Practical Considerations for Values-Conscious Pervasive Games

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ABSTRACT
Pervasive games are a genre that blur reality and fiction by creating unique experiences that are played in and affected by real life. Because of their effective blend of reality and fiction, the genre has become popular for creating serious games that, among other things, explore the values of players and their communities. While value exploration is often discussed in the context of subgenres like alternate reality and live-action roleplaying games, little literature exists that discusses value exploration in the genre of pervasive games more broadly.

As such, this paper amalgamates practices across pervasive game types that facilitate value exploration through play. These practices are then presented as design considerations alongside practical techniques that designers can implement to encourage playing with values. These considerations are presented to provide designers with practical ways to make their games more meaningful to and representative of increasingly diverse player populations.

Keywords
Pervasive games, values, practical, design

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INTRODUCTION

Pervasive games "expand the contractual magic circle of play spatially, temporally, or socially" (Montola 2005). The genre inherently brings worlds together: the player's reality and the game's reality merge to create a ubiquitous play experience that blurs the lines between reality and fiction. The genre became popular in the early 2000s due to rapidly evolving technology, which resulted in new types of games like Alternate Reality Games (ARGs) (Montola et al. 2009). The success of early ARGs like *The Beast*, a game produced as a movie tie-in to *Artificial Intelligence*, provided a proof-of-concept that allowed the genre to thrive as a viral marketing tool (Montola et al. 2019). This spawned similar games, including *I Love Bees* and *Year Zero* to promote *Halo 2* and Nine Inch Nail's *Year Zero* album respectively (de Beer 2016). The success of ARGs prompted examination into the genre of pervasive games through the EU-funded Integrated Project on Pervasive Games (IPERG) and the subsequent release of the seminal text *Pervasive Games: Theory and Design* (Montola et al. 2009, 2019). Here, "pervasive game" serves as an umbrella term for various game types that integrate game elements and gameplay into real-world spaces. This research continues the use of "pervasive game" as an umbrella term as it is a technology-agnostic way to discuss game types and mechanics that take place either partially or fully within the real world (Montola et al. 2019).

As an early pervasive game type, ARGs often found success exploring serious contexts, such as McGonigal's (2010b, 2010a) *World Without Oil* and *Urgent: EVOKE*. While these games were often classified as "serious games" (Marsh 2011), their narratives and systems also highlighted specific values such as sustainability and environmentalism. Nordic-style Larps (live-action roleplaying games), another pervasive game type, similarly explore themes that sometimes encourage players to explore their own values through playing games with difficult themes (Montola 2014). Other pervasive games provide a plethora of unique ways to explore values through play. Research ranges from educational examples that highlight the value of communication through language learning (see Chang et al., 2017; Connolly et al., 2011) to the provocative gameplay of smuggling virtual drugs through real airports in order to highlight the value of security (Kirman et al. 2012). Such examples are joined by a growing body of research regarding how Larps can encourage inclusive, values-conscious design (see Høyer, 2019; Saitta and Svegaard, 2019).

Despite the examples presented here, much research discussing the values present in such games does so within the context of the specific game type (e.g., values in ARGs, values in Larp, etc.). However, discussions of ethics and values under the larger pervasive games umbrella remains important (Montola et al. 2019). As such, this research aims to reintroduce the term to game studies by exploring the evolution of pervasive games in the decades following their adoption. It then examines this modern understanding of pervasive games through the lens of values-conscious design (Flanagan and Nissenbaum 2014) to present a set of ten practical considerations for designers who wish to engage players with values within partially or fully real-world games.

BACKGROUND

Values in Games

The formal definition of values remains a source of ontological debate within technology design (Shilton 2018). Kluckhohn's (1951) highly cited definition of values equates them to other abstract concepts, such as relationships, motivations, attitudes, and traditions. Some concepts in this definition are seen in others, which define values as behaviours that are deemed important (Simpson and Weiner 1993), an individual's political or personal ideologies (Flanagan et al. 2005), and motivational factors for

decision making (Fleischmann 2013). Values are also sometimes discussed when examining the political aspects of a creative work (Winner 1980). Shilton's (2018) definition combines many of these elements: "Values can be attributes of people, attributes of systems, tools to think with, or even actions to take". While this definition may be considered broad, its breadth is useful when discussing how the similarly broad genre of pervasive games can engage with values.

Technology designers (Flanagan et al., 2005; Fleischmann, 2013; Grace, 2010) argue that artefacts (i.e., games) have values embedded within them through the design process. These values can come from the ideas themselves, certain design decisions, or what the artefact represents. These values can be explicitly embedded when designers choose to focus design around a specific value, such as "connection" in *Death Stranding* (Kojima 2019), or implicitly embedded through gameplay. First-Person Shooters, for example, highlight the value of violence (Grace 2010). This research advocates for explicitly embedding values through "values-centred design", wherein a single value is focused on as part of the game's core message (Jerrett et al. 2020).

Despite this, multiple values can and regularly do co-exist in a game. This creates the potential for conflicting values to confuse the overall user experience. Value conflict can be seen in the phenomenon of ludo-narrative dissonance, which occurs when a gameplay value does not correspond with a similar narrative value (Dunne 2014). This can be seen in games like *Uncharted* (Naughty Dog 2007) where the protagonist, Nathan Drake, is portrayed as a charismatic and sometimes clumsy rogue (Farrell 2014). However, during gameplay the player controls Nathan as they massacre enemies with ruthless efficiency – a far cry from the Nathan Drake shown during cutscenes. While a full discussion of ludo-narrative dissonance is not the focus of this paper, it showcases a useful practical consequence of ignoring the values implied by design decisions.

Value identification thus becomes an important process in communicating a game's message. To assist in this identification, Grace (2010) asks designers to consider how certain in-game mechanics and narrative aspects can support "invisible" values that may have consequences for the player experience. The under-representation or omission of women or people of colour in a game, for example, may signify that these groups are unimportant in the game world. This example highlights "invisible" values of racism and misogyny, despite the omission potentially being unintentional. Understanding a game's values in this way also allows designers to understand its potential cultural impact and how it might reaffirm or conflict with a community's own value systems (e.g., ethics, morals, etc.) (Gunraj et al. 2011).

The Evolution of Pervasive Games

Pervasive games remain a nebulous and ever-changing genre. While the term was popularised in the late 2000s up to and following the release of *Pervasive Games: Theory and Design* (Montola et al. 2009), it has steadily fallen out of academic use in favour of technological terminology (e.g., location-based games) (Montola et al. 2019). However, this research asserts that the term remains useful *because* it is technology-agnostic (Montola et al. 2019). As such, it is useful to briefly understand Montola et al.'s (2009) pervasive game types (see Table 1) before discussing how such classifications led to modern interpretations in the subsequent decade.

Pervasive Game Type	Gameplay
Treasure Hunts	• Solving clues to discover locations • Finding items at locations • Racing against other players
Assassination Games	• Eliminating other players using tools like water pistols • Finding and eliminating dead players' targets
Pervasive Larps	• Adopting the personality of a character, often in costume • Exploring narrative contexts through roleplay to cocreate a shared story
Alternate Reality Games	• Discovery of clues and information across multiple media formats (e.g., audio, video) within real-world locations and artefacts • Changing the course of the alternate reality through play decisions
Smart Street Sports	• Technology-enabled versions (e.g., using GPS tracking) of existing games played in physical spaces
Playful Public Performances	• Takes cues from theatre by encouraging players to perform play within public spaces • Can include the moving of large real-world game objects in physical space
Urban Adventure Games	• Integrates stories and puzzles into existing historical or cultural contexts • Game mechanics are used to encourage the exploration of physical spaces
Reality Games	• Takes cues from public art installations to make urban spaces more playful

Table 1: Montola et al.'s (2009) Pervasive Game Types

A notable problem with some of these game types and classifications, however, is that many of these terms were misused (as is often the case with "alternate reality game" being used as the umbrella term for pervasive games) or never widely adopted (e.g., smart street sports). As a result, many of the games referenced within this research were documented between 2005 and 2015, at the height of the pervasive game genre's popularity. This does not mean that pervasive games are no longer created or relevant, but rather that they often persist in other research using specific terminology (e.g., location-based games).

Indeed, many original pervasive game types have evolved with interesting applications in the past decade. Geocaching modernised the Treasure Hunt format by using of GPS-enabled devices to locate caches (boxes that contain small rewards) (Gram-Hansen 2009). Toyification integrates playful aesthetics and actual toys into public spaces to encourage urban reappropriation (Thibault 2020), similar to the playful subversion of

urban spaces found in Reality Games. Playful Public Performances were prominent during organised flash mobs in the early 2010s (Molnár 2014). Finally, Urban Adventure Games enrich tourist experiences, as can be seen with *The Jejune Institute*, which hybridised art installations, puzzles and treasure hunts to create an ARG-like interactive experience (Duggan 2017).

Increased mobile phone usage and technological innovation, initially utilised by ARGs and other game types, gave rise to a new genre: "urban mobile gaming" (Hjorth 2011). The genre expanded when *Ingress* (Niantic Inc. 2012) combined elements of traditional *alternate* reality games (such as fragmented narrative) with new *augmented* reality technologies (GPS technology that enabled precise location-aware play) (Söbke et al. 2017). *Pokémon GO* (Niantic Inc. et al. 2016) soon followed, and was hailed as the trailblazer application that brought true mainstream awareness to pervasive mobile gaming (Montola et al. 2019; Paavilainen et al. 2017).

Pokémon GO and other free-to-play mobile games heralded a change in the commercial viability of pervasive game experiences. Montola claims that the popularity of free-to-play mobile games affected industry funding for pervasive games' more experimental experiences (Montola et al. 2019). One potential casualty of this change is ARGs. The scope of the genre makes their development and management time-consuming and expensive for games that are often only played once (McGonigal 2007). While this quality may be ideal for timely marketing campaigns, it is an understandably unsustainable business model. Escape Rooms have emerged as a potential evolution of the ARG genre. Like ARGs, Escape Rooms challenge players to escape from a locked room by communicating, collaborating and solving puzzles - integral parts of de Beer's (2016) conceptual framework for ARGs - to find the room's key (Wiemker et al. 2015). Unlike ARGs, however, Escape Rooms are designed to be replayable, which provides a more attractive investment opportunity (Nicholson 2015).

Finally, the modern ubiquity of pervasive games and play has led to many digital games integrating elements of pervasiveness, often through their sheer ubiquity (Montola et al. 2019). *Fortnite* emotes, for example, often pervade society (Marshall 2019), while the game's "metaverse" is constantly integrating popular characters and trends from the real world (Sparkes 2021). *Kind Words* (Scott 2019) incorporates elements of pervasiveness by having players, as themselves, write and respond to digital letters about players' real problems. In these examples, reality pervades the game. While this differs from Montola et al.'s (2009) original description of the genre (wherein games pervade reality), it nevertheless represents a meaningful way pervasive games have evolved.

Pervasive Games and Values

Shilton's (2018) definition of values is useful for understanding how pervasive games can engage with them. Exploring values as attributes of people is common in Larps where meaningful character interactions and internal reflections form the basis of play (Pettersson 2019). Values as attributes of systems can be seen in puzzle design in ARGs. Puzzles that utilise books as ciphertexts, for example, may highlight their importance as knowledge sources (Jerrett et al. 2017). Values become tools to think with in ethically-charged narrative contexts, where players must confront ethical dilemmas (Pohjola 2010). Finally, values are actions to take when players engage with their own or the game's values by, for example, cycling to work instead of taking public transport (Rusnak et al. 2008).

Pervasive games have also been increasingly used in serious contexts (e.g., museums) and other meaningful, impactful and artistic ways (Montola et al. 2019). Table 2 describes how different pervasive game types have previously explored values.

Pervasive Game Type	Game	Value	How the Value was Explored
Treasure Hunts	*Unnamed* (Butgereit 2018)	Security	Players had to master cryptography tools to find the treasure
Urban Mobile Games	*Zombies, Run!* (Six to Start 2012)	Physical Health	Players must run to real-world locations to act as a messenger during a zombie apocalypse
Pervasive Larps	*Inside:outside* (Pohjola 2010)	Trust	Players were presented with versions of The Prisoner's Dilemma and The Wolf's Dilemma, which present moral challenges about their trust in strangers
Escape Rooms	*Jane's Room* (Blot 2017)	Empathy	Roleplaying as Jane, players must decide if they consent to the autopsy of their dead mother against her last will
Assassination Games	*Cruel 2 B Kind* (McGonigal and Bogost 2008)	Kindness	Players kill their suspected targets by performing acts of kindness (blowing a kiss, greeting or paying a compliment)
Alternate Reality Games	*World Without Oil* (McGonigal 2010b)	Environmentalism	Players were challenged to live their lives within the frame of the ARG's narrative. Players had to document how they responded to in-game events with real-world solutions
Digital Games	*Kind Words* (Scott 2019)	Compassion	Players write in-game letters (requests) about their personal problems. Players are also tasked with responding to other players' requests (replying to in-game letters) with kindness

Table 2: Pervasive game types and their exploration of values

PRACTICAL CONSIDERATIONS FOR DESIGN

With an understanding of how pervasive game types operate and engage with values, practical design decisions in pervasive games can now be examined through a values-conscious lens. Some of the following considerations discuss value engagement in elements that pervasive games often already implement (e.g., briefing and debriefing), while others examine aspects of values-conscious design that can be used in novel ways in pervasive games (e.g., creating authentic contexts). All design considerations will not apply to all games. Designers are instead encouraged to use specific considerations as they see fit for their specific application. As such, these considerations differ from stepwise design frameworks like those discussed and presented by Jerrett et al. (2020),

or from post-design evaluation heuristics as described by Sharp et al. (2019). The set of considerations instead provide a toolkit for designers and a useful theoretical framework to show how values can be integrated into pervasive game design.

The Golden Moment: Designing for Bleed

In Nordic-style Larps "bleed" refers to the blurring of boundaries between players and characters during roleplay. Aspects of the game can "bleed out" and affect the player, or real feelings can "bleed in" and affect the roleplaying experience (Stenros and Bowman 2018). While bleed is usually discussed within the context of Larps, the concept has been discussed more broadly within the contexts of digital and pervasive gaming (see Karpashevich *et al.*, 2016; Montola *et al.*, 2009; Waern, 2011).

Bleed remains a contentious issue in Larp design (Leonard and Thurman 2019). Some designers aim to regulate or eliminate bleed in their designs due to it being difficult to manage or even explicitly design for, with Brown (2014) noting that even design decisions intended to encourage bleed may not elicit it during gameplay. Nevertheless, the practice of "playing for bleed" is becoming popular (Toft and Harrer 2020). An inherently transgressive practice, playing for bleed is sought out by players who hope to use it as a way to gain insight into themselves and the world around them (Brown 2014). In playing for bleed, players critically engage with the games' values and their own values to catalyse personal growth – an outcome at the core of values-conscious design (Lawhead et al. 2019; Rusch 2017).

To encourage bleed play, Toft and Harrer (2020) advocate for "design bleed". Design bleed encourages designers to allow their lives to "bleed into" their game designs and explore values, topics, and roles often unaddressed by the wider games industry. Articulating these experiences through design results in games that can be healing and empowering for players. A notable focus of design bleed is finding a "golden moment" that organically resonates with the designer, as this will transfer into an authentic player experience (Bowman 2013). This can be found through iteration, or serendipitously by being present in a given moment, as described by Toft and Harrer's (2020) respective projects. In both cases, however, design bleed remains a reflective exercise where designers engage with their own values to create games that resonate with players. Toft and Harrer's (2020) examples highlight notable practical considerations when designing for bleed: Firstly, finding a golden moment where life bleeds into game takes time. Designers should therefore not shy away from ruminating on ideas so they can evolve organically. Finally, designers should engage in playful but unrelated activities during the design process, such as Toft's (2020) impromptu swim in a lake, as such activities may provide new perspectives that spark design inspiration.

Practically, the COVID-19 pandemic presents a unique universal theme for designers considering design bleed. While Larps like *Marras* (Niemi and Virtanen 2015) and ARGs like *Urgent: EVOKE* (McGonigal 2010a) have previously explored pandemics, player perception of the theme in a post-pandemic world may be different. The success of media like *Inside* (Burnham 2021) shows that while pandemic life can be a divisive theme, it remains a universal one that, when executed correctly, can be relatable and cathartic (McQuillan 2021). As such, drawing from this universal experience may resonate with players. This was the case, for example, with *Despandemia,* an ARG run during the pandemic that focused on finding solutions to COVID-19-related social problems (de Barros et al. 2021).

A Real Game: Creating Authentic Contexts

Authentic contexts are particularly useful within educational contexts, where the creation of an "authentic learning environment" (Galarneau 2005) lies at the core of constructivist teaching methodologies (Savery and Duffy 2001). The skills and

knowledge gained within a simulated context can be applied in a real one (Galarneau 2005). Authentic contexts also allow designers to "borrow" real world systems to facilitate quicker understanding of those systems in-game (Sampat 2017). Decisions made in authentic contexts allow players to safely explore consequences within the game while reflecting on their own values to examine how they may face such decisions in their own lives (Schrier and Gibson 2011).

In practice, authentic contexts are created in games where narrative themes and mechanics are grounded in reality. Games that are "realistic and constrained" allow players to meaningfully engage in ethical decision making (Schrier and Gibson 2011). This is especially important when designing around values like empathy and understanding as players are more likely to engage with scenarios that they can relate to (Belman and Flanagan 2010). ARGs like *World Without Oil* and *Urgent: EVOKE* modelled their narratives around existing real-world problems, for example. Players then had to research and implement real solutions as part of the game (Rusnak et al. 2008). Some Nordic Larps also go to great lengths to create authentic contexts for players to allow them to truly experience the lives of their characters. These contexts include prisons (Stuit 2020), refugee camps (Kaljonen and Raekallio 2012) or even the experience of being a Danish drifter (Pedersen and Munck 2014). Finally, authentic contexts can set the stage (sometimes literally) for scenario design in Escape Rooms where the grounded narrative context sets the tone for the player experience (Nicholson 2015).

What Is My Purpose: Highlighting the User Experience

Player-centric design is a common philosophy in game design theory. Player-centric approaches ask what designers want players to experience and build narratives and systems around that answer (Adams 2013; Schell 2014). In pervasive games, player-centric design is common in Nordic-style Larps, wherein players' personal experiences are more important than the overarching narrative of the Larp itself (Cox 2019; Stenros and Montola 2010). Player-centric design is also found in values-conscious games, as the purpose of these games is to have players engage with values in meaningful ways (Flanagan et al. 2005). Values engagement and pervasive games intersect during the "golden moments" that Bowman (2013) discusses. By continually asking themselves what "the point" of a given design decision and play experience is, designers can create meaningful play experiences that can be transformative for their players (Jerrett et al. 2020).

Pervasive games can create meaningful, values-conscious player experiences in several practical ways. Roleplay contexts that encourage bleed play can facilitate powerful "positive negative experiences" (Montola 2014). Educational contexts in game types like Treasure Hunts and ARGs can encourage both value exploration and skill acquisition (see Butgereit, 2018; Jerrett *et al.*, 2017). Finally, the pervasive game genre's emphasis on player agency facilitates meaningful emergent player experiences, regardless of their original design intent (Dansey 2013). As such, pervasive game designers should both *design* player experience as well as *facilitate* personal exploration.

Play, Not Game: The (Un)importance of Systems

Systems are defined as a combination of objects, attributes and relationships within an environment (e.g., a game world) (Salen and Zimmerman 2003). Systems can be constructed from rulesets and are often presented as formal structures within games. Most physical and digital games can be examined as closed systems, whereby games operate as a continuous feedback loop of subsystems interacting with one another (Salen and Zimmerman 2003). Pervasive games, however, operate as open systems: real player thoughts and actions can pervade and influence a game's systems and vice

versa (Montola et al. 2009). This significantly increases the complexity of a pervasive game's formalised systems.

As such, many pervasive games do not include formalised systems and mechanics as they are presented in digital games. Nordic Larps, for example, often include very few systems or mechanics (Stenros and Montola 2011). Instead, mechanics in many pervasive games signal to players what actions can be taken. Feedback on those actions is then often given by human intervention (e.g., puppetmasters in ARGs) instead of a digital formalised system. Examples of this include the hint mechanics in Escape Rooms (Nicholson 2015), player interaction with human characters in ARGs (Bonsignore 2012) and word-of-mouth transference of targets in Assassination Games (Montola et al. 2009). Larp mechanics such as shadows, fateplay and monologuing are framed as meta-techniques that help develop narrative elements (Koljonen et al. 2019). Such examples showcase the use of systems in pervasive games largely to facilitate player experience, rather than their use as formalised, functional systems.

Despite the unimportance of systems in some applications, other pervasive game types may need to utilise formalised systems to facilitate play. In ARGs, mechanics like QR codes can automate elements of gameplay by triggering server-side code to execute, as seen in *Nomad*, a game designed to teach information literacy (Jerrett et al. 2017). In urban mobile games and digital pervasive games, the underlying systems are similarly fundamental to facilitating the player experience, like the Google Maps integration that underpins *Pokémon GO* or the message system that anonymises, collates, and displays requests in *Kind Words.*

Regardless of the design approach, the inclusion or omission of systems are important aspects to consider in values-conscious applications due to the ways in which systems can highlight, facilitate, or embody values (Sampat 2017). Practically, this means that designers should consider the impact that the implementation of formalised systems has on the design, run, and player experience of their pervasive game. They should also be aware of the values that implemented or omitted systems represent.

Adequate Preparation: Briefing and Debriefing

While playing and designing for bleed is encouraged in values-conscious pervasive games, adequately framing the play experience remains important to allow players to manage and process bleed effectively (Stark 2019). While bleed can create "positive negative" experiences, mismanagement of player expectations can create purely negative ones (Montola 2014).

Practically, content warnings have become an effective briefing tool adopted by digital and pervasive games to allow players to skip content or discourage play altogether (Madigan and Dunlap 2019). Content warnings should be specific to in-game themes to ensure that players are not traumatised by a surprising in-game experience, as traumatic experiences lessen player engagement with values (McDonald 2018). It is also common to host workshops prior to Larp play. These workshops allow players to develop their characters, practice game mechanics and mentally prepare themselves for play (Stark 2019). Because workshops aim to prime players for the play experience, values-conscious games can use briefing exercises to prime players to play more intentionally (Belman and Flanagan 2010).

Post-play activities are similarly crucial in values-conscious pervasive game designs (Stark 2019). Formal debriefing sessions allow players to discuss their experiences with other players and, often, with game creators. These sessions can be useful for processing personal experiences and also be relevant to designers by providing a useful feedback opportunity (Stark 2013). As such, they are common in educational pervasive

games, Larps and Escape Rooms. Debriefing sessions may need to occur multiple times when dealing with transgressive content, as was the case for *Gang Rape*, a Larp in which players roleplay as rapists or their victim in a location that has personal meaning to them (Montola 2014). Other cooldown exercises like physical activity, changing location and changing clothes may also be useful in allowing players to demarcate the game world from reality (Stark 2019).

Magic in the Circle: The Use of Ritual

In their simplest forms, rituals are a performed sequence of actions. In games, these actions provide input for game systems to facilitate play (Gazzard and Peacock 2011). Combat systems, for example, provide a degree of repetition and sequenced action that may be considered ritualistic. Rituals, like games, ascribe meaning to otherwise seemingly random sequences of actions (Huizinga 1980).

Rituals are often used in pervasive games due to their performative elements. These rituals can be performed as part of mechanics, such as the practical ways players perform violence or sexual content in Larps (Lindegren 2019; Svanevik 2019). Rituals can also form part of Larp gameplay. In *Persona*, players had to perform rites of passage that included switching their worn masks (Harviainen and Lieberoth 2012). Similarly, *Momentum* revolved around players being possessed by spirits of dead activists, often had players perform rituals like chanting protection spells at notable historical sites (Nordgren 2010). Rituals can also be seen in ARGs: in *Campus Ghost,* players needed to routinely move a large metal structure around a university campus to communicate with the eponymous spirit (de Beer and Holmner 2013).

The use of ritualistic elements in pervasive games can create a flow state for players that deepens immersion and creates intimacy through shared social cohesion (Lee et al. 2016). Such positive outcomes make ritual an important element in values-conscious game design. Rusch (2017, 2018) describes the creation of values-conscious, "deep" games by using ritual as a design tool. Rituals, through both design and play, can help players focus on how they are engaging with a game's values and encourage personal growth as a result (Harrer 2019).

This can be seen in practice in pervasive games like *Blanket Space*, where players start and end the game with the ritualistic unfolding and refolding of the blanket under which they sit to relay personal stories to each other (Klaus et al. 2017). The ritualistic process clearly demarcates the start and end of the game and encourages intimacy by having players perform the ritual together (Klaus 2018). In *The Empathy Game*, players must roll an engagement die that determines how they must interpret another player's story (e.g., through drawing or posing) (Hermann and Elferink 2019). The stages of listening to the story, rolling the die and performing an interpretation of the story create an intensely engaging ritual. *White Death*, a Nordic-style Larp, also utilised ritualistic elements (e.g., objects with hidden meanings, the passing of a white ribbon to represent transformation) to explore values of kindness, togetherness and freedom (Essendrop 2016).

Give Me a Minute: Safe Spaces and Reflection

Pervasive games are often engaging *because* they exist within the players' reality. This can be problematic when determining what is or isn't part of the game, as is sometimes the case with ARGs (McGonigal 2003). To combat this, many modern pervasive game types (Escape Rooms, digital games and Larps) provide play areas that can be entered into and left at will. Larps provide meta rooms, where players remain in-character, to provide players more time and space to think through and perform in-game actions (Nielsen 2014). Many Larps also provide off-game rooms where players can disengage with the game. This is particularly important in values-conscious explorations, as these

separate spaces allow players to process their experience or regain their feeling of safety before re-entering the game (Greip 2020). Escape rooms similarly allow players to simply leave the room when necessary, despite the pretence that the room is locked (Nicholson 2015). Calibration techniques in Larps also provide ways for players to express their feelings about in-game events using hand signals, safe words or physical movements (Koljonen 2019). These techniques support a core design principle that Larps are safe ways to roleplay within a trusted community (Brown 2018). Modern pervasive games should similarly strive to create and provide safe spaces, and safe ways to explore those spaces, in their designs.

Reflection, both during and after play, encourages a deeper engagement with and understanding of the game (Schrier and Gibson 2011). While this can be done through briefing and debriefing, providing players with the time and space for *in-game* reflection is another useful practical way to allow players to engage with values (iThrive Games 2018). The *Life is Strange* series (Dontnod Entertainment 2015) implements this by prompting players to sit somewhere. When they do, a looping cutscene plays, accompanied by music and a character voiceover. Players can allow the cutscene to play indefinitely, which provides an opportunity for them to reflect on the events of the game in the context of their own lives. However such reflective moments are implemented, it is important that players are given ample time to explore their feelings within the game (Schrier and Gibson 2011). In Escape Rooms, for example, creating a space to encourage reflection may mean abandoning the use of the timed scenarios in favour of creating an interesting space for players to explore more leisurely.

Making Meaning: Designing Interpretive Tasks

Values-conscious games encourage players to reflect in order to create meaning out of their experiences (Rusch 2018). Pervasive games can create personally meaningful experiences by deploying tasks that allow player interpretation. Larps, for example, focus primarily on players' interpretation and exploration of a scenario through roleplay (Cox 2019). Some ARGs, like *SFZero*, are based primarily on interpretative tasks. One such task, "Things You Can Run Through" provided players only with the directive to "find some" (Playtime Anti Boredom Society 2009). *SFZero*'s tasks often led to meaningful emergent outcomes: players reported becoming more outgoing and artistic as a result of play (Dansey 2013). This suggests emergent engagement with values like community and creativity. *World Without Oil* and *EVOKE* similarly tasked players to interpret game briefs however they saw fit (McGonigal 2010a; Rusnak et al. 2008). Sometimes these interpretations can lead to humorous results, however. The prompt "drop your pants and dance" in *Go Game* meant that players should get ready. Instead, the players obliged by interpreting it literally (McGonigal 2007).

Practically, the design of interpretive tasks can be difficult for pervasive game designers, as the genre provides players with a large amount of agency that can be problematic for organisers to control (McGonigal 2007). As such, it may be best practice to deploy interpretive tasks in games with contained play areas like Larps and Escape Rooms. Interpretations within these spaces (e.g., when players create content during a game's run) can also be rewarded or incorporated into the game's fiction, as is often the case in ARGs (de Beer 2016). This both rewards the players and acknowledges the importance of the meaning making process they engaged in.

Creative Communication: Restricting Language

Language can be restricted to alter the way players communicate and collaborate (Zagal et al. 2006). Restrictions on communication are sometimes also implemented to moderate the way players communicate. This can reduce toxicity (e.g., filtering slurs) or prevent chaotic user experiences (e.g., everyone talking simultaneously on voice

chat). Such restrictions leave players with predetermined ways to communicate, such as the use of emojis to react to player-built structures in *Death Stranding* (Gerblick 2019), the use of emotes in *Fortnite* (Marshall 2019), or the limited message vocabulary used to warn players in *Dark Souls* (Strik 2015). Language restriction in pervasive games is somewhat more difficult to implement. Players in Larps and ARGs, for example, enjoy the ability to say or do almost anything and explore the subsequent effects on the game world (Cox 2019; McGonigal 2003). Similarly, the difficulty of collaborative Escape Rooms would probably increase if players could not openly communicate during the scenario.

As such, the restriction of language should be embedded into a pervasive game's design. This is seen in practice in *Kind Words*, a digital game that limits communication by restricting its requests and responses to 14 lines. This creates an environment where players need to be intentional with word choices, both in communicating their problems and reciprocating with kindness, which heightens their emotional engagement with the game. Some performative Larps like *Dance Macabre* (Bryan et al. 2012) and *Luminescence* (Pettersson 2010) similarly restrict language. *Luminescence* only allowed players to talk to one another if they were physically touching, which favoured intimate communication over large group discussions (Pettersson 2010), while *Dance Macabre* had players express their emotions solely through dance (Bryan et al. 2012). Despite a lack of verbal communication, these Larps explored existential feelings about life and death, which allowed players to reflect on their own values (Pettersson 2010).

The portrayal of sexual content in Larps inherently explores values surrounding intimacy, consent, and power, often through non-verbal means. When done effectively, sex simulation mechanics in Larps can use greatly restricted language (e.g., moaning, repeating of words, theatrical sex) to explore these values. However, because of the personal nature of sexual content, its inclusion in Larps should be meticulously considered, often in tandem with calibration and meta-techniques (Lindegren 2019). Finally, values-conscious pervasive games may choose to restrict language as digital games do: to moderate the communication between players. In practice this may be as simple as discouraging players from using identity-specific language (e.g., "you fight like a girl") (Høyer 2019). While players may still argue about specific game elements, creating an inclusive language culture through restriction is a useful practical approach to achieve (a degree of) harmony (Høyer 2019).

Moves Like Jagger: Physical Play

Physical play is a primary component of all pervasive game types besides digital pervasive games. The physical and tangible experiences made possible by the genre is a large part of why it is so engaging (Stenros et al. 2012). In pervasive games, players "do things for real" (Montola 2007), which sometimes includes intense physical activity (Stenros et al. 2012). Players frantically running around is a common sight in ARGs like *Conspiracy for Good* (Stenros et al. 2011), and can even cause stampedes in *Pokémon GO* (Montola et al. 2019). While frantic running is usually a manifestation of excitement, it can also be explicitly required in Urban Adventure Games like *The Amazing Race* (Montola et al. 2009). Assassination Games similarly utilise physical play to create dramatic moments (e.g., sneaking up on a target) (Montola et al. 2009), while Larps require physical play due to their performative nature (Kamm and Becker 2016).

Movement plays a vital role in engaging players. When players engage in physical play, they "feel it more both in [their] body and mind" (Isbister 2016), which can also affect a player's emotions. Values-conscious games can use the link between physical and emotional play to explore social dynamics, feelings and values (Isbister 2016). Dance Larps and Larps with sexual content are once again pertinent examples due to how they

explore aspects of intimacy (Lindegren 2019). Physical play also enhances cooperation and connection with other players in games like *The Amazing Race* (Montola et al. 2009). Practically, physical play it is inherent in most pervasive games, so designers merely need to ask themselves how the physical actions players perform can enhance the game's exploration of values (Isbister 2016).

SUMMARY

The design considerations discussed present numerous practical approaches that designers of pervasive games can use for value exploration. Because many considerations are discussed, each with their own examples, Table 3 provides designers with a conceptual summary detailing how each consideration can assist with value engagement alongside a practical list of implementable techniques.

Consideration	**How It Encourages Value Engagement**	**Implementable Techniques**
Designing For Bleed	Personal articulated design experiences may deeply resonate with players.	1. Ruminate on ideas to allow them to evolve organically over time 2. Focused attention during unrelated playful activities (e.g., going for a swim) during the design process can facilitate novel design inspiration 3. Recent real-world events may provide timely, interesting themes that are meaningful to players due to their cultural relevance
Creating Authentic Contexts	Contexts grounded in reality create relatable scenarios for players.	1. Develop grounded narratives and mechanics that relate to real-world contexts 2. Create constrained scenarios that allow players to engage with microcosms of real-world contexts 3. Present players with potential real-world problems (e.g., an oil crisis) and task them with understanding or implementing potential solutions
Highlighting the User Experience	A strong focus on the intended values of the player experience helps make it more meaningful.	1. Identify both the intended values and the "invisible" values in a game's context. Ensure design decisions reflect these values when crafting the player experience 2. Creating games that explore "positive negative" experiences can allow players to safely explore transgressive feelings 3. Educational experiences can inherently explore values. Embedding real, educational content (e.g., history of a location/culture) may encourage players to relate that to their personal contexts 4. Facilitating personal player experiences over group-related narratives may allow players to better explore their personal values

The (Un)importance of Systems	Systems can help portray and explore the values of the game world. A lack of (or simple) systems can ensure focus remains on the play experience.	1. "Borrow" or abstract real-world systems to allow players to quickly understand their purpose 2. Identify the intended and "invisible" values in implemented game systems 3. Consider the importance of systems in your game implementation. Creating systems-lite games can reinforce player experience by prioritising engagement with game characters and context 4. Consider making certain systems/mechanics (e.g., combat) optional. Players can then craft their own experience by engaging with specific ones
Briefing and Debriefing	Players can adequately prepare themselves for the play experience, which allows them to play more intentionally. Aftercare assists in processing those meaningful experiences.	1. Provide specific content warnings for players 2. Host workshops that allow players to prepare for play mentally and physically. Workshops can introduce mechanics, themes, and feelings to ensure players know what to expect from the game 3. Ask players to intentionally engage with values during play 4. Provide aftercare support through debriefs, changing locations, changing clothes and other techniques to allow players to process the experience
The Use of Ritual	Ritualistic elements encourage the flow state which can increase emotional engagement and social cohesion.	1. Have players do things together to increase social cohesion 2. Starting and ending your game with ritualistic elements can help demarcate the game space 3. Rituals can also demarcate game modes (e.g., passing an object that changes a player's available actions or abilities). This can be used to drastically alter the play experience and reinforce the values being explored 4. In-game rituals that occur in stages (e.g., listening, then acting, then reacting) can increase emotional engagement as player flow increases with each stage
Safe Spaces and Reflection	Players need to feel safe to engage with values. Creating reflective opportunities in the game can allow for value engagement.	1. Create in-game and out-of-game areas so players can disengage when necessary 2. Utilise calibration techniques to allow players to express out-of-game feelings during play 3. Encourage reflective areas or tasks in-game (e.g., sitting somewhere and thinking) 4. Give players ample time to engage with reflective areas and tasks during play. This allows them to actively engage with values and adjust their actions and experience accordingly

Designing Interpretive Tasks	Interpretive tasks allow players to make their own meaning by engaging with both their personal values and the game's values.	1. Design scenarios/game contexts that react to player interpretation 2. Design interpretive tasks that encourage personal engagement with values 3. Deploy interpretive tasks in "closed" pervasive games like Larps and Escape Rooms 4. Reward engagement with interpretive tasks by integrating the results into the game world
Restricting Language	Restricting language can help moderate value exploration in-game. It can also provide unique ways for players to engage with values in lieu of direct discussion.	1. Utilise meta and calibration techniques when dealing with sexual content 2. Novel physical play approaches (e.g., dance, restricted physical movement) can result in unique ways to engage with values 3. Creating an inclusive language culture can moderate player disagreements and create a safe play space.
Physical Play	Physical play increases players' emotional engagement. This can be used to allow them to explore values in multiple ways.	1. Have players engage with systems physically as well as mentally to intensify value engagement 2. Performance (e.g., theatrical, dance) can encourage non-verbal engagement with values 3. Use physical play to encourage co-operation, understanding and intimacy between players

Table 3: How Practical Considerations Allow for Value Engagement in Pervasive Games

CONCLUSION

This paper discussed the genre of pervasive games and their evolution since the genre's widespread use in the 2000s. One such evolution is the genre's focus: more games are being designed in and around contexts that support value exploration to create meaningful player experiences (Montola et al. 2019). This paper supports this ongoing evolution via the presentation of design considerations and implementable techniques that pervasive game designers may consider when creating games that engage with values. These practical design considerations and their implementable techniques provide a useful and concise reference for pervasive game designers and developers working with a variety of game types. The considerations promote understanding of how pervasive games can be practically designed to encourage value engagement and meaningful player experiences that are impactful to individuals, communities, and cultures.

By bringing worlds together, pervasive games can have a greater impact on players than purely physical or digital games. As such, designers are encouraged to explore values and other meaningful, novel experiences through the genre's lens. Doing so can expand understanding of how games can meaningfully strive for empathy, equality, representation, and cultural relevance as the medium continues to evolve.

REFERENCES

Adams, E. 2013. *Fundamentals of Game Design*. Third edition. Berkeley, CA: New Riders.

Barros, M.A. de Andrade, V. Moura, A. Borgmann, L. and Claudino, O. 2021. "Despandemia: Serious Game in Alternate Reality for Reading and Rewriting Our Intercultural World during the Covid-19 Pandemic:" In *Proceedings of the 13th International Conference on Computer Supported Education*, 425–36. Online Streaming, --- Select a Country ---: SCITEPRESS - Science and Technology Publications. https://doi.org/10.5220/0010480804250436.

Belman, J. and Flanagan, M. 2010. "Designing Games to Foster Empathy." *International Journal of Cognitive Technology* 15 (1): 5–15.

Blot, A. 2017. "Exploring Games to Foster Empathy." Masters Dissertation, Malmo: Malmo University. http://muep.mau.se/handle/2043/24479.

Bonsignore, E. 2012. "The Birth of April G: Creating an ARG Protagonist-by-Proxy." In *Rough Cuts: Media and Design in Process*, 1st ed. United States of America: The New Everyday.

Bowman, S.L. 2013. *Bleed: How Emotions Affect Role-Playing Experiences - Sarah Lynne Bowman*. Nordic Larp Talks 2013. Oslo: Nordic LARP Talks. https://www.youtube.com/watch?v=AtjeFU4mxw4.

Brown, M E. 2014. "Pulling the Trigger on Player Agency: 96 How Psychological Intrusions in Larps Affect Game Play." In *The Wyrd Con Companion*, 1st ed., 96–111. Los Angeles, CA: Wyrdcon.

Brown, Maury Elizabeth. 2018. "Safety and Calibration Design Tools and Their Uses." *Nordic Larp* (blog). January 24, 2018. https://nordiclarp.org/2018/01/24/safety-calibration-design-tools-uses/.

Bryan, M. Holendová, K.M. Kadaňková, M. Mejstřík, P.S. Mejstříková, P.R. Nguyen, V.A. Pouchlá, J.L. Růžička, P.L. Urban, P.P. and Viceník, O. 2012. "Dance Macabre Blueprint." Dance Macabre. http://dancemacabre.tempusludi.cz/download/Dance-macabre-Blueprint.pdf.

Burnham, B. 2021. *Inside*. Streaming. Documentary. Netflix.

Butgereit, L. 2018. "CyberSecurity Education and Training in a Corporate Environment in South Africa Using Gamified Treasure Hunts." In *Information Technology - New Generations*, edited by Shahram Latifi, 113–17. Advances in Intelligent Systems and Computing. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-54978-1_15.

Chang, C. Shih, J.-L. and Chang, C.-K. 2017. "A Mobile Instructional Pervasive Game Method for Language Learning." *Universal Access in the Information Society* 16 (3): 653–65. https://doi.org/10.1007/s10209-016-0496-6.

Connolly, T.M. Stansfield, M. and Hainey, T. 2011. "An Alternate Reality Game for Language Learning: ARGuing for Multilingual Motivation." *Computers & Education* 57 (1): 1389–1415.

Cox, J. 2019. "Documenting Larp as an Art of Experience." *International Journal of Role-Playing* 9 (1): 24–30.

Dansey, N. 2013. "A Grounded Theory of Emergent Benefit in Pervasive Game Experiences." Doctoral Thesis, Portsmouth: University of Portsmouth. https://researchportal.port.ac.uk/portal/files/4931948/NeilDanseyThesis.pdf.

de Beer, K. 2016. "Analysing Alternate Reality Games Based on Game Design Theory to Propose a Conceptual Framework." Masters Dissertation, Pretoria: University of Pretoria. https://scholar.google.co.za/citations?view_op=view_citation&hl=en&user=m-vEhZ0AAAAJ&citation_for_view=m-vEhZ0AAAAJ:9yKSN-GCB0IC.

de Beer, K. and Holmner, M. 2013. "The Design of an Alternate Reality Game as a Capstone Course in a Multimedia Post-Graduate Degree." In *Proceedings of the IATUL Conferences*, 13. Purdue, IN: Purdue University.

Dontnod Entertainment. 2015. *Life Is Strange* (version 1.0). Windows. Life Is Strange. Paris, FR: Square Enix.
Duggan, E. 2017. “Squaring the (Magic) Circle: A Brief Definition and History of Pervasive Games.” In , 111–35. https://doi.org/10.1007/978-981-10-1962-3_6.
Dunne, D. 2014. “Multimodality or Ludo-Narrative Dissonance: Duality of Presentation in Fringe Media.” In *Proceedings of the 2014 Conference on Interactive Entertainment*, 1–4. IE2014. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/2677758.2677785.
Essendrop, N. 2016. *White Death - Larp Presentation by Nina Runa Essendrop*. Larpwright Summer School. Vilnius, Lithuania: Larpwright Summer School. https://www.youtube.com/watch?v=5trAiMwIxVo.
Farrell, D. 2014. “Design Harmony in (Serious) Games.” In *Proeedings of Clash of Realities, the 5th International Computer Games Conference*, 39–51. Koln: International Computer Game Conference.
Flanagan, M. Howe, D.C. and Nissenbaum, H. 2005. “Values at Play: Design Tradeoffs in Socially-Oriented Game Design.” In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 751–60. CHI ’05. New York, NY: ACM. https://doi.org/10.1145/1054972.1055076.
Flanagan, M. and Nissenbaum, H. 2014. *Values at Play in Digital Games*. Cambridge, MA, USA: MIT Press.
Fleischmann, K. 2013. *Information and Human Values*. Morgan & Claypool Publishers.
Galarneau, L. 2005. “Authentic Learning Experiences Through Play: Games, Simulations and the Construction of Knowledge,” May. http://summit.sfu.ca/item/245.
Gazzard, A. and Peacock, A. 2011. “Repetition and Ritual Logic in Video Games.” *Games and Culture* 6 (6): 499–512. https://doi.org/10.1177/1555412011431359.
Gerblick, J. 2019. “Kojima Is Most Proud of Death Stranding’s ‘Positive’ Shared-World Multiplayer Approach.” Gamesradar. 2019. https://www.gamesradar.com/kojima-is-most-proud-of-death-strandings-positive-shared-world-multiplayer-approach/.
Grace, L. 2010. “Critical Gameplay - Design Techniques and Case Studies.” In *Designing Games for Ethics: Models, Techniques and Frameworks*, edited by K Schrier and D Gibson, 1st edition, 253–74. United States of America: Idea Group Inc (IGI).
Gram-Hansen, L.B. 2009. “Geocaching in a Persuasive Perspective.” In *Proceedings of the 4th International Conference on Persuasive Technology - Persuasive ’09*, 1. Claremont, California: ACM Press. https://doi.org/10.1145/1541948.1541993.
Greip, J. 2020. “Sleeping Areas, Off-Game Areas, and the Black/White Ribbon Metatechnique.” *Nordic Larp* (blog). June 1, 2020. https://nordiclarp.org/2020/06/01/sleeping-areas-off-game-areas-and-the-black-white-ribbon-metatechnique/.
Gunraj, A. Ruiz, S. York, A. Schrier, K. and Gibson, D. 2011. “Power to the People: Anti-Oppressive Game Design.” In *Designing Games for Ethics: Models, Techniques and Frameworks*, 1st ed., 253–74. New York: Information Science Reference. https://www.igi-global.com/chapter/power-people-anti-oppressive-game/50743.
Harrer, S. 2019. “Deep Games, Rituals, and Schmetterlife: Doris C. Rusch Visits the CoE.” *Centre of Excellence in Game Culture Studies* (blog). November 19, 2019. https://coe-gamecult.org/2019/11/19/deep-games-rituals-and-schmetterlife-doris-c-rusch-visits-the-coe/.

Harviainen, J.T. and Lieberoth, A. 2012. “Similarity of Social Information Processes in Games and Rituals: Magical Interfaces.” *Simulation & Gaming* 43 (4): 528–49. https://doi.org/10.1177/1046878110392703.
Hermann, S.H. and Elferink, J. 2019. *The Empathy Game* (version 2). Netherlands: BIS Publishers. https://theempathygame.com/.
Hjorth, L. 2011. “Mobile@game Cultures: The Place of Urban Mobile Gaming.” *Convergence* 17 (4): 357–71. https://doi.org/10.1177/1354856511414342.
Høyer, F.S.B. 2019. “Designing for Equality.” In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 164–66. Denmark: Knutepunkt.
Huizinga, J. 1980. *Homo Ludens: A Study of the Play Element in Culture*. London: Routledge & Kegan Paul Ltd.
Isbister, K. 2016. *How Games Move Us: Emotion by Design*. 1st edition. Playful Thinking 5. Cambridge, MA: The MIT Press.
iThrive Games. 2018. “Empathy In Games: IThrive Design Kit.” iThrive Games. http://ithrivegames.org/wp-content/uploads/2019/03/Empathy_DesignKit_3.12.18.pdf.
Jerrett, A. Bothma, T.J.D. and Beer, K. de. 2017. “Exercising Library and Information Literacies through Alternate Reality Gaming.” *Aslib Journal of Information Management* 69 (2): 230–54. https://doi.org/10.1108/AJIM-11-2016-0185.
Jerrett, A. Howell, P. and Dansey, N. 2020. “Creating Meaningful Games through Values-Centred Design Principles.” In *Proceedings of the Digital Games Research Association Conference 2020 Conference: Play Everywhere*. Tampere, FL: Digital Games Research Association. https://www.google.com/url?q=http://www.digra.org/digital-library/publications/creating-meaningful-games-through-values-driven-design-principles/&sa=D&source=hangouts&ust=1601725438785000&usg=AFQjCNE7QjZjg6yHQ4WNCVVu37wFytAvOA.
Kaljonen, J. and Raekallio, J. 2012. “Dublin2: The EU’s Asylum Policy in Miniature.” In *States of Play: Nordic LARP Around the World*, edited by J Petersen, 1st ed., 27–34. Finland: Knutepunkt.
Kamm, B.-O. and Becker, J. 2016. “Live-Action Role-Play or the Performance of Realities.” In *Simulation and Gaming in the Network Society*, 9:35–51. https://doi.org/10.1007/978-981-10-0575-6_4.
Karpashevich, P. Hornecker, E. Dankwa, N.K. Hanafy, M. and Fietkau, J. 2016. “Blurring Boundaries between Everyday Life and Pervasive Gaming: An Interview Study of Ingress.” In *Proceedings of the 15th International Conference on Mobile and Ubiquitous Multimedia*, 217–28. MUM ’16. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/3012709.3012716.
Kirman, B. Linehan, C. and Lawson, S. 2012. “Blowtooth: A Provocative Pervasive Game for Smuggling Virtual Drugs through Real Airport Security.” *Personal and Ubiquitous Computing* 16 (6): 767–75. https://doi.org/10.1007/s00779-011-0423-z.
Klaus, M. 2018. *Kickstarted Intimacy – Designing Intimate Spaces for Strangers*. Presentation. GGC Gotland 2018. Gotland: Uppsala University. https://www.youtube.com/watch?v=cYSah-jX76g.
Klaus, M. Sandbacka, L. Wood, W.Z. and Nerurkar, M. 2017. “Safety Blanket - Rule Set.” https://docs.google.com/document/d/1oUPvLipA2ej-GcslomCXrDXjR44f1tqrmltrl5V_Q_I/edit?usp=sharing&usp=embed_facebook.
Kluckhohn, C. 1951. “Values and Value-Orientations in the Theory of Action: An Exploration in Definition and Classification.” In *Toward a General Theory of*

Action, edited by C Parsons and E Shills, 1st ed., 388–443. Cambridge, MA: Harvard University Press.
Kojima, H. 2019. “Death Stranding Available November 8 on PS4.” Blog. *PlayStation Blog* (blog). May 29, 2019. https://blog.us.playstation.com/2019/05/29/death-stranding-available-november-8-on-ps4/.
Koljonen, J. 2019. “Opt-out and Playstyle Calibration Mechanics.” In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 235–37. Denmark: Knutepunkt.
Koljonen, J. Stenros, J. Grove, A.S. Skjonsfjell, A.D. and Nilsen, E., eds. 2019. *LARP Design*. 1st ed. Denmark: Knutepunkt.
Lawhead, N. Sui, J. Snow, P. Snow, K. Hsia, J.J. and Freeman, N. 2019. *Personal Experiences as Games*. Summit Presentation. Independent Games Summit. San Francisco, CA: Game Developers Conference. https://www.gdcvault.com/play/1025675/Personal-Experiences-as.
Lee, E.M. Klement, K.R. Ambler, J.K. Loewald, T. Comber, E.M. Hanson, S.A. Pruitt, B. and Sagarin, B.J. 2016. “Altered States of Consciousness during an Extreme Ritual.” *PLOS ONE* 11 (5): e0153126. https://doi.org/10.1371/journal.pone.0153126.
Leonard, D.J. and Thurman, T. 2019. “Bleed-out on the Brain: The Neuroscience of Character-to-Player Spillover in Larp.” *The International Journal of Role Playing* 9 (1): 9–15.
Lindegren, F. 2019. “Portraying Sexual Content in Larp.” In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 268–77. Denmark: Knutepunkt.
Madigan, J. and Dunlap, K.N. 2019. “Empathy in Video Games.” Podcast. *The Psychology of Video Games*. USA. https://www.psychologyofgames.com/2019/07/podcast-50-empathy-in-video-games/.
Marsh, T. 2011. “Serious Games Continuum: Between Games for Purpose and Experiential Environments for Purpose.” *Entertainment Computing*, Serious Games Development and Applications, 2 (2): 61–68. https://doi.org/10.1016/j.entcom.2010.12.004.
Marshall, W. 2019. “Social Dance in the Age of (Anti-)Social Media - Fortnite, Online Video, and the Jook at a Virtual Crossroads.” *Journal of Popular Music Studies* 31 (4): 3–15. https://doi.org/10.1525/jpms.2019.31.4.3.
McDonald, H. 2018. *Making Them Care: The Narrative Burden for Creating Empathy*. Game Narrative Summit. GDC Narrative Summit 2018. San Francisco, CA: Game Developers Conference. https://www.gdcvault.com/play/1025424/Making-Them-Care-The-Narrative.
McGonigal, J. 2003. “This Is Not a Game: Immersive Aesthetics and Collective Play.” In *Digital Arts & Culture 2003 Conference Proceedings*. Melbourne. http://itls.usu.edu/~bshelton/courses/instsim/readings/McGonigal-Imm_Aes_Coll_Play.pdf.
———. 2007. “The Puppet Master Problem: Design for Real-World, Mission-Based Gaming.” In *Second Person: Role-Playing and Story in Games and Playable Media*, edited by Pat Harrigan and Noah Wardrip-Fruin, 1st ed., 251–64. Cambridge: The MIT Press.
———. 2010a. “Urgent Evoke: What Went Right, What Went Wrong: Lessons from Season 1 of EVOKE.” 2010. http://blog.urgentevoke.net/2010/07/26/what-went-right-what-went-wrong-lessons-from-season-1-evoke1/.
———. 2010b. *World Without Oil (Game Recap)*. Conference Presentation. Design Intersections. University of Minnesota: Disruptive Effects Conference. https://www.youtube.com/watch?v=WbBpC3AYZxU.

McGonigal, J. and Bogost, I. 2008. “Cruel 2 B Kind - How to Play.” Game. Cruel 2 B Kind - a Game of Benevolent Assasination. 2008. http://www.cruelgame.com/games.
McQuillan, C. 2021. “The Truth inside the Comedy.” *The Lancet Infectious Diseases* 21 (9): 1230. https://doi.org/10.1016/S1473-3099(21)00459-X.
Molnár, V. 2014. “Reframing Public Space Through Digital Mobilization: Flash Mobs and Contemporary Urban Youth Culture.” *Space and Culture* 17 (1): 43–58. https://doi.org/10.1177/1206331212452368.
Montola, M. 2005. “Exploring the Edge of the Magic Circle: Defining Pervasive Games.” In *Proceedings of Digital Arts and Culture*, 1966:103–7. Copenhagen: Digital Arts and Culture.
———. 2007. “Tangible Pleasures of Pervasive Role-Playing.” In *Proceedings of the 2007 DiGRA International Conference: Situated Play*, 178–86. Tokyo, JP: Digital Games Research Association.
———. 2014. “The Positive Negative Experience in Extreme Role-Playing.” In *The Foundation Stone of Nordic Larp*, edited by Eleanor Saitta, Marie Holm-Andersen, and Jon Back, 1st ed., 152–66. Sweden: Knutpunkt.
Montola, M. Stenros, J. and Waern, A. 2009. *Pervasive Games: Theory and Design*. San Francisco, CA, USA: Morgan Kaufmann Publishers Inc.
———. 2019. “Pervasive Games Ten Years Later.” *American Journal of Play* 12 (3): 259–70.
Naughty Dog. 2007. *Uncharted: Drake’s Fortune* (version 1.0). Playstation 3. Uncharted. Santa Monica, CA: Naughty Dog.
Niantic Inc. 2012. *Ingress* (version 1.0). Android. San Francisco, CA, USA: Niantic Inc.
Niantic Inc. Nintendo and The Pokemon Company. 2016. *Pokemon GO* (version 1.0). Android. San Francisco, CA, USA: Niantic Inc.
Nicholson, S. 2015. “Peeking Behind the Locked Door: A Survey of Escape Room Facilities.” http://scottnicholson.com/pubs/erfacwhite.pdf.
Nielsen, M. 2014. “Meta Room.” Wiki. Nordic Larp Wiki. 2014. https://nordiclarp.org/wiki/Meta_room.
Niemi, H. and Virtanen, S. 2015. “Marras | Lopun Jälkeen – After the End.” LARP Website. Marras. 2015. https://marras.harmaasudet.fi/.
Nordgren, A. 2010. “Prosopopeia Bardo 2 Momentum.” In *Nordic Larp*, edited by J Stenros and M Montola, 1st ed., 244–53. Finland: Fëa Livia.
Paavilainen, J. Korhonen, H. Alha, K. Stenros, J. Koskinen, E. and Mayra, F. 2017. “The Pokemon GO Experience: A Location-Based Augmented Reality Mobile Game Goes Mainstream.” In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 2493–98. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/3025453.3025871.
Pedersen, B. and Munck, L. 2014. “Walking the White Road.” In *The Foundation Stone of Nordic Larp*, edited by Eleanor Saitta, Marie Holm-Andersen, and Jon Back, 1st ed., 102–9. Denmark: Knutpunkt.
Pettersson, J. 2010. “Luminescence.” In *Nordic Larp*, edited by J Stenros and M Montola, 1st ed., 168–73. Finland: Fëa Livia.
———. 2019. “Basics of Character Design.” In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 193–204. Denmark: Knutepunkt.
Playtime Anti Boredom Society. 2009. “SF0 / Tasks / Things You Can Run Through.” ARG. SF0. 2009. https://web.archive.org/web/20170311222628/http://sf0.org/tasks/Things-You-Can-Run-Through/.
Pohjola, M. 2010. “Inside:Outside : In Prison with Kafka and Beckett.” In *Nordic Larp*, edited by J Stenros and M Montola, 1st ed., 122–29. Finland: Fëa Livia.

Rusch, D. 2017. *Making Deep Games: Designing Games with Meaning and Purpose*. 1st edition. Boca Raton, FL: Routledge.
———. 2018. "21st Century Soul Guides: Leveraging Myth and Ritual for Game Design." In *Proceedings of 2018 International DiGRA Nordic Conference*, 14. Bergen: Digital Games Research Association.
Rusnak, P. Dobson, T. and Boskic, N. 2008. "Articulation of Ecological Values in Alternate Reality Gaming: A Case Study of World Without Oil." In *Proceedings of the 2nd European Conference on Games Based Learning*, 383. Spain: Academic Conferences Limited. http://books.google.co.za/books?hl=en&lr=&id=hqUHBAAAQBAJ&oi=fnd&pg=PA383&dq=world+without+oil+alternate+reality+game&ots=eWUtr53RMS&sig=ktA8_bxFJjTKhn4smpBTNT1qdA8.
Saitta, E. and Svegaard, S.F.K. 2019. "Designing for Queer and Trans Players." In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 175–82. Denmark: Knutepunkt.
Salen, K. and Zimmerman, E. 2003. *Rules of Play: Game Design Fundamentals*. Cambridge, MA: MIT Press.
Sampat, E. 2017. *Empathy Engines: Design Games That Are Personal, Political, And Profound*. 2nd ed. United States of America: CreateSpace Independent Publishing Platform. https://elizabethsampat.itch.io/empathy-engines.
Savery, J.R. and Duffy, T.M. 2001. "An Instructional Model and Its Constructivist Framework." *Constructivist Learning Environments: Case Studies in Instructional Design*, 135–48.
Schell, J. 2014. *The Art of Game Design: A Book of Lenses*. Second Edition. Boca Raton, FL: CRC Press.
Schrier, Karen and Gibson, D. 2011. "Using Games to Prepare Ethical Educators and Students." In *Proceedings of the Society for Information Technology & Teacher Education International Conference*, 1372–79. Chesapeake, VA: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/36483/.
Scott, Z. 2019. *Kind Words*. Windows. Boston, MA: PopCannibal.
Sharp, H. Preece, J. and Rogers, Y. 2019. *Interaction Design: Beyond Human-Computer Interaction, 5th Edition*. 5th edition. Indianapolis, IN: Wiley.
Shilton, K. 2018. "Values and Ethics in Human-Computer Interaction." *Foundations and Trends® in Human-Computer Interaction*, Foundations and Trends® in Human-Computer Interaction, 12 (2): 107–71.
Simpson, J.A. and Weiner, E.S.C., eds. 1993. *Oxford English Dictionary*. Second Edition. Oxford, NY: Oxford University Press.
Six to Start. 2012. *Zombies, Run!* (version 10). Android. London, UK: Six to Start.
Söbke, H. Hauge, J.B. and Stefan, I.A. 2017. "Prime Example Ingress Reframing the Pervasive Game Design Framework (PGDF)." *International Journal of Serious Games* 4 (2). https://doi.org/10.17083/ijsg.v4i2.182.
Sparkes, M. 2021. "What Is a Metaverse." *New Scientist* 251 (3348): 18. https://doi.org/10.1016/S0262-4079(21)01450-0.
Stark, L. 2019. "How to Design a Workshop." In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 82–87. Denmark: Knutepunkt.
Stark, Lizzie. 2013. "How to Run a Post-Larp Debrief." *Leaving Mundania* (blog). December 1, 2013. https://leavingmundania.com/2013/12/01/run-post-larp-debrief/.
Stenros, J. Holopainen, J. Waern, A. Montola, M. and Ollila, E. 2011. "Narrative Friction in Alternate Reality Games: Design Insights from Conspiracy for Good." In *Proceedings of the 5th Digital Games Research Association Conference*, 1–17. Hilversum: Digital Games Research Association. http://researchbank.rmit.edu.au/view/rmit:25393.

Stenros, J and Montola, M., eds. 2010. *Nordic Larp*. Finland: Fëa Livia.
Stenros, Jaakko and Bowman, S.L. 2018. “Transgressive Role-Play.” In *Role-Playing Game Studies*. Routledge.
Stenros, Jaakko and Montola, M. 2011. “The Making of Nordic Larp: Documenting a Tradition of Ephemeral Co-Creative Play.” In *Proceedings of DiGRA 2011 Conference: Think Design Play*. Hilversum, NL: Digital Games Research Association.
Stenros, Jaakko Waern, A. and Montola, M. 2012. “Studying the Elusive Experience in Pervasive Games.” *Simulation & Gaming* 43 (3): 339–55. https://doi.org/10.1177/1046878111422532.
Strik, O. 2015. “The 5 Best Kinds Of Messages In Dark Souls II.” *The Ontological Geek* (blog). December 20, 2015. http://ontologicalgeek.com/the-5-best-kinds-of-messages-in-dark-souls-ii/.
Stuit, H. 2020. “The Prison as Playground: Global Scripts and Heterotopic Vertigo in Prison Escape.” In *Heterotopia and Globalisation in the Twenty-First Century*, edited by Simon Ferdinand, Irina Souch, and Daan Wesselman, 1st ed., 162–75. London, UK: Routledge. https://doi.org/10.4324/9780429290732.
Svanevik, M. 2019. “Portraying Violence in Larps.” In *LARP Design*, edited by J Koljonen, J Stenros, Anne Serup Grove, Aina D Skjonsfjell, and Elin Nilsen, 1st ed., 281–86. Denmark: Knutepunkt.
Thibault, M. 2020. “Jurassic Tampere & Urban Toyification.” In *Proceedings of the Gamification and Serious Games Symposium 2020*, 4. Tampere, FL: Tampere University.
Toft, I. and Harrer, H. 2020. “Design Bleed: A Standpoint Methodology for Game Design.” http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2020_paper_320.pdf.
Waern, A. 2011. “‘I’m in Love with Someone That Doesn’t Exist!’ Bleed in the Context of a Computer Game.” *Journal of Gaming & Virtual Worlds* 3 (3): 239–57. https://doi.org/10.1386/jgvw.3.3.239_1.
Wiemker, M. Elumir, E. and Clare, A. 2015. “Escape Room Games: ‘Can You Transform an Unpleasant Situation into a Pleasant One?’” *Game Based Learning* 55 (1): 55–75.
Winner, L. 1980. “Do Artifacts Have Politics?” *Daedalus* 109 (1): 121–36.
Zagal, J.P. Rick, J. and Hsi, I. 2006. “Collaborative Games: Lessons Learned from Board Games.” *Simulation & Gaming* 37 (1): 24–40. https://doi.org/10.1177/1046878105282279.