Learning at the Edge of the Magic Circle:
A Case for Playful Learning

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TABLE OF PUBLISHED WORKS

Listed by publication type, and then by chapter in this volume.

Books and constituent chapters

Reference and description	*Word count (authorship)*	*% authorship (detail if <100%)*
9. Whitton, N. & Moseley, A. eds. (2012) *Using Games to Enhance Learning and Teaching: a beginners' guide*. Routledge: New York. *The book covers the use of games and game mechanics to enhance learning and teaching: focusing on the need for low cost or easily obtainable games that embed easily within the curriculum. The introduction discusses the need for embedded and low cost games, and compares this to high end simulations and 'serious games'.*	1240	50% (authored half of the introduction)
10. Moseley, A. & Jones, R. *Mapping Games to Curricula.* pp108-123. *After setting the scene of current HE curriculum issues, the chapter discusses the problems staff face in introducing games-based learning into the curriculum, focusing on five areas: staff attitudes, student attitudes, reputational attitudes, course design, and course mechanics. Solutions are discussed, using two case studies of embedded learning games.*	2855	50% (equal half of authorship)
11. Brookes, S. & Moseley, A. *Authentic Contextual Games for Learning.* pp91-107. *Investigation of context, authenticity and 'frames' within recent educational and game design theory; focusing on the use of pervasive games that generate high levels of contextual authenticity. A new form of learning activity (a pervasive learning activity) is then described, together with a case study of its application, which draws on these theoretical perspectives and provides practical advice for implementation in other learning contexts.*	3100	50% (literature review, theoretical aspects and co-authored practical elements)
12. Moseley, A. *Competition: Playing to win.* pp57-66 *Discussion and review of existing literature of competition within formal education, and competitive elements within games. Identifies four elements of competition within games (mechanics) and applies*	4,360	100%

them to an educational context. Finishes by suggesting solutions to common problems, drawn from game-based examples.		
13. Hoyle, M. & Moseley, A. *Community: The Wisdom of Crowds.* pp31-44. *Following a review of existing theory in communal learning and communal game theory, this chapter covers the use of communal aspects within digital games, introducing a typology of different types of interactions. These interactions are then matched to educational contexts, mapping communal learning forms to cover different learning needs.*	2700	50% (equal half of literature review and authorship)
14. Whitton, N. & Moseley, A. *Designing Low-Cost Games for Learning.* pp138-156. *A review of the use of high-end digital games in education shows that the high costs and high skills needed to develop them contributed to expensive failures. A short history of the use of low cost learning and training games is then drawn on to raise the benefits of such an approach, and short case studies of a number of modern examples are discussed. Practical approaches to low cost development are provided, focussing on a new genre that combines low costs with high engagement: alternate reality games.*	3800	50% (equal half of literature review and authorship)
15. Moseley, A. & Whitton, N. eds. (2013) *New Traditional Games for Learning: A Case Book*. Routledge: New York. *A collection of case studies from across the world looking at the use of card, board and outdoor games for learning. The introduction discusses the need for low budget, low production learning materials within education and summarises themes in the chapters.*	1200	80% (authored complete introduction)
16. Moseley, A. *Dicing with Curricula: The creation of a board game to speed up the course creation process.* pp5-19 *Begins with a literature review of contextual learning and contextual games; describes the process of creating simple games to reproduce contextual features within learning; uses the case study of a game to introduce curriculum design, with qualitative excerpts from interviews with users of the game.*	4,980	100%

Book Chapters

Reference and description	*Word count (authorship)*	*% authorship (detail if <100%)*
4. Moseley, A. "Assessment: A Case for Integration" (2013) In T. Connolly et al. Eds *Psychology, Pedagogy and Assessment in Serious Games*. IGI Global. *The chapter opens with an overview of assessment within the UK HE context, and within game design itself, including the recent interest in gamification approaches. Design features within games are used to develop models for assessment in HE, resulting in a proposed new typology: external, internal and implicit assessment.*	7,700	100%
5. Moseley, A. (2011) "Immersive Games: An Alternative Reality for Museums" in Beale, K. ed. *Museums at Play*, MuseumNext: London. *Drawing on detailed interviews with two game curators within museum contexts (the Smithsonian in the USA, and Bletchley Park in the UK), the paper introduces the benefits for museums and visitors, and practical issues during development, of using immersive game forms within museums for learning and engagement.*	3,100	100%
7. Moseley, A. (2017) "Cloud or Dinosaur? An Invitation to Play" in *The Power of Play*, Counterplay: Aarhus, Denmark. *Written as a thought piece from the perspective of the 'magic circle', drawing on key theorists and my own work to consider what form an invitation to play can take, and how we can invite others to observe and accept play, in order to improve its reputation.*	2,480	100%
18. Moseley, A. & Kristiansen, E. (2018) "Games in the Lobby: a playful approach" in Parry, R; Moseley, A. & Page, R eds. *Museum Thresholds.* Routledge. *Applying gaming concepts and approaches to the museum threshold: a contested space. Explores the application of game design approaches, and game design concepts, in a museum/visitor setting, drawing on a theoretical backdrop, and case studies from my own and my co-author's practice.*	2750	50% (theoretical backdrop, one case study, shared authorship)

Journal Articles

Reference and description	*Word count (authorship)*	*% authorship (detail if <100%)*
2. Moseley, A. (2012) "An Alternate Reality for Education?: Lessons to be Learned from Online Immersive Games", *International Journal of Games Based Learning*, vol 2, no. 3, pp32-50. *Detailed interviews with 50 of the most engaged players of an alternate reality game (Perplex City) investigated their primary and secondary motivations for playing the game at a sustained high level, linking the areas to aspects of learning. From this analysis, seven key features of immersive games are identified which could be used in education to increase motivation.*	6,550	100%
6. Whitton, N. & Moseley, A. (2014) "Deconstructing Engagement: rethinking involvement in learning" in Whitton, N. & Moseley, A. eds. *Simulation and Gaming* special issue on Engagement, Vol. 45, No. 4-5, August-October 2014. *Major synthesis of literature around the term 'engagement' as used in the confluence of learning and games, determining that 'engagement with education' and 'engagement with games' are not mutually compatible. Practical and theoretical limitations of the concept are discussed, and six ways of constructing engagement are presented as a model.*	2740	50% (equal half of literature review and authorship)
19. Moseley, A. (2018) "Real-Life Contexts in Learning Games: towards a new typology", *International Journal of Games Based Learning* (accepted for publication). *Explores the use of 'context' across multiple domains, drawing on linguistic, neuroscience and educational literature. Focuses in on 'real world contexts': theory and method around the integration of real world contextual elements in learning, suggesting four broad types/models of embedding. Each model is then described with the use of case studies.*	4,540	100%

Published Conference Proceedings (peer reviewed)

Reference and description	*Word count (authorship)*	*% authorship (detail if <100%)*
3. Culver, J., Moseley, A., Piatt, K., Whitton, N. (2009), "Motivation in Alternate Reality Gaming Environments and Implications for Learning". *3rd European Conference on Games Based Learning*, FH JOANNEUM University of Applied Sciences, Graz, Austria, 12-13 October 2009. *This paper draws on four case studies of the use of learning activities inspired by alternate reality games to examine what can be learned about student motivation. It discusses the influence of competition; designing appropriate levels of challenge for motivation; the implications of increasing participation levels; assessment; and ways of supporting autonomy.*	1415	25% (challenge and assessment elements, plus case study and general authorship)
8. Moseley, A. (2010), "Back two spaces, and roll again: the use of games-based activities to quickly set authentic contexts". *4th European Conference on Games Based Learning*, Copenhagen, Denmark, 20-21 October 2010. *Reviews the long history of games and simulations in areas of education and training, leading up to recent work on the way that games can engage learners through the creation of authentic contexts. Three case studies (a simple puzzle, a live activity, and a board game) are provided as exemplars of this approach, presenting a range of possible designs; and their value in overcoming a suggested contextual gap amongst participants is discussed.*	4,700	100%
17. Parry R., Moseley, A., Kristiansen, E. & Page, R. (2014) "On A New Threshold: Experiments In Gaming, Retail And Performance Design To Shape Museum Entrances". In *Museums and the Web 2014*, N. Proctor & R. Cherry (eds). Museums and the Web: Silver Spring, MD. Published April 2, 2014. *Consideration of the museum foyer/entrance as a liminal space – drawing on the work of an AHRC-funded network which applied education, retail, games and performance lenses to the design and function of thresholds. My contribution dealt with the gaming lens, and discusses an investigation I undertook at Chatsworth House.*	1467	33% (games/play theory and examples, and case study)

Total word count for own contribution: **61,677 words**

ABSTRACT

This thesis draws on a ten-year research-practice nexus, to contribute to the emerging field of *playful learning*. It suggests alternative approaches to the use of play and games in learning, contrasting with the problematic concepts of serious games and gamification. Within the thesis *playful learning* is shown to successfully blend learning design and playful design, promoting an experience of playfulness that is *engaging* for the learner, *authentic* to the discipline, and *embedded* within adult education contexts. Playful learning is shown to blur the edges between seriousness/fun, learning/playing, researching/teaching, and education/real-world; and offers ways to negotiate these spaces meaningfully and practically.

CHAPTER 1:

CRITICAL APPRAISAL

About this thesis

This thesis explores the potential for *engaging*, *embedded* and *authentic* learning experiences when playful principles and game design approaches are used in adult learning contexts, challenging the interventionist or bolt-on approach dominating games-based learning to date. In this first chapter, I shall critically examine existing work and review my own research in design that support a case for play in adult education, demonstrating my contribution through this body of work to playful learning approaches.

I shall also highlight my key contributions to this field, namely:

1. the use of play and games to resolve current higher education problems of student inclusion, engagement and employability, by offering inexpensive yet well-designed and authentic solutions within curricula;
2. the investigation of a 'blurred edge' of a magic circle of play evident in pervasive game forms, resulting in key design features of these games that can transfer to a learning context to ensure lower barriers to entry, and better learner engagement;
3. the development of *playful learning* as an approach, offering teachers and researchers a way to re-introduce innovation and experimentation in quality-and-standards-based education, through a focus on the local context and an embedded curriculum-level approach.

In this chapter, I situate my work within the overlapping fields of game and play research, media and cultural studies, and research in adult learning design and pedagogy. These are broad and disparate fields, but through practice and research over two decades I have developed practical and critical perspectives on how each offer particular points of confluence. As I will argue, playful learning for adults is forming a new field of study at the intersection of these existing fields. I will draw out themes from chapters 2-19 that connect with relevant, current research debates on student engagement, serious games and gamification. I follow this by looking in detail at how my work, in a dialog with research in this area, can provide engaging, authentic and accepted learning experiences within adult learning. Finally, I will make the case for a playful approach to learning design, and consider the implications when learning takes place at the edge of the 'magic circle', or the border between game and non-game.

Following this opening chapter, the remaining chapters are arranged in three Parts. The first (Chapters 2-7) explores what has traditionally been promoted as the principal benefit of games and play in education: that of 'motivation' or heightened engagement amongst learners. The second Part (Chapters 8-14) considers the use of play and game design principles as an influence on the design of learning within adult learning contexts in museums and education. The final Part (Chapters 15-19) then considers what becomes possible if these playful design approaches are used successfully - focusing particularly on the development of strong and deep contexts for learning, using relatively simple games or playful structures, and exploring the interface between games and real life.

The chapters here represent ten years of my interest in and explorations of play and games for adult learning. My role as curriculum designer, and teacher on several courses, at the University of Leicester has provided me with the opportunity to base my research on real needs and context within contemporary higher education, and to derive research needs from that context in return, resulting in a research-practice nexus. By drawing together games design and learning design fields, based on my experience as a

practitioner of both, I have made a significant contribution to knowledge in the growing field of *playful learning.* This thesis is therefore not only a critical exploration of this field, but also a manifesto for *playful learning* going forward.

Epistemology and context

My academic background lies in Archaeology: a discipline that draws on a number of other fields of study to analyse and make meaning from the physical evidence of our past, and is both *pragmatic* (our understanding of the past is continually renegotiated as practice reveals new data and concepts) and *constructivist* (our understanding is constructed individually and collectively through reflection on experience) in approach. In my subsequent move into curriculum design and pedagogy I carried much of this with me: a constructivist-pragmatist basis (in which I apply and investigate practice in social learning activities to understand more about effective learning processes) combined with an awareness that inter- and cross-disciplinary approaches can provide a rich toolset from which to create effective learning experiences.

My interest in the power of play and games began when a postcard fell out of my Sunday newspaper. The postcard contained a cryptic puzzle and an intriguing narrative, and led me to *Perplex City*[1]: an *alternate reality game* that I continued to play and then study for the next two years, leading to my first research project exploring the use of play for learning.

In game design terms, I had accepted an 'invitation to play' and crossed a 'magic circle' of play, concepts first suggested by Huizinga (1955) in his study of play in adult contexts to describe the way an adult first approaches, then joins in with, play (the metaphor of the magic circle relates to magicians being willingly part of the magic act/illusion; in game terms the adult willingly accepts the rules of play or the game). I had also, as Suits described (1978), adopted a 'lusory' (or playful) attitude: accepting rules and approaches that might not be normal or sensible, in order to play a game (he gives an example of playing golf: the lusory approach is to use a golf club, greens and bunkers; the 'sensible' approach would be to simply pick the golf ball up and carry it to the hole). The concept of a magic circle has invited much debate and criticism

[1] Perplex City (http://www.perplexcity.com) was developed by Mind Candy, and was the first commercial alternate reality game for its own sake (as opposed to a marketing tool). It ran from 2005-2007.

amongst game scholars, particularly if taken in the binary as a solid border between games and reality (for example, Consalvo [2009] argues that the context of the player provides a more complex in/out of game state). If considered as a more mutable / indistinct edge though, combined with Suits' consideration of a 'lusory attitude', the magic circle becomes more interesting: these two concepts formed the basis of my underlying theoretical approach. The adoption of a lusory attitude makes the magic circle of play visible and available, and the end of a game or play comes when the participants re-enter/re-adopt 'real life', but this process may not be clear or instantaneous. In my case, for example, there was a period of exploration and testing before I realised and accepted my role within Perplex City, and from that point on it was never clear when I was playing and when I was not. In sum, the magic circle has *fuzzy edges*.

The fuzzy edge to the magic circle is where I have focussed most of my work since that simple postcard invitation to play. Alternate reality games, now part of a wider group of *pervasive games*, provide a fascinating basis for study. Unlike other games that have a clear entry point (sitting around a board game, or entering a football field) and exit point (finishing the game or leaving temporarily to make a drink) to the magic circle, pervasive games purposefully blur these entry and exit points. Players may find aspects of the game seeping into their everyday life, or find their lives impacting on the game. The edge to the magic circle is therefore far less defined: the border between play (in the circle) and non-play (outside) is blurred or fuzzy (as explored in Chapter 7), for example receiving new game information via an SMS message whilst at work, or through an advertisement in a newspaper. I discovered in my study of the most engaged players of *Perplex City* (see Chapter 2) that this blurring of game/everyday life can lead to both deep immersion in the game, and impact on elements in everyday life (such as the development of particular skills or knowledge, undertaken for the game but in the real world). It is this mixture of immersion and the potential for learning that make pervasive games such an interesting and important area for study and application.

From my grounding in constructivist/pragmatist pedagogy (in particular, the work of Vygotsky, Kolb, Dewey and Piaget) I found value in the work of psychologists Ryle (1968) and Shaffer & Resnick (1999) around creating an 'epistemic frame' that surrounds a learner by using tools, methods, approaches and problems drawn from professional practice. Games can recreate this 'epistemic frame' quite simply, and this approach provided the basis for much of my later investigation (see Chapter 19 for a full description of the theoretical concepts involved).

The pragmatist side of my approach to research is evidenced in continued application, learning, and development of my own teaching. For example, I applied the key attributes I discovered in my study of immersed alternate reality game players (Chapter 2) to an undergraduate course I teach (*The Great History Conundrum*, referred to in Chapters 4 and 10), and the subsequent study of this as an 'epistemic game' approach to teaching was adopted by a growing number of lecturers in Enterprise (developed between Simon Brookes and myself as a *Pervasive Learning Activity* or PLA model, as described in Chapter 11 and in Brookes, Moseley & Underwood, 2012).

But where are play and learning situated, in a disciplinary sense, and where do I situate myself within them? Study in these areas naturally reaches across many disciplines: it draws on computing/physics fields (for formal games design and mechanics); on education, media and cultural studies (for games design and learning design/pedagogy and the cultural impact of play and games); on the humanities (for game design/mechanics, narrative and aesthetic elements); on psychology and neuroscience (for game design and understanding and describing participant behaviour) and others. However, *playful learning* (as the study and practice of play with learning is becoming known: Whitton, 2018) has developed its own unique considerations and approaches as a field of study, strengthened rather than weakened by its links to many other fields (much like Archaeology).

As I argue in depth later in this chapter, *playful learning* is an important emerging field of study for contemporary and future society. Its solid basis in constructivist learning paradigms, yet fresh and playful approach to design and

implementation, and relevance to ‘hybrid’ skillsets requested by employers, makes it one of the most relevant and interesting emerging concepts today. I am amongst a small but growing number of researchers shaping the new field and its approaches, and my contribution to its emergence and growth is described in the rest of this chapter.

Research Methodology

As my research and practice have developed as a nexus over time, I have refined and developed my research methodology into a more formal iterative cycle.

In line with my constructivist/pragmatist ethos, my approach to research has been based around practice- and action-based approaches, using a mixed-method approach that combines quantitative and qualitative data collection and analysis techniques. Such an approach has provided me with an opportunity to focus deeply on an identified context (using qualitative methods such as focus groups, interviews and observations) yet also identify aspects of my investigations that have generalizable value (where I have been able to use quantitative investigations on data sets for large student groups). The choice of which approach to use was re-considered with each project, but I was able to draw on cumulative experience of what previously proved valuable.

A chronological overview of the projects I undertook (as described in Chapters 2-19) and their associated methodologies, is provided in table 1.

Date	*Project/Game*	*Methodology*	*Data collected*
2006-7	Perplex City study	Mixed methods; quantitative + 'focus panel'	Observation to derive subjects and questions, questionnaire (n=50, closed+open)
2007-8	Great History Conundrum	Co-design, Action research	Pilot study (observation, activity data, focus group). Implementation (activity data, questionnaires - n=400, closed+open)
2010	Of Course! boardgame	Action research; observation, qualitative	Pilot study (observation, focus

			group). Multiple iterations.
2013	Landscape Lenses, Chatsworth House	Mixed methods; observation, quantitative	Observation (path tracking), questionnaires (n=100, closed)
2014	Engagement article	Literature review; synthesis	Systematic search across 5 databases (JSTOR, Web of Science, British Education Index, ERIC, ASSIA) and principle game/play journals.

Table 1: Overview of projects and associated methodologies

As evidenced in Table 1, across these methods there is a broad cycle of:

Identify - (build) - observe – test – reflect – refine – *observe – test* …

evident in many of the projects, and this maps closely to an action research structure. This entails a "spiral of activity" (Kemmis & McTaggart, 2000) where practice is reviewed, an area for improvement identified, data collected and reviewed, and practice is then modified or developed before further testing of the modified form. Elliot (2001, p. 49) states that "the fundamental aim of action research is to improve practice rather than to produce knowledge" – yet I've found that by connecting teaching practice to research, I have been able to do both.

My initial study of *Perplex City*, accompanying my shift from player to observer to researcher, was opportunistic in approach, and was not particularly robust (I might have selected a more stratified range of participants, for example, and the questionnaire design did not produce suitable open question data for subsequent qualitative analysis). Still it was an important starting point for my future research as it was when I recognized the value of using my observations

of the players' practice to design a questionnaire (a mixture of closed and open questions), and using the analysis of this data to derive new knowledge.

Many of my projects are connected, and so the 'action research cycle' is evident across multiple projects rather than just confined to one. This is certainly true of the output from the Perplex City study, which fed directly into the more methodological *Great History Conundrum* project.

Here the research methodology was much more developed, and aligned more closely with action research. I had been observing student behavior – and reviewing marks data - in my History module. I used my Perplex City study analysis to design a new teaching activity, involving students and staff colleagues as co-design partners (a method linked to design-led research, identified by Roschelle et al, 2006). I then ran two pilot studies with students, observing (through computer-tracked data) and recording their feedback in focus groups each time. This led to a revised version of the course, which was then integrated into the main degree programme for all students. I used the same computer-tracked data (quantitative) and stratified-sampled focus groups (quantitative-qualitative) to assess its impact on the students; and have subsequently collected and analysed closed questionnaire data and computer-tracked data from eight years of the course. This has been used to feed directly into improvements each year as well as to inform my ongoing theoretical research. This continual feed of analysis-into-research-and-development conforms to Glaser & Strauss's *constant comparator* method and definition of *grounded theory* (1967): an approach that resonates, at the macro as well as micro level, with my approach to research and practice.

I used the 'identity - build – test – reflect – revise' approach in my work as a curriculum designer. I created the *Of Course!* board game to engage course teams with learning design choices, based on the early stages of my research into the use of context in learning games. The board game was tested in real design situations at a beta stage, and I observed participant behavior and ran focus groups and individual interviews after the game, in order to feed into the design of the next iteration.

The first externally-funded project I was involved in (the AHRC Transforming Thresholds project) saw me lead a sub-project at Chatsworth House: *Landscape Lenses*. Here I was able to bring my methodology to bear on a very different problem – visitor orientation. This was to be my first application of the 'playful design' approach that I would later recognise and ground in theory. At the time it allowed me to be more creative in my data collection and analysis methods. For instance, in the observation of visitor walking trails, I mounted a video camera in the central tower at Chatsworth, to obtain a widescale view of the landscape. My aim was to have the video automatically processed to map visitor trails over time, but in practice this was not possible and a manual version of plotting trails on graph paper for each visitor was used. This allowed me to overlay trails and get a rich map of footfall before and after the playful intervention. We also collected and analysed closed questionnaires (n=100). This project was an interesting example of both a *practice-led* and *practice-based* methodology (as defined by Candy, 2006), as the intervention became the basis of a contribution to knowledge (playful design) and yet also led to new understanding about practice: Chatsworth House used the resulting data to redesign their visitor signage.

The linking of practice to theory was supported, throughout these projects, with targeted reviews of existing literature at the formation stage. As an example of my approach, the following overview of a targeted literature review was used for the study in Chapter 6 ("Deconstructing Engagement"):

> I adopted a highly structured approach, selecting the largest relevant databases to cover a wide range of disciplines and both Europe and the US. I then used the following search terms to identify relevant articles:

Search aim:	Engagement	Games	Learning
Search terms used:	Engagement / engaged Motivation / motivated	Game / game-based Serious game Learning game Play	Learning / learner Student Education Class / school / university

Table 2: Search terms used for 'Deconstructing Engagement' literature review

> This resulted in 342 articles, which were subsequently refined to 173 using the following criteria: peer reviewed; theoretical in basis (ie. not a case study, evaluation of effectiveness of a learning game, etc.); relevant to a theoretical consideration of 'engagement' for learning games.

Each of the research techniques and methods described above have evolved alongside my research and practice, and I have undertaken an *action research* approach at both an individual project, and overarching (feeding between projects) level. I have focused on co-design wherever possible, and have adopted a mixed-methods approach to data collection and analysis, as appropriate to the project and problem identified.

The previous two sections have focused on my own theoretical and practical approach to the field of games, play and learning. In the next section, I will take a critical look at this field of study, to provide context to my own work.

Games, play and learning: a critical overview

Games have been used within adult learning contexts for centuries, stretching at least as far back as the early war games in use in China from 3000BC (Wolfe, 1993) although the first formal 'educative' game with a rulebook is generally agreed to be *New Kriegspiel* invented in 1798.

In more recent times, the use of games in adult learning has spread to other contexts and (with the rise of digital computer games from the 1970s onwards) across different media. Based on my knowledge of the sector, their use now falls into the following broad areas:

- Existing, 'off the shelf' games are used within learning contexts. For example, the video 'game' *Spore* has been used within Biology classes to help students' conceptual understanding of evolution (Schrader et al, 2016);
- Existing games are adapted or modified to incorporate learning elements. The digital roleplaying game *Neverwinter Nights* has been 'modded' (modified) to teach students about simple chemistry and transferable skills (Loh & Byun, 2009), amongst other applications; as has *Minecraft* (Callaghan, 2016).
- Games are created specifically for learning. These might be non-digital games (see Moseley & Whitton, 2013 for a wide variety of forms and applications) or digital games, such as *Triskelion* (on time-management) or *World Without Oil* (on global socio-economic crises).

The final category is often referred to as 'serious games': a concept that differs from playful learning in approach and ethos, as I shall describe below.

Serious Games

Since the late 1990s, there has been a growing tendency to create high-end games and simulations (or game/simulations) designed specifically for learning. These became known by the somewhat paradoxical term 'Serious games' (Djaoti et al, 2011), boosted by the creation of the Serious Games Initiative at

the Wilson Centre in Washington DC in 2002 (http://www.seriousgames.org/). Whereas games are designed for play, serious games are designed with a different objective in mind – such as learning (see De Freitas, 2006).

Based on my research, I argue that the Serious Games movement has had a prolonged negative effect on the use of games and playful experiences in higher education, for the following reasons:

1. The movement focuses on high-end digital games, built by technical developers. Usually funded through research grants or commissioned work, this pushes costs into five or six figure sums (a popular European serious games company estimates Euro 40K – 120K for a small to medium game development[2]) and has the effect of putting serious games beyond individual teachers or teaching teams, as well as implying that learning games *require* money, time and highly technical expertise.
2. Serious games have been designed mostly for use in military training (*America's Army* being one of the largest serious games in both cost – at least $7m – and player base – 1.3m registered users - Zyda et al, 2003) as well as in health and wellbeing and professional (business) training (the two largest subjects identified in Calderón & Ruiz's 2015 study of serious games evaluations), practically-focused disciplines with an existing reliance on simulation. Their offer to other, more theoretical, disciplines has been less clear.
3. The focus on 'seriousness' is at odds with the playfulness inherent in a game that is designed for play. By focusing on the serious, non-play objective, the resulting games polarise this serious/play dichotomy to their detriment; quite the opposite of a balanced game that might be interesting, informative, playful and enjoyable to play. In a recent investigation of how serious games meet the needs of yoing people, Sanford et al (2015) found that they found the games more "comical" (p103) that useful, that "there is a reliance on the teacher and the lesson plan to explain the game's serious

[2] Quotes obtained from https://www.ijsfontein.nl/ August 2018.

message" (p103) and that "what appears 'serious' or 'good' to us might be different for the youth" (p104).

4. Due to the power relationships in serious game development (money and technical ability on the game development side; academic input on the other) the resulting games tend to be heavily influenced either by academic input (resulting in a poor *game*) or by game developer input (resulting in poor *learning*).

Serious games are still developed and used today, but they have been overshadowed in recent years by the rise of another movement: gamification.

Gamification

In the last decade, *gamification* - the "use of game design elements in non-game contexts" (Deterding et al., 2011 p3) - has overlapped the serious games movement with the offer of an easier way to harness the power of games for other purposes (including learning). To determine how effective this has been, it's worth considering the two design fields that coalesce when games and learning are brought together:

In the **game design** sphere, good games (as rated highly by the players on sites such as IGN, Metacritic or Boardgamegeek) tend to be those that work as games in all aspects. Their *core*- and *sub- mechanics* (such as rules, goals, game type, scoring system, narrative, characters) all combine together as a well-designed whole. They reach this status through extensive, iterative playtesting and user feedback, that hones the design to create *balanced* gameplay (Schell, 2008 pp171-205). Games that are poorly designed (ie. are not balanced) are quickly found out when released to players – and this can happen for games developed by independent designers or big budget commercial game design companies alike. To wit, the lowest published user ratings[3] on Boardgamegeek are for *Oneupmanship: Mine's Bigger* by a crowdfunded independent designer, and on Metacritic are for *NBA Unrivaled*

[3] Based on games with more than seven reviews. Information correct as of 7th December 2017, from www.boardgamegeek.com and http://www.metacritic.com/

on the Playstation 3, by commerical design company Temco. In both cases all of the reviews mention poor game design or gameplay.

Learning design works on the same basis: effective, engaging courses come from well-designed curricula, where the aims, topics, assessment diet, resources and delivery all work together to create a coherent learner experience ('constructive alignment' as described by Biggs, 1996). In much the same way as games, poorly designed or delivered courses might attract learners through an institution's existing good reputation and marketing, but ultimately will be criticised through student feedback, appeals or external surveys and scrutiny.

It comes as something of a surprise, then, that so much emphasis has been placed on the potential of *gamification*. Contrary to the existing designed approach used in both game design and formal education, gamification is, as Woodcock and Johnson note in their critique of the approach, "increasingly – and uncritically – being applied to new fields, in the process finding new champions who herald the supposedly transformative potential. It is commonly treated, much like contemporary digital technology as a whole, as an inherently and unproblematically *progressive* force." (Woodcock & Johnson, 2017 p2). Illustrating this point, the Gartner Hype Curve[4] (which tracks major trends and interests in technology) has listed gamification four times since 2011, though each time in its 'minor impact' category (from data compiled by Mullany in 2017[5]). In the business and cultural sphere, gamification has been applied to almost every aspect of modern life: from supermarket or coffee vendor 'reward cards' to social media 'likes' or follower counts, and even to household chores (www.chorewars.com). The latter applications have drawn criticism from game design experts, in particular Ian Bogost who developed his own spoof gamified social media app, *Cow Clicker*, and was appalled at its subsequent popularity (Bogost, 2016 pp207-211). In educational contexts, successful

[4] The Gartner Hype Curve is an industry technology tracker, which displays different technologies over five stages of their application worldwide. http://www.gartner.com/

[5] Michael Mullany, Icon Ventures. Compiled data set of Gartner Hype Curve technologies. Available: https://docs.google.com/spreadsheets/d/1NkC0g60q-6w72nksayvdfzCT5oOmBy97XBCGw-tW1p8/edit#gid=0

implementations are particularly hard to find. I discovered a few successes that focus on leaderboards in Chapter 4 but a review of published evaluations of gamification in education contexts by Hamari et al. (2014) found scant evidence of any real impact on learning, compounded by a generally poor standard of investigation methodologies.

Bogost's provocative exercise gives us another way to approach gamification however. Woodcock and Johnson (2017) draw on Draper's (1966) notion of 'Socialism from above' and 'Socialism from below' to see the potential for reversing the default layering of gamification upon an existing practice. Instead of accepting an imposition of systems (which might be game-based but certainly not playful), communities might subvert, mock or corrupt such systems from below, twisting them into useful agencies for the good of the community (Woodcock & Johnson, 2017 p3). They provide a business example of call centre agents who challenge each other to secretly introduce spurious words into their calls (op cit, p9), in direct opposition to the game-like metrics imposed by the company. Flanagan (2009) describes this subversive yet creative behaviour as 'critical play'. In education, we can find this behaviour in students who strategically target key elements in the published marking criteria (themselves a form of gamified imposition), rather than writing a coherent critical original article (behaviour first described by Ramsden, 1979 and described as 'strategic' in Entwistle & Ramsden, 1983). Whilst Woodcock and Johnson describe this as 'gamification from below', and Flanagan would see it as a form of 'critical play', I suggest also that it represents a *playful approach* to work, to counter the purely *game-based approach* employers are now taking (see 'Why now?' below). Kenny et al. (2017) suggest that students themselves can use *playful design* methods to create more meaningful gamification, that in turn generates self-efficacy for them to be successful in such gamified approaches: a more planned, but equally playful, form of 'gamification from below'.

Why now?

So, on the back of two decades of targeted but ultimately flawed learning game movements in the form of serious games and gamification, why are games and play important for adult learning *now*?

We are now in a unique period, where culture is increasingly gamified through casual games, game shows, supermarket points, social capital through followers, likes, and other metrics (Raessens [2006, p53] has described this as the "ludification of culture"), and where universities are facing increasing dissatisfaction with traditional teaching methods in the light of rising fees and a growing consumer approach from students and the sector. In the workplace, too, employers are now looking for 'softer' less discipline-specific skills, such as team work and problem solving (highlighted in UNESCO's Youth and Skills report, Aring 2012; and described in Brookes, Moseley & Underwood, 2012).

Games – or the wider concept of *play* – are, I argue, perfectly placed to meet these contexts underpinning modern adult learning. The study of games and play, and their potential for learning, is one that must transcend traditional disciplinary boundaries. To gain insight and understanding of the overlap between game design and learning design, we must understand both areas as theoretical and practical concepts, and draw on other perspectives as needed to combine them effectively. As someone who has worked in learning design for 20 years, games design for ten, and has already developed successful learning games or playful experiences (see the *Great History Conundrum* in Chapters 4 and 10; *Pervasive Learning Activities* in Chapter 11; *Of Course!* in Chapter 16 and the *Chatsworth Landscape Lenses* in Chapter 18), I am one of only a few researchers internationally that focus particularly on adult playful learning, and have collaborated, and exchanged ideas with, the other main thinkers and practitioners in the field.

In the following section, I will consider how my own research and practice have made an evidenced case for playful learning, by situating my published works within the context of current research themes. Collectively, they offer a compelling alternative to 'gamified' or 'serious game' approaches.

Chapter summaries and research themes

Part I: Engagement, Motivation and Immersion

Over the last two decades, any quick search around the topic of games, play and learning would produce a range of claims, commentaries and opinion pieces that all focus on one clear benefit of bringing these fields together: *increased motivation to learn*. This is a rhetoric still voiced to this day, with continued scant regard to the growing body of actual evidence from games-based learning approaches that we are now able to consult (see reviews of the available literature in Hainey et al, 2016 which focuses on primary education, and Minović et al, 2013 for adult learning) and which describe many discipline-based aims and outcomes. Even entering the maturing realm of evidenced study, a number of projects have set out with the assumption that motivation is either the key aim or anticipated outcome (eg. Kiili, 2005, Park et al, 2011).

As I found during my survey of the field for Chapter 6, motivation is much more complex than this rhetoric suggests and, indeed, the term 'motivation' can become a barrier to well-designed playful learning approaches as it reduces the perceived offer and results in poor learning design ('let's play a game in that session: that will motivate them!'). It is more useful to consider motivation as an element of *engagement*, which covers a much wider range of emotions and can describe connection with a learning task on a number of practical and cognitive levels, as I explored in Chapter 6. A learner's, or a game player's, engagement with a task will vary depending on a number of factors. Some of these will relate to the design of the task certainly, but others relate to the learner's existing experience, their preferences for certain topics, tasks or methods, their local context (time, social or other factors), and so on. Put more bluntly in game design terms: whilst a visceral third-person shooting game might engage one player utterly, it might equally repulse another who doesn't like violent games, and there are far more nuanced preferences for every player/learner.

My own interest in the use of games in a learning context was kindled by a sense that engagement in games was worth a closer look. As detailed in Chapter 2, I was taken by the high levels of engagement evident in players of an *alternate reality game* (ARG) I had encountered, when comparing their levels of research activity with the undergraduate historians I was teaching at the time. Taking a participant-observer role, I observed the activity of the most active players and developed a semi-structured questionnaire which I sent to fifty such players to find out what was motivating them to continue to play the game up to two years after it had started. This approach gave a detailed insight into what promoted and sustained engagement for those already interested, and produced a set of *key features* I have found very useful in later work (see Chapter 2 for a full description):

- Problem solving at varying levels
- Progress and rewards
- Narrative devices
- Influence on outcomes
- Regular delivery of new problems/events
- Potential for a large, active, community
- The use of simple, existing technologies/media

This study was early in my research career and so the design and execution missed out on the opportunity to target the less interested or active players, or those who engaged for short periods but then fell away. However, when applying these key features to my practice I found that they improve student engagement across a wider group than just the most active learners. For example, in a study of the *Great History Conundrum* I found that the majority of learners were engaged at a high enough level to not only to pass, but to achieve very high marks (see Chapter 4).

I first used these *key features for engagement* as the basis for a detailed redesign of an undergraduate History course (the *Great History Conundrum*). Designed and implemented using a mixture of game design and pedagogic design approaches, the initial results are described briefly in Chapter 3 (with

further evaluations of the design process in Chapter 10 and a focus on the assessment design in Chapter 4). The course has had impact across my own institution (now used in Archaeology and English courses) and, through interest in the History sector, has also now been taken up by Sheffield University History department.

I was not the only educator to be struck by the potential of ARGs in a learning context. Through my teaching role on a Museum Studies programme, I had made a number of links to museum education, and based on these I investigated four examples of museum ARGs, as described in Chapter 5. In each case, the museums were responding to a change in the museum sector towards more participatory approaches (catalysed by Nina Simon with her book *The Participatory Museum*, 2010). Through structured interviews with two of the designers, I explored how the design and implementation processes meshed with more traditional museum structures. There were a number of parallels to draw with the difficulty I had experienced in developing my own game within a higher education curriculum, and these issues resonated with the sector, leading to a number of consultancy roles with museums in the UK and Denmark who asked me to work on the immersion aspects of their ARG-type installations. Immersion (in the realm of deep engagement: see below) and its prevalence in ARGs was to become a feature of my later research and practice (see Part II).

The complex area of 'motivation/engagement' was one that needed demystifying and recasting if playful learning was to mature as a field. My long-time research colleague Nicola Whitton at Manchester Metropolitan University and I edited a special issue of the principle games-and-learning journal *Simulation and Gaming* on the topic, questioning whether 'engagement with learning' and 'engagement with games' could be synonymous (Chapter 6). Through an extensive literature review we uncovered a complex, varied and conflicted approach to 'engagement' within education, with the more modern interpretations (Lanasa et al, 2009; Buckley, 2013) taking a stratified approach, breaking engagement up into 3-5 aspects that relate to the learning experience and might therefore be measured through observation or surveys. In the game

design field, engagement is more synonymous with 'immersion'- a focus on the individual and their connectedness to the game (and also the basis of Csikszentmihalyi's flow theory, 1992, widely used in games design). When the fields coalesce in game- or play- based approaches to learning, the behavioural aspects of engagement (those that can be evidenced through overt action, such as time on task or quantity produced) can be measured and tested. However we found that other, less overt/tangible aspects of engagement (particularly those intrinsic to the learner, and including personal motivation) have, so far, not been considered or measured effectively. We found, therefore, that engagement as a whole – and certainly motivation as an aspect – cannot be reliably linked to learning performance. The articles curated in the rest of the special issue began the process of moving towards a more useful consideration of engagement, and we developed a typology of engagement terms to help focus and clarify further study:

Superficial engagement	Participation	Engagement as doing
	Attention	Engagement as commitment
Deep engagement	Captivation	Engagement as enthralment
	Passion	Engagement as feeling
	Affiliation	Engagement as belonging
	Incorporation	Engagement as being

Table 3: A typology of engagement

When conducting the field-wide analysis, and working with the submissions to the special issue, it became clear that most work in this area has been in measuring, describing, sustaining and increasing engagement (or investigating a decrease). What remained a mystery was the *initial* point of engagement: the *invitation to play*. What leads some learners to accept an invitation to engage readily, and others to ignore, reject or simply not see the invitation? I found it useful to return to the metaphor of the magic circle: focusing on the edge of the circle – sometimes sharp, other times fuzzy. Crossing in to the circle

involves an acceptance of new rules, and marks a change in approach for each person. An invitation therefore has to make this change attractive to each individual. I considered this area in a thought piece for the *Power of Play* in 2017 (Chapter 7), suggesting that the magic circle has to be both visible (so that the benefits of the playful experience can be seen and measured by those outside) and invisible (so that crossing into the circle is as effortless as possible). I suggested three practical ways of doing this effectively:

- Ensuring the environment is open to, and invites, playfulness. Drawing on Huizinga's original notion of a *playground* (1955, p10) which might be "the card-table… the temple, the stage", and expanded by Sicart (2014, pp49-60) to more contemporary spaces like adventure playgrounds, or digital creative spaces; this could include playful architecture, furniture, signage, markings, etc..
- Working with leaders and managers to help them to see the value of a playful approach to learning. By exhibiting the value of playful learning through tangible skills development such as problem solving and creativity, such approaches might gain respect and, in turn, a more fertile ground for further approaches within a given organization.
- Focusing closely on the increasingly diversified genre of gaming known as *pervasive games*. Coming out of the *alternate reality game* genre (the subject of my earlier studies), pervasive games take the blurred edge of the magic circle and apply it in a variety of real world situations, such as city/street games (where the playground is the city, and players work around and with non-playing pedestrians). Whilst the games themselves are not attractive to many, their *invitation* methods are of particular interest as they mesh with real life (such as a text message, or chalk mark on a pavement), making the edge of the magic circle either invisible or mutable (Montola describes pervasive games as those which "expand the contractual magic circle of play spatially, temporally, or socially" 2009, p12). My long-term interest in how learning can draw from the design elements of pervasive games is unique in both educational and game

design fields, and is at the heart of much of my major work and my contribution to knowledge (as will be described in Parts II and III).

Part II: Playful Approaches to Design

We know that play, games and game design methods have the potential to influence the design and implementation of learning activities in interesting ways; indeed, these two fields have been linked together for centuries (as briefly described in Chapter 8).

How this influence is utilised, and whether it is used successfully, is open to more debate. Through my own work across the two sectors, I have encountered three broad approaches that use play and game design methodology in increasing levels of embeddedness.

First level: applied/layered (explicit)

As discussed above, in recent decades the prominent approach has been to apply game elements directly to non-game activities, with unconvincing results (serious game simulations and gamification fall into this category). Most importantly, the wider learning context is not considered in the design of the gamified activity, and as a result design choices might not align with learning aims, the activity might stand out as a different approach that does not align well with the surrounding curriculum. In (Chapter 11) Simon Brookes and I described this mis-alignment as a *contextual gap* that can open up between the learner and the game: where learners struggle to identify with real world problems and apply knowledge to them.

At this level, the play/game elements are *explicit*: obvious to the learner and used in much the same way as they would be in a game. It is as if the learner stops an activity, plays a game and knows that they are playing a game, and then returns to the first activity or begins a new one.

Second level: integration (implicit)

The second level of embedding occurs when the play or game elements are linked to the learning elements at the design stage: the activities are designed to fit naturally within the curriculum, but draw *implicitly* from play or game design to influence their implementation.

Integration in the curriculum is not in itself difficult; it is the structures and people around the curriculum that pose the greatest barrier, initially, to the integration of play or game-based approaches. As detailed in Chapter 10, it is the attitudes and inherent conservatism of staff and students on the course, institutional quality and reputation aspects, and administrative processes that provide the context in which a curriculum is formed and followed.

To overcome this, and create a useful design for learners, I have found it helpful to work within existing academic models and structures: programme aims, intended learning outcomes, and assessment. There are closely related concepts in game design (detailed in Chapter 10), particularly around assessment and feedback. Competition can be problematic in some contexts and for some people, yet when combined with collaboration and designed with game principles it can become appealing to most learners and offer some compelling learning opportunities (Chapter 12).

Another strategy for the integration of play or game-based approaches can be to focus on traditionally problematic parts of the curriculum: induction, career development, etc., where staff tend to be less conservative or precious of existing provision (Chapter 10).

If designed closely with the needs of the curriculum, the resulting implementations are likely to fit within existing quality requirements, and will be acceptable and familiar to staff and students. Given the lack of funding for learning developments across most learning institutions, implementation does not need to be via high-end digital methods - simple low-technology approaches can be equally as effective when designed in this way (as detailed in Chapter 14).

Third level: playful design (inherent)

The final and highest level of embeddedness occurs when a *playful*, or game-based, *approach* is used when designing curricula. This extends beyond the use of game mechanics, to incorporate *playful principles* and a *playful attitude* to the design process - the playfulness is then *inherent* within the final curriculum.

I used this approach when redesigning assessment for my History course (Chapter 4), drawing on 'in-game' assessment approaches in games, and then using those as design frameworks (including principles of continual feedback, scores directly linked to activity, and bonuses for exceptional performance). The resulting activities within the course were readily accepted by both students and staff and (in the students' case) highlighted as the most motivating element of their course. Lee Sheldon (2011) used a similar design-based approach to his course – basing his curriculum on 'levels' and 'experience points' rather than marks and grades.

To encourage colleagues to take a similar approach to design, I developed a board game (*Of Course!,* discussed in Chapter 16) that invites course teams to test different approaches to course design. Many will fail (sometimes due to sabotage by other 'players'), but failure is valued and continued experimentation creates meaningful and lasting impacts on curriculum design.

This playful approach to design has been used in other contexts, for instance when designing museum foyers using a board game and colourful characters based on real visitors (Chapter 18). But playfulness could be used at various levels as most appropriate to the design focus - in the museum foyer exercise the *foyer* was a game board, but equally the *design process* could have been a game board, or the *people* characters in a story. At Chatsworth House, I imagined the whole landscape as playground, and the design of the directional signs followed from that (using playful guides such as surprise, investigation, exploration) (Chapter 17). This invites the visitor to become a player, and adopt a playful approach to wayfinding. The Chatsworth House project was AHRC-funded, and was my first full ethics approved, research designed approach to

observation. Pre- and post- installation questionnaires were developed, and a team of trained observers and interviewers recorded visitor behaviour and reflections, which were subsequently analysed for both qualitative comments and quantitative feedback.

In more recent work, I have been using LEGO Serious Play™ (Kristiansen & Rasmussen, 2014) to approach highly complex problems. The method is based in play and imagination, and I have found it valuable as a design and investigative tool to explore an institutional 'sense of belonging', to re-organise research groupings, and to consider staffing skills and work roles.

Part III: Contexts and Play

I identified a 'contextual gap' (chapters 8 and 10) between real life and student learning. Many traditional approaches to bridging this gap are to create ultra-realistic simulations or serious games, which have a number of problems as discussed above; and also suffer from what Karl MacDorman has described as the *Uncanny Valley Effect* (Chattopadhyay & MacDorman, 2016). Although aiming for and approaching reality, they're not quite real enough (a problem found also in film and robotics).

Instead, I found that focusing the other way and using very simple games can develop highly realistic contexts through the use of real roles, narratives, scenarios, tools and methods (Chapters 8 and 11): the idea of *thick description* as described by Gilbert Ryle (1968). The use of such simple realistic elements set up an *epistemic frame* (as described by Shaffer, 2005) for the learner, which – if coupled with the playful design of activities – can create an *epistemic game*: where activity operates within the realm of realistic context. The fidelity of the 'reality' is then not in generated graphics or scenes (and therefore avoids the 'Uncanny Valley Effect'), but in the realism of the activity itself.

I explored different applications of this approach, from simple card and board games (Chapter 16) through to a full 10-week course designed playfully as an epistemic game. Working with Simon Brookes at the University of Portsmouth

we devised this course as a *Pervasive Learning Activity* (PLA; Chapter 11), where enterprise students work with 'real' companies, access 'real' websites and data, and receive 'real' emails and letters from CEOs and marketing companies (all created and managed by the course tutors). The course has been running successfully since 2011, and successful courses have also been designed using the PLA approach at the Universities of Leeds and Bangor (Brookes, Moseley & Underwood, 2012).

Based on these different implementations, and research into other related approaches, I developed a typology of methods for incorporating realistic contexts in learning (Chapter 19): identifying a range of playful approaches that could work across any curriculum.

This focus on realistic contexts for learning, and the role simple playfulness and games can play in them, presents a marked change in a field focused on – at the high end - the production of expensive simulations, and – at the lower end – the 'quick win' approach of gamification.

Are Games and Play useful approaches for Learning?

As might be expected from a ten-year span of research within the two rapidly-changing fields of learning and game design, the focus and themes collected in this thesis might be visualized as branches spreading out from a central trunk: with some short spurs and others developing their own branches and new growth. Running through the trunk is the initial question that sparked my interest: does game design provide useful lessons we could learn from in contemporary adult education? To solve our current problems of a growing 'consumer' approach within education, and a need for hybrid skill sets in a world of increasingly 'ludified' culture (see 'Why now?' above)? Over time the initial answer to this question - yes it does - has matured into an exploration of *meaningful* learning experiences when playful principles and game design approaches are used in adult learning contexts.

In order to be *meaningful* and successful in the current adult education context, any approach to learning must, as explored in each major section of this thesis:

- provide **engaging** experiences for students (Part I)
- be **embedded** in the educational and cultural context, and therefore accepted by the community of senior managers, staff and students (Part II), and
- be **authentic** to the disciplinary and contemporary world contexts (Part III).

Each of these dimensions, and their relevance to contemporary adult learning, is summarised below:

i) *Engaging* learning: Inclusion in Design

As described above and in Chapter 6, engagement is a complex mixture of participation, attention, captivation, passion, affiliation and incorporation. An individual student's engagement with a learning experience is therefore highly contextualized, and shaped by personal, social, environmental, temporal and other factors.

To encourage engagement for more students, more of the time, therefore requires careful design. Elements that are known to be motivators/de-motivators (such as overt competition or social collaboration) need to be balanced. Here, games design provides an excellent model as the industry's drive to create immersive 'fun' experiences (Koster, 2005) also requires designing for a wide set of player skills and abilities, and game 'balance' is a key element of designing a successful game.

This focus in games design offers an important lesson to learning design approaches. There is more nuance in game design than in some current educational approaches, such as 'learning styles' which have been criticised for their simplistic placing of learners in fixed types (see eg. Reynolds, 1997), whereas in fact a learner might change their approach to learning many times

over the course of a day, week, or term, depending on other contextual factors.

Here too, the 'blurred edge' to the magic circle – especially the low entry point of pervasive games – offers a compelling lesson for learning design. If we can make the 'entry' to learning almost invisible, or natural, and the division between learning / not-learning as easy as possible, we could provide experiences that fit better with the lives of modern learners, who also operate in family, friend and work groups demanding attention.

The introduction of game design principles to learning design therefore can reduce the barriers to entry, and encourage continued engagement through careful design of experience that speaks to all learners.

ii) *Embedded* learning: an integrated approach

Adult learning in higher and further education in many parts of the world, the UK and US included, is increasingly formalized, with national foci on quality standards and processes. For staff at a local level, such structures are often seen to stifle new approaches to teaching, or to make it difficult to innovate, with any new methods having to fit into formal approval processes (a problem identified by Vice-Chancellors as a barrier to innovation in the Higher Education Survey 2015[6]).

Playful approaches therefore need to offer innovation within the bounds of existing quality processes, in order for staff and students to see them as valuable and relevant. As already discussed, a bolt-on approach (like gamification) is not going to fit this need, nor are 'intervention' type approaches, where students play a game disconnected to learning either side. A *designed* approach that can be embedded within existing systems, that either playfully approaches learning design or brings game design and learning design together, is more likely to be accepted in an adult learning context.

[6] An annual survey of University Vice-Chancelllors in the UK. The 2015 report focused on innovation: https://www.paconsulting.com/insights/higher-education-report-2015/

iii) *Authentic* contexts for learning

As discussed above and in Chapter 10, higher education institutions are acutely aware of the need to link skills, knowledge and practice to the real world (to meet employability targets or 'graduate outcomes'), but learners on many existing programmes suffer from a 'contextual gap' between theory and applied practice in a real context. Learning experiences therefore need to become more *authentic* in relation to the real world.

As previously discussed, traditional responses to this gap have been – in the more practically-based disciplines – approached either as discrete experiences such as industry placements, site visits or other work experience at points in a programme, or in the form of high-cost digital simulations or 'serious games'. Over a wider disciplinary context, these approaches are not always possible – and indeed high costs of any of these activities mean that they will always be limited and targeted at areas of most need.

My own practice and investigations have found that simple, inexpensive games can provide authentic contexts for learning (above and Chapters 9 and 16), offering a compelling alternative to the traditional approaches. Drawing on the design features of pervasive games that encourage a 'suspension of disbelief' (a term first used to describe reader immersion in poetry by Coleridge in 1817, and used widely in the discussion of fiction or fantasy in games and film) such approaches also therefore provide potential for learner immersion (deep and extended engagement). By designing simple games that build an *epistemic frame* from the desired real environment - or in other words use the same scenarios, tools, methods, artefacts and approaches – such learning games can develop highly authentic experiences within any discipline, embedded into the curriculum, and at relatively low cost.

Playful Learning

The above three dimensions (engaging, embedded, authentic) and my response to them throughout the chapters in this thesis, all contribute to a common approach that can be described as **playful learning**. Such an approach might be described by the following ethos:

- taking a design-centred approach
- embedding rather than discrete intervention or layering
- drawing on theories of play, learning, and the intersection of these
- adopting a playful attitude

The first three elements might be seen in opposition to the fourth, using Caillois' definition of play as 'free' and 'uncertain' (Caillois, 2001) but in fact playfulness doesn't preclude the adoption of rules or frameworks – in much the same way that children at play might create a narrative arc. What a playful attitude does is *allow* and *promote* approaches around the normal structures such as accepting failure as part of a learning process. It supports freedom to experiment, assuming that a process should be inclusive and engaging for all involved.

There are historical instances of where a playful design approach has helped research and development. For example, the Xerox PARC design lab in the 1970s[7] where standard office furniture was replaced with beanbags and game tables. Or the Nobel Prize–winning scientist Alexander Fleming who approached his research like a game, noting that "I play with microbes" and "... it is very pleasant to break the rules and to be able to find something that nobody had thought of." (Bateson, 2014).

A playful design approach also provides space to explore critiques of the 'system' - Woodcock & Johnson (2017), Flanagan (2009) and Draper's (1966) notion of designing 'from above' and 'from below' - that might result in creative (/playful /gamed) approaches to fitting learning activities into a regulatory or quality structure. Such an approach would be attractive to a growing number

[7] http://www.computerhistory.org/revolution/input-output/14/348

of staff and students in institutions who find the regulatory and quality agenda challenging to marry with effective teaching and learning.

Conclusion

As summarised within this opening chapter, and detailed in the following publications, my own research, practice and work with other experts in the fields of learning, games and media, provide a strong case that playful learning can be *engaging*, *embedded* and *authentic*.

My own research, practice and teaching have been equally crucial to this approach over the last ten years. By feeding my research ideas directly and playfully into my teaching, and the results of teaching into my game designs, I have tested and generated new thinking that has fed back into my ongoing research. This research-practice-teaching nexus has, in itself, been playful at heart, and allowed me to challenge and disrupt existing structures in order to find new design and delivery approaches.

As important has been the involvement of other thinkers, designers and participants: some of them contributing directly to the chapters in this thesis. The process of negotiating and developing ideas with others has been an ideal way for me to test and strengthen my own approach and my understanding of the concepts laid out across the thesis. In particular, my work with the games industry and game designers has provided important contrasts that have challenged my established pedagogic frames of reference.

The results of my research provide a contribution to knowledge in three areas:

1. the study of the 'blurred edge' of a magic circle of play evident in pervasive game forms, and key design features of these games that can transfer to a learning context to ensure lower barriers to entry, and better learner **engagement**;

2. the use of play and games to resolve current higher education problems of student inclusion, engagement and employability, by offering inexpensive yet well-designed and **authentic** solutions within curricula;
3. the development of a playful design approach, that offers teachers and researchers a way to introduce innovation and experimentation back into quality-and-standards-based education, through a focus on the local context and an **embedded** curriculum-level approach.

These contributions are important in both learning design and games design, as they challenge the binary approaches that have affected, and still are affecting, both fields. Playful learning *blurs the edges* between serious/fun, learning/playing, researching/teaching, and education/real-world; and provides a way to negotiate this space meaningfully and practically.

I have, as evidenced in this thesis, already embedded *playful learning* into my own practice. Through publication of theory and practice in this area, and by dissemination of the approach through a special interest group (Playful Learning SIG) and conference (Playful Learning) – both of which I co-chair – I am encouraging and supporting others to apply playful learning to their own practice. As more examples of playful practice emerge, and the collective of practitioners and researchers grows, the field will strengthen and start to challenge the current trend towards business-process oriented quality-and-standards-based higher education.

References

Aring, M. (2012) *Skills Gaps Throughout the World: an analysis for UNESCO Global Monitoring*. UNESCO Reports. Available: unesdoc.unesco.org/images/0021/002178/217874e.pdf [accessed 12/2/2018].

Biggs, J. (1996) "Enhancing teaching through constructive alignment". *Higher Education*, 32, pp347-364.

Brookes, S., Moseley, A. & Underwood, S. (2012) "Contextual Games: Pervasive Learning Activities in Enterprise Education (a case study)." Presented at the *ISBE 2012 Conference*, Dublin, Ireland, 7-8th November.

Bateson, P. (2014) "Playfulness and Creativity". *Current Biology*, 25:1, ppR12-16.

Bogost, I. (2016) *Play Anything*. Basic Books: New York.

Buckley, A. (2013). *Engagement for enhancement: Report of a UK survey pilot*. Higher Education Academy: York.

Callaghan, N. (2016) "Investigating the role of Minecraft in educational learning environments". *Educational Media International*, 53:4, pp244-260.

Calderón, A. & Ruiz, M (2015) "A systematic literature review on serious games evaluation: An application to software project management". *Computers & Education*, 87, pp396-422.

Caillois, R. (2001) *Man, Play and Games*. New York: Free Press.

Candy, L. (2006) *Practice Based Research: A Guide*. CCS Report, Nov 2006. Creativity & Cognition Studios, Sydney. Available: https://www.creativityandcognition.com/resources/PBR%20Guide-1.1-2006.pdf [accessed 27/8/2018].

Chattopadhyay, D., & MacDorman, K. F. (2016) “Familiar faces rendered strange: Why inconsistent realism drives characters into the uncanny valley”. *Journal of Vision,* 16(11):7, pp1–25.

Coleridge, S.T. (1817) *“Biographia literaria or bio-graphical sketches of my literary life and opinions”*. Available: http://www.gutenberg.org/ [accessed 4/4/2018]

Consalvo, M. (2009) “There is No Magic Circle”. *Games and Culture*, 4:4, pp408-417.

Csikszentmihalyi, M. (1992) *Flow: the classic work on how to achieve happiness*. London: Random House.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011) “From game design elements to gamefulness: defining gamification”, in *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, September 28-30, 2011, Tampere, Finland, ACM, pp9-15.

De Freitas, S. (2006) *Learning in Immersive Worlds: A review of game-based learning*. JISC Report. Available: http://www.jisc.ac.uk/media/documents/programmes/elearninginnovation/gamingreport_v3.pdf [accessed 12/10/2017]

Djaouti D., Alvarez J., Jessel JP. & Rampnoux O. (2011) “Origins of Serious Games” in M. Ma, A. Oikonomou & L. Jain (eds) *Serious Games and Edutainment Applications*. Springer, London, pp25-43.

Draper, D. (1966) “The Two Souls of Socialism”. *New Politics* 5:1, Winter 1966, pp57-84.

Elliot, J. (2001) *Action Research for Educational Change*. Reprint 2001. Open University Press: Milton Keynes.

Entwistle, N. & Ramsden, P. (1983) *Understanding Student Learning*. Croom Helm, London and Canberra.

Flanagan, M. (2009) *Critical Play: Radical Game Design.* MIT Press: Cambridge, MA.

Glaser, B.G. & Strauss, A.L. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Publishing Company: Chicago.

Hainey, T., Connolly, T.M., Boyle, E., Wilson, A. & Razak, A. (2016) "A systematic literature review of games-based learning empirical evidence in primary education" *Computers & Education*, 102, pp202-223.

Hamari, J., Koivisto, J. & Sarsa, H. (2014) "Does Gamification Work? - A Literature Review of Empirical Studies on Gamification". *Proceedings of the 47th Hawaii International Conference on System Science*, pp3025-3034.

Huizinga, J. (1955) *Homo Ludens* (reprint). Beacon Press: Boston.

Kemmis, S. & McTaggart, R. (2000) "Participatory action research" in N.K. Denzin & Y.S. Lincoln (Eds), *Handbook of qualitative research*, 2nd edn. London: Sage, pp. 567–607.

Kenny, G., Lyons, R & Lynn, T.G. (2017) "Don't Make the Player, Make the Game: Exploring the Potential of Gamification in IS Education". Presented at the *Twenty-third Americas Conference on Information Systems,* Boston, 2017.

Kiili, K. (2005). *On Educational Game Design: Building Blocks of Flow Experience.* Tampere University of Technology, Publication 571.

Koster, R. (2005). *Theory of Fun for Game Design*. Paraglyph Press: Scottsdale, AZ.

Kristiansen, P. & Rasmussen, R. (2014) *Building a Better Business Using the LEGO SERIOUS PLAY Method*. Wiley: New Jersey.

Loh, C. S., & Byun, J. H. (2009) "Modding Neverwinter Nights into serious game" in D. Gibson & Y. K. Baek (eds), *Digital Simulations for Improving*

Education: Learning Through Artificial Teaching Environments. IGI-Global: Hershey, PA, pp408–426.

Minović M., Milovanović M. & Starcevic D. (2013) "Literature Review in Game-Based Learning" in M.D. Lytras, D. Ruan, R.D. Tennyson, P. Ordonez De Pablos, F.J. García Peñalvo & L. Rusu (eds) *Information Systems, E-learning, and Knowledge Management Research.* WSKS 2011. Communications in Computer and Information Science, vol 278. Springer: Berlin, Heidelberg.

Montola, M., Stenros, J. & Waern, A. (2009) *Pervasive Games: Theory and Design*. Morgan Kaufmann: Burlington, MA.

Moseley, A. & Whitton, N. (eds) (2013) *New Traditional Games for Learning: A case book*. Routledge: New York.

LaNasa, S.M., Cabrera, A.F., Trangsrud, H., Information, C., & Lanasa, S. (2009) "The Construct Validity of Student Engagement: A Confirmatory Factor Analysis". *Research in Higher Education*, 50:4, pp315–332.

Park H., Park J. & Kim YT. (2011) "The Effect of Educational Game on the Intrinsic Motivation by Learner's Traits: Focus on Personality Types" in T. Kim et al. (eds) *Grid and Distributed Computing. Communications in Computer and Information Science*, vol 261. Springer: Berlin, Heidelberg.

Ramsden, P. (1979) Learning and perceptions of the academic environment. *Higher Education,* 8(4), pp411-427.

Raessens, J. (2006) "Playful Identities, or the Ludification of Culture". *Games and Culture*, 1(1), pp52-57.

Reynolds, M. (1997) "Learning Styles: A Critique". *Management Learning*, 28:2, pp115-133.

Roschelle, J., Penuel, W. R., & Shechtman, N. (2006) "Co-design of innovations with teachers: Definition and dynamics" in *Proceedings of the International Conference of the Learning Sciences*. ACM: Bloomington, pp. 606–612.

Ryle, G. (1968) “The Thinking of Thoughts” in *University Lectures*, The University of Saskatchewan, 18.

Sicart, M. (2014) *Play Matters*. MIT Press: Michigan, MI.

Sanford, K, Starr, L.J., Merkel, L, & Bonsor Kurki, S. (2015) “Serious Games: video games for good?”. *E-Learning and Digital Media*, 12(1), pp90-106.

Schell, J. (2008) *The Art of Game Design*. Morgan Kaufmann: Burlington, MA.

Schrader, P., Deniz, H. & Keilty, J. (2016) “Breaking SPORE: Building Instructional Value in Science Education using a Commercial, Off-the Shelf Game”. *Journal of Learning and Teaching in Digital Age*, 1:1, pp63-73.

Shaffer, D.W. (2005) “Epistemic games”. *Innovate* 1:6. Available: http://www.innovateonline.info/index.php?view=article&id=79 [accessed 20/8/2017].

Shaffer, D.W. & Resnick, M. (1999) “‘Thick’ Authenticity: New Media and Authentic Learning”. *Journal of Interactive Learning Research,* 10:2, pp195-215.

Suits, B. (1978) *The Grasshopper: Games, Life and Utopia*. University of Toronto Press: Toronto, Canada.

Whitton, N. (2018) “Playful learning: tools, techniques, and tactics”. *Research in Learning Technology,* 26.

Wolfe, J. (1993) “A History of Business Teaching Games in English-Speaking and Post- Socialist Countries”. *Simulation & Gaming,* 24, pp446-463.

Woodcock, J. & Johnson, M.R. (2017) “Gamification: What it is, and how to fight it”. *The Sociological Review,* 66:3, pp542-558.

Zyda, M., Mayberry, A., Wardynski, C., Shilling, R., & Davis, M. (2003) The MOVES Institute's America's Army Operations Game. Proceedings of the *ACM SIGGRAPH 2003 Symposium on Interactive 3D Graphics*, 28-30 April 2003, pp217-218.