Game-Based Learning and the Power of Play

Game-Based Learning and the Power of Play:

Exploring Evidence, Challenges and Future Directions

Edited by

Pauline Rooney and Nicola Whitton

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This book is dedicated to Kevin and Madeline Rooney.

TABLE OF CONTENTS

List of Illustrations ix

List of Tables xi

Preface xii

Acknowledgements xvi

Section 1: Real-World Learning

Chapter One 2
Business Simulation: Providing a Bridge between Academic Studies and the "Real World"
Mike Ashwell

Chapter Two 12
The Application of Serious Games to Corporate Talent
Lynda Donovan

Section 2: Learning in Alternate Worlds

Chapter Three 30
Navigating Other Worlds (Now) Project: Exploring Digital Game Based Learning for Second Level Initial Teacher Education
Angela Rickard

Chapter Four 49
Using Online Role-Playing Games for Entrepreneurship Training
Alfie Keary, Paul Walsh, Deirdre O'Byrne, Jonathan Moizer, Jonathan Lean, Andrea di Ferdinando, Orazio Miglino, Ralf Friedrich, Roberta Asperges, Liz Thomson, Elena Dell'aquila and Luigia Simona Sica

Section 3: Learning with Others

Chapter Five 82
The Power of Feedback: Teachers and Parents Providing Social Motivations in Game-Based Learning
Jennifer E. Killham and Mark Chen

Chapter Six 119
Motivating and Engaging Students: Cooperative Trading Card Games
Timothy McNichols

Chapter Seven 134
Games Based Learning in the Creative Arts
Steph Comley

Section 4: Exploring Commercial Games for Learning

Chapter Eight 156
Digital Game-Based Learning for Early Childhood
Neil Peirce

Chapter Nine 187
Integrating Games Based Learning within a Higher Education Curriculum: A Case Study
Emilia Torodova and David Moffat

Section 5: New Technologies for Play

Chapter Ten 214
Developing a Quest-Based Game for University Student Services
Dudley Turner

Chapter Eleven 230
Creating a Gesture-Based Game for the Mathematics Classroom: Applications and Considerations
Alison McNamara and Catherine Paolucci

Contributors 249

Index 258

LIST OF ILLUSTRATIONS

Figure 2-1. Talent Management Processes.
Figure 2-2. The Crew Challenge till training game.
Figure 2-3. A Framework for the Application of Serious Games to Talent Management.
Figure 4-1. S-Cube player user interface.
Figure 4-2. Communication skills - Importance rating.
Figure 4-3. Communication skills-Perceived levels of existence in social enterprises.
Figure 4-4. Computer games and soft skills.
Figure 4-5. Role play computer games learning for staff of social enterprises.
Figure 4-6. Physical appearance of S-Cube characters.
Figure 4-7. S-Cube gestures and emotional (affective) expressions.
Figure 4-8. S-Cube game editor.
Figure 4-9. S-Cube trainer/master interface.
Figure 4-10. S-Cube – ACTOR.
Figure 5-1. Place Out of Time Login Screen.
Figure 5-2. Face-to Face Character Play.
Figure 5-3. Locations for Online Gameplay.
Figure 5-4. POOT Court Case Scenario.
Figure 5-5. Avery's I-Thou-It Relationship in POOT.
Figure 5-6. Avery's Fracture in the I-It Connection and Thou Mediated I-It Connection.
Figure 5-7. Games and POOT I-Thou-It Relationships.
Figure 5-8. Relational Triangle with a Prominent Thou.
Figure 6-1. Science Museum Collectible Sticker Book.
Figure 6-2. Science Museum Trading Card.
Figure 6-3. Science Test Results (pre-and post-test).
Figure 6-4. Intrinsic Motivation, Effort and Value Results (%).
Figure 7-1. Creative writing group in Second Life.
Figure 7-2. Conceptual framework for the application of games based techniques to educational resources in the Creative Arts. (Comley, 2013).
Figure 8-1. A taxonomy of children's play (Hutt et al. 1989), reproduced by permission of Taylor & Francis Books UK.

Figure 8-2. Piaget's Stages of Cognitive Development (Gage & Berliner, 1998).
Figure 8-3. Psychomotor Developmental Stages, based on (Gallahue & Ozmun, 2006). Copyright 2006 McGraw-Hill Companies, Inc, reproduced with permission of McGraw-Hill Education.
Figure 8-4. Erikson's Stages of Personality, based on (Erikson, 1980). Copyright 1980 by W.W. Norton & Company Inc. Used by permission of W.W. Norton & Company, Inc.
Figure 8-5. Mapping of Developmental Stages to Age.
Figure 8-6. Breakdown of learner specific research papers.
Figure 8-7. Progressive Stages of Taxonomic Learning (Sung et al., 2008).
Figure 8-8. Target Age for the Top Earning Educational Apps in the Apple AppStore, 2009 vs 2011(Shuler et al.,2012). Reprinted with permission.
Figure 8-9. Frequency of age specific educational iOS apps November 2014.
Figure 8-10. Prevalence of Child Overweight and Television Viewing in the U.S. (Vandewater & Cummings, 2008). Reprinted with permission, copyright 2008 Blackwell Publishing Ltd.
Figure 9-1. Experience in gameplay vs. experience in traditional education.
Figure 9-2. Three ways of including GBL in the curriculum.
Figure 9-3. Break down of participants in both groups.
Figure 9-4. Criteria for selecting the games.
Figure 9-5. Results for GAI – treatment group.
Figure 9-6. Results for GAI - Control Group.
Figure 9-7. Results for SGD: Treatment Group.
Figure 9-8. Results for SGD: Control Group.
Figure 9-9 Changes in field knowledge.
Figure 11-1. Multiple-choice questions available in the game.
Figure 11-2. Play Test of Agile Software Development.
Figure 11-3. Central ingredients in design-based research (Barab, 2006).
Figure 11-4. Options appear in front of the player.
Figure 11-5. Use-Case Scenario.
Figure 11-6. Class diagram.
Figure 11-7. Text Message on the phone.
Figure 11-8. PlayStation Move and Nintendo WiiMote.

LIST OF TABLES

Table 5-1. Overview of *POOT* Participants.
Table 5-2. Steps for *POOT* Participation.
Table 5-3. Research Phases.
Table 5-4. Types of Data.
Table 5-5. McCormack's Lenses.
Table 5-6. Avery's Isolated I-Voice.
Table 6-1. Science Test Results (Pre- and Post-test).
Table 7-1: Game mechanics suited to the Creative Arts.
Table 7-2. Digital verbs to support Bloom's revised taxonomy (Simplified version based on Churches 2012).
Table 8-1. Challenges of Pedagogical Approaches to Early Childhood Games.
Table 8-2. Top Eight Educational iOS App Publishers 2011 (Shuler et al., 2012). Reprinted with permission.
Table 8-3. Obstacles to educational media use (Chiong & Shuler, 2010)
Table 9-1. Challenges of implementing GBL in HE.
Table 9-2. GBL tackling HE challenges.

PREFACE

We believe that good games have the power to change education for the better. They offer immersive and authentic models of learning that allow players to practice, fail and reflect, and work with others to solve meaningful problems. Games scaffold the transition from novice to expert and game mechanics — such as visible progression through levels, or the balance of challenge and skills — can enhance engagement. Importantly, games provide safe spaces to play, make believe, and learn from our mistakes.

The use and acceptability of games for learning has been growing steadily in recent years, in formal education at all levels from early years to higher education, but also in areas such as informal learning, work-based learning, and later-life learning. Games have the power to create exciting, engaging and deeply meaningful learning experiences across a range of contexts and disciplines.

In this book, we have drawn together some of the most interesting and insightful research and practice in games and learning in recent years. In the chapters that follow we aim to provide a flavour of the potential of games through a series of case studies highlighting their use in different contexts.

The first two chapters explore “real world learning”. In chapter 1, Mike Ashwell examines the use of simulation techniques in business education, in particular for providing clear links between the theoretical concepts of business and the practical decision-making processes encountered in the “real world”. The benefits and potential drawbacks of simulation in education are first explored with reference to a variety of existing literature. Ashwell then describes the process of designing, delivering and refining business simulation activities as part of a Year 1 undergraduate business programme. With particular reference to Avramenko (2012) and his research on business simulation, Ashwell identifies strategies for overcoming potential drawbacks and maximising the potential of simulation in undergraduate business education. The author concludes that many significant benefits do emerge from the use of business simulation in teaching, but that the practical delivery of the programme must be carefully planned and implemented, if a number of potential drawbacks are to be avoided. Continuing the theme of learning in the “real world”,

chapter two examines the use of serious games in the corporate sector, with a particular focus on their use and application for corporate talent management. Using a range of examples and case studies, Donovan describes how serious games are being deployed to improve efficiencies of processes associated with talent management and she provides evidence of business impact on a number of organisational processes including training. Building on this, Donovan proposes a framework for the application of serious games across talent management and identifies barriers to the adoption of serious games for corporate talent management.

Section 2, which explores game-based learning in alternate worlds, begins with Rickard's innovative pilot project "Navigating Other Worlds" in which a group of Science Education (BScEd) students in an Irish university adopted a digital game-based learning approach to teaching and learning using an Open Sim environment. Fundamental to the initiative was challenging student teachers to consider new ways to mediate science and mathematics curricula in second level schools using a practical, student-centred, constructivist digital game-based learning approach. Rickard describes how students attributed considerable value to creative, collaborative teaching and learning, while recognising the barriers to implementing digital game-based learning within existing second-level curriculum.

In chapter 4, Keary et al. present a case study and research analysis of the use of educational multi-player online role play games for soft skills training to promote and develop more effective entrepreneurship across social enterprises. The chapter is valuable reading for those interested in game-based learning, current limitations and possible future requirements/directions for such platforms.

Chapters 5, 6 and 7 focus on the theme "Learning with Others". In chapter 5, Killham and Chen, explore how a digitally-mediated character playing simulation, *Place Out of Time (POOT)*, was utilised in a traditional educational environment. Presenting a case history of a K-12 student named Avery the authors create a rich picture of the student's character playing experience drawing from three data sources: online and face-to-face observations, semi-structured interviews, and archived participant discourse. Using McCormack's Lenses as the polyvocal analytical tool for deciphering their interview data, Killham and Chen's work emphasises the importance of collaboration between teachers and parents in encouraging student learning in game-based learning platforms.

In chapter 6, McNichols describes a research study which examines the effectiveness of a digital cooperative trading card game for acquiring science knowledge and increasing motivation among 13 to 15 year olds.

Comparing experimental with classroom-controlled conditions, McNichols' results showed that while students significantly increased their science knowledge from pre- to post-test in both the trading card game and control conditions, the gaming approach stimulated significantly higher intrinsic motivation levels and perceived effort.

In chapter 7, Comley argues for the use of game mechanics and games-based techniques within digital learning resources, with a specific focus on the higher education Creative Arts sector. Using the term "game-based learning" to describe the creation of an activity, utilising game mechanics, which engages students, encompasses learning content and has a specific learning outcome/s, Comley presents a conceptual framework for the application of game mechanics to digital resources in the Creative Arts. In doing so, she provides a valuable roadmap for others seeking to apply game mechanics to digital activities in this sector.

Section 3, which encompasses chapters 8 and 9, focusses on the use of commercial games for learning. In chapter 8, Peirce examines the seldom-researched area of digital games for early childhood, focusing on four particular aspects: the pedagogy and design of games for early childhood, evidence of effectiveness and impact of game-based learning, ethical considerations and cost effectiveness. As games are striving for acceptance in formal education, this chapter explores how learners are first exposed to game-based learning, and how this can shape expectations from both learners and instructors alike. Thus Peirce guides the reader as to the developmental, pedagogical, ethical, and financial challenges of developing games for early childhood.

In chapter 9, Torodova and Moffat present a case study undertaken with students at Glasgow Caledonian University, where commercial-off-the-shelf (COTS) games were given to students as part of an intervention during their ordinary study programme. Examining the impact of the game on transferrable skills levels and field knowledge, the results showed an indication of improvement in terms of graduate attributes and a noticeably positive difference in results for field knowledge and application. The chapter provides a useful guide and support for educators who wish to integrate or know more about the use of commercial-off-the-shelf games in teaching.

The final section of the book looks at new technologies for play. In chapter 10, Moore provides an overview of the development and initial implementation of an augmented reality, quest-based learning game for first-year university students in the USA. With the aim of enhancing support for new students on campus (thereby assisting student retention and success) this initiative used quests which were designed to allow

students to interact with material outside of class, enhancing retention of the information, enabling collaborative work on a relevant problem or goal, and using augmented reality (AR) on mobile devices. Turner describes the game development process as an interdisciplinary experience, discussing the coordination with other offices and personnel, and outlines how the quest-based learning approach set a foundation for broader support across the institution, allowing for other "hands-on" application of student learning.

The book closes with chapter 11 which examines how gesture-input devices (such as the Nintendo WiiMote, Xbox Kinect or PlayStation 3 Move) can be used to engage students and affect their perspectives of mathematics. McNamara describes how instructional design techniques were used in the creation of a gesture-based game to ensure its alignment with the learning outcomes from both primary and post-primary Irish mathematics curricula and to bridge the gap between both curricula.

Throughout the creation of this book we have been amazed by the wide variety of ways in which game principles and playful ideas have been applied to learning, and by the creativity and innovation shown by the authors represented here. The commitment that each has to the field is evident to us, and we hope that this book goes some way to enthusing its readers with the same passion and excitement for the potential of play.

ACKNOWLEDGMENTS

An edited collection requires a lot of support from a range of professionals and academics and we would like to thank everyone who has made this book possible. We would particularly like to thank all the authors who contributed chapters to this volume and to the reviewers who provided invaluable feedback and who gave so generously of their time.

Finally Pauline would like to thank her husband and her parents for their unwavering support, and her children, for bringing fun, games and play into her life every day.

SECTION 1:

REAL WORLD LEARNING

CHAPTER ONE

BUSINESS SIMULATION: PROVIDING A BRIDGE BETWEEN ACADEMIC STUDIES AND THE "REAL WORLD"

MIKE ASHWELL

Abstract

This chapter seeks to illustrate the significant value that can be gained by using simulation techniques in business education to provide a clear linkage between theoretical business concepts and practical decision-making processes encountered in the "real world".

These benefits and potential drawbacks are initially explored using key literature on the topic. The practical implementation of business simulation-based teaching at Teesside University is then examined, and close parallels with the expected outcomes, based on the available literature, are explored. The author concludes that many significant benefits do emerge from the use of business simulation in teaching, but that the practical delivery of the programme must be carefully planned and implemented, if a number of potential drawbacks are to be avoided.

Introduction

The 2011 white paper published by the UK Department for Business, Innovation & Skills, *Students at the Heart of the System* states that "the relationship between universities and colleges, students, and employers is crucial to ensuring that students experience the higher education they want while studying, and leave their course equipped to embark on a rewarding career" (p.45). It is within this context that the use of business simulation techniques at Teesside University will be reviewed, together with current literature in this field, and the very positive links with the higher education experience, and the employability agenda will be illustrated. The primary focus of this chapter will be on the process of designing, delivering and refining the business simulation activities as part of a Year 1

undergraduate business programme. In addition, the significant benefits that can be derived from wider application of business simulation techniques will be highlighted. Avramenko's 2012 article "Enhancing students' employability through business simulation", provides a fascinating counterpoint to the progressive development of business simulation techniques at Teesside University: the closely correlated findings can be clearly observed.

Literature Review

As described by Wolfe (1993), there is an extensive history of the use of simulation games and exercises both for military and business purposes. Some of the original academic simulations were derived from business training products and hence focussed more on the immediate competitive elements than longer term learning.

A wider view of the benefits of simulation and game playing is provided by the extensive work of Whitton (2010, 2012) who clearly illustrates that high levels of expenditure are not essential to achieve valuable outcomes for the students.

The value of simulations in representing knowledge in a different way is illustrated by Marzano, Pickering and Pollock (2004) who show that the more students use multiple systems of representing knowledge, the better they are able to think about and recall what they have learned. Another key advantage of simulations, as described by Hood (1997), is the generation of enhanced levels of involvement and motivation and the provision of immediate feedback, without the risk of losing assets.

Neubecker (2003) alludes to the huge employability benefits offered by simulations in that they teach competition strategies, co-operation and teamwork, and conflict resolution.

Avramenko (2012) derives an excellent summary of the benefits of business simulation:

- **Teamworking**: development of teamworking skills.
- **Motivation**: encourages enjoyable learning.
- **Risk-free environment**: opportunity for experimentation.
- **Variety**: alternative means of engaging learners.
- **Experiential learning**: easy and quick feedback loop.
- **Quantitative skills**: developed in a practical environment.
- **Negotiation skills**: within teams and across teams.
- **Time management**: planning work to meet deadlines.
- **Support for independent learning**: encourages deeper learning.

There are inevitably some potential drawbacks to the use of business simulation but generally these can be overcome through the rigorous application of review processes, both at the design stage and following each delivery pattern. Avramenko (2012) summarises the potential drawbacks very effectively:

- **Gaming**: Where luck rather than skill leads to success.
- **Inadequate for theory learning:** Theoretical knowledge not gained.
- **Need for combination**: Lectures required to reinforce learning.
- **Need for purpose**: Seen as merely game playing, not learning.
- **Time and resource commitment**: Extensive time and resources required.
- **Simulation model:** Model too simple to represent real situations.
- **Too complex:** Large number of variables with complex relationships.
- **Cultural differences**: Possibility of "losing face" a significant concern for some cultures.

The manner in which these drawbacks have been effectively addressed as part of the delivery process at Teesside University is described in a later section of this chapter.

Practical Implementation of Business Simulation Techniques

In 2008/9 Teesside University performed a major review of the Undergraduate Business Management provision. As part of the review, and further to discussions with the Higher Education Academy, it was agreed that the introduction of a business decision-making module would yield significant benefits, creating a cohesive, integrated Year One business programme which would enhance the employability of future graduates. In practice, as will be seen later in this section, these benefits, together with additional advantages, which were originally unplanned, were clearly realised.

Having made the decision to use business simulation software, a wide range of potential products were reviewed. Key criteria included:

- cost: comprising both purchase and ongoing maintenance charges
- delivery platform

- range of levels
- broad educational focus
- support/training available

In addition, it was determined that 50 concurrent licences would be required, and the software should be available to School staff, in Information Technology (IT) teaching labs, and in seminar rooms and lecture theatres around the university.

After careful review, the package selected was *SimVenture* provided by Venture Simulations Ltd., and this has proved to be a very effective decision. The quality and reliability of the software, together with the carefully prepared and continuously developed learning and teaching strategy, has produced a module which clearly meets the defined objectives. We have successfully avoided or overcome most of the potential drawbacks of business simulation, as highlighted by Avramenko (2012), whilst at the same time fully realising the anticipated benefits described.

It is important to note that the detailed delivery of the module has progressively developed over the five years of its existence. Extensive annual reviews were conducted to extract the key learning outcomes from each delivery programme and to agree on the implementation of improvements for the next cohort. In year one of the module delivery, students were formed into groups usually comprising five individuals operating as a “Board of Directors”. They assigned themselves the traditional roles of Managing Director, Finance Director, Marketing Director, Manufacturing Director, and Human Resources Director, which mapped neatly to the segments of the business defined within the software. This grouping was maintained from the initial software familiarisation stages through to the main assessed activity, which was to run the simulated business over a notional period of 12 months, occupying some four weeks in elapsed time. The initial assessment method was based on a group portfolio, submitted jointly, with marks awarded equally to all members of the group. Whilst this proved successful in the first year, with generally engaged students and lively Board meetings, the delivery of the module was progressively refined: these changes and key learning and development findings are detailed below.

It is vital to ensure basic personal individual competency in the simulation software and to leave any group formation until this learning has been validated. A problem that arose in the first year of delivery was that the working groups, which comprised approximately five students, were formed very early and the more confident and computer literate

students tended to dominate the use of the software while others tended to sit back. This meant that when the main project commenced, there was a large diversity between students in terms of system competence and overall contribution. For the second and subsequent years of delivery the basic software skills were taught to the students as individuals, before group formation. In addition, practical exercises or "apprentice" activities were performed and formatively assessed, with additional teaching and support provided to specific students as required. The Boards of Directors were formed subsequently, with all students having the competence to fully contribute to input and discussions.

Assessment of group work is of course a perennial issue in learning and teaching. Research continues to investigate and refine approaches: see for example Kemery and Stickney (2014). In the first year of delivering the module at Teesside University, group work formed a major element of the assessed material: this has been progressively changed with experience. Current practice involves the Boards of Directors meeting in order to make each set of decisions, informed by a shared set of online data, printed reports, and their own analysis. This information, together with details of the issues and discussions, form the group element of the assessment and can thus be identical for each group member. The key change in assessment requirements is that students must now also submit a detailed individual reflective statement, which has equal weighting to the group documentation in terms of assessment. This indicates an individual student's input to the decisions made, analysis techniques used, personal thoughts and reservations, contribution to their future employability, and any other individual learning points.

Clearly there are a number of other assessment techniques which could be used, and colleagues in other institutions use methods such as allocating an overall mark to the group project and allowing the students to allocate the marks between themselves, based on input and attendance and subject to tutor moderation—a challenging process with a significant degree of risk!

Further findings are that the "games console" approach must be avoided at all costs. Students must be actively discouraged from sitting around a keyboard and making spontaneous decisions without appropriate analysis and discussion. In addition it has been found to be very helpful to students' overall learning, and to their wider business understanding, if tutors on the other modules within the programme are aware of the key issues encountered during the simulation, so that they can be referenced during the discipline-specific modules and appropriate links and comparisons made.

Outcomes

Overall the use of business simulation as an integral part of our year one undergraduate business programme has proved highly effective. Student responses have been very favourable: some examples of feedback are shown below.

> "..It was good to get away from all the books and do something different, and not getting assessed on the success of the business took the pressure off and allowed us to take a few risks".

> "..felt it was a very effective way of practising working as a team. As we got into the game it was clear to see everyone was eager to do well which meant everyone put across their opinions"

> ".. because we were the ones who had to make the entirety of the decisions the business made. As young people our previous experiences of employment in real life are much different, usually with us being told what to do".

> " ..It didn't feel like work. I genuinely wanted to have a crack at it and see how well I could do".

Key Learning and Benefits

Tutor observation during the activities, and reviews of students' work submitted for assessment have indicated that students find the business simulation useful, providing practical evidence of the integrated nature of a business. This is often discovered through problems that arise, for example commissioning a major marketing programme but not making appropriate provision in the production area to handle the increased demand for products.

The beneficial effects on employability are numerous. In particular, students may have had real world experience of a number of roles, but often at a basic level in the organisation. The experience of running a virtual business as one of a Board of Directors, and reflecting on this experience, enables students to rationalise their own business experience much more clearly, and express this with insight at a job interview.

Recruitment and selection for many graduate roles is now managed via selection events where groups of candidates are set a challenge and their skills, motivation and general behaviour is closely observed and judged. The experience of having participated in a major business simulation activity gives students a significant advantage, as their practical

development of critical thinking skills, negotiation skills and time management has been enhanced through the module.

Addressing potential drawbacks of business simulation

The progressively developed design that we have implemented when integrating business simulation within an undergraduate programme, addresses all the defects identified by Avramenko (2012). Key elements of the approach taken within this undergraduate programme are outlined below.

- **Gaming**: the students are not assessed on "winning" or "losing" but on the extent of their engagement in the decision processes and on their personal reflection and hence no element of luck is involved. Some of the best work has been produced by teams who had major issues, but were able to analyse and resolve them, and reflect on the process.
- **Inadequate for theory learning**: the *SimVenture* software that we utilise is extensively supported by online links to the appropriate theories. In addition, decision-making theory is taught within the module and the wider theories supporting other business disciplines are taught within the concurrent Year one programme.
- **Need for combination**: the requirement for supporting lectures is met as noted previously, and the use of a tool such as *SimVenture* can provide very effective and engaging lectures as a simulation can be run on a large screen and the results immediately reviewed and analysed.
- N**eed for purpose**: the purpose of the simulation is clearly linked to the learning objectives of the module and to the overall assessment plan. The inevitable element of competition between groups, although not designed into the module, also provides further motivation for the learners.
- **Time and resource commitment**: this approach clearly needs appropriate staff resourcing, both in terms of supporting lectures and seminars, and providing ad hoc support to the Boards of Directors as they conduct their analysis and meetings.
- **Simulation model**: the *SimVenture* design is based on appropriate theory, supported by online "real world" examples.
- **Too complex**: the simulation can be operated at a range of complexity levels, or can be segmented into disciplines where

appropriate, so that activities may be focused exclusively on Marketing, for example.

- **Cultural differences**: these were generally not found to be an issue, although the impact on an international student when the simulation advises him that his "family and friends" are unwilling to provide a short-term loan should not be underestimated!

Wider Applications

Having installed the business simulation software in Teesside University, and having gained significant experience in its operation, it became clear that a number of additional applications could be implemented, all of which supported the concept of the "bridge" to the real world.

The first of these is in working with under-18 school and college students who are considering a business degree as a stepping stone to a business career. On a "Discovery Day" or similar structured visit, students can be introduced to basic business concepts and the relationship between the key areas of business. They are then formed into groups to run their own business for a few virtual months usually involving approximately two hours of actual activity. The session concludes with a reflection on their processes and results, supported by a simple presentation on their findings. This approach has proved to be very popular with students and teaching staff from the colleges. The activity provides a lively illustration of university work and its link to the real world. Of all the groups using business simulation, the 14-17 age group have consistently been found to be the quickest adopters of the software and techniques, often developing their businesses far beyond the limited induction and expected scope of a two hour session

The second "bridge" development has been with groups of young graduate entrepreneurs, seeking to establish and develop their own businesses, usually in the field of digital media. As part of the support provided by the University, their development is mentored to ensure that they identify any gaps in their business skills and undertake appropriate training and coaching in these areas. Establishing such needs is readily achieved using business simulation software. Each team is introduced to the key business concepts and their interrelationships and they then run a virtual business for several hours using business simulation software. Inevitably it soon emerges that despite their technical expertise in their chosen field, the groups have major gaps in their understanding of, for example, marketing or finance, or have major teamwork issues within their

fledgling management team. In conjunction with the tutor, these gaps are reviewed and documented and they return to their business mentor to ensure that their identified training and support requirements are addressed in the coming year. This enables a much more targeted approach to be adopted, enabling identified needs to be tackled in a time and cost effective manner, in conjunction with the technical development of their business.

Most organisations, from major multi-nationals to local SMEs, are increasingly demanding that their work forces are multi-skilled and in particular, overall business skills are highly prized, particularly among those developing into "First Line Manager" positions. The use of business simulation, with appropriate preparation and background, can be an ideal way to introduce such groups to the multi-faceted operation of a business, and in particular the complex trade-off between time and costs. These sessions have proved very effective for Teesside University and its industrial clients, with the business simulation proving to be a clear way to consolidate learning while at the same time providing an interactive and enjoyable means to raise and discuss key business issues. The risk free environment (Fripp 1997) is also much appreciated by these groups, enabling freer thinking than would be allowed in a work or conventional "training" environment.

Summary and Recommendations

The significant benefits of the use of business simulation techniques have been clearly demonstrated with an unexpected range of advantages exhibited. These benefits do not simply emerge by the introduction of software, however comprehensive and well-designed, but result from the cohesive partnership of the software and a carefully designed and implemented learning and teaching strategy for the module, coordinated with the strategy for the overall Year one programme. It is the combination of these factors which can effectively deliver the benefits described by Avramenko (2012), whilst largely avoiding the identified drawbacks, as has been demonstrated.

Business simulation software continues to develop at a rapid pace, and the current trend is for software to be delivered via the internet rather than an on-site server platform. Clearly this creates the opportunity for greater flexibility in delivery, including pan-world distance learning, but it also puts further stress on the role of the teaching and support team who must ensure that the required elements of control are maintained, thus ensuring that the learning objectives are met. This new development will clearly

generate a rich source of research material for both theoretical and practical investigation and analysis.

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CHAPTER TWO

THE APPLICATION OF SERIOUS GAMES TO CORPORATE TALENT

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Abstract

Despite the fact that that workplace learning forms part of the continuum of lifelong learning, much of the research to date into the use and effectiveness of digital games for learning has focussed on formal educational settings. While there are differences between workplace learning and the learning that occurs in educational settings, in determining the potential of digital games for learning it is important that the research extends to workplace learning.

A number of reports have highlighted the increasing adoption of serious games for corporate learning. Classification frameworks have also been defined to illustrate how serious games are being used in organisations. However, existing frameworks do not contextualise serious games in terms of their use and application for corporate talent management.

Talent management is a set of organisational processes designed to ensure an effective flow of human capital within an organisation. Case studies are emerging to support the use of serious games as tools for training and for other talent management processes. However, for serious games to be widely adopted by talent management practitioners there is a need to first contextualise serious games in terms of their application and affordances for the broader talent management process continuum. There is also a need to provide talent management stakeholders with robust evidence of the effectiveness of serious games for the various talent management processes including training. Using a range of examples and case studies, this chapter describes how serious games are being deployed to improve efficiencies of processes associated with talent management. It provides evidence of business impact on a number of organisational processes including training and it proposes a framework for the

application of serious games across the talent management continuum. Barriers to the adoption of serious games for corporate talent management are identified and implications for further research are discussed.

Introduction

Workplace learning is part of a continuum of lifelong learning (European Commission 2008). However, much of the research to date into the use and effectiveness of digital games for learning has focussed on formal educational settings (GALA 2014). While acknowledging that there are differences between workplace learning and learning in educational settings, the former being performance-oriented and highly contextualised (Knapper and Cropley 2000), in determining the potential of digital games for learning it is important that the research extends to workplace learning.

A number of reports have highlighted the increasing adoption of serious digital games for corporate learning and for other strategic and operational processes within organisations (Donovan 2012, Azadegan et al. 2012). In addition, classification frameworks have been defined to illustrate how serious games are being used in organisations (Azadegan and Riedel 2012, Riedel and Azadegan 2014). However, existing frameworks do not contextualise serious games in terms of their use and application for corporate talent management.

Talent management is a set of organisational processes designed to ensure an effective flow of human capital within an organisation. The goal of talent management is to recruit, induct, train, develop, retain and compensate employees with the relevant skills and competencies to deliver on an organisation's strategic goals and objectives. In most organisations, Human Resources (HR) practitioners are responsible for talent management. They work closely with Learning and Development (L&D) practitioners to identify appropriate training, learning and development interventions, though in some organisations L&D is part of the HR function. Because organisations now require employees with a broader range of skills and competencies than previously required, and because there is a pressing need for more engaging and effective ways to train, motivate and develop digital natives, there is an imperative for organisations to reconsider their talent management strategies and tools (PWC 2014, Donovan 2015).

Corporate case studies are emerging to support the use of serious games as tools for training and for other organisational processes *(Crew Challenge* case study, Kineo 2014). However, for serious games to be widely adopted by HR and L&D practitioners as appropriate talent management tools, there is a need to first contextualise serious games in

terms of their application and affordances for the broader talent management continuum. There is also a need to provide talent management stakeholders with evidence of the effectiveness of serious games for the various talent management processes. In contrast to educational settings, the effectiveness of learning interventions in the workplace is measured in terms of business impact indicators such as improvements in the efficiencies of processes.

This chapter describes, using examples and case studies, how serious games are being deployed to improve efficiencies of processes associated with talent management. It provides evidence of business impact on a number of organisational processes including training. It proposes a framework for the application of serious games across the talent management continuum. The chapter identifies barriers to the adoption of serious games for corporate talent management and discusses further research that is required.

The Application of Serious Games to Talent Management

Serious games are being used in organisations to improve the efficiencies of strategic and operational processes (Donovan 2012). Talent management is a set of organisational processes which includes recruitment, onboarding[1], training, performance management, and employee development (Figure 2-1). This section will describe, using examples and case studies, how serious games are being deployed to improve the efficiencies of processes associated with talent management.

Figure 2-1. Talent Management Processes

Recruitment

Recruitment is a critical aspect of talent management. Tools that effectively and efficiently enable organisations to source, screen, assess

[1] Onboarding is the process of integrating new employees into an organisation and providing them with the knowledge and tools they need to become productive.