Check for updates

Breaking immersion: A theoretical framework of alienated play to facilitate critical reflection on interactive media

Lena Fanya Aeschbach*, Klaus Opwis and Florian Brühlmann

Department of General Psychology and Methodology, University of Basel, Basel, Switzerland

There is a growing interest in understanding how to best represent complexity using IDNs. We conceptualize this as the aim to make players of such IDNs reflect critically on the complexity being represented. We argue that current understandings of player experience do not lend themselves to this aim. Research on interactive media has assumed immersion to be a universal positive for the player experience. However, in this article we argue that immersion into the Magic Circle of an IDN could be antagonistic to a critical experience. This is because immersion persuades players into suspending their disbelief, rather than facilitating critical reflection. Instead we propose, on the basis of the Epic Theater, an alternative form of play called alienated play. Meaning, a form of play in which the player is playing, while also observing themselves play. This form of play should allow for players to benefit from the enjoyable nature of play, while simultaneously remaining at a critical distance. To illustrate our theory we design two models, one for immersed play and one for alienated play. Furthermore, we present examples of the design for alienation in commercial video games, as well as hypotheses to test out theory in future research. Therefore, this work contributes an initial theoretical and practical informed form of play, specifically designed to facilitate critical reflection on IDNs representing complexity.

1 Introduction

Representing complexity has become an important notion, both for generating a deeper understanding of issues (Rizvic et al., 2017) and presenting findings of academic research (Mitchell, 2013). However, currently, it is still not understood how to best use interactivity when the aim is to represent complexity. In regards to how informative a narrative is, previous research found that interactivity does not significantly improve objective learning in comparison to a non-interactive narrative (van Enschot et al., 2019). Therefore, it is of interest to understand how interactivity could be beneficial to the informational value of a narrative.

In regards to Interactive Digital Narratives (IDNs), there is still an ongoing debate to differentiate and categorize them from other interactive digital systems (Tavinor, 2008; Koenitz et al., 2016). Instead of engaging in this debate, we aim to investigate the shared characteristics of play between interactive digital systems such as IDNs and video games. Therefore, rather than focusing on the specific character of a system in which play is facilitated, this article examines the behavior of play as a means to create an experience best suited to represent complexity. We use IDNs as an umbrella term for digital systems with shared play-characteristics. Through our focus on play as a behavior, we aim to propose a form of play specifically conceptualized for the goal of representing complexity. This form of play should then be applicable to IDNs, video games and potentially even for non-digital systems with play-characteristics, such as pen and paper games.

We argue that this form of play should be informative, rather than persuasive. Play persuades using a rhetoric on the basis of interacting with rule-based systems called "procedural rhetoric" (Bogost, 2007). However, much of Player Experience (PX) research understands such a persuasive experience, where the player has fully suspended their disbelief, as central to positive PX. For example the framework by Green and Jenkins (2014), which describes experiences, such as transportation or identification, as crucial to the story experience, with perceived realism as an essential contributor to narrative engagement. Further, the proposed framework for analysing the user experience of IDNs by Roth and Koenitz (2016), also sees immersion as a core construct. Indeed, immersion is often seen as the reason why interactivity would enhance a narrative for educational or other purposes. However, empirical findings have also found no relationship between immersion and subjective learning (Hamari et al., 2016). Instead, we argue that of the main reasons that we conceptualize play as useful for representing complexity, is because play is "not real" (Huizinga, 1949).

The persuasion of play is desirable when the goal of the system is to teach a specific skill in a simulation (Engström et al., 2016). Furthermore, it is useful when the aim is to reduce counter-arguments towards potential harmful attitudes, such as in health research (Lu et al., 2012). However, the aim of persuasion is clearly different from the one in which interactive media aims to represent complexity in an informative way. While there is a simple factual basis on what is correct when learning a surgical technique, the same can not be said for complex issues. For example, sometimes, it is necessary to represent multiple perspectives simultaneously, which are all equally "correct" (Little and Froggett, 2009).

We understand the non-reality of play as an advantage when representing complexity, rather than as something to overcome by creating more immersive experiences. This understanding is informed by the theory of the Verfremdungseffekt or alienation developed by Bertolt Brecht for his Epic Theater (Brecht and Mueller, 1961). Brecht wanted his audience to recognize the artificiality of the systems and characters within his plays and subsequently have the audience recognize them as candidates for change (Féral and Bermingham, 1987). Therefore, when the goal of a system is to inform, rather than to persuade, we argue for the need to facilitate an alienated experience, rather than an immersive one.

Accordingly, in this article we argue that immersion is not necessarily the goal when designing IDNs, especially when aiming to represent complex issues and have people critically reflect on them. Further, we introduce a model of alienated play as an alternative form of interaction to immersed play. For our purposes, we define immersion in the context of IDNs as the feeling of being submerged in a virtual system, being present in this digital place and engaged in the action therein, and believing the rules of the system to be "true", as long as one is present. Therefore, we aim to reframe immersion as first, only one of the many kinds of desirable experiences when designing interactivity, and second, as potentially in opposition to the goals of representing complexity. For this, we introduce one alternative form of play, namely alienated play. Alienated play inherits its name from the Epic Theater, which also had the aim to represent complex political and social issues as a simultaneously entertainment and educational tool (Brecht and Mueller, 1961). Alienated play should allow players to remain engaged while also remaining at a critical distance to reflect on the IDNs. For the theoretical underpinnings of this concept, we draw from games research, player experience research, research on performance art and already existing examples of the design for alienated play in commercial games.

2 Theoretical background

2.1 Understanding play

We argue that the interactivity of digital narratives can facilitate the behavior of play. Further, we find the potential of IDNs to represent complexity in the non-reality of play. However, we also argue that there are possible hindrances to using play to facilitate critical reflection on complexity.

Here we want to explicitly differentiate between the act of playing and IDNs, or other digital interactive systems such as video games or virtual reality experiences. While these are strongly connected, they are not identical. We understand IDNs as systems in which play is encouraged, or digital systems with play-characteristics. However, people can also carry out actions in IDNs, which should not be considered play. For example, threatening another player of the game with real life danger should not be considered play (Huizinga, 1949). Further, play happens in a much more diverse set of systems than only IDNs. In PX literature one can sometimes find analysis of board games or pen and paper games (da Rocha Tomé

Filho et al., 2019; Xu et al., 2011), while not colloquially considered IDNs, they often create the same type of experience for people as IDNs do. This is similar to experiences in virtual reality, even when the experience is not explicitly a game, it always affords interactivity (Kelley and Tornatzky, 2019) and can allow for play to happen. Therefore, when an experience is designed in virtual reality, the audience also becomes part of the performance (deLahunta, 2002). The audience can interact, and indeed play, with the digitally generated 3D environment and is afforded inputs through movement or other interface. Therefore, while the specific design, affordances or intended goal of an interactive medium might be different, we can study the shared characteristics of play in these systems. We use the same definition for play as Huizinga, (1949), who proposes strict definitional requirements for something to be play which are also widely encompassing.

2.1.1 Play as a voluntary behavior

First and foremost, play is a voluntary action. This understanding of play as an action in itself enjoyable and therefore freely done is present in much of PX research, with its large focus on intrinsic motivation and peak-fun experiences of players (Tyack and Mekler, 2020; Tyack and Mekler, 2021). Play can never be imposed with physical necessity or moral duty, further, morality can not exist in play. It lies in this how actions such as 'flaming', or the hostile expression of strong emotions and feelings (Lea et al., 1992), would be differentiated from play, despite being a form of interaction with a video game.

2.1.2 Play as an unreal behavior

Second, play is not real. Play not being real does not mean that it can not elicit real emotion or demand an utmost seriousness. However, the lack of reality of play is marked both in locality and duration. By necessity, the play-space is always separated from reality either materially or ideally. Huizinga (1949) named this play-space the "Magic Circle". Similarly, play in itself has a determined temporal end. Play begins, and at a certain point, it is over.

2.1.3 Play as a restricted behavior

Third, play requires the existence of absolute rules. Huizinga goes as far as saying "Play creates order (. . .) Into an imperfect world and into the confusion of life it brings a temporary, a limited perfection. Play demands order absolute and supreme." (Huizinga, 1949, p. 10). This means that the deviation from these rules ruins play. The worst player is therefore not the cheat, but the one who refuses to play along with the rules at all. The "spoil-sport" destroys play itself with their refusal to follow the rules created by play. Play's absolute rules do not allow for skepticism, the questioning of them, up to outright refusing to follow them, breaks the Magic Circle. Consequently, players can not question the rules and remain immersed into the Magic Circle.

2.1.4 Play as a competitive behavior

The rules of play described previously, also create another inherent feature of play, tension. In PX researchers often focus on basic needs of humans such as competence (Tyack and Mekler, 2020). This need for achievement and drive for self-efficacy is inherent in the competitive nature of games, which does not limit itself to prowess of skill, but also expands to fairness—the drive to be the best while also following all the rules created by play. We can find an interesting case in speedrunning, with its strict categories that allow or disallow players to take advantage of the coding of the game to finish it at an even faster pace. These categories have strictly defined rules that can be followed to be the most competent (while remaining fair) at them and can therefore be understood as competitive play.

2.1.5 Play as a communal behavior

Further features of play identified by Huizinga, (1949) is that play builds community and that it can shroud itself and these communities in secrecy. This has also been observed in PX research to date. Online player communities offer interesting insight into how complex interpersonal relationships formed on the basis of "playing together" function. Further, the toxicity with which so-called "Gamers" have come to defend the exclusivity of video games as a "Boys Club" has not only been of interest in our research, but even become of interest to mainstream media and online culture in general.

2.1.6 Overview of formal play characteristics

In shorter terms, for (Huizinga, 1949), the formal characteristics of play are: First, a free activity standing quite consciously outside "ordinary" life as being "not serious", but at the same time absorbing the player intensely and utterly. Second, play is an activity connected with no material interest, and no profit can be gained by it. Third, it proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. Fourth, it promotes the formation of social groupings. We can see here that interacting with an IDN could be play, as this interaction could fulfill all of the definitional requirements of play. However, when utilizing play or interactivity specifically for the purpose of having its audience critically reflect on it, one core principle of play becomes most hindering of that aim. That is that play requires the existence of absolute rules. Meaning, questioning the rules and their absoluteness is detrimental to play itself and could even destroy it.

Imagine a board game night where one player during monopoly (Hasbro et al., 1986) refuses to pay for water when landing on the field belonging to another player. The player is critical of the idea of privatized amenities and believes they should be freely accessible to all. At this point, their criticism of the rules will lead them to no longer play the game, since the rules state they must pay for these things. Further, following these

rules and making your competitors pay for your landing on your invested capital is the way to win the game. The refusal of the player to follow the rules would be frustrating to the other players whom they are playing with. This could lead to the other players no longer playing with them. Indeed, this might be one of the reasons why the game which was originally called the landlord's game (Magie, 1904; Adams, 1978) and designed to critique landownership in capitalism, instead became one of the biggest financial successes of one of the largest board game companies in existence. While it showed how the hoarding of capital will eventually lead to the poverty of those around you, forcing them to pay thousands just for shelter or mobility, the game can not be played without these rules being accepted as true. As the game is designed, disregarding its rules would mean to lose its competitive tension and a clear defined end point. Therefore, it would cease to engage people in play. We can conclude from this that the design of games which make its audience critical therefore needs to be carefully considered in order to facilitate reflection, without destroying play.

2.1.7 Procedural rhetoric

Media has the inherent property of containing rhetoric within itself. For example, narrative rhetoric that is inherent to folk tales and fables alike (Olmos, 2014). Interactive media, by the nature of play, has an additional form of rhetoric, rhetoric that stems from interacting with rule-based representations (Bogost, 2007). As play needs to be restricted by rules a rhetoric is created due to the interaction of players with said rules. Bogost, (2007) names the specific rhetoric of play "procedural rhetoric", which is defined as "the art of persuasion through rule-based representations and interactions rather than the spoken word, writing, images, or moving pictures" (Bogost, 2007, p. IX). Therefore, to fully critically reflect on the rhetoric of play, the rules of the game itself, not only the narrative or dialogue, must be questioned. Whitby et al., 2019, found that procedural rhetoric is one of the themes identified when analyzing what causes players to question their perspectives. Players described that when the rules of the system embodied the messages the game aimed to express, it could lead to a better understanding of these messages than relying only on narrative.

When understanding play and its rhetoric in these terms, it should be no surprise why higher levels of reflection elude most players when playing video games (Mekler et al., 2018). The inclusion of interactivity into a narrative is not necessarily a straightforward improvement for educational purposes. It introduces both the behavior of play and procedural rhetoric, two variables which can hinder critical reflection. Therefore, we propose to understand this interactivity as play and subsequently allow researchers and designers of IDNs to understand why interactivity, if designed inappropriately, could actually hinder reflection, rather than aid it. The absolute nature of rules for play means that it is counter-intuitive to reflect on them as one is

playing. Indeed, such reflection could destroy play and even lead to social exclusion. However, these rules must be reflected on for players to critically examine the rhetoric present in IDNs. We, therefore, aim to understand immersion and introduce an alternative experience which could allow for both play and the critical examination of play to co-exist. This would allow researchers and designers to make use of the voluntary nature with which people engage in play, while using also the non-reality of play as an additional benefit, rather than treating it as a hindrance to overcome.

2.2 Framing immersion

As detailed in the introduction, immersion is a ubiquitous term when analysing IDNs as well as other interactive media. Despite this, it can be difficult to find one cohesive definition for the construct of immersion that spans across multiple studies or fields of research. Therefore, immersion is a term that finds itself defined in various ways. We will detail these definitions and arrive at our own working definition, specifically relevant for interactive media. The word stems from the idea of being "submerged" within an artificial environment (Murray, 1997), thereby the "immersant" would have their self-awareness transformed to achieve a sense of presence in the virtual world. This transformation is also commonly referred to as transportation. Suspension of disbelief is a concept that is either a dimension of immersion (Lu et al., 2012) or a consequence of it (Muckler, 2017). When people's self-awareness is transformed, they therefore stop questioning things that would be considered illogical in the "real world". This is congruent with the understanding of play by Huizinga, (1949). The absolute rules can not be questioned, even if they would not make sense outside of the Magic Circle.

2.2.1 Operationalization of immersion

Another point of view that can be used to make us understand better how immersion is conceptualized, is to analyse how it is commonly operationalized. Witmer and Singer, (1998) define immersion as "a psychological state characterized by perceiving oneself to be enveloped by, included in, and interacting with an environment that provides a continuous stream of stimuli and experiences" (Witmer and Singer, 1998, p. 227). Their operationalization includes both a total immersion score and three subdimensions of immersion, which can be analysed independently. Their sub-scales include; Involvement, which is the tendency of the respondent to become involved in their activities; Focus, which is the ability to maintain attention on a given task and the Games subscale, which is the tendency to play video games. From the theory behind this scale alone, we can examine just how tightly playing with interactive media and immersion are interlinked. The tendency to play games was

viewed in itself as a sign of people seeking immersive experiences. In another operationalization by Dede, (2009) the definition of immersion is as follows: "the participant's suspension of disbelief that she or he is "inside" a digitally enhanced setting" (Dede, 2009, p. 66). This is an example of a definition which includes suspension of disbelief as a dimension of immersion and it also fits the understanding of the Magic Circle being something that the audience, even if not truly physically, can be "inside" of. Again, this would mean that the player has come to accept the rules of play as true and would not question them, otherwise they would not be 'inside' the Magic Circle.

2.2.2 Immersion and play

Taking into account these previous definitions of immersion and our understanding of play, we aim to define immersion more precisely. We include an understanding that immersion occurs when the rules of play are accepted as true and not questioned. Therefore, we define immersion as the feeling of being submerged in a virtual system and believing the rules of the system to be "true". It is when the rules of a system become absolute for a player, that they are immersed and will not question the rules put forth to them. This can explain how immersion should lead to less counter-arguments when employed for educational purposes (Lu et al., 2012).

However, an argument needs to be made about media requiring its audience to be engaged with its material in order to create any kind of experience, but especially a reflective one. In much of literature about immersion, engagement is seen as its synonym. We see this in the development of the Games Engagement Questionnaire (Brockmyer et al., 2009), in which immersion was not only a dimension of engagement, but defined as "Immersion is typically used to describe the experience of becoming engaged in the game-playing experience while retaining some awareness of one's surroundings" [Brockmyer et al., 2009, p. 634]. However, we argue that it is possible to be engaged without being immersed. In PX, researchers have recently started to challenge a lot of assumptions about play and experience (Tyack and Mekler, 2021). One of their introduced player experiences, co-attentive, also challenges rigid ideas of binarity in regards to engagement. Players can simultaneously be engaged in multiple forms of media. They can further be aware of both their surroundings in game and in the real world, making them engaged without being fully immersed.

2.2.3 Immersive fallacy

We are not the first to criticize a general over-reliance on immersion as a universal "good" in game design. In games research on the design of video games for ethical education, Stevenson, (2011) argues against the "immersive fallacy" (Lantz, 2005), the idea that the end goal of video games are completely immersive experiences that fully transport a player and make emotional experiences increasingly more visceral, to the point of them being "real".

For educational games, especially those focused on ethical education, this idea of ever increasing realistic simulations as the end goal of games development is problematic. This is because of multiple reasons. First, the way that immersive video games generally educate their players on ethical issues is by making them feel guilty for an unethical choice made (Stevenson, 2011). This can be seen in games like Execution (Jesse Venbrux, 2008), in which players can either shoot a person or close the game and exit. Should the player execute the person in game, the person will remain dead, even if the game is uninstalled and installed again. However, the issue with this form of ethical education lies in the fact that fundamentally, players are aware of the unreality of the actions they take in a game. This can not be rectified by increased realism or immersion. As soon as play stops and the immersion stops, players will be able to excuse their actions. The transformation of their inner beliefs about the real world is not necessary. Furthermore, when relying on guilt or other negative emotions for ethical education, an overly negative player experience can lead to a player quitting the game (Gowler and Iacovides, 2019). This could be contradictory to the informational value of a game, should players be unable to experience all of it due to negative emotions such as guilt. Games that aim to educate their players, therefore, need to be careful in when and to what intensity they make players experience negative emotions viscerally. Following, an ever stronger experience of immersion is not necessarily the goal when designing ethical education games.

There is another side in regards to this issue as well, namely the developers that have to make these ever increasingly realistic and immersive games. In the last few years, it has become known that developers are experiencing Post-Traumatic-Stress-Disorder as a consequence of being forced to observe and model real people who are experiencing violence or already dead (Rivera, 2019). Developers are seeking real footage of people dying in order to render realistic scenes of violence. The cost of this increased realism can therefore be in the form of actual harm done to the creators of these games.

Given all of these perspectives, we propose shifting away from this immersive fallacy and moving towards alternative forms of play, especially when the goal is to represent complexity. To appropriately represent complexity in IDNs, we argue the appropriate form of play should facilitate critical reflection, rather than the visceral emotional experience of immersion.

2.3 Reflection in video games

As with the other central concepts within this paper, reflection has been defined in many different ways (Marshall, 2019). We present the levels of reflection described by Fleck and Fitzpatrick, (2010), who specifically focused on reflection and technology. They describe four different levels of reflection, as

well as a level zero. Further, they give design recommendations for the for levels zero to two. Level zero is the description of the material on which people should reflect on. This is seen as the basis of reflection and not yet actual reflection. The first level of reflection is reflective description. In this level explanations are added to the descriptive revisiting of the material. However, there is no change of perspective. The second level of reflection is dialogic reflection. In dialogic reflection relationships are examined. This level is defined by the identification of relationships between ideas and experiences to generalize from them. The third level and the first higher level of reflection is transformative reflection. Transformative reflection is defined by fundamental change, asking fundamental questions and challenging personal assumptions leading to a change in practice or understanding. The fourth and final level of reflection is critical reflection. In this level of reflection, people take wider implications as well as social and ethical issues into consideration.

2.3.1 Designing for higher level reflection

There is a lack of understanding of how to design for higher-level reflection. Indeed, when Fleck and Fitzpatrick, (2010) discuss technology for reflection, they do not give recommendations or examples for the two higher levels of reflection. This is, according to Fleck and Fitzpatrick, (2010), because these higher levels are primarily concerned with the internal processes of people in regards to the information, rather than the content or forms of interaction technology could offer. Technology here is seen as a tool for recollection and description, but not for the potential transformational effects that rhetoric can elicit.

We argue that digital systems can facilitate critical reflection. However, in opposition to frameworks centering immersion, we understand the non-reality of play as its potential to facilitate this critical reflection. This idea has been informed by the Verfremdungseffekt or alienation coined by Brecht to describe the experience he wanted to elicit from the audience of his plays (Brecht and Mueller, 1961). In accordance with Tyack and Wyeth, (2017) we further the idea of using playful systems to elicit the experience of Alienation, in order to represent complexity and engage the audience critically with IDNs.

2.4 Alienation or Verfremdungseffekt

We argue IDNs representing complexity would benefit from facilitating the experience of alienation rather than immersion. Bertolt Brecht developed the theory of alienation through experimental theater performances, in which the aim was to find how the theatre can be both entertaining and instructive at the same time (Brecht and Mueller, 1961). Brecht alienates an event or a character by simply taking what to the event or character is obvious, known, evident and produce surprise

and curiosity out of it (Brecht and Mueller, 1961, p. 15). The aim of this alienation is to achieve that the audience no longer sees human beings presented on the stage as being unchangeable, unadaptable, and handed over helpless to fate. Therefore, Brecht's type of theater, or Epic Theater, attempts to make the audience ask "why" for issues that generally are not questioned. Rather than alluring the audience into empathizing with its characters and their supposed fate, the audience should ask why they ended up in this situation, how this could have been different and what this means for themselves. This is directly opposed to naturalistic performances, which instead "kidnaps" its audience and convinces the audience of its own internal logic and emotions. Brecht sees a danger in this convincing of the audience through media. His objective is neither to present objective facts, nor to make the audience impassionate. Instead, the expressed aim is to make the audience "passionately critical" (Willet, 1964, p. 226). The important aspect that the audience should be educated on, is the idea that both human beings and systems influence each other, but are also mutable. The benefit of the non-reality of the Epic Theater is that everything about a play is meticulously designed in order to achieve a certain effect. Brecht does not aim to disguise this fact, unlike naturalistic theater. Instead, he wants the audience to be deeply aware of it. Due to allowing the audience to see the artificiality of the presentation by means of alienating them, "Alienation is the process that permits the spectator to cast a critical eye upon the reality that is to be represented" (Féral and Bermingham, 1987, p. 466).

Therefore, when introducing interactivity to narratives, we can use alienation to benefit from the voluntary, enjoyable engagement with which people play, while at the same time establishing a critical distance. Therefore, creating media that is both entertaining and facilitating critical reflection.

This is possible because, as Eagleton explains, "When lamenting becomes propositional it is transformed: it becomes, like theory, a way of encompassing a situation rather than being its victim. To give an account of one's sorrow even as one grieves; to act and in alienated style, observe oneself acting: this is the dialectical feat which (...) is central at once to Brecht's dramaturgy and to his politics." (Eagleton, 1985, p. 637). Meaning that we can create a dialectical experience, rather than a viscerally emotional one. We can imagine that the player can, like the actor in Epic Theater, both play and in an alienated style, observe oneself playing.

On the basis of the theory of alienation in Epic Theater, we conclude that deliberately breaking the immersion of players and instead causing alienation could lead to higher levels of reflection. On this basis, we introduce our two alternative forms of play. Similarly to previous research, which builds on the broad definition of play by Huizinga, (1949) to create more precise forms of play, such as Caillois, (2001), we describe alienated play as a form of play that is conducive to critical reflection and describe immersed play which facilitates visceral emotional

experiences. To further illustrate alienated play, we will provide examples of how the design of alienation from Epic Theater has been used in modern video games to affect the player experience.

3 Forms of play

So far, we have provided the theoretical background for play, immersion and reflection, and further explained how alienation was designed for and understood as an experience for theater audiences. To connect these arguments, we summarize them here before introducing our theoretical model. Current conceptualizations of IDNs, for example, the model created to evaluate the user experience of people interacting with IDNs (Koenitz et al., 2016), describes an affective transformation as outcomes of interacting with IDNs, e.g., affective appreciation. Because of this focus on affective experiences as outcomes, immersion has received much attention and importance, as it is seen as vital to creating a viscerally affective experience. This emphasis on immersion has previously already been described by designers and researchers as the "immersive fallacy" Lantz, (2005); Stevenson, (2011). However, we argue that the goal of critical reflection, has to be separated from the goal of viscerally affective experiences in order to address it appropriately. Indeed, while immersion facilitates viscerally affective experiences, we argue that alienation will instead facilitate a critical reflective experience. This is because immersion relies on the suspension of disbelief, which in turn is an integral part of the persuasion of the procedural rhetoric inherent to IDNs. Persuasion can not be the means to critical reflection, as it would cause players to agree with the proposed rhetoric, rather than taking wider social and ethical considerations into account to form their beliefs. Therefore, instead of attempting to persuade players into "correct" answers or creating viscerally affective experiences, we find the greatest potential for a critical experience in the non-reality of play. IDNs build systems with play characteristics, which can be shown to be artificial and designed, allowing for people interacting with them to cast a critical eye on these systems. Meaning, we can alienate players from the persuasive procedural rhetoric, leading to them to not suspend their disbelief and instead remain at a critical distance.

We therefore introduce two distinct forms of play, immersed play and alienated play. Play is understood as one form of engaged interaction with the definitional requirements on the basis of Huizinga, (1949) described previously. In this manner, we can clearly differentiate alienated play from disengaged interaction, which would not meet the definitional requirements of play. What we name "immersed play" is what is commonly understood as play in Player Experience and Games Research. The player remains firm within the magic circle and the player's experience is viscerally emotional in nature. Alienated play, is an alternative form of play informed by the Epic Theater of the 20th century. The player exists simultaneously inside and outside the magic circle. In theater, this translates to the actor both acting, while in an alienated manner also observing themselves acting (Eagleton, 1985). Alienated play is, therefore, dialectical. In IDNs, the player has the unique opportunity to be both the actor and the audience in a piece of media. Rather than them being the audience of someone who is acting in an alienated manner, they are able to play in an alienated manner. This allows for a reflective space to be built between the "playing actor" and the "observing audience" points of perspective of the player. It is important to note here, that for both forms of play, enjoyment is an important core component. This is congruent with both Huizinga's understanding that a necessary component of play being its enjoyment and Brecht's ideas of enjoyment being required to engage an audience with the morals of a text. Both of these forms of play, are still required to be a voluntary action. Additionally, on the basis that entertainment through media requires for the media to be enjoyed, neither of these forms of play should be generally more or less engaging or more or less enjoyable than the other.
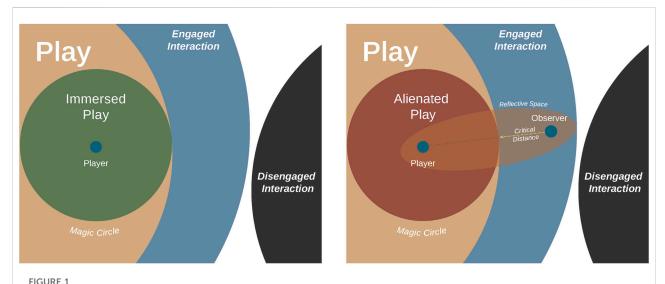
3.1 Model description

We introduce our conceptual model (Figure 1) for alienated play and how it relates to other forms of play. We illustrate that play is one form of engaged interaction. Further, we present the two play forms introduced in this paper, immersed play and alienated play. In immersed play, the player is situated singularly within the magic circle. In alienated play, the player is situated inside the magic circle, while outside of it they are an observer of themselves playing. This creates a critical distance from the point of the observer towards the magic circle. Finally, between the two points of perspectives of player and observer, a reflective space is built.

3.1.1 Immersed play
Players are playing as their character. They feel like part of the world and experience strong emotions as a result of play. While being immersed, the player will feel as though they are limited by the rules of the game and accept them as correct, even if they are absurd in nature. This is commonly understood as suspension of disbelief. Players will not question the rules of the procedural system they find themselves transported into. Immersed play is enjoyable and can lead to players reporting feelings of identification, presence, transportation, perspective-taking and more.

3.1.2 Alienated play
Players are playing as their characters while also observing the character's actions. At the same time, they will feel as though they are both a part of the world of the video game, while also examining it from an outsider's perspective. A process of reflection should be the result of alienated play. While being

FIGURE 1
A visual representation of the two conceptual models of immersed and alienated play, extrapolating on the metaphors of space in regards to play and reflection.

alienated, the player will follow the rules of the game, while also questioning them in their validity. The player should always have a sense for the artificiality of the designed rules. In order for alienated play to remain play and not become disengaged, the game still needs to be enjoyable to the player. Even when the game alienates the player from its deception of realism and breaks the fourth wall, that shift should be intriguing, rather than demoralising. Alienated play is dialectical. In IDNs, the player has the opportunity to be both the actor and the audience in a piece of media. This allows for a reflective space to be built between the "player" and the "observer" points of perspective.

3.1.3 Disengaged interaction

We aim to clearly differentiate someone interacting with IDNs in the form of alienated play from interacting with IDNs while remaining disengaged. As was explained in the section on play, play needs to be a voluntary and enjoyable activity, therefore players need to willingly engage with the material. Further, as was described in the section on alienation, Brecht also saw a need for entertainment when educating people through theater. For IDNs representing complexity, they must therefore not only provide educational value, they must be engaging and enjoyable for play to happen.

4 Design of alienation

Alienation is purposeful and designed. The features of alienation should simultaneously be created with an intent and an expected outcome. The purpose, which connects alienation to the general theory of the "epic theater," is to develop the political awareness of the audience, to teach while entertaining, and to force the spectators to draw concrete conclusions from the issues presented on the stage (Alter, 1964). Brecht developed models for each of his plays which require to be understood, applied and adapted for each of the different performances on different stages. Brecht understands himself as "The scene's designer" (Willet, 1964, p. 159) and we use these designs and how they have been applied to existing commercial video games.

We analyse the methods with which alienation was caused in Epic Theater and how video games have implemented similar methods to achieve critical distance. In this section, we will present characteristics of alienated theater and give examples of how video games have adopted these characteristics. The characteristics are heavily based on the model introduced for Mother Courage by Bertolt Brecht (Willet, 1964) and on the analysis of The Caucasian Chalk Circle by Alter, (1964).

4.1 Framing device

Typical framing devices of Epic Theater are Prologues as well as Epilogues. However, these do not function as a way to set up the stakes of a play as one might expect. Rather, the characters use these to comment on the play itself, the reputation of the story-teller or even go as far as show all the props and masks used in the play to the audience. This is to remind the audience from the very beginning and to the very end that they are witnessing a theatrical performance, not real life (Alter, 1964).

The prologue of Pathologic (Ice-Pick Lodge, 2006) is very similar to the prologue of an Epic Play. The players are not playing as one of the main protagonists yet, instead they are controlling a seemingly formless point of view observing the three player characters in a conversation on a stage of a theater. This introduces a critical distance between the player and their player characters and, further, introduces the characters as morally grey actors. The three accuse each other of being incorrect or causing violence. These accusations are verified when the player progresses through each of the stories associated with each player character. Therefore, the prologue functions to make the player immediately critical of the player characters and sets them up as roles to perform during play, while questioning their beliefs and actions. This understanding of the player characters as roles in a play is further strengthened by the delivery of their lines. The spoken dialogue is performed as though the current actors of these roles are still uncomfortable and unsure, with incorrect stresses on syllables and flat emotions. Rather than the player characters persuading the player with their own logic through emotional conviction, they present it as something they themselves are still questioning before the play begins.

Epilogues in video games often feature in the style of 'endings', showing the player the consequences of their actions with little to no interaction possible. However, in the case of Pathologic we argue that the two last possible conversations unlocked for a player function better as epilogues, than the endings themselves. In the first Epilogue, the player meets with "the powers that be", or the gods within the game. It is revealed that the town in which Pathologic plays and all the characters in it were fiction created by two children in order to deal with their grief over a recent funeral. Here, players are made to face the reality that their actions in the game, were neither meaningful, nor impactful, they were only a part of literal child's play. However, interestingly the developers chose to introduce an even higher level of abstraction to resolve this meaninglessness. In the second conversation or the true epilogue, it is not the player's character speaking to anyone, but the players being directly addressed by the developers of the game. The shadowy stagehands which are in many scenes of the game, suddenly reveal themselves to be the developers of the game themselves, when asked whether they are also the puppets of the children they instead say "I am exactly what you think I am. A collection of poorly rendered polygons on a screen". In these epilogues, the developers communicate directly to the players that their disappointment with the meaninglessness of their actions is absurd. Fundamentally, the player should already have been aware that every character, including the one they're controlling is also a collection of poorly rendered polygons. The suspension of disbelief is not rewarded, it is broken. In this space the player is made aware of the meaninglessness of their actions in game and forced to reflect on what the game means outside of the Magic Circle, in turn.

4.2 Tools of narration

Tools of narration feature heavily in many games, while not necessarily causing alienation. However, they can be used to establish critical reflection. This can be done by bringing the narrator and his objective omniscient for the game itself into question. Two games The Stanley Parable (Galactic Cafe, 2013) and The Beginner's Guide (Everything Unlimited Ltd., 2015) do this, however they do so in subtly different ways. One of the core aspects of the game The Stanley Parable (Galactic Cafe, 2013), is that the player can defy the narrator. For example, the narrator will say "When Stanley came upon a set of two open doors, he entered the door on his left", however the player can simply decide to go into the door on his right. This teaches the player that the supposed omniscient narrator can be incorrect and his guidance should be questioned. In the Beginner's Guide (Everything Unlimited Ltd., 2015), the very first sentences of the game tell you that you are to witness a collection of games and that is your primary purpose, not playing the actual games themselves. The narrator explains that these games were important to him and this is why you should experience them under his guidance. Interestingly, the procedural possibilities of play become a further tool of narration, when the narrator begins to not only tell you how you are supposed to play the game, but even changing the rules by skipping waiting times and introducing novel end-states to games, which were supposed to be endless. This repeated alienation from the individual games and their mechanics, leads players to reflect on the narrator himself. The narrator no longer holds a position of unquestioned understanding over the games which he presents. This establishes a critical distance from which all aspects of the game can be examined.

4.3 Breaking the fourth wall

Breaking the fourth wall, has also become one of the more widely popularized methods to cause alienation. In Epic Theater this was often done with the use of monologues in which actors and characters directly addressed the audience. As a result, the audience is forced to shift its perspective, and suddenly finds itself on the sidelines, after having been immersed in the action: the distance between the spectators and the actors becomes more pronounced (Alter, 1964). In the game Undertale (Toby Fox, 2015), breaking the fourth wall is a common narrative and procedural tool. Within Undertale, players have agency to decide on a way they play the game, choosing mercy or violence, causing the game to shift and provide a different experience. In the commonly known as "Genocide Run", the player chooses to kill every single killable character in the game. Towards the end of this run, Flowey, the seeming antagonist of the story, explains how he came to be evil. In this he tells the main character how he had the power to just

start over and over again from a savepoint and do different things each time to progress the story differently. Eventually, Flowey got so curious that he needed to see what would happen if he killed everyone. Then he moves on to directly address "You" and says "that you must know how this feels", as you are currently doing the same thing, killing everyone to see what happens for entertainment or curiosity's sake. However, he goes a step farther and says that at least the two of you are better than "the sick people who are out there watching you do this, who want to know what happens, but are too weak to do it themselves" and even notes how "someone must be watching this right now". To someone such as the first author who was watching a youtube video to recall the precise phrasing, this is a direct address and therefore clearly breaks the fourth wall. It makes the audience aware of their own existence and their own role in this. Even if they are seemingly passive watchers, they are an inherent part of the performance and must acknowledge themselves as such, so as to not lose themselves to immersion and feeling a part of the game itself. Even though they did not choose to do this themselves, they created the conditions in which someone else decided to do this for their entertainment.

Undertale directly addresses both the players and the audience of the players with its question, allowing for everyone to have space to reflect on why they choose to do this. Interestingly, the procedural rhetoric of the game is very consistent with this central question. In simple terms, the "Genocide Run" is boring, tedious and frustrating. Players have to go through the same motions over and over again, killing every monster in every area. They also have to fight boss battles which are much harder than in any other run of the game, notoriously so. By the point where Flowey explains how he simply did it because he wanted to know what would happen, the player should feel the same. Except for curiosity, there should be no possible reason why a player would choose to do a meaningless and cruel act that is not even fun. Therefore, this instance of the fourth wall break is an instance in which the moral truth of a game is revealed to the audience and simultaneously allows them space to reflect on it, on their actions and their beliefs.

4.4 Morally grey protagonist

Brecht explicitly did not want the audience to strongly identify with the main characters of his plays. This is in expressed opposition to the prevailing theory of optimal experience of video games as proposed by previous PX research (Birk et al., 2016; Klimmt et al., 2009). Instead, Brecht wanted his audience to connect with his protagonists on a different level. This meant that his protagonists are often morally grey characters who are not simple to empathize with. Mother Courage, for example, is more interested in monetary gain, than the safety of her own children. The point of connection to a working class audience would be similar material conditions to mother Courage, namely poverty, not the empathetic struggle of a mother that deserves pity. Despite the common understanding that increased identification is a positive for video games, morally grey characters are still a popular choice. However, often this is on the basis that the player is the morally grey person, being allowed to make different ethical choices along the narrative of the game due to agency. The main character of Undertale (Toby Fox, 2015) can be a saint-like figure, a person struggling to do their best and failing or a genocidal murderer, depending on the choices of the player.

In contrast, the player as the main character of Disco Elysium (ZA/UM, 2019), Harry Du Bois, is both narratively and procedurally forced into playing as a morally grey character. By the time you start the game, Harry Du Bois has already gone into a drunken and drug-fuelled rage, crashing his car and upsetting various people around him. While you can work to make this up as you're playing the game, you can never undo these actions and never fully reduce the harm he caused. Further, the game utilizes luck mechanics, causing you to fail tests when trying to empathize or care for other characters in the game and making life harder for your partner, Kim Kitsuragi. It is constantly communicated to you, the player, that Harry Du Bois and his relatively low control over himself and his faculties, make it impossible to always do the right thing. You could become obsessed with drinking heavily at a moment's notice or say the completely wrong thing in a very sensitive situation, due to panic. Harry Du Bois is not a good or heroic person, even if the player decides to try very hard.

As an experience for the player, this causes them to question whether certain answer options should be chosen, just because they are possible, or if it is necessary to fulfill a certain quest, just to increase your experience points. Harry Du Bois is not a sympathetic character which the player pities or looks up to, instead the player is forced to connect with him on a different level, as described by Brecht (Willet, 1964). This distanced connection, where every action of the player character must be observed as it is carried out, allows for critical reflection to occur and allows for players to understand the conditions which have led Harry Du Bois to this point, while understanding that both him and his conditions are not simply subject to fate, but could be different.

4.5 Meta-gaming

Finally, this design feature of alienation is unique to interactive media relying on code and has been recently identified as a point of interest for future development in the player experience (Kleinman et al., 2020). Meta-Gaming can be broadly defined as a player using anything that exists outside of

the world of the game in order to aid or progress gameplay. We argue that this can cause an alienating experience, as players have to reconcile with the fact that the interactive media they were immersed in, is in reality simply a collection of lines of code that can be manipulated outside of the experience of play. It should allow players to understand the artificial nature in which video games have been developed. An example of this can be found in the game Doki Literature club (Team Salvato, 2017), in which at one point during the game, players can close the game, open the games files and delete a character which was apparently "glitched" in order to progress the game. This introduction of the files on which the game's programming was stored into the magic circle of play, can make players aware of the reality that the game is a purposefully designed and programmed piece of media.

Further the digital nature of IDNs affords them to access different sources of information, stored beyond the easily accessible control of the player. In Metal Gear Solid: The Twin Snakes (Konami Computer Entertainment Japan, Silicon Knights, 2004), one Boss of the game, Psycho Mantis will read both the input from the controller and information stored on the memory card of the player. In order to beat the fight, players therefore have to switch where they plugged in their controller and memory card, so that their information can no longer be read. In contrast Undertale (Toby Fox, 2015) saves information about the state of the game beyond what is directly accessible to the player. As a result, while the player can undo certain decisions through loading a previous save state, the game will remember what happened before it was reloaded. Saving, reloading, quitting the game, become important game mechanics which contribute to the narrative and are not just practical solutions to circumstances of IDNs.

5 Experimental settings to test the research question

We provided a set of designs for alienation that already have parallels in successful commercial games. On the basis of these designs, researchers could design an IDN for a paradigmatic experiment to test the research question; "does alienated play lead to increased critical reflection". We conceptualize alienated play as a means to facilitate critical reflection, due to the critical distance it creates. In turn, we conceptualize an antagonistic relationship between immersed play and critical reflection, as no critical distance is created between player and the Magic Circle. However, alienated play should not be less enjoyable than immersed play, therefore enjoyment should be controlled for in both groups. This is due to the definitional requirements of play, which requires it to be a voluntary and enjoyable behavior. Further, it is based on the requirement of Epic Theater to be both entertaining, while educational, at the same time. Should enjoyment be significantly lower for the participants in the

alienated play group, this might instead be an indication of disengagement.

5.1 Hypotheses

The potential Hypotheses derived from the Model of Alienated Play are, therefore as follows:

- H1: Players engaged in Alienated Play, in comparison to Immersed Play, should exhibit more linguistic markers of reflection after playing an IDN representing complexity.
- H2: Players engaged in Alienated Play and Immersed Play, should have equivalent Enjoyment of an IDN representing complexity

6 Limitations and open questions

This article serves as a first introduction of alienated play and requires further research, the paradigmatic investigation we have described, serves as a starting point for empirical investigation. This paper also distinguishes two distinct forms of play. This is similar to other researchers who have built on Huizinga, (1949), such as Caillois, (2001). However, our forms of play are informed by current PX research and the theory of alienation in Epic Theater, rather than historical cultural practices. This is done to understand how to most appropriately represent complexity in an IDN with the aim of making players critically reflect on them. In turn, this means that there are other potential forms of play, alongside those identified by Caillois, (2001) and in this paper that could be most beneficial to different contexts. Further, we build our model of alienated play using metaphors of space, beginning with the magic circle by Huizinga, (1949). This metaphor of space and physicality has been explored by previous research in regards to play in the context of embodiment (Spiel and Gerling, 2019). Future research could benefit from further investigating the metaphors of space, physicality and embodiment when understanding the experience of people interacting with digital media.

7 Conclusion

There is a growing interest in understanding how to best represent complexity using IDNs. We conceptualise this as the aim to make players of such IDNs reflect critically on the complexity being represented. Indeed, the goal of the designer of such an IDN should not be to provide a simple answer to its audience. Instead, the goal should be to facilitate a critical distance in which individual and systemic perspectives

can be critically reflected on. However, in previous research this kind of critical reflection is rare when people play video games. One possible reason is the overemphasis of designers and researchers on immersion. Player Experience research has understood immersion as a universal good and a core to the experience. However, immersion has additionally been used as a tool to reduce counter-arguments when facilitated by video games as immersion is the result of the persuasion of the procedural rhetoric of play. Immersion can, therefore, be seen as in opposition to critical reflection, because it requires people to suspend their disbelief and uncritically accept the rules of the game as true. This is problematic, because the rules of a game are an inherent part of its rhetoric and to appropriately represent complexity, these rules also need to be critically reflected on by the audience. As a first possible solution for this issue, we reframe immersion as only one of many possible forms of play and as potentially hindering critical reflection. Further, we provide theoretical underpinnings and practical examples for the theory of alienated play, or playing and observing oneself playing. This form of play should allow for critical distance and build a reflective space. This reflective space allows for players to critically engage with IDNs, not only on the basis of narrative, but also procedural rhetoric. We describe a model of immersed and alienated play on the basis of these spatial metaphors. We provide a potential experimental setting to test the hypotheses derived from our model and discuss further open questions. As such, the present work contributes a form of play that can be designed for when the goal is to represent complexity.

Methods

Our methods of theory-building are based on Hymovich, (1993), by first conceptualizing a problem, reviewing the literature, deriving theory and then describing the framework using natural language as well as a model, or a symbolic representation. We conceptualize the problem of representing complexity using IDNs as one in which the audience needs to critically reflect on the IDN. We then reviewed relevant literature from different sources, including Player Experience Research, Games Studies, Anthropological Research and the Theory of Epic Theater. We derive our theory of alienated play and describe it in the framework of interaction. This theory was refined using different methods, including dialogue to formalize the natural language theory (van Rooij and Blokpoel, 2020). Further, we described the metaphors of space in a conceptual model in Figure 1. Finally, we constructed

a causal model of two hypotheses for alienated play in comparison to immersed play.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

LA conceived the initial idea and conducted a first review of the literature. LA drafted the initial theoretical outline, FB provided feedback and further literature. LA wrote the first draft of the paper and designed the initial model, FB and KO provided feedback on the written theory and the theoretical model. LA completed the final version of the article, with continued feedback from FB being incorporated.

Funding

Acknowledgments

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

[Dataset] Adams, C. J. (1978). *Monopoly: From berks to boardwalk.*

Alter, M. P. (1964). The technique of alienation in bertolt brecht's "the caucasian chalk circle. *CLA J.* 8, 60–65.

Birk, M. V., Atkins, C., Bowey, J. T., and Mandryk, R. L. (2016). "Fostering intrinsic motivation through avatar identification in digital games," in Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (New York, NY, USA: Association for Computing Machinery, CHI '16), 2982. doi:10.1145/2858036.2858062

Bogost, I. (2007). *Persuasive games: The expressive power of videogames.* Cambridge: Boston Review.

Brecht, B., and Mueller, C. R. (1961). On the experimental theatre. *Tulane Drama Rev.* 6, 2–17. doi:10.2307/1125000

Brockmyer, J. H., Fox, C. M., Curtiss, K. A., McBroom, E., Burkhart, K. M., and Pidruzny, J. N. (2009). The development of the game engagement questionnaire: A measure of engagement in video game-playing. *J. Exp. Soc. Psychol.* 45, 624–634. doi:10.1016/j.jesp.2009.02.016

Caillois, R. (2001). *Man, play, and games.* Champaign, IL: University of Illinois press.

da Rocha Tomé Filho, F., Mirza-Babaei, P., Kapralos, B., and Moreira Mendonça Junior, G. (2019). "Let's play together: Adaptation guidelines of board games for players with visual impairment," in Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (New York, NY, USA: Association for Computing Machinery), 1–15. doi:10.1145/3290605.3300861

Dede, C. (2009). Immersive interfaces for engagement and learning. *Science* 323, 66–69. doi:10.1126/science.1167311

deLahunta, S. (2002). Virtual reality and performance. *PAJ A J. Perform. Art* 24, 105–114. doi:10.1162/152028101753401839

Eagleton, T. (1985). Brecht and rhetoric. *New Lit. Hist.* 16, 633–638. doi:10.2307/468845

Engström, H., Andersson Hagiwara, M., Backlund, P., Lebram, M., Lundberg, L., Johannesson, M., et al. (2016). The impact of contextualization on immersion in healthcare simulation. *Adv. Simul. (Lond.)* 1, 8. doi:10.1186/s41077-016-0009-y

[Dataset] Everything Unlimited Ltd (2015). *The Beginner's Guide.* Game [PC].

Féral, J., and Bermingham, R. (1987). Alienation theory in multi-media performance. *Theatre J.* 39, 461–472. doi:10.2307/3208248

Fleck, R., and Fitzpatrick, G. (2010). "Reflecting on reflection: Framing a design landscape," in Proceedings of the 22nd Conference of the Computer-Human Interaction Special Interest Group of Australia on Computer-Human Interaction (New York, NY, USA: Association for Computing Machinery), 216–223. OZCHI '10. doi:10.1145/1952222.1952269

[Dataset] Galactic Cafe (2013). *The Stanley parable.* Game [PC].

Gowler, C. P. R., and Iacovides, I. (2019). "horror, guilt and shame" – uncomfortable experiences in digital games," in Proceedings of the Annual Symposium on Computer-Human Interaction in Play (New York, NY, USA: Association for Computing Machinery), 325–337. CHI PLAY '19. doi:10.1145/3311350.3347179

Green, M. C., and Jenkins, K. M. (2014). Interactive narratives: Processes and outcomes in user-directed stories. *J. Commun.* 64, 479–500. doi:10.1111/jcom.12093

Hamari, J., Shernoff, D. J., Rowe, E., Coller, B., Asbell-Clarke, J., and Edwards, T. (2016). Challenging games help students learn: An empirical study on engagement, flow and immersion in game-based learning. *Comput. Hum. Behav.* 54, 170–179. doi:10.1016/j.chb.2015.07.045

[Dataset] Hasbro, arker, D., and Drennan (1986). *Monopoly: The property trading board game.*

Huizinga, J. (1949). *Homo ludens: A study of the play-element of culture.* London: Routledge & Kegan Paul.

Hymovich, D. P. (1993). Designing a conceptual or theoretical framework for research. *J. Pediatr. Oncol. Nurs.* 10, 75–78. doi:10.1177/104345429301000237

[Dataset] Ice-Pick Lodge (2006). *Pathologic.* Game [PC].

[Dataset] Jesse Venbrux (2008). *Execution.* Game [PC].

Kelley, B., and Tornatzky, C. (2019). "The artistic approach to virtual reality," in The 17th International Conference on Virtual-Reality Continuum and Its Applications in Industry (New York, NY, USA: Association for Computing Machinery). VRCAI '19. doi:10.1145/3359997.3365701

Kleinman, E., Caro, K., and Zhu, J. (2020). From immersion to metagaming: Understanding rewind mechanics in interactive storytelling. *Entertain. Comput.* 33, 100322. doi:10.1016/j.entcom.2019.100322

Klimmt, C., Hefner, D., and Vorderer, P. (2009). The video game experience as "true" identification: A theory of enjoyable alterations of players' self-perception. *Commun. Theory* 19, 351–373. doi:10.1111/j.1468-2885.2009.01347.x

Koenitz, H., Dubbelman, T., Knoller, N., and Roth, C. (2016). An integrated and iterative research direction for interactive digital narrative. *Int. Conf. Interact. Digital Storytell.* 10045, 51–60. doi:10.1007/978-3-319-48279-8_5

[Dataset] Konami Computer Entertainment Japan, Silicon Knights (2004). *Metal gear Solid: The Twin Snakes.* Game [GameCube].

[Dataset] Lantz, F. (2005). *The immersive fallacy.*

Lea, M., O'Shea, T., Fung, P., and Spears, R. (1992). *Flaming in computer-mediated communication: Observations, explanations.* Hertfordshire, England: Contexts of Computer-Mediated Communication, 89–112.

Little, R. M., and Froggett, L. (2009). Making meaning in muddy waters: Representing complexity through community based storytelling. *Community Dev. J.* 45, 458–473. doi:10.1093/cdj/bsp017

Lu, A. S., Baranowski, T., Thompson, D., and Buday, R. (2012). Story immersion of videogames for youth health promotion: A review of literature. *Games Health J.* 1, 199–204. doi:10.1089/g4h.2011.0012

[Dataset] Magie, L. J. (1904). *The landlord's game: 1904 patent and game rules.* Available at: http://landlordsgame.info.

Marshall, T. (2019). The concept of reflection: A systematic review and thematic synthesis across professional contexts. *Reflective Pract.* 20, 396–415. doi:10.1080/14623943.2019.1622520

Mekler, E. D., Iacovides, I., and Bopp, J. A. (2018). "A game that makes you question...": Exploring the role of reflection for the player experience," in Proceedings of the 2018 Annual Symposium on Computer-Human Interaction in Play (New York, NY, USA: Association for Computing Machinery), 315–327. CHI PLAY '18. doi:10.1145/3242671.3242691

Mitchell, D. M. (2013). Thinking through practice: Exploring ways of knowing, understanding and representing the complexity of teaching. *Asia-Pacific J. Teach. Educ.* 41, 414–425. doi:10.1080/1359866X.2013.838618

Muckler, V. C. (2017). Exploring suspension of disbelief during simulation-based learning. *Clin. Simul. Nurs.* 13, 3–9. doi:10.1016/j.ecns.2016.09.004

Murray, J. H. (1997). *Hamlet on the holodeck: The future of narrative in cyberspace.* USA: Free Press.

Olmos, P. (2014). "Classical fables as arguments: Narration and analogy," in *Systematic approaches to argument by analogy.* Editor H. J. Ribeiro (Cham: Springer International Publishing), 189–208. doi:10.1007/978-3-319-06334-8_11

[Dataset] Rivera, J. (2019). *'i'd have these extremely graphic dreams': What it's like to work on ultra-violent games like mortal kombat 11.*

Rizvic, S., Djapo, N., Alispahic, F., Hadzihalilovic, B., Cengic, F. F., Imamovic, A., et al. (2017). "Guidelines for interactive digital storytelling presentations of cultural heritage," in 2017 9th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games), 253–259. doi:10.1109/VS-GAMES.2017.8056610

Roth, C., and Koenitz, H. (2016). "Evaluating the user experience of interactive digital narrative," in Proceedings of the 1st International Workshop on Multimedia Alternate Realities (New York, NY, USA: Association for Computing Machinery), 31–36. doi:10.1145/2983298.2983302

Spiel, K., and Gerling, K. (2019). "The surrogate body in play," in Proceedings of the Annual Symposium on Computer-Human Interaction in Play (New York, NY, USA: Association for Computing Machinery), 397–411. CHI PLAY '19. doi:10.1145/3311350.3347189

Stevenson, J. (2011). "A framework for classification and criticism of ethical games," in *Designing games for ethics: Models, techniques and frameworks.* Editors K. Schrier, and D. Gibson. IGI Global), 36–55. doi:10.4018/978-1-60960-120-1.ch003

Tavinor, G. (2008). Definition of videogames. *Contemp. Aesthet. J. Arch.* 6, 16.

[Dataset] Team Salvato (2017). *Doki Doki literature club!.* Game [PC].

[Dataset] Toby Fox (2015). *Undertale.* Game [PC].

Tyack, A., and Mekler, E. D. (2020). "Self-determination theory in hci games research: Current uses and open questions," in Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (New York, NY, USA: Association for Computing Machinery), 1–22. CHI '20. doi:10.1145/3313831.3376723

Tyack, A., and Mekler, E. D. (2021). "Off-peak: An examination of ordinary player experience," in Proceedings of the 2021 CHI Conference on Human Factors

in Computing Systems (New York, NY, USA: Association for Computing Machinery), 1–12. doi:10.1145/3411764.3445230

Tyack, A., and Wyeth, P. (2017). "Adapting epic theatre principles for the design of games for learning," in Proceedings of the 10th Digital Games Research Association Conference 2017 (Digital Games Research Association DiGRA).

van Enschot, R., Boogaard, I., Koenitz, H., and Roth, C. (2019). "The potential of interactive digital narratives. agency and multiple perspectives in last hijack interactive," in *Interactive storytelling*. Editors R. Cardona-Rivera, A. Sullivan, and R. Young (Springer), 158–169. doi:10.1007/978-3-030-33894-7

van Rooij, I., and Blokpoel, M. (2020). Formalizing verbal theories: A tutorial by dialogue. *Soc. Psychol.* 51, 285–298. doi:10.1027/1864-9335/a000428

Whitby, M. A., Deterding, S., and Iacovides, I. (2019). "One of the baddies all along": Moments that challenge a player's perspective," in Proceedings of the

Annual Symposium on Computer-Human Interaction in Play (New York, NY, USA: Association for Computing Machinery), 339–350. CHI PLAY '19. doi:10.1145/3311350.3347192

Willet, J. (1964). *Brecht on theatre*. United Kingdom: Methuen and Co.

Witmer, B. G., and Singer, M. J. (1998). Measuring presence in virtual environments: A presence questionnaire. *Presence. (Camb).* 7, 225–240. doi:10.1162/105474698565686

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 DiGRA ᶠ - Proceedings of the 2011 DiGRA International Conference: Think Design Play (DiGRA/Utrecht School of the Arts), 1–16.

[Dataset] ZA/UM (2019). *Disco Elysium*. Game [PC].