Games as Activity: Correcting the Digital Fallacy

Jaakko Stenros and Annika Waern

Abstract

Game studies would benefit from acknowledging that digital games should be studied as a special case of games rather than the other way around. Digital games research tends to look at games as fixed structures or media, largely ignoring the role of the player. Conversely, play and player studies tend to ignore the role of design. We argue that in order to uncover the relationship between game design, game activity and game experience we need to put the *game activity* in central focus. If games are approached from this perspective, we should study them simultaneously as consciously designed and socially enacted. There need not be a contradiction in this: rather, games are not the only phenomenon that occupies this societal niche. The fact that games are socially constructed opens up new venues of research, where we can draw upon player expertise in understanding the role of design in shaping gaming activity.

Key Words: Games, play, activity theory, game design, digital fallacy, enacted experience, consciously designed.

1. Introduction

The field of game studies is currently dominated by the study of digital games, and rightly so, due to their economic and rapidly increasing cultural significance in society. To a large extent it seems that currently, general game studies are a subsection of digital game studies, not the other way around. Treating digital games as the standard of games, as a measuring stick that determines what is normal, is both analytically flawed and intellectually dishonest.

This digital fallacy has had a profound effect of game studies, especially on how the central concept of "game" is framed. Game studies have largely focused on the deconstruction and analysis of the structures and mechanics of games, which has strongly impacted the discussion on what constitutes a game. In game studies, games are most often seen as *systems*. This has made the play *activity* an under-explored area of game studies.

Games are always *second order design*; game designers create structures that guide player engagement and activity, but their experience is created by their activity with and within the game, and not primarily by the

game itself.² It can be argued that games are not complete until they are played. This holds for all games, be it computer games, card games, board games or sports.

In this paper we argue that looking at games *only* as systems is detrimental to game studies in the long run. Instead, we argue that studying games as activities should be an important part of game studies, on par with studying the game rules, aesthetics, experiences and interaction models. Looking at games as activities is by no means a new idea; the idea is paid lip service in all but the most formalist systemic research, yet the implications of approaching games as an activity is rarely addressed.

2. The Digital Fallacy

Digital games are a special case of games. Though they are a diverse group, they share tendencies towards certain features, features that are not as characteristic of games in general as they are of digital games.

Digital games are largely centred on creating, maintaining and interacting with *simulations* – probably because, as many researchers have pointed out, computers are excellent tools for just that.³ Even those digital games that are not strictly speaking simulations often automate the systemic side of running the game. There is usually no need for a human actor who runs the game such as a gamemaster, a croupier, or a referee, but the facilitation of playing is done by the system.4 As these rules are coded, altering them is cumbersome. In digital games it is harder to establish house rules, as changing the system is much more difficult when it is coded than when the facilitation of playing is done by the players themselves. The rules can be changed, and indeed it is standard practice for both the players and the manufacturers to do so: The game developers often patch and update existing games and the players come up with hacks and mods.5 Still, even if this is possible, it is more difficult than in non-digital games. In comparison to nondigital games, digital games are also more often single player games.⁶ The perceived dominance of the single-player games in digital games has been questioned during the last decade by the success of massively multiplayer online worlds, party games with mimetic interfaces, casual games and social games. Even so, the computational challenge that a computer can offer has created a strong tradition of single-player games unrivalled in the history of games.

This emphasis on the single player games and the systemic view as well as the tendency for everything to be documented in digital domains has meant that *social play and the sociability surrounding playing has been easily separated from the "game"*. For example David Myers sees sociability in computer games as a side effect:

[I]t seems reasonable to construct explanation of social video game

play as an extension of individual video game play rather than to characterize individual play as a fragmentary and incomplete version of social play.⁹

It is interesting to contrast this with the words of Richard Garfield, a game designer who works with non-digital games (board games, role-playing games, collectible card games). He writes: "it is hard to have a good game experience no matter how good the game is if the metagame is bad." By metagame Garfield means "how the game interfaces outside of itself"; that is, the sociability in and around a game. ¹⁰

Finally, due to the simulation capabilities of computers, many digital games are based on *fictional worlds* and feature strong narrative structures. Though there are non-digital games with strong fictional worlds (like role-playing games), many digital games emphasize the storyline of the game to the point that its story content is exhausted after one or a few playthroughs. Few non-digital games are these kinds of *games of progression*¹².

Viewing games in general through the spectacles of digital games and by generalizing the features presented above creates what we call *digital fallacy*. Treating digital games as the measure of normalcy severely limits the understanding of those games that do not fit the digital mould. It also tends to disregard the activity of play in regards to digital games – and even the agency of the player.

3. The Systemic View of Games

It seems that the most oft-cited definitions of games in game studies are the ones supplied by Jesper Juul and Katie Salen and Eric Zimmerman. Both definitions build heavily on earlier work and construct syntheses. These definitions are:

A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome. ¹³

A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable.¹⁴

Both definitions prioritize the systemic nature of games, something that the older definitions of games rarely do. Indeed, the nature of gameplay as an activity features prominently at least in the definitions of Johan Huizinga, Roger Caillois, Bernard Suits Clark Abt and even Elliott Avedon and Brian Sutton-Smith, though it must be said that some of these definitions discuss

play in general and not playing games specifically.¹⁵ Researchers who have been writing mostly about digital games do write about games from various angles, cultural, systemic, activity-based, commoditization, but ultimately they tend to favour systemic definitions. In addition to the ones quoted above, Chris Crawford, whose book on *The Art of Computer Game Design* from 1982 has greatly influenced later definitions wrote:

a game is a closed formal system that subjectively represents a subset of reality. [...] By 'closed' I mean that the game is complete and self sufficient as a structure. The model world created by the game is internally complete; no reference need be made to agents outside of the game. ¹⁶

In Crawford's view, the players are part of the system, and they need only to stay within the internally complete world, that is, follow the rules – unless the game is poorly designed.¹⁷ The players incorporated in such a system are not the human, social creatures that play games in the real world, but idealized, rational decision makers.¹⁸ This train of thought has been followed to its logical conclusion by Myers who has proposed what he calls a *minimalist game*: it excludes player completely.¹⁹

One reason for this emphasis on structure and system instead of player activity is most likely a methodological concern. Studying a game as a system can be perceived as more objective than the study of play activities. In order to access the activity, a game needs to be played. This creates a paradox: the researcher either needs to play the game – which means that she is a participant and her personal experience may be seen as tainting the work – or the researcher needs to study other people who play a game – in which case she only has second hand information on the activity. Although these challenges also arise when games are viewed as systems, they are easier to bypass in this case, as the activity of playing the game is done just in order to access the underlying system.

This methodological concern is a bit of an ostrich argument. If we embrace the idea that games are second order design, the question can be asked if a game *even exists* until it is played. Indeed, Laura Ermi and Frans Mäyrä have gone so far as to state that "the essence of a game is rooted in its interactive nature, and there is no game without a player." Game studies acknowledge this in practice, if not in theory, as many ludologists consider the playing of the game under scrutiny a pivotal part of the research. ²¹

Staffan Björk has advocated that field of game research should be understood as divided into three parts based on the object of study: the game as an artefact, the gamer as an agent, and the gaming as activity. However, this division runs a risk of ignoring the effect a player has on a game. Björk recognized this, and points out that results from the study of playing can be

"distilled to design knowledge that can be considered when designing a game system." We take this a step further and propose that play affects games in a much more direct way. An iterative cycle of redesigning the game by the designer is not needed; players have an impact on the game artifact in shaping it through play. Or to put it in another way, there is an overlap between play and design. ²³

The systemic view is, and has been, a fruitful way of approaching games. Its most important contribution may be that it allows for a careful deconstruction of a designed artefact – the game – into separate components such as rules, goals, interfaces, worlds, narrative structures etcetera. However, there are certain questions that cannot be either asked or answered in that paradigm. The more playful side of gaming, the activity of it, merits a similar deconstructive approach; can we identify components of the play activity that impact the design and the player experience?

A successful approach to play activity study would not only benefit the study of non-digital games. Tanja Sihvonen has argued that the success of *The Sims*, one of the most successful digital game franchises there is, "cannot be explained by its intrinsic characteristics only"; one must look at the playing of the game.²⁴ But how can we approach this?

To sum up, games can be viewed through several different lenses: as systems (consisting of rule structures, simulation and interaction, as discussed above), as experiences residing with the player group²⁵, as products or services²⁶, and so forth. At present the rhetoric of games as structures is rampant. Take for example the most widespread course book on game studies, *Rules of Play*, which brings up multiple perspectives on games, still ends up with a purely structural definition of what constitutes a game.²⁷

In this article we explore the option of analysing games as *play activities*. We propose that a fruitful approach to analysing game activity is from a double perspective, building on the claim that game activities are at the same time both *consciously structured* and *enacted*.

4. Alternative Views on Games

Within game studies, there is already a strong emerging tradition of player studies, which aims to conduct "human-centred research into the experience and meaning of games as perceived by different real players". The field is important and has several aspects in common with the approach proposed in this article; we will at times have reason to refer to work in this area. However, that tradition faces two serious challenges.

The human experience that this field aims to elicit is fundamentally subjective, and to some extent ephemeral: players experience things while playing, and although such an experience is ongoing it is very hard for players to report on it, as they have to distance themselves from the experience in order to reflect and report on it.²⁹ This has lead to a research

strand where researchers apply psycho-physiological measurement techniques to elicit experiences directly from players' body and brain reactions to a game activity.³⁰ The approach shows promise but is far from fully established, and it is restricted to use in laboratory settings. It is also unclear if we ever will be able to understand what these different measurements *mean*, in the sense of a subjective, personal experience.

The second challenge that player studies face stems from viewing the game as fixed. In order to create a direct connection between game design and play experience, player studies tend to view the game as a designed artefact that players *use*, but do not in any fundamental way change, shape or challenge. The approach is again a consequence of the digital fallacy, and is inspired by work in human-computer interaction studies that tend to view the computer application under scrutiny as given. Sometimes player studies do not even try to tie their observations to game design, but instead focus on describing player cultures or general social behaviour. These studies are sometimes restricted to a genre of games (such as massive multiplayer online games³¹), but more often to a particular subculture of players. In these studies, the link to game design is often not considered.

Our aim is slightly different; instead of looking at player cultures or individual experiences, we aim to chart what kind of *impact* actual players have on the game. This is the major reason why we advocate looking at games as activities rather than as structures. Rooted in weak social constructionism for games,³² we seek to bridge the artefact and the playing with a more dynamic and situated view of *game-as-played*. Below, we discuss the advantages of such an approach; namely, that activities are observable and socially constructed, indicating sources of information that hitherto have been under-explored in game studies. We will also see how the view of games as activities bridges the gap between game design and socially contextualised gameplay: both can be considered design processes, and these influence each other.

The older tradition of studying play, though certainly relevant, does not solve our problem either.³³ It is both too general and too specific in scope as it looks at all kinds of play, yet is often interested in children's play specifically. Comparatively, the study of games in the context of simulations can be too narrow as play is often bracketed.³⁴ The emergence of ludology and game studies a decade ago was a course correction where the study games *as* games took centre stage, but due to the digital fallacy ludology has a tendency to look at games as static.

A helpful perspective could be provided by *activity theory*. It aims to study of human activity from a holistic perspective: "The focus of activity theory is on purposeful, mediated, human social activity.³⁵ Originating in Soviet academia, it is today used primarily in organization analysis and computer-human interaction design. From the latter perspective, activity

theory has proven useful as theoretical tool for widening the scope from studying the interaction between a (fixed) system and a human user, to the use of information technologies in human practice. From the perspective of game research, a particularly interesting aspect would be to bring in the subfield of activity theory that studies the process of how artefacts are integrated in a human activity through reshaping both artefacts and practices.³⁶

A problem with applying activity theory to games is that it focuses on teleological, purposeful, activity. Most activity theorists take goals and motivations as given. The social processes of entering an activity and forming collective goals and motivations remain relatively under-explored in activity theories, but are central to the study of game activity.³⁷

5. Consciously Structured

All human endeavours are socially situated and embodied. Those features do not differentiate gameplay from, say, working or shopping for groceries. What does mark gameplay apart is that games are activities that are *consciously structured* in some way. Modern games including computer games, board games, and most role-playing games, are consciously designed by a game designer. Many traditional games – as well as some contemporary styles of playing – are products of a long cultural evolution. However, even these games are subjected to redesign, such as in the design of the play tools (board and pieces) and often in the form of house rules governing each particular play situation. According to Caillois the main difference between generic play and games lies in that games are governed by set rules and clear objectives (*ludus*), whereas free play (*paidia*) can be read as more of a mindset; in this sense, games need to be designed (even when it is by committee).

Games are hardly unique as designed activities. On the contrary, it is not uncommon for humans to engage in activities that have been consciously designed. In many cases, it is necessary to design activities to make society function smoothly, as when traffic lights are used to control when and how cars are allowed to pass through a road intersection. Designed activities are in fact so common, that we often do not reflect upon the fact that our behaviour has been structured by an external party. When the milk is placed at the very back of the grocery store, we rarely reflect on the fact that the milk run is consciously designed to force us to pass as many shelves as possible – in the hopes that we will pick up a few additional articles. ⁴⁰ History also contains some grim examples of designed activities, implemented to control people in totalitarian societies.

Some keys to activity design can be found in the architectural distinction between of 'places', as locations meaningful to humans and locus of human activity – and 'spaces' as the spatial and geometrical setting of that

activity. 41 Human activity is constantly shaped by consciously designed places, from the bathroom to the church. The board game boards, the virtual worlds and the fields, pitches and stadiums play these roles for games. In addition, human activity is often shaped through instruments such as explicit rules and instructions (c.f. the game rules), and a structured pace. We can use the security control of an airport as an archetypical example: the security control is a place, as it is located in physical space and it has a certain architectural design and installations that make us immediately recognize the intended function of the place. At the same time, there is a procedure that people passing through preferably should follow, akin to the interaction methods of a game. Often there is an instruction video running at a monitor in front of the security control. The procedure is supported by various installations and finally the conveyer belt that moves our bags sets the pace for the throughput of the security control. Finally, by playing along in the security control ritual, participants get an experience. More often than not, this is a stressful and uncomfortable experience of being paced and pushed, but it is still an experience.

On the surface, the difference between the security control and a game seems not to be that large. The core difference lies instead in their purpose: the security control in an airport has several teleological purposes. For players of a game, the purpose of playing is (at least according to the hegemonic ideal) *paratelic*⁴²: The activity of playing a game is not a means to an end but the end in itself. In Huizinga's words, the basic conceptualization of play is that it is *voluntary* and *needless*⁴⁴ and according to Suits there is an *lusory attitude*, "the acceptance of constitutive rules just so the activity made possible by such acceptance can occur", at play. As

But aside from bureaucratic practice, in anything but a game the gratuitous introduction of unnecessary obstacles to the achievement of an end is regarded as a decidedly irrational thing to do, whereas in games it appears to be an absolutely essential thing to do. 46

As a game is designed, it is imbued with the purpose of being engaged with for the sake of the created activity. The mode that artefacts offer activity has been discussed as *affordance*, a form of communication between the user and the designer. ⁴⁷ Games afford playing, often in numerous different styles. However, it is still perfectly possible to use games for purposes other than play, such as working, learning, socializing and research – or to play the game in a style not intended by the designer. Pervasive games can even contain *infinite affordances* as the game is not spatially, temporally or socially restricted – anything the player runs into has the potential of being used in the game. ⁴⁸ Thus, the intention of the designer is not enough: the attitude of the player is also pivotal for understanding the game as played.

The designer can work towards fostering a playful attitude, but it can be difficult to quantify or break apart all those parts of the design (i.e. of the system) that actually afford playfulness.

Playing games is always situated in a social setting. Games and gameplay do not take place in an ideal or abstract world, but in the very real physical and mediated places we inhabit. This means that even the consciously designed game seldom is played only 'by the rules': gameplay and game rules are socially negotiated and it is possible to bend, twist, interpret, renegotiate and sometimes even break those rules. It is not uncommon to have a playful attitude towards the rules of the game. House rules while playing a board game, and cheats, mods and hacks to digital games are all examples of this. So

Salen & Zimmerman define play as "free movement in a more rigid structure". ⁵¹ This free movement allows for different interpretations and playing styles even when adhering to the same collection of rules. In this context the concept of core game mechanics⁵² is useful as it ties together player activity with the game's underlying structure; its goals, rules and reward systems, as well as with the gamers' experience and strategies. In *soccer*, be it professional or impromptu, kicking the ball between the goal posts is a core mechanic, and the number of points you score for doing so is defined by the rules. The game experience achieved in the act – some combination of exhaustion and a sense of control and success – is generated both in the physical act itself as well as by its significance in the game.

Game mechanics still represents a reductionist approach to studying games as activity: it reduces the game to a few key activities when playing. Viewed as a social practice, gaming involves a lot more than performing these actions, and the style and context of these 'core' activities also carries weight.

In addition, the playing of a game is impacted not only by what is happening within the strictest interpretation of the magic circle⁵³ of play, but also where that play is situated. There is an element of performance in play whenever an audience is present; be it is professional televised games or amateur party games with mimetic interfaces. In any multiplayer game, other players form a kind of audience that contributes to the social situation even if the rules for the social interaction are not strictly part of the game system. Finally, role-players will also talk about the *first person audience*⁵⁴: the player observing his or her own actions and reactions, as the most important audience of the own make-believe performance.

6. Enacted Experiences

As discussed previously, game design (be it the conscious design of the creators, or the social agreement formed by participants) is realised only as the players engage with the game. Gameplay is thus an *enacted experience*: what we experience is not 'the game' but a play session, and that session does not exist unless we actively create it.

Just as designed activities, enacted experiences are not uncommon in society. Going to a masquerade, dancing at a wedding, participating in a sauna evening are all examples of social events that have as their main focus to create an experience for the participants. Enacted experiences are also often at least partly designed; just as traditional games they are often supported by consciously designed environments and tools, and sometimes by explicit (house) rules. These tools, environments and rules are designed to heighten and facilitate the experience, but they are not enough to create it: just entering a sauna does not generate a sauna experience; just as swinging a tennis racket does not transmit the experience of a demanding match of tennis.

There are in particular two aspects of enacted experiences that influence how we must study game activity. The first is that enacted experiences are socially constructed and transferred. One needs to have an expectation of what to experience, in order to fully understand and enjoy it. If you never have been to a Finnish sauna or participated in a wine tasting, chances are that you will not appreciate it at all. This social learning process was lucidly described in Howard S. Becker's paper *Becoming a Marihuana User* already in 1953; the user needs to learn how to consume the drug correctly, to recognize the effects, and to learn how to enjoy these effects. Many enacted experiences require a lot of training in order to achieve the full experience. Downhill skiing, lindy-hop dancing, playing the trumpet in a jazz jam session, all are highly rewarding but also *difficult* activities.

The other aspect is that participants must *engage*, voluntarily and properly, in order to experience anything at all. This aspect clearly marks games as enacted experiences; almost all game systems can be interpreted and enacted in numerous different ways. The same game can be played in completely different styles, while still adhering to the rules, players may take on very different attitudes in different sessions with a game, and sometimes the attitudes will vary also within the same game session. Richard A. Bartle has divided people who participate in online massive multiplayer worlds into *socializers*, *killers*, *explorers* and *achievers*. These player types inhabit the same virtual world, but some of them may not even view it as a game. These kinds of play style differences are not tied to just online worlds and other social games. Anders Drachen found that 97% of people who play *Tomb Rider: Underworld*, a single player digital game, follow one of four specific play style patterns, and Nicole Lazzaro identified four distinct types of enjoyment in computer games.

The expected attitudes of players influence the game played. A particularly illuminating example can be found within role-playing studies.

Traditional tabletop role-playing games have inspired a lot of expert hobbyists to write essays and construct models. One of these is the typology that divides playing and game-mastering styles to *dramatism*, *gamism* and *simulationism*.⁵⁹ The first values a satisfying storyline, the second winning over a fair challenge and the third in modelling a world with highest possible fidelity. John Kim describes the modes as 'contracts' that govern both how players are expected to behave, but also what kind of experience the gamemaster is trying to build. When transferred into the domain of computerised entertainment, where gamemasters are absent, a very similar typology has been used to describe game genres⁶⁰.

Enacted experiences are often governed by various boundary structures that delimit what constitutes the experience, as well as when and where it is enacted, and who are enacting it. Both Caillois and Huizinga emphasise that games, by design, are *set apart* from ordinary life; Huizinga describes this as games taking place within 'a magic circle', an informal contract between the participants that allow them to act differently than outside of this circle. Erving Goffman reasons in a similar way about the game frame. Game rules and other game structures are important not only in order to structure the actual activity, but also in creating the boundary of the game frame – even if that boundary is porous and subject to renegotiation.

Enacted experiences are also always embodied experiences. Games are played by someone, and that someone is a conscious, physical, social being. The player is not a bracketed abstraction, but something quite tangible. Different game types tend to favour different aspects of the player: in sports, the physical body seems to take centre stage, *chess* is sometimes seen as purely an intellectual effort, and perhaps some Facebook games could be viewed as building on the sociality of the player. Yet all of these aspects are present in all play.

With the rise of the mimetic interfaces in games, the body of the player has been noticed in the design of digital games in contexts other than ergonomics. Games played on dance mats and Wii Fit games are obvious examples of putting the body of the player in the centre of the design, but some games are even built on the *modification of the player body*, not the game artefact. Party games, such as *SingStar* and *RockBand*, seem to benefit immensely not only from co-presence with the other players, but from inebriation. It is as if these games were designed to be played while slightly drunk. Many non-digital games have played with this possibility for some time, as regulations for doping show in sports. Some have even gone so far as name these as design choices: the makers of the live action role-playing game *The White Road* termed starting the game while hung over *the afterburner method*. Endorphins and adrenaline can do just fine as well.

Many playful activities are purely about the embodied experiences

from the disorientation of spinning around to bungee jumping and parachuting (Caillois discussed these as $illinx^{64}$). In a way these are pure mechanics, like kicking or jumping, without the structure of the game rules. The possibility to derive pleasure from just performing the activity is not lost when these activities are placed in the context of gameplay. Indeed, it is possible to carry out most actions on the Nintendo Wii controller with a small flip of a wrist, yet players still choose to carry grand, iconic gestures when playing Wii Sports. Mimicking the "real" body movements seems to be important 65 . It can also be asked if the feeling of vertigo induced by Mirror's Edge, an immersive single-player parkour themed game, on some players is part of the draw of that game.

The concept of somaesthetics⁶⁶, the aesthetics of bodily experiences, is thus highly relevant to the study of games. Drawing upon philosophers such as Michel Focault and John Dewey, somaesthetics aspires to describe aesthetics from the experiential perspective. "There is also the beautiful experience of one's own body from within", Richard Schusterman writes. No doubt this comes into play in games such as *SingStar* and *Rock Band*, as well as in the concept of a first person audience.

7. The Implied Player

One way to bridge the understanding between designers and actual instances of play is through the concept of *implied player*, the theoretical (and, in the case of designers, concrete design aid) notion of the person who plays the game. Jonas Heide Smith has divided implied players into four models: the susceptible player, the selective player, the active player and the rational player. The first two are not relevant for our discussion, as they relate to action before and after the game, addressing issues such as how does the game influence the player and how is a game chosen. However, the two latter are highly relevant: the active player model conceives of a player who is actively "engaged with the game or gamespace in ways often not prescribed or predicted by the game designers", whereas the rational player is seen as "optimizing her outcome within the game as defined by the objective goals". Smith explicates that his model does not address the "player as a cocreator". and indeed the concept of configurative player has been proposed as an additional type.

Smith argues that while the idea of the rational player is hegemonic in design literature, the situation is different in game studies. This, Smith sees as a problem: he criticises game studies as overemphasising player creativity and concentrating on the "unexpected, the complex and the resistant". He recognizes a divide in game studies

[...] between "formalism" and "situationism". Whereas the former is an attempt to study and categorize formal aspects of games, the

latter seeks to study concrete gaming practises sometimes arguing that gaming is context-dependent and cannot be studied in the abstract.⁷¹

In Smith's terminology we argue a situationist approach to studying games. But Smith has a point: games are not structures where any and every activity can take place – even unexpected play takes place in the context of the game as some kind of designed, or otherwise agreed upon, structure. We wish to be able to research and discuss games *both* as consciously designed and as enacted experiences, with both the game and a human, social player present.

One small step towards this would be to maintain a systemic view including players, but reassess the model of the player. Perhaps a rational player is not trying to optimize her action in order to succeed in the game, but trying to optimize her actions in order to have a best possible *experience* with the game. This might mean failing spectacularly and thus creating a positive negative experience, 72 challenging the game designer, 73 or tweaking the rules to create a more interesting and better functioning game.

However, we believe that it does not suffice to only discuss ideal players. Actual embodied players should not be forgotten, nor simply left for empirical player studies. Viewing games as enacted experiences, that is, socially constructed and transferred practices, opens up another opportunity. *The players themselves* are an important source of knowledge and theory, though often neglected in academia. It makes a lot of sense to mine what expert hobbyist have to say about the games they play. The early work by Bartle, at the time a hobbyist researcher in early massively multiplayer worlds, has righteously become a classic. ⁷⁴ Similarly, there is a growing literature on role-playing games that discussed games and game experiences with concepts and models that could greatly benefit game studies at large ⁷⁵. Though the writing and even thinking may at times be muddled, the conceptualisations and fresh ideas shine bright.

Ludology already requires a researcher to be a player. This is a first step towards recognizing that the skilled player, who fully understands what constitutes an interesting play session, an aesthetically pleasing somaesthetic experience, or a first-person experience of immersing in role, can be an expert even if she is not a researcher.

8. Conclusions

In this article, we have deliberately stayed away from any delimiting definition of what a game is, or even, what it means to engage in a game activity. Our analysis frames games as residing in the sweet-spot intersection between designed activities and enacted experiences; they are consciously designed activities that we engage in purely in order to experience something.

But games share these properties with activities that we do not consider to be games: bungee-jumping, riding a rollercoaster, and even going to the cinema all belong to this category of human activity. Our framing is not intended ot replace the analyses of Huizinga, Caillois, Sutton-Smith, Salen and Zimmerman, or Juul, but to complement them; it is intended to provide an alternative perspective. Rather, the fact that it groups games together with numerous other human activities opens up new perspectives for the study of games: if playing a game is similar to bungee-jumping, what can we learn from the design of such paideic activities in designing games? Conversely, what can roller-coaster ride designers learn from game design?

In order to even start to answer such questions, the theoretical perspective presented in this paper has to be deconstructed into various design approaches and modes of engagement, focusing on understanding their interrelationship in the game-as-played activity.

An example of such a design principle could be *openness*. This ideal seeks to make games as responsive as possible to player initiative and control. It appears in many different game genres, with slightly different objectives as to what part of the game should be submitted to player control. The reason that it arises could be understood both as a desire to give players more agency than they have in many societal designed activities (such as security controls), and creating room for supporting a range of different enacted experiences. But at the same time, games are not open spaces where anything goes: the rules and goals of the game do structure activity and infuse meaning into enactment. Striking this balance is hardly straightforward, and studying games from this perspective requires close reading of game-as-played.

If digital games are to be studied as games (and not as, e.g., a new media format), it stands to reason that they are studied as a special case of games in general. Using digital games as the norm for all games creates a warped perspective that we have called *the digital fallacy*. We have argued that this perspective has lead to overemphasizing the role of game structures in games, a perspective that has been highly successful in highlighting certain aspects of games but equally successful at hiding others. Neither do we advocate turning solely to player studies, ignoring the role of game design. We believe that the gaming activity is equally informed by structures and rules, as by expectations, social practices, and the players' mode of engagement.

In order to correct the digital fallacy, we propose that games need to be studied primarily as human activities, shaped in a double context of design and practice. The ultimate goal of studying games as activity must then be to uncover the relationships between design, co-design, the social practice of play, and the player experience. We have described this as games being both consciously designed, and at the same time enacted experiences. Although

relevant research already exists in the field of game studies, most notably in player studies, we have found our primary theoretic sources in as vastly different fields: activity theory, architecture, somaesthetics – and expert player contributions.

As all enacted experiences, game proficiency is a socially transferred skill. This means that when studying games as activities, we can give the players' own perspective on their experience a much higher status than what has traditionally been done in player studies. Players are able to both perform and discuss how games are enacted. Studying games as activity does not need to leave us in a quagmire of fundamentally ephemeral internal experiences — we can observe, interview, and play, and by that, begin to understand the nature of the game activity and its relationship to design.

Notes

- J Juul, Half-Real: Video games between real rules and fictional worlds, MIT Press, Cambridge, 2005, p. 36-45. D Myers, 'In Search of a Minimalist Game', in Breaking New Ground: Innovation in Games, Play, Practice and Theory. Proceedings of DiGRA 2009, 1-4 September, Brunel University, West London, UK, 2009. K Salen & E Zimmerman, Rules of Play, MIT Press, Cambridge, 2004, p. 72-82.
- ² K Salen & E Zimmerman, p. 168.

1

- ³ E.g. E Aarseth, 'Genre trouble: Narrativist and the art of simulation', in First Person: New Media as Story, Performance and Game, P Harrigan & N Wardrip-Fruin (eds.), MIT Press, Cambridge, 2004, p. 45-55. E Aarseth, Cybertext: perspectives on ergodic literature, The Johns Hopkins University Press, Baltimore, 1997.
- ⁴ See also J Stenros & O Sotamaa, 'Commoditization of Helping Players Play: Rise of the Service Paradigm', in Proceedings of Digra 2009 Conference, Breaking New Ground: Innovation in Games, Play, Practice and Theory, 1-4 September, Brunel University, West London, UK, 2009.
- ⁵ S Morris, 'WADs, Bots and Mods: Multiplayer FPS Games as Co-creative Media', in *Proceedings of Digital Games* Research Conference DiGRA 2003, 4-6 November, University of Utrecht, The Netherlands, 2003.
- ⁶ J Stenros, J Paavilainen & F Mäyrä, 'The Many Faces of Sociability and Social Play in Games', in *Proceedings of 13th* International Academic MindTrek Conference: Everyday Life in the Ubiquitous Era. 30 September-2 October. Tampere. Finland, 2009.
- J P Zagal, M Nussbaum & R Rosas, 'A Model to Support the Design of Multiplayer Games', Presence Vol. 9, No. 5, October 2000, 448-462. R Rouse III, Game Design. Theory & Practice, Wordware Publishing Inc, XXX, 2001.
- ⁷ J Juul, A Casual Revolution. Reinventing Video Games and Their Players, The MIT Press, Cambridge, 2009, p. 1-2, 145-152. Also J Stenros, J Paavilainen & F Mäyrä.
- ⁸ J Stenros, J Paavilainen & F Mäyrä.
- ⁹ D Myers, 'In Search of a Minimalist Game', in *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Proceedings of DiGRA 2009, 1-4 September, Brunel University, West London, UK, 2009.
- ¹⁰ R Garfield 2000, "Metagames", in Four Horsemen of Apocalypse. Essays on Roleplaying, J Dietz (ed.), 2000, p. 14-21.
- ¹¹ Juul *Half-Real*, p.1-2, 121-162.
- ¹² Ibid, p 5.
- ¹³ Salen & Zimmerman, p. 81.
- ¹⁴ Juul *Half-Real*, p. 36.
- ¹⁵ J Huizinga, *Homo ludens: A study of play element in culture*, Beacon Press, Boston, 1955, p. 13. R Caillois, *Man, Play* and Games, University of Illinois Press, Urbana and Chicago, 2001, p. 9-10. B Suits, 'Construction of a Definition', in The Game Design Reader. A Rules of Play Anthology, K Salen, & E Zimmerman (eds.), Massachusetts, MIT Press, 2006, p. 172-191. C C Abt, Serious games, Viking Press, New York, 1970, p. 6-7. E M Avedon & B Sutton-Smith, Introduction to The Study of Games, E M Avedon & B Sutton-Smith (eds.), John Wiley & Sons Inc, New York, 1971, p. 1-8.
- ¹⁶ C Crawford, *The Art of Computer Game Design* (Electronic Version), ARCade ARDhive, ref. 25.5.2010, http://arcarc.xmission.com/Magazines%20and%20Books/Art%20of%20Game%20Design.pdf, 1997. ¹⁷ Crawford.
- ¹⁸ S Björk, 'Games, Gamers and Gaming. Understanding Game Reseach', in Proceedings of 12th International MindTrek Conference: Entertainment and Media in the Ubiquitous Era, A Lugmayr, F Mäyrä, H Franssila & K Lietsala (eds.), Tampere, Finland, October 2008, p. 64-68.
- 19 Myers.
- ²⁰ L Ermi & F Mäyrä, 'Fundamental components of the gameplay experience: Analysing immersion', in *Proceedings of* Digra 2005, 2005.
- ²¹ E Aarseth, 'Playing Research: Methodological Approaches to Game Analysis', in *Proceedings of the 5th Digital Arts &* Culture Conference, Melbourne, Australia, 2003. J Suominen, R Koskimaa, F Mäyrä & O Sotamaa, 'Johdanto', in Pelitutkimuksen Vuosikirja 2009, J Suominen, R Koskimaa, F Mäyrä & O Sotamaa (eds.), www.pelitutkimus.fi/vuosikirja-2009 (ref. 25.5.2010), 2009. M Montola, 'Social Constructionism for Ludology', presented at Games Research Methods seminar, 8-9 April, University of Tampere, Finland, 2010.
- ²² Björk, p. 64-68.
- ²³ O Sotamaa, The Player's Game. Towards Understanding Player Production among Computer Game Cultures. Doctoral Dissertation, Department of Journalism and Mass Communication, University of Tampere, 2009, p. 82.
- ²⁴ T Sihvonen, *Players Unleashed! Modding The Sims and the Culture of Gaming*, Doctoral Dissertation, University of Turku, 2009, p. 6.
- ²⁵ M J Apter 'A structural-phenomenology of play', in Adult Play: A Reversal Theory Approach, J.H. Kerr & M.J. Apter (Eds.), Swets & Zeitlinger, Amsterdam, 1991. S Heliö, 'Role-Playing: A Narrative Experience and a Mindset', in Beyond Role and Play, Tools Toys and Theory for Harnessing the Imagination, M Montola & J Stenros (Eds.), Ropecon ry, Vantaa.

2004.

- ²⁶ Stenros & Sotamaa.
- ²⁷ Salen & Zimmerman.
- ²⁸ L Ermi & F Mäyrä, 'Player-Centred Game Design: Experiences in Using Scenario Study to Inform Mobile Game Design', *Game Studies*, Vol. 5, No. 1, October 2005.
- ²⁹ A Waern, Z Ahmet, and D Sundström, 'An in-game reporting tool for pervasive games', in *Proceedings of Advances in Computer Entertainment Technology 09*, Yokohama, Japan, 2009, p. 240-248.
- ³⁰ L Nacke, *Affective ludology: Scientific measurement of user experience in interactive entertainment.* Doctoral Dissertation No. 2009:04, Blekinge institute of Technology, 2010.
- ³¹ E.g. T L Taylor, *Play between Worlds*, MIT Press, Cambridge,.
- ³² Montola.
- ³³ E.g. B Sutton-Smith, *The Ambiguity of Play*, Harvard University Press, Cambridge, 2001.
- ³⁴ D Crookall, R Oxford & D Saunders, 'Towards a reconceptualization of simulation: from representation to reality,' *Simulation/Games for Learning*, Vol. 17, No. 4, 1987, p. 147-171.
- ³⁵ V Kaptelinin & B A Nardi, Acting with technology: Activity theory and interaction design, MIT Press, 2006.

36 Ibid.

- ³⁷ E.g. J Stenros, 'Playing the System. Using Frame Analysis to Understand Online Play', in *Proceedings of FuturePlay2010*, May 6-7, Vancouver, Canada, 2010.
- ³⁸ D Parlett, *The Oxford History of Board Games*, Oxford University Press, Great Britain, 1999.
- ³⁹ Caillois, p 13.
- ⁴⁰ P Underhill, Why we buy: The science of shopping, Updated Revised Edition, Simon & Schuster, 2008.
- ⁴¹ Y-F Tuan, *Space and Place: The Perspective of Experience*, University Of Minnesota Press, XXX, 2001. Unwin, S., *Analysing Architecture*. 3rd edition. Routledge, 2009, p. 28-29.
- ⁴² Apter.
- ⁴³ See also Abt, p. 5.
- ⁴⁴ Huizinga, p. 7-8.
- 45 Suits.
- 46 Ibid.
- ⁴⁷ D A Norman, *The Design of Future Things*, Basic Books, New York, 2007, p. 66-69.
- ⁴⁸ J McGonigal, *This might be a game: Ubiquitous play and performance at the turn of the twenty-first century*. Doctoral Dissertation, University of California, Berkeley, 2006, Chapter 7. M Montola, J Stenros, A Waern, *Pervasive Games*. *Theory and Design*, Morgan Kaufmann, Burlington, 2009, p. 17-18.
- ⁴⁹ Stenros.
- ⁵⁰ M Consalvo, *Cheating. gaining advantage in videogames*, MIT Press, Cambridge, 2007. Sihvonen, p.97.98. Sotamaa, *The Player's Game*, p. 76-99.
- ⁵¹ Salen & Zimmerman, p. 304.
- ⁵² Ibid, p. 316-317.
- ⁵³ Huizinga, p. 10.
- ⁵⁴ C Sandberg, 'Genesi. Larp art, basic theories', in *Beyond Role and Play. Tools Toys and Theory for Harnessing the Imagination*, M Montola & J Stenros (Eds.), Ropecon ry, Vantaa, 2004, p. 276.
- ⁵⁵ H S Becker, 'Becoming a marihuana user', American Journal of Sociology, Vol. 59, No. 3, 1953, pp. 235-242
- ⁵⁶ R A Bartle, *Designing Virtual Worlds*, New Riders, Boston, 2003.
- ⁵⁷ A Drachen, 'Patterns of play', presentation at *Ludic Aspects of Everyday Life* seminar, IT University of Copenhagen, 11 January, 2010.
- ⁵⁸ N Lazarro 'Why we play games: Four keys to more emotion without story'. XeoDesign White paper, http://www.xeodesign.com/xeodesign whyweplaygames.pdf
- ⁵⁹ J H Kim, 'The Threefold Model FAQ', (ref. 25.5.2010),
- www.darkshire.net/~jhkim/rpg/theory/threefold/faq_v1.html, 2003. See also E C Boss, 'Key Concepts in Forge Theory', in *Playground Worlds. Creating and Evaluating Experiences of Role-Playing*, M Montola & J Stenros (Eds.), Ropecon ry, Jyväskylä, 2008.
- ⁶⁰ C Lindley, 'Game taxonomies: A high level framework for game analysis and design', *Gamasutra* feature article, October 2003.
- 61 Huizinga, p. 10. Caillois, p. 9.
- ⁶² E Goffman *Encounters: Two Studies in the Sociology of Interaction*, Bobbs-Merrill, Indianapolis, 1961, p.65-66. E Goffman, *Frame Analysis. An Essay on the Organization of Experience*, Northeastern University Press, Boston, 1974, p.40-47.
- ⁶³ B Pedersen & L Munck, 'Walking the White Road: A Trip into the Hobo Dream', in *Playground Worlds. Creating and Evaluating Experiences of Role-Playing*, M Montola & J Stenros (Eds.), Ropecon ry, Jyväskylä, 2008, p. 102-109.

- ⁶⁴ Caillois, p. 23-26.
- ⁶⁵ B Simon 'Wii are Out of Control: Bodies, Game Screens and the Production of Gestural Excess', ref. 28.5.2010, http://ssrn.com/abstract=1354043, 2009.
- ⁶⁶ R Shusterman 'Somaesthetics: A Disciplinary Proposal', *Journal of Aesthetics and Art Criticism*, Vol. 57, No. 3, 1999, p. 299-314.
- ⁶⁷ J H Smith, *Plans and Purposes. How Videogame Goals Shape Player Behaviour*, Doctoral Dissertation, Center for Computer Games Research, The IT University of Copenhagen, 2006, p. 23-24.
- ⁶⁸ Smith, p. 23.
- ⁶⁹ Sotamaa, *The Player's Game*, p. 67-69. See also O Sotamaa, 'Perceptions of Player in Game Design Literature', in *Situated Play, Proceedings of DiGRA 2007 Conference*, Tokyo, Japan, 2007.
- ⁷⁰ Smith, p. 33.
- ⁷¹ Ibid, p 39.
- ⁷² H Hopeametsä, '24 Hours in a Bomb Shelter: Player, Character and Immersion in Ground Zero', in *Playground Worlds*. *Creating and Evaluating Experiences of Role-Playing*, M Montola & J Stenros (Eds.), Ropecon ry, Jyväskylä, 2008, p. 187-198.
- ⁷³ D Wilson & M Sicart, 'Now It's Personal: On Abusive Game Design', in *Proceedings of FuturePlay 2010*, May 6-7, Vancouver, Canada, 2010, p. 64-71.
- ⁷⁴ R A Bartle, 'Hearts, Clubs, Diamonds, Spades: Players Who Suit Muds,' *Journal of MUD research*, 1996. Currently available at http://www.mud.co.uk/richard/hcds.htm.
- ⁷⁵ E.g. J H Kim, Sandberg, Hopeametsä, Pedersen & Munck.

Bibliography

- Aarseth, E., Cybertext: perspectives on ergodic literature. The Johns Hopkins University Press, 1997.
- Aarseth, E., 'Playing Research: Methodological Approaches to Game Analysis'. *Proceedings of the 5th Digital Arts & Culture Conference*. Melbourne, Australia, 2003.
- Aarseth, E., 'Genre trouble: Narrativist and the art of simulation', *First Person: New Media as Story, Performance and Game*, P Harrigan & N Wardrip-Fruin (eds.), MIT Press, Cambridge, 2004, p. 45-55.
- Abt, C.C., Serious games. Viking Press, New York, 1970.
- Apter, M.J., 'A structural-phenomenology of play'. *Adult Play: A Reversal Theory Approach*, J.H. Kerr & M.J. Apter (Eds.), Swets & Zeitlinger, Amsterdam, 1991.
- Bartle, R.A., 'Hearts, clubs, diamonds, spades: Players who suit MUDs'. Journal of MUD research, 1996.
- Bartle, R.A., Designing Virtual Worlds. New Riders, Boston, 2003.
- Becker, H.S., 'Becoming a Marihuana User'. American Journal of Sociology, Vol. 59, No. 3, 1953, pp. 235-242.
- Boss, E.C., 'Key Concepts in Forge Theory', *Playground Worlds. Creating and Evaluating Experiences of Role-Playing*, M Montola & J Stenros (Eds.), Ropecon ry, Jyväskylä, 2008.
- S Björk, 'Games, Gamers and Gaming. Understanding Game Reseach', in Proceedings of *12th International MindTrek Conference: Entertainment and Media in the Ubiquitous Era*, A Lugmayr, F Mäyrä, H Franssila & K Lietsala (eds.), Tampere, Finland, October 2008, p. 64-68.
- Björk, S., 'Games, Gamers and Gaming. Understanding Game Reseach'. Proceedings of *12th International MindTrek Conference: Entertainment and Media in the Ubiquitous Era*, A Lugmayr, F Mäyrä, H Franssila & K Lietsala (eds.), Tampere, Finland, October 2008, p. 64-68.
- Caillois, R., Man, Play and Games. University of Illinois Press,
- Urbana and Chicago, 2001.
- Consalvo, M., Cheating. Gaining Advantage in Videogames. MIT Press, Cambridge, 2007.
- Drachen, A., 'Patterns of Play', presentation at *Ludic Aspects of Everyday Life* seminar, IT University of Copenhagen, 11 January, 2010.
- Garfield R., 'Metagames'. Four Horsemen of Apocalypse. Essays on Roleplaying, Dietz, J. (Ed.), Jolly Roger Games, Charleston, 2000.
- Crawford, C., The Art of Computer Game Design (Electronic Version). ARCade ARDhive, ref. 25.5.2010,
- http://arcarc.xmission.com/Magazines%20and%20Books/Art%20of%20Game%20Design.pdf, 1997.
- Ermi L. and Mäyrä, F., 'Fundamental components of the gameplay experience: Analysing immersion'. *Proceedings of Digra* 2005, 2005.
- Ermi L. and Mäyrä, F., "Player-Centred Game Design: Experiences in Using Scenario Study to Inform Mobile Game Design". *Game Studies*, Vol. 5, No. 1, October 2005.
- Heliö, S., 'Role-Playing: A Narrative Experience and a Mindset'. *Beyond Role and Play. Tools Toys and Theory for Harnessing the Imagination*, M Montola & J Stenros (Eds.), Ropecon ry, Vantaa, 2004.
- McGonigal, J., This might be a game: Ubiquitous play and performance at the turn of the twenty-first century. Doctoral

Dissertation, University of California, Berkeley, 2006.

Hopeametsä, H., '24 Hours in a Bomb Shelter: Player, Character and Immersion in Ground Zero'. *Playground Worlds*. *Creating and Evaluating Experiences of Role-Playing*, M Montola & J Stenros (Eds.), Ropecon ry, Jyväskylä, 2008, p. 187-198

Huizinga, J., Homo ludens: A study of play element in culture. Beacon Press, Boston, 1955.

Juul, J., Half-Real: Video games between real rules and fictional worlds. MIT Press, Cambridge, 2005.

Juul, J., A Casual Revolution. Reinventing Video Games and Their Players. The MIT Press, Cambridge, 2009.

Kaptelinin, V & Nardi, B.A., Acting with technology: Activity theory and interaction design. MIT Press, 2006.

Kim, J.H., "The Threefold Model FAQ." www.darkshire.net/~jhkim/rpg/theory/threefold/faq_v1.html. (ref. 25.5.2010), 2003.

Lazarro, N., 'Why we play games: Four keys to more emotion without story'. XeoDesign White paper.

http://www.xeodesign.com/xeodesign_whyweplaygames.pdf

Lindley, C., 'Game taxonomies: A high level framework for game analysis and design'. *Gamasutra* feature article, October 2003.

Montola, M., 'Social Constructionism for Ludology', *Games Research Methods* seminar, 8-9 April, University of Tampere, Finland, 2010.

Montola, M., Stenros, J. & Waern, A., Pervasive Games. Theory and Design. Morgan Kaufmann, Burlington, 2009.

Morris, S., 'WADs, Bots and Mods: Multiplayer FPS Games as Co-creative Media'. *Proceedings of Digital Games Research Conference* 2003, 4-6 November, University of Utrecht, The Netherlands, 2003.

Myers, D., 'In Search of a Minimalist Game', *Breaking New Ground: Innovation in Games, Play, Practice and Theory. Proceedings of DiGRA 2009*, 1-4 September, Brunel University, West London, UK, 2009.

Nacke, L. 2010 Affective ludology: Scientific measurement of user experience in interactive entertainment. Ph.D. thesis No. 2009:04. Blekinge institute of Technology.

Norman, D.A., The Design of Future Things. Basic Books, New York, 2007.

Parlett, D., The Oxford History of Board Games, Oxford University Press, Great Britain, 1999.

Pedersen, B. & Munck, L., 'Walking the White Road: A Trip into the Hobo Dream'. *Playground Worlds. Creating and Evaluating Experiences of Role-Playing*, M Montola & J Stenros (Eds.), Ropecon ry, Jyväskylä, 2008.

Rouse III, R., Game Design. Theory & Practice, Wordware Publishing Inc, XXX, 2001

Sandberg, C., 'Genesi. Larp Art, Basic Theories,. *Beyond Role and Play. Tools Toys and Theory for Harnessing the Imagination*, M Montola & J Stenros (Eds.), Ropecon ry, Vantaa, 2004, p. 276.

Salen, K. and Zimmerman, E., Rules of Play. MIT Press, Cambridge, 2004.

Shusterman, R., 'Somaesthetics: A Disciplinary Proposal'. *Journal of Aesthetics and Art Criticism*, Vol. 57, No. 3, 1999, pp. 299-314.

Sihvonen, T., *Players Unleashed! Modding The Sims and the Culture of Gaming*. Doctoral Dissertation, University of Turku, 2009.

Simon, B., 'Wii are Out of Control: Bodies, Game Screens and the Production of Gestural Excess'. Available at SSRN: http://ssrn.com/abstract=1354043, 2009.

Smith, J.H., *Plans and Purposes. How Videogame Goals Shape Player Behaviour*. Doctoral Dissertation, Center for Computer Games Research, The IT University of Copenhagen, 2006.

Sotamaa, O., 'Perceptions of Player in Game Design Literature'. Situated Play, Proceedings of DiGRA 2007 Conference, Tokyo, Japan, 2007.

Sotamaa, O., *The Player's Game. Towards Understanding Player Production among Computer Game Cultures*. Doctoral Dissertation, Department of Journalism and Mass Communication, University of Tampere, 2009.

Stenros, J. & Sotamaa, O., 'Commoditization of Helping Players Play: Rise of the Service Paradigm'. *Proceedings of Digra 2009 Conference, Breaking New Ground: Innovation in Games, Play, Practice and Theory*, 1-4 September, Brunel University, West London, UK, 2009.

Stenros, J., Paavilainen, J. and Mäyrä, F., 'The many faces of sociability and social play in games'. *Proceedings of MindTrek 2009*, Tampere, Finland, 2009.

Stenros, J., 'Playing the System. Using Frame Analysis to Understand Online Play'. *Proceedings of FuturePlay2010*, Vancouver, Canada, 2010.

Suits, B., 'Construction of a Definition'. *The Game Design Reader. A Rules of Play Anthology,* K Salen, & E Zimmerman (eds.), Massachusetts, MIT Press, 2006, p. 172-191.

Suominen, J., Koskimaa, R., Mäyrä, F. & Sotamaa, O., 'Johdanto'. *Pelitutkimuksen Vuosikirja 2009*, J Suominen, R Koskimaa, F Mäyrä & O Sotamaa (eds.), www.pelitutkimus.fi/vuosikirja-2009 (ref. 25.5.2010), 2009.

Tuan, Y-F, Space and Place: The Perspective of Experience, University Of Minnesota Press, XXX, 2001.

Underhill, P., Why we buy: The science of shopping, Updated Revised Edition. Simon & Schuster, 2008.

Unwin, S., *Analysing Architecture*. 3rd edition. Routledge, 2009.

Waern, A., Ahmet Z., and Sundström, D. 2009. 'An in-game reporting tool for pervasive games'. Yokohama, Japan. 240-

Wilson, D., & Sicart, M., 'Now It's Personal: On Abusive Game Design'. *Proceedings of FuturePlay 2010*, May 6-7, Vancouver, Canada, 2010, p. 64-71.

Zagal, J.P., Nussbaum, M. and Rosas, R., 'A model to support the design of multiplayer games'. *Presence* Vol. 9, No. 5, October 2000, 448-462.