000 manufacturing companies inside and outside of China. Our team should be congratulated on an excellent research study which demonstrates the scale of the opportunity in China.

In value terms, the growth is led by a 16% increase in projected spending on television advertising, which was expected to increase from US$24 billion last year to US$28 billion

this year. The largest percentage gain came in the forecast for internet ad spending, which is expected to rise from US$3 billion last year to almost US$4 billion this year, representing a 30% increase.

The year-on-year growth was attributed to several factors, including the following:

- **Rising consumer incomes:** Per capita disposable income grew by 173% in urban areas over the past nine years, from US$816 to US$2,515, and retail sales volume nearly tripled during this period. A continuation of the consumer spending boom is anticipated to play a key role in sparking future ad spending increases.

- **Retail distribution of goods:** While the major cities are key to sales volume, increases in retail distribution are taking brands to more and more lower-tier cities. Subsequently, advertisers must not only invest in the major urban city areas, they must also spend to reach and appeal to new consumers in secondary and tertiary cities, which are set to grow more quickly than the developed cities of Shanghai, Guangzhou and Beijing.

  'Retail sales grew 15% last year, double the rate of nominal GDP,' said the lead researcher on the team. 'Advertising serves this rising urban consumer and increasingly the rural consumer as well. Advertising investment could well run ahead of GDP for years to come.'

- **Media inflation:** Media inflation will force advertising budgets to rise as the cost of communicating with customers increases. Television especially remains a seller's medium in which the big channels like CCTV, Beijing TV and Shanghai Media Group (SMG) have tremendous power and influence. Demand for airtime far exceeds supply on these big TV channels, where stringent airtime restrictions also apply.

The WRSX market insights and research team described the Chinese advertising marketplace as a collection of evolving, complex and fragmented markets and said advertiser options will need to multiply accordingly, especially in digital, events, sponsorship and other branded content, with each platform offering new ways to reach and engage with consumers.

'The media market is about to begin an era of hyper fragmentation, offering media agencies and advertisers a massive degree of choice when formulating media plans,' they said in their report.

'This may come as a surprise to western advertising agencies and their clients who might not normally associate choice with China. The key challenge for advertisers in China is how agencies manage and evaluate this choice while striving for further media effectiveness and higher returns from their advertising media budgets.'

Agenda Item Decision Options:

Option A:
WRSX's clients are clearly sending the signal that they see us as being slow to react to their own strategies for market development in China. WRSX needs to be seen as a front runner and not a laggard. If WRSX wants to position itself as a global player, it must be able to offer a full service to global brands which means having a major presence in China.

WRSX should find a suitable office to lease in the district of Shanghai that attracts creative and media businesses, so there should be a ready pool of talent. The firm

should negotiate a five-year lease with an opt-out clause after three years. The new office should offer Consumer and Business to Business Advertising as well as PR.

Experienced staff should be recruited locally from Chinese agencies and international firms already based in China. Victor Xao in the London office should headhunt and interview the future local MD.

Rival firms that have taken the decision to enter the Chinese market this way have budgeted about £2m. In terms of WRSX resourcing this development, as well as financing the project, the main demand would be for management time in sourcing the right building, fitting out the building to WRSX standards, recruiting and training WRSX China staff, promoting the arrival of WRSX in China to potential clients and setting up relationships with local suppliers and sub-contractors. The Board will need to evaluate the risks of this option against potential returns in the future.

Option B:
WRSX should not attempt to compete head-on with either the large global agencies or the major local Chinese agencies. While these agencies base themselves mainly in Shanghai, WRSX should set up small offices based in one of China's tertiary cities and build knowledge and expertise in consumer behaviour in this city and the surrounding community. Expansion into a second city should be planned within 12 months. A team of three people could be selected from amongst the young 'high-flyers' from the current offices around the world. Their role would be to set up the business in China and to assess the Chinese market and the likely opportunities for WRSX in the next two to three years. The objective would be for WRSX to become the experts in understanding the market in each geographic area it enters. This would be the lowest financial risk option to create a presence. The question is whether this shows commitment to the China market and whether it will meet client expectations in terms of how WRSX is perceived against competitors.

The costs of taking this route to market are estimated at £600,000. In terms of other resources, this is a low resource investment option with the main impact being the loss of some key players from other offices. It is also low risk in that if the business does not come in it will be easy to exit quickly with little damage done.

Option C:
Ask Victor Xao to take on responsibility for China from the London office. Three Chinese agencies have recently been in Paris, London and New York looking for strategic alliances with global agencies such as WRSX. Authorise Victor to select a strategic partner from one of these firms and negotiate a deal with them. With Victor's experience, the strategic and cultural fit between a strategic alliance partner could be assessed. One major criterion for selecting a strategic partner should be knowledge of the sectors WRSX is already known for globally, i.e. automotive & transport, health & pharmaceuticals, telecoms, beauty & fragrances and government & public sector.

The cost of going this route is about £450k and the resources and risks associated with this route are less than others. Of course, if the wrong partner is chosen in China it could become high risk so the Board will need to make a judgement if Victor Xao is up to this task. His track record is outstanding and his staff hold him in high regard.

Option D:
You decide to do nothing at this stage. China may be high in terms of opportunity but it is also high risk and you believe that existing clients will not be concerned about WRSX not being in the China market at this stage. There is already plenty going on in the business and the best option is to wait and see. This decision is too big to take without much more information.