

Playing *Animal Farm*: Designing a *Dungeons & Dragons* [D&D] One-Shot for Pivotal Play and Learning

Premeet Sidhu

Sydney Games and Play Lab
The University of Sydney
Camperdown, NSW, 2006
Australia
psid2912@uni.sydney.edu.au

ABSTRACT

Contemporary research and discourse exploring intersections of games and learning leans towards the design and experiences of digital games. Despite their growing popularity in recent years, investigation of non-digital games and learning remains limited in comparison. This paper describes the game design process and presents a key finding from early playtest data of *All Players Are Equal*—a *Dungeons & Dragons* [D&D] (Arneson and Gygax 1974) one-shot experience inspired by George Orwell’s novel *Animal Farm* (1945). The game leverages mechanics such as agency, transgression, and death—which are also key themes represented in the novel—to facilitate a shared pivotal play and learning experience. By discussing key design choices and reflections from initial playtests (12 participants total, 7M, 5F, aged 18-40), this paper offers insight into how opportunities for pivotal play and learning may be created or enhanced within games.

Keywords

Dungeons & Dragons [D&D], TTRPG, *Animal Farm*, Pivotal Play, Games and Learning, Game Design

INTRODUCTION

There are moments in games that can impact how players make sense of their real lives and worlds. From personal experience, *Final Fantasy VII*’s (Square Enix 1997) exploration of environmental sustainability, *Undertale*’s (Fox 2015) commentary on moral complicity, and the unexpected death of my first character in a *Dungeons & Dragons* [D&D] (Arneson and Gygax 1974) campaign, have all been profound catalysts for personal reflection, implicit learning, and changed attitudes towards similar real-life experiences. What these examples indicate, amongst countless others, is that ‘leisurely games’—or games for entertainment—have the innate potential to be ‘serious’ and facilitate meaningful learning experiences.

The connection between games, play, and learning, has drawn significant interdisciplinary attention from scholars, educators, and game designers (e.g., Bellotti et al. 2010; Gee 2003; Plass et al. 2020; Squire 2011; Vygotsky 1978). Well-known concepts like ‘gamification,’ ‘serious games,’ and ‘game-based learning,’ are widely referenced in both public and scholarly discourses on games and learning. Although there are numerous definitions and understandings of these concepts, gamification is generally considered to be “the use of game design elements in non-game contexts” (Deterding et al. 2011, 9), serious games are broadly thought of as games that have been designed for an explicit educational purpose (Abt 1987), whilst game-based

Proceedings of DiGRA 2023

© 2023 Authors & Digital Games Research Association DiGRA. Personal and educational classroom use of this paper is allowed, commercial use requires specific permission from the author.

learning is mostly articulated as gameplay that has defined learning outcomes (Shaffer et al. 2005). Even though research into these areas has provided beneficial insight and outcomes for designers, practitioners, and learners alike, the underlying assumption that games can only be played ‘leisurely’ or ‘seriously’ is limiting. Additionally, contemporary research tends to lean towards digital games and their applications and experiences. As non-digital games are experiencing a modern resurgence in popularity and play—evidenced by factors such as their positive representation in popular media (Sidhu and Carter 2020) and the rise and success of “Actual-Play” content (e.g., Chalk 2023; Jones 2021)—it is necessary to continue representing them within contemporary games research and design understandings.

Prior research into non-digital games and learning has shown that players can experience appealing, memorable, and transformative play moments that continue to impact them beyond the gameplay context (e.g., Sidhu and Carter 2021b; Sidhu et al. 2021). Adding to the nascent work on non-digital games and learning (e.g., Darvasi 2019; Garcia 2020; Maragliano 2019; Rajkovic et al. 2019; Sousa 2021; Willet et al. 2018; Zagal et al. 2006), this paper overviews the design process and presents preliminary playtest data from *All Players Are Equal*—a short standalone D&D experience inspired by George Orwell’s novel *Animal Farm* (1945). The game leverages agency, transgression, and death—key themes of the novel and core mechanics in most D&D play—to facilitate a shared pivotal play moment and learning experience. I begin this paper by firmly situating my work in existing literature on games and learning, meaningful play, and D&D. My research methodology is outlined briefly before key choices and findings from the game design and preliminary playtest process (which involved 12 participants total, 7M, 5F, aged 18-40) are described. The discussion section summarises the current strengths, limitations, and potential avenues for future research and application of the game. By contributing my personal insights on designing for pivotal play, I hope to showcase one way that non-digital games like D&D may be designed or targeted towards learning.

RESEARCH CONTEXT AND BACKGROUND

Games and Learning

Games are increasingly being valued for their potential function as engaging teaching and learning tools (e.g., Belman and Flanagan 2010; Gee 2003; Hammer et al. 2018; Harrington and O’Connell 2016; McFarland 2020; McGonigal 2011; Ostenson 2013; Plass et al. 2020; Schrier 2016; Squire 2011; Vygotsky 1978). Available research suggests that meaningful learning from any game is possible so long as it is well designed, executed in an appropriate context, and aligns with the desired learning outcomes or content (e.g., Clark et al. 2016; Hammer et al. 2018, 286). As my experimental game design of *All Players Are Equal* intersects with dominant concepts like gamification, serious games, and game-based learning, a brief overview of each field is provided below.

Gamification

As the games industry and its audience continues to grow exponentially (e.g., Brand and Jervis 2021; Entertainment Software Association 2022; Interactive Software Federation of Europe 2020), there have been sustained efforts to capitalise on the enjoyment, engagement, and motivation received from ‘leisurely’ gameplay. Gamification has become a buzzword—particularly in fields of education and training—to represent the enhancement of learning through game mechanics. As it is currently understood, gamification describes “the use of game design elements in non-game contexts” (Deterding et al. 2011, 9) or “the phenomenon of creating gameful experiences” (Koivisto and Hamari 2014, 179).

In practice, gamification has often focused on utilising reward and progression mechanics to improve learning. Elements such as achievement points, trackable progress bars, badges, and even personal avatars/characters, are all commonplace in both digital and non-digital gamified learning experiences. Some key examples of gamification in formal learning environments (i.e., classrooms, professional development workshops, e-learning, etc.) include *Kahoot!* (Kahoot! ASA 2013)—a customisable digital quiz-based learning platform targeted towards summative content assessment and increased learner engagement (Wang and Tahir 2020)—and general progression tracking through non-digital means such as ‘star charts,’ stamps, or stickers (Zainuddin and Keumala 2021, 173-176). Gamification can also be seen in other leisurely spaces through examples such as rewards cards for retail store purchases, or fitness applications that track development towards certain goals. While gamification can involve the more ‘narratological’ elements of games, such as overarching stories and imagined settings, most gamification mechanics are targeted towards the continual assessment or monitoring of learning.

As both game design and learning philosophies draw heavily from similar psychological theory backgrounds (Landers 2014), there has been significant research evaluating various factors and perspectives of gamification in formal education contexts (e.g., Barata et al. 2017; Bouchrika et al. 2019; Caponetto et al. 2014; Fujimoto et al. 2019). However, there is an implicit focus on digital and online applications of gamification, which overlooks the importance and potential of non-digital examples and mechanics. Though scholars have found success in using non-digital game mechanics such as dice rolling, card selection, and voting—particularly for online learner participation and collaboration in e-learning spaces (Sousa 2021)—further work into non-digital manifestations of gamification is necessary (Far and Taghizadeh 2022).

Serious Games

Like gamification, due to the increased interest in games and their learning affinities, multiple understandings and definitions of serious games exist. Arguably, the most notable and widely used definition comes from researcher Clark Abt. His foundational usage of the term describes serious games as games that have “an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement” (Abt 1987, 9). Where gamification focuses on leveraging specific ludological or mechanical elements derived from games, serious games are holistically designed for learning. Since Abt, scholars and designers have proceeded to emphasise the context and purpose of serious play within their definitions (e.g., Breuer and Bente 2010; Zyda 2005). While these definitions vary, most share the sentiment that serious games are games which are used for more than just mere entertainment (Susi et al. 2007).

Examples of both digital and non-digital serious games are abundant. Simulator-style games like the *Microsoft Flight Simulator* series (Microsoft 1982) and the *Farming Simulator* series (GIANTS Software 2008) are popular and appeal to audiences that wish to explore and learn about these professions without real-life risk to lives or property. Similarly, *Monopoly* (Hasbro 1935)—the property-economics-themed boardgame—was originally designed with the intention of illustrating the negative aspects of private land monopolies (Hoy 2019). *That Dragon, Cancer* (Numinous Games 2016) offers an interactive personal perspective into a serious lived experience, which has similarly been demonstrated in other digital games like *This War of Mine* (11 bit studios 2014) and *Depression Quest* (The Quinnsspiracy 2013), and in non-digital games and LARPs like *Train* (Romero 2009) and *Ground Zero* (Jokinen and Virtanen 1998).

Serious games literature has historically focused on detailing the implications and outcomes of designing for, and participating in, serious digital and non-digital gameplay (e.g., Bjørkelo and Jørgensen 2018; Bopp et al. 2016; Burke et al. 2010; Göbel et al. 2010; Gowler and Iacovides 2019; Holtz 2018; Hopeametsä 2008; Montola 2010; Schönauer 2011). While the exploration of both digital and non-digital examples is valuable, the distinction and categorisation of games as “serious” unintentionally disregards opportunities for learning that can appear naturally within all types of games and play—not just serious ones.

Game-Based Learning [GBL]

As with gamification and serious games, game-based learning [GBL] does not have a singular widely applied definition. Most understandings do articulate, in some way, that GBL is gameplay that facilitates learning (e.g., Plass et al. 2015, 258; Shaffer et al. 2005). However, there is contention as to whether this type of gameplay must cater to previously defined learning outcomes and skills or take place in explicit educational settings.

Examples of GBL can vary from learning via game design to using games as texts within education curriculums and syllabi. For example, *Minecraft Education* (Mojang 2016) is a digital game platform that allows educators and learners to address and design curriculum content through the *Minecraft* game environment. Games are also studied as texts within schools and other formal learning environments as their overarching narratives, themes, and/or game mechanics, can overlap with or exemplify intended learning outcomes or curriculum content. In addition to this, gameplay itself offers valuable opportunities for learning. Alongside their representation of scalable cultures and economics that mirror real-world examples, Massively Multiplayer Online Games (MMOs) like *Final Fantasy XIV* (Square Enix 2013) and *World of Warcraft* (Blizzard Entertainment 2004) rely on players’ social and relational skills such as communication, collaboration, and creativity, which adhere to generic learning outcomes that are targeted worldwide.

Research into GBL often examines or articulates the achievement of pre-determined learning outcomes (e.g., Bacalja and Clark 2021; Ehret et al. 2022; Gee 2003; McFarland 2020; Ostensen 2013; Prensky 2003; Schrier 2021). In various formal education contexts, scholars have been able to create and apply non-digital games to inform pedagogy (Rajkovic et al. 2019) and have experimented with hybrid immersive gameplay that targets learning (Darvasi 2016). However, further research into GBL in leisurely play contexts could broaden our understanding and utility of the concept in game studies. As learning can occur in leisurely gameplay and has been shown to have a significant impact on players beyond the immediate context of gameplay (McGonigal 2011; Sidhu and Carter 2021c), it is important to investigate how leisurely games and gameplay can be better situated, enhanced, and targeted towards learning, without alteration of their primary purpose—entertainment and enjoyment.

Meaningful Play

In addition to the influence of gamification, serious games, and GBL principles and research, meaningful play was also a key consideration in the design of *All Players Are Equal*. The concept of meaningful play in game studies has emerged from existing understandings of play in fields such as anthropology (Geertz 1972), cultural studies (Huizinga 1955), and educational psychology (Vygotsky 1978). Most game-related work on meaningful play is informed by Salen and Zimmerman (2003) who initially defined the concept as “the relationship between player action and system outcome... [which must be] both discernible and integrated into the larger context of the game” (33-34). Since then, scholars have used this definition of meaningful play to enhance the learning potential of serious games (e.g., Burke et al. 2010; Jacobs et al.

2013) and understand the impact of game mechanics on player experiences (e.g., Bopp et al. 2016; Carter and Allison 2017; Nguyen and Ruberg 2020). Salen and Zimmerman's (2003) interpretation of meaningful play remains a valuable and foundational game design principle because it acknowledges the delicate relationship that exists between player agency and in-game outcomes to the overall reception and experience of a game. However, Sidhu and Carter (2021b) argue that this paradigm of meaningful play does not necessarily capture meaning that is made, or that occurs, outside of the immediate gameplay context. Sidhu and Carter's (2021b) supplementary definition of pivotal play, which extends on Salen and Zimmerman's (2003) meaningful play, describes appealing, memorable, and transformative play experiences that can impact players both within and beyond the confines of a game. This conception of play better reflects experiences of learning which can also take place in non-linear, asynchronous, or unexpected ways. As pivotal play does not assume play context or player motivations, the concept helped guide my design—and was a targeted outcome of—*All Players Are Equal*: a leisurely D&D gameplay experience that could also be adapted for learning.

Dungeons & Dragons [D&D]

Co-created by David Lance Arneson and Ernest Gary Gygax in 1974, D&D is a collaborative tabletop role-playing game [TTRPG] where groups of players meet to role-play characters and tell stories with their friends. Dice rolls and player discretion are often used to determine the outcome of in-game actions. In most playing groups, one player takes on the role of the Dungeon Master [DM]—a player that referees the game, narrates the overarching story, and embodies the non-player characters [NPCs], monsters, and obstacles, that other members of the playing group will encounter. Together, DMs and players explore shared imagined worlds, overcome challenges, and build deep relationships. D&D was historically viewed as a complicated high fantasy hobby, further maligned when it was implicated in the 'Satanic Panic' of the 1980s (e.g., Laycock 2015, 101-136; Sidhu and Carter 2020, 3-4). However, the game's reputation has evolved since then and D&D is experiencing a modern resurgence in play and popularity. As D&D's influence is widespread, significant research on the game has been conducted in various fields of interest.

Fine's (1983) early ethnography of D&D play and players remains influential and is still widely referenced when framing social dynamics in games. However, as the context, design, and player base of D&D has transformed over the years, contemporary research and discourse on the game has diversified. Alongside comprehensive historical documentation of the game (Peterson 2012, 2018, 2020, 2021), there has been thoughtful and critical examination of D&D's inclusivity, problematic representations, and play cultures (e.g., Beidatsch 2021; Cote 2020, 190-197; Jones 2018; Jones and Pobuda 2020; Stang and Trammell 2020; Stokes 2017; Trammell 2014). Attention has also been directed towards D&D's rulesets—which privilege certain players, voices, and gameplay styles (Dashiell 2017, 2018)—related media representations (Chalk 2018; Sidhu and Carter 2020; Stanton and Johnson 2021), and impact of the game on various digital and non-digital successors (LaLone 2019; Voorhees et al. 2012; Zagal and Deterding 2018). There has also been considerable exploration of D&D's immersive play experiences (Mizer 2019; Wouters et al. 2021).

In the context of this study, D&D's connection to learning is particularly relevant. The combination of D&D's flexible design parameters, cooperative play environment, and reliance on imagination, has made it an ideal game for players to learn from. As such, there has been growing examination of D&D's educational potential in recent years (e.g., Carter 2011; Clarke et al. 2019; Cook et al. 2017; Garcia 2020; Polkinghorne et al. 2021; Wright et al. 2020, 1)—with a focus on creativity, critical thinking, and social development outcomes (e.g., Darvasi 2019; Sidhu and Carter 2021a). While it may not

have been Arneson or Gyax’s intention to create an educational game, D&D’s non-digital design and adaptive ruleset allows a spectrum of learning experiences to manifest organically throughout D&D play. For these key reasons, along with some others which are justified in the design process section of this paper, D&D was selected as the game system that *All Players Are Equal* would be based on. Having established the significant bodies of work that my research draws upon and is in conversation with, the rest of this paper reports on and contributes insights from my game design and preliminary playtesting process.

RESEARCH METHODS

Research Aim, Question, and Approach

The main aim of this study was to explore whether experiences of learning could be anticipated or designed into D&D. As a result, the study was guided by the overarching research question:

RQ: Can learning be designed into D&D?

A research *through* design approach directed the study’s data collection methods. As Lankoski and Holopainen (2017) summarise, in comparison to research *on* design—which investigates design as an activity—or research *for* design—which aims to produce practical design knowledge—research *through* design focuses on developing understandings through the creation of designed artefacts (Lankoski & Holopainen 2017, 2). Having determined what players enjoyed about D&D play and where learning was most likely to occur in my previous research studies (e.g., Sidhu 2022; Sidhu and Carter 2021a, 2021b, 2021c, 2022; Sidhu et al. 2021), this study focused on applying these findings in a practical way. Subsequently, the designed artefact materialised as a one-off D&D gameplay experience that targeted pivotal play and learning by leveraging common meaningful gameplay mechanics such as player agency, transgression, and death.

Data Collection Methods

As Waern and Back (2017) argue “one way to understand games better is to experiment with their design” (341). The qualitative data represented in this paper was collected from two sources: 1) the experimental game design process and 2) playtest observations/reflections. Data from the design process was extrapolated from my personal development log/diary which contained written reflections on various choices made throughout the iterative game design process. Participants involved in the playtesting process were asked to play through the designed game materials and contribute to a group discussion directly afterwards. In these discussions, participants were asked questions that related to their personal playtest experiences, elements of the game’s design, and on games and learning more generally.

As of writing, three playtest sessions of *All Players Are Equal* with 12 participants total were conducted (7M, 5F, aged 18-40). Playtest sessions were conducted in-person (in Sydney, Australia, between Aug-Oct 2022) with a combination of experienced D&D players and DMs, games researchers, and in-service and out-of-service public and independent secondary school teachers (i.e., teachers that had taught students in government funded or independently funded schools, generally aged between 11-18 years old or in grade levels 7-12). As there were travel and time restrictions imposed on data collection due to COVID-19, participants were limited to those within feasible geographic vicinities. Participants were not required to have played D&D or read the novel *Animal Farm* prior to participation. These parameters ensured that a greater variety of experience levels and perspectives towards D&D and/or the novel itself were captured in the data. To ensure greater consistency within the playtest experiences, I

embodied the role of the DM in all playtests. Despite receiving ethics approval, research was unable to be conducted in schools with players under 18 years old. At the time, the body that governs and facilitates this type of research in Sydney paused all in-school data collection due to the continued impact of COVID-19.

Data Analysis Methods

My data analysis process was informed by grounded theory (Charmaz 2006) which afforded me the opportunity to construct theoretical understandings about designing for pivotal play and learning *during* and *after* the design and playtesting process, rather than *before*. A combination of open coding and axial coding was used to thematically categorise playtest observations and participant responses. The process of open coding highlighted regularly occurring expressions in the data (i.e., participant responses that mentioned “learning,” “knowledge,” “transformation,” etc.), whilst the secondary process of axial coding identified the meta-themes and concepts that linked these initial open codes back to relevant gameplay mechanics (i.e., “player agency,” “transgression,” and “death”).

Although there are multiple models that can be used to comprehend or justify critical elements of game design (e.g. Jerrett 2020; Pereira and Roque 2009; Stapleton 2005; Xu et al. 2011), I applied a combination of key concepts covered in Björk and Zagal’s (2018) *Game Design and Role-Playing Games*, Fullerton’s (2014) *Game Design Workshop: A Playcentric Approach to Creating Innovative Games*, and Holopainen et al.’s (2010) *Modelling Experimental Game Design*, to articulate the complexities and nuances of my own design experience. Zimmerman et al. (2007) articulate that “one of the critical elements for judging the quality of ...[a] design research contribution is the process” (499). Moreover, Akmal and Coulton (2019) propose that the meaning of a game only emerges through play. What proceeds is a descriptive summary of my game, justification and insight into my personal design process, and analysis of a key finding from the initial playtests.

‘ALL PLAYERS ARE EQUAL’

Game Summary

The animals on Manor Farm have had enough. They’re overworked, overtired, and want to overthrow their owners Mr. and Mrs. Jones. During the ‘Battle of Cowshed,’ the animals succeed in taking Manor Farm for themselves but find that corruption and inequality persist. This time, it’s not the Jones’ fault. Are the animals doomed to make the same mistakes, or are they able to change the ending of their story?

All Players Are Equal is a short standalone gameplay experience (approximately 30-40 minutes total playtime), colloquially known as a one-shot. Designed for players aged 14 years old and over, the content and rules of the game take inspiration from George Orwell’s novel *Animal Farm* (1945) and the TTRPG D&D. However, players are not required to have any previous familiarity or experience with either. *All Players Are Equal* requires a minimum four participants to run effectively: three players to role-play and embody the different animal characters, and one player to take on the role of the DM—guiding the other players through the narrative events of the game. The game was designed to facilitate a shared pivotal play and learning experience regardless of the play environment or context. It achieves this by leveraging common D&D gameplay mechanics that correlate with key themes explored in the novel which are also anchored in similar real-world experiences—agency, transgression, and death. As

of writing, the game material currently consists of one print-and-play rules document that is divided into five key sections:

- Game Summary
This section contains a lay language overview of the premise, aim, and narrative of the game. It notes the potential for diverse gameplay experiences depending on the playing group, recommends that groups have a short debrief discussion immediately after play, and provides a warning for the potential discomfort that some players may feel due to certain in-game situations that are experienced or choices that can be made.
- Setting and Background Information
This section provides short descriptive information and visuals of the locations and NPCs that players will encounter during the game.
- Adventure Outline
This section describes the sequence of events that occur and includes general information text, read-out-loud scripts, and guidance in navigating player dice rolls and their subsequent outcomes. Gameplay is divided into five key events: 1) Introduction/Hook, 2) First Milestone—The Battle of Cowshed, 3) Unexpected Complication—Alteration of the Commandments, 4) Climax—Death of ‘Dog’, and 5) Resolution.
- What Next?
This section provides supplementary materials such as guided questions and activities that can be used to debrief, discuss, and analyse the game—both pre-play and post-play.
- Handouts
The final section of the print-and-play document provides all the handout materials that are required to play the game (including the original and altered versions of the animal commandments, detailed character sheets, and character tokens).

The Design Process

Design Context and Motivation

Though most of the design process revolves around the concept and creation phase, it is important to first acknowledge the contextual factors that motivate game design. For myself, the contexts and motivations were twofold: research and education.

Firstly, using game design and playtesting as a qualitative research method would allow me to practically apply and further investigate key findings that had surfaced in my previous research studies on meaningful play and learning in D&D (e.g., Sidhu 2022; Sidhu and Carter 2021a, 2021b, 2021c, 2022; Sidhu et al. 2021). Rather than just suggesting game design as a possibility for future work particularly directed towards scholars with more design experience and expertise, undertaking the work myself was deemed to be more beneficial and conducive in the long run. I would be able to develop and broaden my research skill set, familiarise myself with alternative research methods, and experience first-hand the effort and expertise required for non-digital game design.

Secondly, my undergraduate training as a secondary school English and History teacher emboldened me to explore the practicalities and logistics of designing a game targeted towards pivotal play and learning. Fullerton (2014) suggests that before embarking on

the design journey, it is important to understand why people play games: “understanding our own answers, and the answers of other players, is the first step to becoming a game designer” (1). As mentioned in my introduction, it was not just the gameplay mechanics, overarching story, or the targeted learning outcomes that drove me to play and enjoy some of my favourite games like *Final Fantasy VII* (Square Enix 1997), *Undertale* (Fox 2015), and *Dungeons & Dragons* (Arneson and Gygax 1974)—it was a combination of all three. As such, I felt strongly about designing a non-digital game that targeted pivotal play as it could have greater implications, utility, and relevance for game-based pedagogy and learning design.

Game Concepting and Questions

Once I had determined the primary aim and purpose of my experimental game design (i.e., designing a non-digital pivotal play experience that could be used in all play contexts), the next step was to flesh out a proof-of-concept document. This would eventually serve as a framework for the future print-and-play rules document discussed above. To help refine the parameters for design, I asked myself two key questions:

- What type of game system did I want to create or use?
- What type of content did I want the game to cover?

The first question was easy for me to answer. The game had to provide a short but complete gameplay experience that could be implemented within a formal learning environment if necessary (i.e., less than 45 minutes total playtime—based on average classroom lesson times in Australia). It would also need to be relatively adaptable and require no prior knowledge or extensive materials to play.

I selected D&D as the game system for a few reasons. Firstly, the current version of the game’s Open Gaming License [OGL] permits third-party creators to incorporate or model the base mechanics of D&D in their own games without copyright infringement. As I had limited time, the creation of a new game system was unfeasible for this study. However, I would be able to viably adapt the existing structures of D&D to my own needs (i.e., simplifying the combat mechanics, character sheets, and dice rolls, whilst accentuating the fantasy setting of the game to create immersion and engagement). Current speculation on the proposed changes to D&D’s OGL are addressed later in the discussion section. Secondly, the game’s flexible ruleset and minimal equipment requirements were appealing and accounted for both digital and non-digital play of the game in various play settings. Thirdly, D&D was not limited by genre or style—all types of explicit learning content could potentially be explored and designed for. Lastly, as a first-time designer the non-digital gaming medium offered me greater design control that didn’t require extra programming or digital game development knowledge. My familiarity with D&D (i.e., seven years of player/DM experience) also meant that I could draft the proof-of-concept document and conduct initial playtesting relatively quickly. As such, D&D was well-suited to the aim and purpose of my study.

Once I had confirmed that the game would be a D&D one-shot experience, I began grappling with some of the RPG design challenges outlined by Björk and Zagal (2018) in their work. These challenges related to familiarity versus novelty, licensed versus original content, rules versus setting, rules-heavy versus rules-light, support for specific or varied playstyles, and the ongoing playability of the game (Björk and Zagal 2018, 324-326). At this point in the process, I began brainstorming some initial content ideas for the one-shot. This was difficult as I knew what I wanted the game to achieve and facilitate (i.e., a shared pivotal play and learning experience) but I was not yet sure of the best way to do this. Struggling to come up with a purely original adventure concept, I instead focused on what made D&D enjoyable and entertaining—after all, that was

One-Shot Topics/Ideas

All one-shots will be designed to include moments of 1) roleplay, 2) exploration, 3) combat, and 4) decision making/player choice (common motivators and contributors of meaningful/appealing/pivotal play).

- **“Infiltration/Rescue” One-Shot**
Goal: Party must reach a person of interest they’re tasked to find
Conflict: Party comes across information that will shift their perspective on the mission/person of interest in some way
Vibe: Historically influenced (Education: K-10 History concepts continuum e.g., perspective, morality, empathy etc.)
- **“Escape/Prison Break/Dungeon” One-Shot**
Goal: Party must escape an oppressive setting through teamwork
Conflict: Party will be caught and must choose between saving themselves or their group
Vibe: More thematically influenced (English Education: “Texts and Human Experiences”/Dystopian Fiction/Orwell 1984.. [Zamayatin We?](#))
- **“The Museum/Setting” One-Shot [Getting Out]**
Goal: Explore the environment/setting to receive more knowledge about the place
Conflict: They are only allowed to visit two/three rooms or locations
Vibe: Exploring different sources/evidence and critically or creatively justifying their choices. (Education: K-10 History concepts continuum e.g., perspective, morality, empathy etc. [Could be good for Year 7 History/Places unit?](#))


Figure 1: The figure above is a screenshot of the brainstorm of initial one-shot content topics and ideas. Three ideas are shown with their main goal, conflict, and overall vibe being described.

still the primary function of the game. Based on my own experiences and prior research, the game needed to involve opportunities for roleplay, exploration, combat, and decision-making/player choice—core pillars of D&D and pivotal play.

Although my initial one-shot ideas (see Figure 1) were too vague, some of their elements would be reflected in my final game design. Wanting to strengthen the potential educational application of the game, I then decided to draw content inspiration from the required and recommended texts for study in the Australian Secondary English Curriculum where my own teaching expertise lies. As not all formal education systems worldwide have the same learning requirements or outcomes, the text and themes selected would need to be broad enough so that even if the game was not being played within a classroom or for explicitly educational purposes, there would still be clear opportunities for pivotal play and learning to occur in other play contexts.

Animal Farm is a classic novel written by George Orwell in 1945 which tells the story of a group of farm animals who rebel against their human farmer, hoping to create a society where the animals can be equal, free, and happy. When the animals succeed in overthrowing their caretakers, they create a system that’s even worse. Amongst many compelling and provocative questions, the novel asks, “what happens when you are given the power to make the rules and enact change.” *Animal Farm* was selected as the inspiration text and content for the game as it is still widely taught in Stage 4 and 5 Australian classrooms [Years 7-10] and addresses key curriculum outcomes (Board of

ALL PLAYERS ARE EQUAL
AN ANIMAL FARM INSPIRED D&D ONE-SHOT



SUMMARY
The animals on Manor Farm have had enough! They've overworked, overfed, and want to overthrow their owners Mr. and Mrs. Jones. During the Battle of Cowshed, the animals succeed in taking Manor Farm for themselves but find their corruption and inequality persist. This time, it's not the Jones. Are the animals allowed to make the same mistakes, or can they change the narrative?

This short D&D game about 30-45 minutes is inspired by George Orwell's novel *Animal Farm* (1945) and explores the power and impact of rules and language. Players take on the role of different animals but learn throughout the game that *all* animals are more equal than others.

There is no right way to play this game. All settings are equal. The main objective is to give players an experience that provides deeper thought and discussion on the nature of totalitarianism, hierarchies of power, and the impact of language. We recommend having some time at the end of your session (about 5-10 minutes) to debrief and discuss.


Warning: This one-shot is experimental and forces players into a particular narrative and ending which may be bleak. It deals with uncomfortable and challenging situations. Different players are given different levels of freedom and agency within the game. The goal of this one-shot is to deliberately provide discussion and observe player reactions when rules are changed and their powers are taken away. Please give this game a miss if it's not right for your players or playing group.

SETTING AND BACKGROUND
This adventure takes place on Manor Farm, a small independent farm run by Mr. and Mrs. Jones. Knowledge of the novel *Animal Farm* (1945) by George Orwell would be helpful but is not necessary. Manor Farm has typical features such as pigsties, henhouses, an orchard, and a drinking pool. Most of the action in this

OF THE DONKEYS

Hit Points (Health): 15

STRENGTH 0
DEXTERITY +1
CONSTITUTION +2
INTELLIGENCE +3
WISDOM +3
CHARISMA -2



DESCRIPTION/PERSONALITY
(The below information is only for you to help you role-play the character. Don't read it out loud or show anyone outside of your group)

Donkeys are wise old animals that have witnessed many changes in the world. They can read, write, and speak like humans do but their sole motivation is to keep themselves safe at any cost. Though selfish, they do have a soft spot for their horse comrades but do not show it publicly.

Contribution to the Rebellion
(Read the following sentence out loud if you have trouble thinking of your own idea)

"My name is _____ of the donkeys and I contribute my keen observation and powerful kick to the cause!"

ABILITY
Kick
On a hit, the donkey uses one of its hind legs to deliver a powerful kick that deals damage.

1d20 + 3 to hit
1d8+2 bludgeoning damage

Original Commandments

- Whatever goes upon two legs is an enemy
- Whatever goes upon four legs, or has wings, is a friend
- No animal shall wear clothes
- No animal shall sleep in a bed
- No animal shall drink alcohol
- No animal shall kill any other animal
- All animals are equal

Jones' Diary Handout [Pig]

"...if all else fails, *"Kipler's Kreature Karving—The Dog Meat Specialists!"* from Waterdeep will pay a large sum of money that will be enough to keep the farm running for half a year. *Although the dogs are important for security and animal compliance—the horses and donkeys are too valuable to the farm to sell.*"

The donkeys can read and will be able to determine where the dogs are going. You must persuade them to keep their mouths shut. DO this by any means necessary—e.g., offering them benefits like more food and sleeping in the farmhouse instead of the crowded barn.

Figure 2: The figure above is a compilation of sample screenshots taken from the *All Players Are Equal* print-and-play rules document. The screenshots show examples of read out-loud texts, visuals, character sheets, and handouts.

Studies NSW 2012; NSW Education Standards Authority 2023). Though texts such as *Nineteen Eighty-Four* (Orwell 1949), *Lord of the Flies* (Golding 1954), *Maus* (Spiegelman 1980), and *Waiting for Godot* (Beckett 1953) were all considered, *Animal Farm* was ultimately selected due to its evocative representation of agency, transgression, and death.

The shared pivotal play and learning moment within the game was deliberately designed around agency, transgression, and death. These factors are memorable themes in the novel and core mechanics that contribute to enjoyable and appealing D&D play. They are also transformative experiences that will likely be encountered by most players at some point in their real-lives and worlds. In addition to this, the exploration of hierarchies of power and the impact of language correlate with broader discussions in the TTRPG community about fixed game mechanics and rules. This presented an intriguing premise to explore and design for (see Figure 2).

Early Playtesting and Finetuning

Having drafted the print-and-play rules document, it was time to begin initial playtesting. As the design and playtesting processes were generative, a few minor quality-of-life alterations were made to the game document and mechanics between each playtest, based on participant feedback. Some notable examples include:

- Increasing Occurrences of Player Agency

For example, multiple participants expressed their desire to have more control over their characters and the narrative during the gameplay experience. As a result, at the beginning of each time-jump that occurs throughout the game (i.e., three total) each player was directed to a roll a dice. The group's collective score would be used to determine the current state of their world and additional information that was added to the print-and-play rules document.

- Increasing Ability Changes and Personalisation of Characters

For example, participants suggested including more isolated moments and unique abilities for each individual character—in addition to the existing communal/group dynamics. This would sow further dissent between the characters throughout the game, which would hypothetically heighten the emotions during the pivotal play moment. Players were also given the opportunity to name their characters.

- Physical and Social Play Considerations

For example, participants suggested positioning certain players next to, or away from, each other depending on the characters they were role-playing (i.e., the ‘Pig’ and ‘Dog’ characters were physically seated next to each other and close to the DM—emphasising their co-dependent relationship and proximity to power. The ‘Donkey’ and ‘Horse’ characters were isolated from each other and located the furthest away from the DM, etc.)

During the playtesting and finetuning process, I also conferred with the George Orwell scholar and research expert from my university to receive further clarity on the novel and my interpretation of it. Their insight was deeply useful as it confirmed that the themes, mechanics, and gameplay moments I designed into *All Players Are Equal* were relevant, innovative, and conducive to the novel.

Playtest Findings

The Death of ‘Dog’: A Pivotal Combination of Agency, Transgression, and Death

“‘Fools! Fools!’ shouted Benjamin, prancing round them and stamping the earth with his small hoofs. ‘Fools! Do you not see what is written on the side of that van?’” – Benjamin the donkey
(In ‘Animal Farm’ by Orwell 1945, 70)

When asked to reflect on any pivotal play or learning experiences they had throughout the one-shot, participants in all three playtests mentioned the incident involving the ‘Dog’ character(s). In every playtest, the ‘Dog’ character(s) would be removed from the game via a slaughterhouse van solicited by the ‘Pig’ character(s). This event was designed to mirror a similarly provocative incident in the *Animal Farm* novel where Boxer—a horse protagonist—was delivered to a knacker. In *All Players Are Equal*, the same fate was instead conveyed through the ‘Dog’ character(s) as it was anticipated that this would be unexpected for all players regardless of their prior knowledge or experience with the novel.

As not all characters in the one-shot were given the ability to read in-game, players of the ‘Donkey’ character(s)—who were able to read the side of the van—were faced with a moral choice: 1) alert the other animals to the situation and potentially prevent the fate of the ‘Dog’ character(s) or 2), keep the information to themselves. To further complicate this choice—and further lean into mechanics surrounding player agency, transgression, and death—players of the ‘Pig’ character(s) were explicitly directed by game rules and character sheets to persuade the ‘Donkey’ character(s) into staying silent in exchange for greater in-game privileges and abilities. In two out of three of the playtests, players of the ‘Donkey’ character(s) chose to say nothing—which diverges from the events and actions taken by similar characters within the novel.

During the post-play reflection interviews, all three participants that played the ‘Donkey’ character noted that they were conflicted between what they wanted their character to do versus what the rules on the character sheet indicated they should do.

One participant said that “the description and personalities [of the characters] are quite thorough but not prescriptive. There’s a strong guideline implied but you do end up making all the decisions.” However, this agency given to players to interpret the rules in whatever way they wanted was also used to justify the subversion of player and narrative expectations by other ‘Donkey’ players. For example, one participant reflected that they were “about to save [the ‘Dog’ character] but I wanted to surprise everyone at the last second. I kind of surprised myself actually. It was really interesting seeing the fall out and was definitely the standout moment of the game for me.” The seemingly rigid character sheets and rules for players were in direct opposition to the perceived agency and flexibility in role-play that characters were offered at the start of the game.

The above responses from participants point towards the impact that game mechanics like player agency, the ability to transgress, and death, have in facilitating shared pivotal play moments and opportunities for learning. As a result, the main aim of this study was achieved.

DISCUSSION

Throughout the design and playtesting process of *All Players Are Equal*, strengths, limitations, and potential avenues for future research and application of the game were highlighted.

Beginning with the current strengths of the game’s design, all three playtests ran according to plan and produced results that were in alignment with the study’s focus on designing opportunities for shared learning in D&D. Although there was initial uncertainty as to whether a D&D gameplay experience could successfully facilitate pivotal play and learning whilst still being delivered within a short one-off play session, the actual playtime of the game was consistently between 25 to 35 minutes for each playtest session. This established the game as logistically feasible for potential application within formal learning environments like classrooms, as well as other play contexts. In addition to this, participants both familiar and unfamiliar with the *Animal Farm* novel and/or D&D expressed their enjoyment of the gameplay experience and their enthusiasm towards its use for learning in the future. As mentioned briefly in the results, the intention of the game was to facilitate a pivotal learning experience, which participants confirmed and corroborated in their post-playtest reflections.

The playtests also highlighted areas for improvement. As suggested by participants that had previous teaching or D&D play and design expertise, future versions of the print-and-play rules document will be revised to include clear directions for text/storytelling delivery (i.e., clear notes for the DM on voice inflections that help emphasise the general mood of the adventure and present pertinent information to the players). Although this was an inherent consideration within my own delivery of the game as a DM, future practitioners that may not be familiar with D&D, role-play, or TTRPGs in general, would benefit from explicit directives. Additionally, whilst *All Players Are Equal* has the capability of online or distanced play, only in-person playtest sessions were conducted. Furthermore, as the novel *Animal Farm* may not be as well-known worldwide, replication and results from playtests in different cultural contexts or geographical locations are necessary. Lastly, a particular dynamic of role-playing was prioritised in the game design process. For example, the relationship between the singular DM and multiple players in *All Players Are Equal* mirrors that of most formal learning environment setups and D&D games. For the aim and purpose of this study, this role-play style was valid. However, I do acknowledge that the ‘masterless’ role-play dynamic may offer different levels of agency to players—which is a choice that inherently affects other elements of the non-digital game design process (Morningstar 2009; Nygren et al. 2022).

The study also presented multiple areas of interest for future research and work. Most notably, as I was unable to conduct in-schools playtesting with participants under 18 years old, future investigation in this area was a priority. Since the publication of this paper, I have been able to playtest the game within a school-based classroom environment—concentrating on the measurement and articulation of learning from students’ perspectives. Though the findings of that playtest are beyond the scope of this paper, the implications of those results for GBL pedagogy and design are planned to be detailed in a future publication. In addition to further playtesting, there is the potential for *All Players Are Equal* to be used as a non-digital game design model. The current iteration of the game could be redesigned with different content that addresses other learning priorities applicable to various subjects. Some initial ideas surround re-imagining other canonical texts and authors such as Jane Austen or William Shakespeare. I strongly recommend that future scholars interested in undertaking similar research focus on liaising with educators (in both formal and informal learning environments) to discuss their needs and target any future game design and games and learning research towards that. Lastly, to ensure that the game itself is more widely accessible and playable—particularly to educators and learners in public education environments—a revised free-to-access print-and-play document is being created. As briefly mentioned in the design process section, should any changes to D&D’s OGL occur, this would impact the accessibility and release of that document and would require re-designing the game to a new system so not to infringe any copyright. What this study reiterates is that non-digital games are a promising way to deliver appealing, memorable, and transformative learning experiences—regardless of the context in which they are played.

CONCLUSION

Prior research into games and learning has shown that players can experience appealing, memorable, and transformative play moments that continue to impact them beyond the immediate gameplay context (e.g., McGonigal 2011; Schrier 2016; Sidhu and Carter 2021b; Sidhu et al. 2021). Contributing to the growing work on non-digital games and learning, this paper overviewed my personal design process and presented preliminary playtest data from *All Players Are Equal*—a short standalone D&D experience inspired by George Orwell’s novel *Animal Farm* (1945). The game was designed to leverage and anticipate moments of player agency, transgression, and death—key themes in the novel that also relate to key mechanics in most D&D play—to facilitate a pivotal play and learning experience for its players. By discussing key design choices and playtest reflections, this paper gives insight into the process of production and design for a non-digital game targeting pivotal play. It also offers potential avenues of interest for future game design and educational applications of games. To better understand games and their inherent learning affinities, it is necessary to continue experimenting with their design so that new pedagogies and ways of learning with games can be uncovered.

AUTHOR BIO

Premeet Sidhu is a PhD student at The University of Sydney. Her PhD focuses on understanding the modern resurgence and appeal of the tabletop role-playing game *Dungeons & Dragons* [D&D]. Her current research interests include investigating how meaningful player experiences in both digital and non-digital games can be applied and considered in education and pedagogy. She is the lead editor of *50 Years of Dungeons & Dragons* (forthcoming 2024, MIT Press).

ACKNOWLEDGEMENTS

This research is supported by the Australian Government Research Training Program Scholarship and the NSW Education Waratah Scholarship.

REFERENCES

- 11 bit studios. 2014. *This War of Mine*. Videogame. 11 bit studios.
- Abt, C. 1987. *Serious Games*. University Press of America.
- Akmal, H. and Coulton, P. 2019. "Research Through Board Game Design." In *Proceedings of the 4th Biennial Research Through Design Conference* (pp. 1-16). Delft and Rotterdam, The Netherlands, 19-22 March 2019. <https://doi.org/10.6084/m9.figshare.7855808.v2>
- Arneson, D. L. and Gygax, E. G. 1974. *Dungeons & Dragons*. Tabletop Game. TSR, Inc. Lake Geneva, Wisconsin: United States.
- Bacalja, A. and Clark, K., 2021. "Playing With Digital Game Pedagogies." In *Digital Games and Language Learning: Theory, Development and Implementation* edited by M. Peterson, K. Yamazaki, and M. Thomas, 113-136. Bloomsbury Publishing.
- Barata, G., Gama, S., Jorge, J. and Gonçalves, D. 2017. "Studying Student Differentiation in Gamified Education: A Long-Term Study." *Computers in Human Behavior*, 71: 550-585.
- Beidatsch, E. 2021. "In Dungeons and Dragons You Can Be Almost Anything, So Why the Backlash Over a Combat Wheelchair?" *ABC Australia*, May 2, 2021. <https://www.abc.net.au/news/2021-05-02/dungeons-and-dragons-disability-in-tabletop-gaming/100068926>
- Bellotti, F., Berta, R. and De Gloria, A. 2010. "Designing Effective Serious Games: Opportunities and Challenges for Research." *International Journal of Emerging Technologies in Learning*, 5(3): 22-35.
- Belman, J. and Flanagan, M. 2010. "Designing Games to Foster Empathy." *International Journal of Cognitive Technology*, 15(1): 5-15.
- Björk, S. and Zagal, J. P., 2018. "Game Design and Role-Playing Games." In *Role-Playing Game Studies: Transmedia Foundations* edited by J. P. Zagal and S. Deterding, 323-336. Routledge.
- Bjørkelo, K. A. and Jørgensen, K. 2018. "The Asylum Seekers Larp: The Positive Discomfort of Transgressive Realism." In *Proceedings of Nordic DiGRA 2018* (pp. 1-12). Bergen, Norway, 28-30 November 2018. http://www.digra.org/wp-content/uploads/digital-library/DiGRA_Nordic_2018_paper_18.pdf
- Blizzard Entertainment. 2004. *World of Warcraft*. Online Game. Blizzard Entertainment.
- Board of Studies NSW. 2012. "Suggested Texts for the English K-10 Syllabus." <https://syllabus.nesa.nsw.edu.au/assets/global/files/english-k10-suggested-texts.pdf>
- Bopp, J. A., Mekler, E. D., and Opwis, K. 2016. "Negative Emotion, Positive Experience?: Emotionally Moving Moments in Digital Games." In *Proceedings of CHI 2016* (pp. 2996- 3006). San Jose, United States, 7-12 May 2016. <https://doi.org/10.1145/2858036.2858227>
- Bouchrika, I., Harrati, N., Wanick, V. and Wills, G. 2021. "Exploring the Impact of Gamification on Student Engagement and Involvement with E-Learning Systems." *Interactive Learning Environments*, 29(8): 1244-1257.
- Brand, J. E. and Jervis, J. 2021. *Digital Australia 2022*. Eveleigh, IGEA. <https://igea.net/wp-content/uploads/2021/10/DA22-Report-FINAL-19-10-21.pdf>
- Breuer, J. and Bente, G. 2010. "Why So Serious? On the Relation of Serious Games and Learning." *Journal for Computer Game Culture*, 4:7-24.
- Burke, J. W., McNeill, M. D. J., Charles, D. K., Morrow, P. J., Crosbie, J. H. and McDonough, S. M. "Augmented Reality Games for Upper-Limb Stroke Rehabilitation." In *Proceedings of the Second International Conference on Games and Virtual Worlds for Serious Applications 2010* (pp. 75-78). Braga, Portugal, 25-26 March 2010. doi: 10.1109/VS-GAMES.2010.21.

- Caponetto, I., Earp, J. and Ott, M. 2014. "Gamification and Education: A Literature Review." In *Proceedings of the Eighth European Conference on Games Based Learning* (pp. 50-57). Berlin, Germany, 9-10 October 2014. <https://www.itd.cnr.it/download/gamificationECGBL2014.pdf>
- Carter, A. 2011. "Using Dungeons and Dragons to Integrate Curricula in an Elementary Classroom." In *Serious Games and Edutainment Applications* edited by M. Ma, A. Oikonomou, and L. C. Jain, 329–346. Springer.
- Carter, M. and Allison, F. 2017. "Fear, Loss and Meaningful Play: Permadeath in DayZ." *Journal of Gaming & Virtual Worlds*, 9(2): 143-158.
- Chalk, A. 2018. "A Chronology of Dungeons & Dragons in Popular Media." *Analog Game Studies*, 6(1). <https://analoggamestudies.org/2018/06/telling-stories-of-dungeons-dragons-a-chronology-of-representations-of-dd-play/>
- Chalk, A. 2023. "Mapping an Online Production Network: The Field of 'Actual Play' Media." *Convergence*, 29(2), 449–466.
- Charmaz, K. 2006. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. SAGE.
- Clark, D. B., Tanner-Smith, E. E., and Killingsworth, S. 2016. "Digital Games, Design, and Learning: A Systematic Review and Meta-Analysis." *Review of Educational Research*, 86(1): 79–122.
- Clarke, S., Arnab, S., Morini, L., and Heywood, L. 2019. "Dungeons and Dragons as a Tool for Developing Student Self-Reflection Skills." In *Proceedings of the Seventh International Games and Learning Alliance Conference* (pp. 101-109). Palermo, Italy, 5-7 December 2018. https://doi.org/10.1007/978-3-030-11548-7_10
- Cook, M. P., Gremo, M. and Morgan, R. 2017. "We're Just Playing: The Influence of a Modified Tabletop Role-Playing Game on ELA Students' In-Class Reading." *Simulation & Gaming*, 48(2): 199-218.
- Cote, A. 2020. *Gaming Sexism: Gender and Identity in the Era of Casual Video Games*. New York University Press.
- Crotty, M. 1998. *The Foundations of Social Research: Meaning and Perspective in the Research Process*. SAGE.
- Darvasi, P. 2016. "The Ward Game: How McMurphy, McLuhan and MacGyver Might Free Us from McEducation." In *Teacher Pioneers: Visions from the Edge of the Map* edited by C. C. Williams, 70-105. ETC Press.
- Darvasi, P. 2019. "How Dungeons & Dragons Can Help Kids Develop Social-Emotional Learning Skills." *KQED*, May 13, 2019. <https://www.kqed.org/mindshift/51784/how-dungeons-dragons-can-help-kids-develop-social-emotional-learning-skills>
- Dashiell, S. 2017. "Rules Lawyering as Symbolic and Linguistic Capital." *Analog Game Studies*, 4(5). <https://analoggamestudies.org/2017/11/rules-lawyering-as-symbolic-and-linguistic-capital/>
- Dashiell, S. 2018. "'Rules as Written': Game Algorithms as Game Capital." *Analog Game Studies*, 5(3). <https://analoggamestudies.org/2018/09/rules-as-written-analyzing-changes-in-reliance-on-game-system-algorithms-as-shifts-in-game-capital/>
- Deterding, S., Dixon, D., Khaled, R. and Nacke, L. 2011. "From Game Design Elements to Gamefulness: Defining 'Gamification.'" In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9-15). Tampere, Finland, 28-30 September 2011. <https://doi.org/10.1145/2181037.2181040>
- Ehret, C., Mannard, E. and Curwood, J.S. 2022. "How Young Adult Videogames Materialize Senses of Self Through Ludonarrative Affects: Understanding Identity and Embodiment Through Sociomaterial Analysis." *Learning, Media and Technology*, 47(3): 341-354.

- Entertainment Software Association [ESA]. 2022. "Essential Facts about the Video Game Industry 2022." *ESA*. <https://www.theesa.com/wp-content/uploads/2022/06/2022-Essential-Facts-About-the-Video-Game-Industry.pdf>
- Far, F. F. and Taghizadeh, M. 2022. "Comparing the Effects of Digital and Non-Digital Gamification on EFL Learners' Collocation Knowledge, Perceptions, and Sense of Flow." *Computer Assisted Language Learning*, 1-33.
- Fine, G. A. 1983. *Shared Fantasy: Role-Playing Games as Social Worlds*. University of Chicago Press
- Fox, T. 2015. *Undertale*. Videogame. Toby Fox.
- Fullerton, T. 2014. *Game Design Workshop: A Playcentric Approach to Creating Innovative Games* (Third Edition). CRC Press.
- Fujimoto, T., Ikejiri, R. and Fukuyama, Y. 2019. "Bridging Meaningful Play and Playful Learning: Supporting the Design Process of Gamification in Education." In *Proceedings of DiGRA 2019* (pp. 1-3). Kyoto, Japan, 6-10 August 2019. http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2019_paper_247.pdf
- Garcia, A. 2020. "Gaming Literacies: Spatiality, Materiality, and Analog Learning in a Digital Age." *Reading Research Quarterly*, 55(1): 9-27.
- Gee, J. P. 2003. *What Video Games Have to Teach Us About Learning and Literacy*. New York: Palgrave Macmillan.
- Geertz, C. 1972. "Deep Play: Notes on the Balinese Cockfight." *Daedalus*, 101(1): 1-37.
- GIANTS Software. 2008. *Farming Simulator*. Game Series. GIANTS Software.
- Göbel, S., Hardy, S., Wendel, V., Mehm, F. and Steinmetz, R. 2010. "Serious Games for Health: Personalized Exergames." In *Proceedings of the 18th ACM International Conference on Multimedia* (pp. 1663-1666). Firenze, Italy, 25-29 October 2010. <https://doi.org/10.1145/1873951.1874316>
- Gowler, C. P. R. and Iacovides, I. 2019. "'Horror, Guilt and Shame': Uncomfortable Experiences in Digital Games." In *Proceedings of CHI PLAY 2019* (pp. 325-337). Barcelona, Spain, 22-25 October 2019. <https://doi.org/10.1145/3311350.3347179>
- Hammer, J., To, A., Schrier, K., Bowman, S.L. and Kaufman, G. 2018. "Learning and Role-Playing Games." In *Role-Playing Game Studies: Transmedia Foundations* edited by J. P. Zagal and S. Deterding, 283-299. Routledge.
- Harrington, B. and O'Connell, M. 2016. "Video Games as Virtual Teachers: Prosocial Video Game Use by Children and Adolescents From Different Socioeconomic Groups is Associated with Increased Empathy and Prosocial Behaviour." *Computers in Human Behavior*, 63: 650-658.
- Hasbro. 1935. *Monopoly*. Boardgame. Hasbro Inc.
- Holopainen, J., Nummenmaa, T. and Kuittinen, J. 2010. "Modelling Experimental Game Design." In *Proceedings of DiGRA Nordic 2010: Experiencing Games: Games, Play, and Players* (pp. 1-6). Stockholm, Sweden, 16-17 August. <http://www.digra.org/wp-content/uploads/digital-library/10343.48507.pdf>
- Holtz, B. E., Murray, K. and Park, T. 2018. "Serious Games for Children with Chronic Diseases: A Systematic Review." *Games for Health Journal*, 7(5): 291-301.
- Hopeametsä, H. 2008. "24 Hours in a Bomb Shelter." In *Playground Worlds* edited by M. Montola and J. Stenros, 187-198. Helsinki: Ropecon.
- Hoy, B. 2019. "Monopoly Was Designed 100 Years Ago to Teach the Dangers of Capitalism." *The Conversation*. March 15, 2019. <https://theconversation.com/monopoly-was-designed-100-years-ago-to-teach-the-dangers-of-capitalism-112198>

- Huizinga, J. 1955. *Homo Ludens: A Study of the Play-Element in Culture*. Beacon Press
- Interactive Software Federation of Europe [ISFE]. 2020. "Key Facts 2020." *ISFE*. <https://www.isfe.eu/wp-content/uploads/2020/08/ISFE-final-1.pdf>
- Jacobs, A., Timmermans, A., Michielsen, M., Vander Plaetse, M. and Markopoulos, P. 2013. "CONTRAST: Gamification of Arm-Hand Training for Stroke Survivors." In *Proceedings of CHI 2013* (pp. 415-420). Paris, France, 27 April-2 May 2013. <https://doi.org/10.1145/2468356.2468430>
- Jerrett, A., Howell, P. and Dansey, N. 2020. "Creating Meaningful Games Through Values-Driven Design Principles." In *Proceedings of DiGRA 2020* (pp. 1-6). Cancelled due to COVID-19, presented at DiGRA 2022. Kraków, Poland, 7-11 July 2022. http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2020_paper_66.pdf
- Jokinen, J. and Virtanen, J. 1998. *Ground Zero*. LARP.
- Jones, S. 2018. "Blinded by the Roll: The Critical Fail of Disability in D&D." *Analog Game Studies*, 5(1). <https://analoggamestudies.org/2018/03/blinded-by-the-roll-the-critical-fail-of-disability-in-dd/>
- Jones, S. 2021. *Watch Us Roll: Essays on Actual-Play and Performance in Tabletop Role-Playing Games*. McFarland.
- Jones, S. and Pobuda, T. 2020. "An Analysis of Gender-Inclusive Language and Imagery in Top-Ranked Board Game Rulebooks." *Analog Game Studies*, 7(2). <https://analoggamestudies.org/2020/12/an-analysis-of-gender-inclusive-language-and-imagery-in-top-ranked-board-game-rulebooks/>
- Kahoot! ASA. 2013. *Kahoot!*. Educational Learning Platform. Kahoot! Norway.
- Kalantzis, M. and Cope, B. 2005. *Learning by Design*. Common Ground Publishing.
- Koivisto, J. and Hamari, J. 2014. "Demographic Differences in Perceived Benefits from Gamification." *Computers in Human Behavior*, 35: 179-188.
- LaLone, N. 2019. "A Tale of Dungeons & Dragons and the Origins of the Game Platform." *Analog Game Studies*, 6(3). <https://analoggamestudies.org/2019/09/a-tale-of-dungeons-dragons-and-the-origins-of-the-game-platform/>
- Landers, R. N. 2014. "Developing a Theory of Gamified Learning: Linking Serious Games and Gamification of Learning." *Simulation & Gaming*, 45(6): 752-768.
- Lankoski, P. and Holopainen, J. 2017. *Game Design Research: An Introduction to Theory & Practice*. ETC Press.
- Laycock, J. P. 2015. *Dangerous Games: What the Moral Panic Over Role-Playing Games Says About Play, Religion, and Imagined Worlds*. University of California Press.
- Maragliano, A. 2019. "Edu-Larp Paths in Education: A Pedagogic Research on Ethnic Prejudice and Empathy Through Games." In *Proceedings of the International Conference the Future of Education* (pp. 1-5). Florence, Italy, 27-28 June 2019. <https://conference.pixel-online.net/FOE/files/foe/ed0009/FP/5814-LGM3956-FP-FOE9.pdf>
- McFarland, J. 2020. "Leveling Up for the Teacher-Practitioner: Design and Implementation of a Gamified Application." *Schools*, 17(1): 115-135.
- McGonigal, J. 2011. *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. Jonathan Cape.
- Microsoft. 1982. *Microsoft Flight Simulator*. Game Series. Microsoft.
- Mizer, N. J. 2019. *Tabletop Role-Playing Games and the Experience of Imagined Worlds*. Springer.
- Mojang. 2016. *Minecraft Education*. Videogame. Mojang.
- Montola, M. 2010. "The Positive Negative Experience in Extreme Role-Playing." In *Proceedings of Nordic DiGRA 2010* (pp. 1-8). Stockholm, Sweden, 16-17

- August 2010. <http://www.digra.org/wp-content/uploads/digital-library/10343.56524.pdf>
- Morningstar, J. 2009. *Fiasco*. Role-Playing Game. Bully Pulpit Games.
- Nguyen, C. T. and Ruberg, B. 2020. "Challenges of Designing Consent: Consent Mechanics in Video Games as Models for Interactive User Agency." In *Proceedings of CHI 2020* (pp. 1-13). Honolulu, United States, 25-30 April 2020. <https://doi.org/10.1145/3313831.3376827>
- NSW Education Standards Authority [NESA]. 2023. "Outcomes (Linked to Course Content)." *NESA*. <https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/english-year-10/english-k-10/outcomes>
- Numinous Games. 2016. *That Dragon, Cancer*. Videogame. Numinous Games.
- Nygren, N. V., Kankainen, V., and Brunet, L. 2022. "Offsetting Game: Framing Environmental Issues in the Design of a Serious Game." *Simulation & Gaming* 53(6), 615-644.
- Orwell, G. 1945. *Animal Farm*. Penguin Student Editions.
- Ostenson, J. 2013. "Exploring the Boundaries of Narrative: Video Games in the English Classroom." *English Journal*, 102(6): 71-78.
- Pereira, L. L. and Roque, L. G. 2009. "Design Guidelines for Learning Games: The Living Forest Game Design Case." In *Proceedings of DiGRA 2009* (pp. 1-9). London, United Kingdom, 1-4 September 2009. <http://www.digra.org/wp-content/uploads/digital-library/09287.16436.pdf>
- Peterson, J. 2012. *Playing at the World: A History of Simulating Wars, People, and Fantastic Adventures from Chess to Role-Playing Games*. Unreason Press.
- Peterson, J. 2018. "Precursors." In *Role-Playing Game Studies: Transmedia Foundations* edited by J. P. Zagal and S. Deterding, 55-62. Routledge.
- Peterson, J. 2020. *The Elusive Shift: How Role-Playing Games Forged Their Identity*. MIT Press.
- Peterson, J. 2021. *Game Wizards: The Epic Battle for Dungeons & Dragons*. MIT Press.
- Plass, J. L., Homer, B. D. and Kinzer, C. K. 2015. "Foundations of Game-Based Learning." *Educational Psychologist*, 50(4): 258-283.
- Plass, J. L., Mayer, R. E. and Homer, B. D. 2020. *Handbook of Game-Based Learning*. MIT Press.
- Polkinghorne, A., Turner, J., Taboada, M. and Kerr, J. 2021. "Critical Fail: Addressing Problematic Designs in Table-Top Role-Playing Games for Narrative Therapy and Community Wellbeing." In *Proceedings of DiGRA Australia 2021* (pp. 1-5). Online (Due to COVID-19), 9-10 February 2021. https://digraa.org/wp-content/uploads/2021/02/DiGRAA2021_paper_22.pdf
- Prensky, M. 2003. "Digital Game-Based Learning." *Computers in Entertainment*, 1(1): 1-4.
- Rajkovic, A. I., Ruzic, M. S. and Ljubic, B. 2019. "Board Games as Educational Media: Creating and Playing Board Games for Acquiring Knowledge of History." *IARTEM E-Journal*, 11(2), 1-21.
- Romero, B. 2009. *Train*. Boardgame.
- Salen, K. and Zimmerman, E. 2003. *Rules of Play: Game Design Fundamentals*. MIT Press.
- Schrier, K. 2016. *Knowledge Games: How Playing Games Can Solve Problems, Create Insight, and Make Change*. Johns Hopkins University Press.
- Schrier, K. 2021. *We the Gamers: How Games Teach Ethics and Civics*. Oxford University Press.
- Schönauer, C., Pintaric, T., Kaufmann, H., Jansen-Kosterink, S. and Vollenbroek-Hutten, M. 2011. "Chronic Pain Rehabilitation with a Serious Game Using Multimodal Input." In *Proceedings of the 2011 International Conference on*

- Virtual Rehabilitation* (pp. 1-8). Zurich, Switzerland, 27-29 June 2011. doi: 10.1109/ICVR.2011.5971855.
- Shaffer, D. W., Halverson, R., Squire, K. R. and Gee, J. P. 2005. "Videogames and the Future of Learning (WCER Working Paper No. 2005-4)." Madison: University of Wisconsin–Madison, Wisconsin Center for Education Research. <https://files.eric.ed.gov/fulltext/ED497016.pdf>
- Sidhu, P. 2022. "'Why Do You Play Dungeons & Dragons [D&D]?': Investigating Motivations for Play in Non-Digital Games." In *Proceedings of DiGRA International 2022* (pp. 1-5). Kraków, Poland, 7-11 July 2022. http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2022_paper_1711.pdf
- Sidhu, P. and Carter, M. 2020. "The Critical Role of Media Representations, Reduced Stigma and Increased Access in D&D's Resurgence." In *Proceedings of DiGRA 2020* (pp. 1-20). Cancelled due to COVID-19, presented at DiGRA 2022. Kraków, Poland, 7-11 July 2022. http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2020_paper_223.pdf
- Sidhu, P. and Carter, M. 2021a. "Exploring the Resurgence and Educative Potential of Dungeons & Dragons." *Scan*, 40(6): 12-16.
- Sidhu, P. and Carter, M. 2021b. "Pivotal Play: Rethinking Meaningful Play in Games Through Death in Dungeons & Dragons." *Games and Culture*, 16(8): 1044– 1064.
- Sidhu, P. and Carter, M. 2021c. "Unlearning in Games: Deconstructing Failure in Dungeons & Dragons." In *Proceedings of DiGRA Australia 2021* (pp. 1-4). Online (Due to COVID-19), 9-10 February 2021. https://digraa.org/wp-content/uploads/2021/02/DiGRAA2021_paper_17.pdf
- Sidhu, P. and Carter, M. 2022. "What is Creative Transgressive Play?: Exploring Creativity and Transgression in Dungeons & Dragons [D&D]." In *Proceedings of DiGRA Australia 2022* (pp. 1-3). Online (Due to COVID-19), 14-15 February 2022. https://digraa.org/wp-content/uploads/2022/02/DiGRAA_2022_paper_15.pdf
- Sidhu, P., Carter, M. and Curwood, J. S. 2021. "Unlearning in Games: Deconstructing Failure in Dungeons & Dragons." In *Proceedings of DiGRA Australia 2021* (pp. 1-4). Online (Due to COVID-19), 9-10 February 2021. https://digraa.org/wp-content/uploads/2021/02/DiGRAA2021_paper_17.pdf
- Sousa, M. 2021. "Modding Modern Board Games for E-Learning: A Collaborative Planning Exercise About Deindustrialization." In *Proceedings of the 4th International Conference of the Portuguese Society for Engineering Education* (pp. 1–8). Lisbon, Portugal, 21-23 June 2021. <https://ieeexplore.ieee.org/document/9507250>
- Square Enix. 1997. *Final Fantasy VII*. Videogame. Square Enix.
- Square Enix. 2013. *Final Fantasy XIV*. Online Game. Square Enix.
- Squire, K. 2011. *Videogames and Learning: Teaching Participatory Culture in the Digital Age*. Teachers College Press.
- Stang, S. and Trammell, A. 2020. "The Ludic Bestiary: Misogynistic Tropes of Female Monstrosity in Dungeons & Dragons." *Games and Culture*, 15(6): 730-747.
- Stanton, R. and Johnson, M. R. 2021. "The Audiences of The Adventure Zone: Analysing Actual Play as Inclusive Gaming Media. In *Proceedings of DiGRA Australia 2021* (pp. 1-4). Online (Due to COVID-19), 9-10 February 2021. https://digraa.org/wp-content/uploads/2021/02/DiGRAA2021_paper_12.pdf
- Stapleton, A. 2005. "Research as Design: Design as Research." In *Proceedings of DiGRA 2005* (pp. 1-7). Vancouver, Canada, 16-20 June 2005. <http://www.digra.org/wp-content/uploads/digital-library/06278.40383.pdf>

- Stokes, M. 2017. "Access to the Page: Queer and Disabled Characters in Dungeons & Dragons." *Analog Game Studies*, 4(3). <https://analoggamestudies.org/2017/05/access-to-the-page-queer-and-disabled-characters-in-dungeons-dragons/>
- Susi, T., Johannesson, M. and Backlund, P. 2007. "Serious Games: An Overview." Interreg IICC Programme Report. <http://www.diva-portal.org/smash/get/diva2:2416/fulltext01.pdf>
- The Quinnspiracy. 2013. *Depression Quest*. Digital Game.
- Trammell, A. 2014. "Misogyny and the Female Body in Dungeons & Dragons." *Analog Game Studies* 1(3). <https://analoggamestudies.org/2014/10/constructing-the-female-body-in-role-playing-games/>
- Voorhees, G. A., Call, J. and Whitlock, K. 2012. *Dungeons, Dragons, and Digital Denizens: The Digital Role-Playing Game*. Bloomsbury Publishing.
- Vygotsky, L. 1978. "Interaction Between Learning and Development." In *Readings on the Development of Children* edited by Gauvain and Cole, 23(3), 29-36. W. H. Freeman and Company.
- Waern, A. and Back, J. 2017. "Experimental Game Design." In *Game Design Research: An Introduction to Theory and Practice* edited by P. Lankoski and J. Holopainen, 341-353. ETC Press.
- Wang, A. I. and Tahir, R. 2020. "The Effect of Using Kahoot! for Learning—A Literature Review." *Computers & Education*, 149: 1-22.
- Willet, B. S., Moudgalya, S., Boltz, L., Greenhalgh, S. and Koehler, M. 2018. "Back to the Gaming Board: Understanding Games and Education Through Board Game Reviews." In *Proceedings of the Society for Information Technology & Teacher Education International Conference* (pp. 495–503). Washington DC, United States, 26 March 2018. <https://www.learntechlib.org/primary/p/182570/>
- Wouters, N., Rogerson, M. J. and Hu, Y. 2021. "The Potential for Facial Biometrics in Role-Playing Games." In *Proceedings of DiGRA Australia 2021* (pp. 1-2). Online (Due to COVID-19), 9-10 February 2021. http://digraa.org/wp-content/uploads/2021/02/DiGRAA2021_paper_30.pdf
- Wright, J. C., Weissglass, D. E. and Casey, V. 2020. "Imaginative Role-Playing as a Medium for Moral Development: Dungeons & Dragons Provides Moral Training." *Journal of Humanistic Psychology*, 6(1): 99-129.
- Xu, Y., Barba, E., Radu, I., Gandy, M. and MacIntyre, B. 2011. "Chores Are Fun: Understanding Social Play in Board Games for Digital Tabletop Game Design." In *Proceedings of DiGRA 2011* (pp. 1-16). Hilversum, The Netherlands, 14-17 September 2011. <http://www.digra.org/wp-content/uploads/digital-library/11307.16031.pdf>
- Zagal, J. P. and Deterding, S. 2018. *Role-Playing Game Studies: Transmedia Foundations*. Routledge.
- Zagal, J. P., Rick, J., and Hsi, I. 2006. "Collaborative Games: Lessons Learned from Board Games." *Simulation & Gaming*, 37(1): 24-40.
- Zainuddin, Z. and Keumala, C. M. 2021. "Gamification Concept Without Digital Platforms: A Strategy for Parents on Motivating Children Study at Home During COVID-19 Pandemic." *Pedagogik: Jurnal Pendidikan*, 8(1), 156-193.
- Zimmerman, J., Forlizzi, J., and Evenson, S. 2007. "Research Through Design as a Method for Interaction Design Research in HCI." In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 493–502). California, United States, 28 April-3 May 2007. <https://doi.org/10.1145/1240624.1240704>
- Zyda, M. 2005. "From Visual Simulation to Virtual Reality to Games." *Computer*, 38(9): 25-32.