

*Waiting for stories only time can tell.*

# A STUDY IN PRACTICE

THE STRUCTURE AND FUNCTIONING OF LUDIC  
HABITUS IN INTERACTIONS WITH DIGITAL GAMES

PhD Thesis

Milan Jaćević

2022



Royal Danish  
Academy

Architecture  
Design  
Conservation



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A Study in Practice: The Structure and Functioning of Ludic Habitus in Interactions with Digital Games  
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## Abstract (English)

The act of playing digital games is a complex process of interaction between players and the hardware and software components of the game system. Scholars have previously theorized this process, as well as researched player attributes and design elements of games in an attempt to make sense of how they affect the act of play. However, there is a lack of theoretical frameworks that can account for digital gaming in the relation between different timeframes – both as a moment-to-moment interaction between game and player, *and* as a longer activity that players participate in over the course of their lives.

Approaching digital gaming from the perspective of practice theory, the project described in this dissertation develops *a general framework of digital gaming practice*, a theory of digital gaming that explains how humans develop into players over the course of multiple acts of play, and how these prior experiences help to structure their understanding and behavior in subsequent gaming situations. In developing this understanding, the project draws on the work of Pierre Bourdieu and frames players as practitioners possessing *ludic habitus* – a system of dispositions that structure their perception, appreciation, and action during acts of playing digital games. The general framework of digital gaming practice uses the concept of ludic habitus to describe the practice of digital gaming in a holistic, integrated fashion, both in its concrete manifestations (as moment-to-moment player-game interaction during an act of play) and from a diachronic perspective (as a long-term activity that changes how one understands and plays games).

The project features a novel, interdisciplinary methodological approach, which combines theoretical research, digital game design and development practices, and exploratory player studies with qualitative methods of data collection. Ludic habitus was initially defined on the basis of theory review, after which the three player studies, utilized custom digital game prototypes, focused on exploring a particular aspect of habitus – *perception*, *appreciation*, and *action*. These studies provided useful, particular insights into how a specifically *ludic* habitus functions during individual acts of playing digital games. Combined data from the studies provided empirical grounding for the general framework of digital gaming practice and for the functioning of ludic habitus therein.

By developing the general framework and the concept of ludic habitus, the project contributes to a deeper, more comprehensive understanding of digital gaming across different temporal frames, explaining how players develop into *specific kinds* of players, and how that influences how they understand and play new digital games on a moment-to-moment level. The

framework can be applied by game scholars and designers to understand the acts of playing digital games that they are researching or designing, while ludic habitus can be used as a trait-based conceptual tool for examining and comparing players. Taken as a whole, the project sets the stage for future applications of practice theory to digital gaming, and for further research into the different aspects of a player's relationship with the field of digital games. Furthermore, the project's methodological approach and design practice reflections offer insights into habitus research and the relationship between processes of game design and study design in practice-based research projects, which are useful for Bourdieusian scholars in other fields as well as for those looking to integrate game design practice and game/player research.



## Résumé (Dansk)

At spille digitale spil er en kompleks interaktionsproces mellem spillere, og hardware og softwarekomponenterne i spillet. Forskere har tidligere teoretiseret denne proces, og undersøgt spillere og designelementer i spil, i et forsøg på at forstå hvordan disse påvirker det at spille – spilsituationen. Men der mangler fortsat brede og fleksible teoretiske ramme, der kan redegøre for spilsituationen – både fra et øjeblik til det næste, med fokus på de enkelte interaktioner mellem spil og spiller, men også som længere aktiviteter, som spillere løbende deltager igennem deres liv.

Med udgangspunkt i praksisteori, udvikler dette projekt et *bredt ramme for digitalspilpraksis*, en teori omhandlende det, at spille digitale spil. Teorien forklarer hvordan mennesker udvikler sig som spillere, i løbet af flere forskellige spilsituationer, og hvordan tidligere erfaringer med spil hjælper spillerne med at strukturere deres forståelse og adfærd i efterfølgende spilsituationer. I udviklingen af denne forståelse af spilpraksis bygger projektet på Pierre Bourdieus arbejde, og spillere betragtes således som aktører med et *ludisk habitus* – et system af dispositioner, der strukturerer deres *opfattelse*, *præference* og *handling*, i de konkrete spilsituationer. Rammen for spilpraksis benytter habitus-begrebet til at beskrive spilpraksissen på en holistisk og integreret måde, både i dens synkroniske manifestationer (fra et øjeblik til det næste, spiller-spil interaktioner), og fra et diakronisk perspektiv (som langtidsaktivitet, der involverer flere, løbende spilsituationer over tid).

Projektet har en ny, interdisciplinær metodisk tilgang, der kombinerer traditionel teorigennemgang, digitalt spildesign og spiludviklingspraksisser, og kvalitative, eksplorative spillerstudier. Først defineres det ludiske habitus ud fra teorigennemgangen. Derefter foretages tre spillerstudier, og disse tager udgangspunkt i prototyper særligt udviklet til projektet. De tre spillerstudier er målrettet særlige aspekter i det ludiske habitus – *opfattelse*, *præference* og *handling* –, og de bidrager hver især med nyttig viden, der skaber bedre grundforståelse for det ludiske habitus, som dette fremstår i konkrete hverdagssituationer. De tre undersøgelser, baseret på tre forskellige spilprototyper, danner således fundamentet for udviklingen af teoretiske rammen for spilpraksis.

Projektet bidrager, med både teoretiske ramme for spilpraksis og det ludiske habitus-begreb, til en bedre og bredere forståelse af spilsituationer i forskellige tidsrammer (synkronisk og diakronisk). Det forklarer hvordan spillere udvikler sig til at blive *særlige typer* af spillere, og hvordan dette påvirker måden hvorpå de forstår og spiller nye spil. Rammen kan benyttes af

spilforskere og spildesignere, for at forstå konkrete spilsituationer, enten som disse undersøges eller udvikles. Det ludiske habitus-begreb kan bruges som et egenskabs-baseret konceptuelt værktøj, der kan bidrage til bedre (komparativ) analyse af spillere.

Som helhed danner projektet grundlag for fremtidig forskning i de forskellige aspekter af spilleres forhold med digitale spil. Derudover illustrerer projektets metode, her i særdeleshed brugen af særligt designede spilprototyper, en mulig måde hvorpå habitus-forskning kan designes. Projektet viser også hvordan forholdet mellem spildesign og undersøgelsesdesign i praksis-baserede forskningsprojekter kan struktureres. Disse indblik er relevante og brugbare for andre, der benytter Bourdieus teori, og for forskere, der ønsker at kombinere spildesign og spil/spillerforskning.

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# 1. Introduction

## 1.1. Prelude

Here is how it began for me.

Save for the glow of the old television screen, the room was pitch black – but as far from silent as one could imagine. With a knock-off Nintendo Entertainment System (NES) controller in hand and seated in a rickety wooden chair, a focused player was trying to navigate a little mustachioed plumber through a deathly course replete with obstacles and relentless enemies, shouting along the way. The year was 1996, the place my hometown of Niš, Serbia, and the star of the show my older sister, cheered on by me and two of our friends while making her way through the final stages of *Super Mario Bros.* (SMB, Nintendo Creative Department, 1985).

I remember surprisingly many things from those gaming sessions. The extension cord we used to power our Terminator console, a Chinese replica of the NES bought at a flea market in our homeland hit by trade embargoes and economic sanctions, was frayed and would give off sparks whenever the console was turned on. To this day, the stone stairs Mario climbs to get to the flagpole at the end of each level remind me of the chocolate we used to eat while playing the game. Most of all, though, I remember just how good of a player my sister was; able to play for hours at an end, skillfully jumping on enemies and uncovering secrets in her quest to save Princess Peach. The occasional failure was no deterrence. To us, her faithful audience, close calls and unexpected accidents were equally fun to watch, as was the fascinating human spectacle unfolding on our side of the television screen. At the time, I was sure that I would never be able to match my sister as a game player. The hobby, it would seem, was hers for the keeping.

Some twenty five years later, things could not be more different. Whereas digital games<sup>1</sup> have become a crucial part of my life, both private and professional, my sister let go of the controller some time after those Mario sessions in '96 and never picked up anything similar ever again. Nowadays, whenever we talk about this subject, she cannot even feign interest for long before stating that games are silly and she cannot understand how people like me can play them

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<sup>1</sup> I will use the term “digital games” to refer to those game artefacts that rely on some form of electronic computation for their operation and experience. In many instances, for the sake of simplicity, I will also just refer to these as “games.”

for extended lengths of time, let alone their entire lives. Were I to hand her a controller, even to play *SMB* again, I am not sure she would enjoy it all that much this time around.

The present research project<sup>2</sup> has been influenced by various questions and points of interest I encountered during the time spent thinking about, researching, and discussing games and gaming. Most of these motivating quandaries will be outlined later in this introduction, in the established, formal manner befitting a doctoral dissertation. However, perhaps the greatest motivation of all has been the desire to better understand the personal legacy of more than twenty five years of button presses, of pixels, polygons, and theme loops, of seemingly endless conversations and painfully specific knowledge and emotions – in short, my own experience and relationship with digital games. For my sister, saving the princess seems to have been the terminus of her journey with games. For me, those early moments spent watching and playing alongside her were the beginning of a lifelong practice that has fundamentally shaped my life, body, and methods of thinking, feeling, and seeing the world.

Because it is so close to my heart, I am tremendously grateful to have had the opportunity to spend three years working on a project like this. Its merits and contributions will, ultimately, be decided by the individual reader, and the academic community at large. Whatever the decisions may be, omitting this major personal interest in conducting the project in the first place would have felt like a betrayal to all parties involved – not least of all to those kids huddled around a screen in a dark room, their voices coarse from all the shouting and cheering, caught of their own volition in the pursuit of just one more coin, just one more mushroom, one final flag.

## 1.2. The gaming practice

Something magical is at hand when we play games, but that magic can often be difficult to grasp, most of all for those caught in its midst.

On April 7<sup>th</sup>, 2021, long after my sister’s marathon sessions of *SMB*, an exceptionally skilled player by the name of Niftski managed to complete that game in a world-record<sup>3</sup> time of

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<sup>2</sup> I will use the term “research project” to refer to the totality of work presented in this dissertation, in contrast to the term “study” that will, unless otherwise indicated, refer to the individual studies organized as part of the project.

<sup>3</sup> At the time of *writing*, at least, this record still stands. For an in-depth explanation of the record in the context of other *SMB* speedrunning attempts, see (Bismuth, 2021).

four minutes, fifty-four seconds, and nine hundred and forty-eight milliseconds<sup>4</sup> (Fig. 1). This achievement has already been described as historic by the gaming press (e.g. Henges, 2021), as it is the first time a human being has managed to complete *SMB* in under 04:55, even if that difference is literally measured in milliseconds. Still, when *speedrunning* – attempting to complete a digital game as fast as possible – every millisecond counts, especially in a relatively short game like this.



**Figure 1.** A screenshot of Niftski’s world record in *SMB* (Niftski, 2021).

In a similar manner to other forms of racing, speedrunning is in a contradictory relationship with time: the more of it is cumulatively spent preparing for performance, the shorter and more polished a performance usually is. Behind a record time like Niftski’s stand literal years of research into a given game, conducted by a community of players who are aiming for the same goal of finding the most optimal path through it, and countless attempts that chipped away at the record time. In this particular case, the end result might be a magical sequence just shy of five minutes, but that sequence also belies a tremendous amount of time and physical and mental energy that a single individual has devoted to preparing for its execution, including countless incremental improvements to techniques and strategies, memorizations of facts and patterns, and good old-fashioned physical training.

In an early academic paper on the subject, Rainforest Scully-Blaker describes speedrunning as a “practiced practice” (2014), a highly trained and highly streamlined act that stands outside of what we might conceive of as normal gameplay. I find Scully-Blaker’s term

<sup>4</sup> For the sake of perspective, according to the poll conducted by HowLongToBeat.com, it takes the average player around two hours to beat the game (*How long is Super Mario Bros.?*, n.d.).

particularly interesting, because it – in combination with the phenomenon it describes – showcases quite well the semantic nuances of the term “practice.” Its adjectival form (i.e. “practiced”) likely needs no introduction or clarification: this term entails *training*, *learning*, *improvement*, and, as is the case in sports and other activities where one’s performance can be measured, *competition*. In the context of digital gaming, the verb “to practice” implies exerting frequent, habitual, conscious effort towards reaching a goal or some criterion in a game, like the fastest time or most accurate execution. A practiced gameplay performance, like a speedrun, is one that has been prepared, attempted and executed many times prior. That preparation – understanding and memorizing the inner workings of a game, repeating a series of timely inputs until they are committed to muscle memory, developing a knack for improvisation when things go wrong – is crucial for the magical act that is a speedrun performance to take place.

But speedrunning is, as Scully-Blaker’s label illustrates, only *one* specific example of a gaming practice made possible by digital games. In fact, most of us take part in parallel practices in our everyday lives: we spend hours upon hours taking care of our islands in *Animal Crossing: New Horizons* (2020), we compete against friends and strangers in *Fortnite Battle Royale* (2017), we run level after level in *Crash Bandicoot: On the Run!* (2021) while on our way to work. Each and every one of these practices represents a confluence of multiple cognitive, behavioral, experiential, and contextual aspects of the player and specifically configured design elements of the digital game. To account for all of these practices would likely be impossible<sup>5</sup>; they are as different and numerous as there are different games and different players. The digital games industry has been steadily growing in the past decades, reaching staggering heights (see e.g. Witkowski, 2020); this growth brings with it a wider, more diverse player demographic, more game titles, and, inevitably, more ways, reasons, and opportunities to play. This ongoing proliferation of gaming poses significant challenges to our understanding of the act of playing<sup>6</sup>, highlighting its current limitations and the lack of interdisciplinary dialogue between the fields of game design, psychology, and sociology, among others. All of these fields have important things to say on the matter, but their vocabularies are disparate and, in isolation, do not wholly account for the complex phenomenon of digital gaming as a practical act. Simply put, we are still lacking *holistic, interdisciplinary frameworks of digital gaming*, understanding players and games as *historically developed entities*. In part, that is what lends the act – *any* act – of playing

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<sup>5</sup> As examples from genre classifications and typological player research will later illustrate, not everyone agrees that this task is impossible.

<sup>6</sup> Throughout the dissertation, I use the term “act” to signify a single instance of a *process*, unfolding over time and comprised of many individual actions and moments. For example, “act of playing” will refer to one session of playing a game (abstract or concrete, depending on the context).



a digital game its obscure magic: without such frameworks, we are still at a loss to explain *how an actual player, with a history of gaming experiences, navigates an actual digital game, with its own design conventions and tropes, in a situated, moment-to-moment fashion.*

Rather than examining speedrunning, or any other *individual, specific* gaming practice, this research project presented in this dissertation aims to explain digital gaming as a general category of human practices. The research project develops *a general theoretical framework of digital gaming*, framing it as a practice in which human beings<sup>7</sup> engage habitually, over the course of their lives. The project approaches players as practitioners who, over the course of their time spent playing digital games and engaging with gaming culture, develop certain skills, knowledges, preferences, instincts, and habits. These attributes then serve to structure and guide their engagement with digital games – their choice of games, their view of gaming as a dedicated socio-cultural area of interest, and their styles of play of digital games. This framing of players is empirically investigated using an eclectic methodology that connects several research fields – notably, practice theory, game studies, and player studies – into an empirical research format of digital prototyping and playtesting. On the basis of three exploratory studies conducted as part of the research project, the project establishes a general theoretical framework of digital gaming practice. The framework is labeled as “general” precisely because it is meant to be both *widely applicable* – able to be used to discuss a wide variety of gaming practices – and *widely accountable* – used to discuss digital gaming on different temporal levels, accounting for the individual act of playing digital games in a moment-to-moment fashion, as well as for digital gaming as a long-term practice which shapes the player into a *specific, unique* player.

### 1.3. Research approach and contributions

As previously stated, the broad goal of the dissertation is to offer a theoretically informed and empirically grounded explanation of the different processes by which players interpret and navigate digital games in *acts of digital gaming practice*. In the broad picture, this is a new approach to a topic of investigation that has already been explored by others. As I will illustrate

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<sup>7</sup> It should be noted that human beings are not the only species that play digital games, and that not all digital games are made exclusively for human beings. In recent years there have been game projects such as Michelle Westerlaken’s and Stefano Gualeni’s game *Felino* (2014), which are explicitly labeled as “interspecies games,” meant for human and animal play alike. Nevertheless, unless explicitly mentioned otherwise, the specific focus in this dissertation is on *human* gaming practices and on human-computer, rather than animal-computer interaction.

with specific examples in the review of previous research, many game designers and scholars, in particular psychologists and sociologists, have already offered varied explanations of processes at play *during* play, presented with a greater or lesser degree of detail and focus.

My project builds on this work, but differs from it in its holistic, integrative approach. While previous research has described and/or classified different player types according to different factors, such as motivation, preference, skill, age, gender, and the like, this research project takes this approach one step further and shifts the focus onto *the act of playing itself*. In other words, the project examines how a player's past gaming experiences are mobilized in response to elements of game design in a given game, as part of the player's *moment-to-moment processing and behavior* during the act of play. To investigate these moments called for a research format that would treat each examined player as an individual practitioner, with specific and unique prior experiences and attitudes related to games. It also required a high degree of control over the kinds of games the players would interact with, in order to create very specific play scenarios that would serve as spaces for investigation of very particular research topics and questions.

These two requirements resulted in the interdisciplinary, exploratory approach taken in the project, which merged theoretical research, game design practice, and empirical player studies. While the approach will be described later in more detail, in practical terms, it consisted of me making digital game prototypes and testing them with players of different profiles and levels of experience, in three separate studies, in order to discover how prior gaming experience affects the act of playing digital games. Unlike most psychological or sociological player studies, which are usually specialized and concerned with examining only a single or a few player attributes, and which tend to feature commercial games (if any are played at all), the exploratory research approach in this project takes a broader, more open view of players. It attempts to capture the complexity of prior influences on the act of play, while still exploring a specific facet or area of interest via the use of custom-made game prototypes. *The laboratory format of the player studies and the focus on single-player games* in this project enabled me to ask and answer very particular, foundational research questions related to digital gaming as a form of human practice. Within the constraints of a three-year PhD project conducted by a single researcher, this would have been difficult to do to a satisfying degree in naturalistic settings with multiple players. That being said, I hope to expand the ideas and concepts developed in this project to broader investigations in such settings as the next step of my research.

The empirical side of the project would not have been feasible without its theoretical component. This includes reviews of similar work on digital gaming practice in player and game studies, but also, and principally, work on *Bourdieuian practice theory*. Pierre Bourdieu's work on the specifying the concept of practice, as well as his conceptual framework – in particular the notions of *habitus* (a personalized set of dispositions one develops from taking part in a practice) and *field* (the socio-cultural arena in which a given practice takes place) – are the bedrock upon which this project rests. Bourdieu's view of practice as a time-critical activity taking place in a specialized domain populated by agents, artefacts, institutions, values, and norms, an activity that transforms its practitioners, was instrumental in determining the structure and format of the research project, as well as its perspective and vocabulary.

As illustrated by the title of this dissertation, the project adopts and adapts Bourdieu's concepts and theories to the domain of digital gaming, empirically establishing the notion of *ludic habitus* in three player studies – each of which deals with one particular aspect of habitus in digital gaming practice. This concept is the key to the project's view of players, games, and gaming; along with a review of Bourdieu's and other related work on practice theory, it will be explored and explained in detail in a dedicated section later in the dissertation. For now, it should be noted that this theoretical foundation also serves to differentiate the project from other, similar works in the field of game/player studies. Though Bourdieu's concepts have certainly seen use in these domains, his concept of habitus has thus far been underexplored in a systematic, detailed fashion and in relation to concrete acts of gameplay, an issue which this dissertation rectifies.

The primary contributions of this project can therefore be summarized as follows:

- 1) The project empirically establishes and presents a *general framework of digital gaming practice*, centering around the concept of *ludic habitus*, that explains how different player attributes, accumulated during previous experience with digital games, materialize during play, in response to elements of game design. The concept and the framework are constructed using an abductive research approach, with working definitions initially developed on the basis of theory review and subsequently reworked and expanded with player data from three exploratory player studies, as well as on observations and reflections from personal game design practice conducted as part of the project. In tandem, the concept and the framework represent a novel, holistic, practice-based perspective on players, gaming, and games in the fields of game/player studies.
- 2) The project translates key elements of Bourdieu's conceptual and theoretical framework to the fields of game/player studies, adapting them on the basis of

empirical player data to better fit the nuances and specificities of digital gaming practice. In doing so, the project offers a useful vocabulary and way of thinking about gaming to other members of the game/player research community and game designers.

- 3) The project presents a methodological approach of studying gaming practice that is interdisciplinary, theory-backed and data-driven, fusing more traditional theoretical research with game development activities and exploratory player studies. The eclectic research method in this project differentiates said project from others examining facets of digital gaming practice, and showcases how design-based research may be integrated in the broader domain of games research.

#### 1.4. Dissertation outline

The dissertation structure is briefly described as follows:

- 1) **Chapter One – Introduction** introduces the project, and briefly describes its topic of interest, research approach, and contributions.
- 2) **Chapter Two – Background** examines previous work in the area of digital gaming practice, including Pierre Bourdieu's writings on practice theory.
- 3) **Chapter Three – Methodology** presents, in detail, the methodology behind the project, including data collection methods, game design principles, data analysis methods, and the process of theory formulation.
- 4) **Chapter Four – Results** presents the unified results from the three exploratory player studies, as well as reflections from game design practice. This chapter also elaborates the concepts of ludic habitus and generic subfields of digital games.
- 5) **Chapter Five – The general framework of digital gaming practice** synthesizes and presents the framework of gaming practice, centering around the player's ludic habitus and the designed game artefact belonging to particular generic subfields.
- 6) **Chapter Six – Discussion** compares the framework and the project as a whole in light of previous related research. It also discusses the project's framing and its methodological and theoretical limitations, and points to possible avenues for future research. The chapter ends with concluding remarks, which round off the dissertation.
- 7) **Appendices I, II, III, and IV** contain, respectively, the three individual articles resulting from the three exploratory studies, as well as a design reflections article that offers design guidelines for similar projects that combine prototype game development and player research.

## 2. Background

This dissertation explores the topic of *digital gaming practice*. But, what do I mean by this term? Previously, I used the term when referring the act of playing digital games, and to the player's moment-to-moment processing and behavior in such a situation, but this understanding has deeper implications than that. In order to fully explore the topic of digital gaming practice, I need to clarify what is being meant by this term in the context of the project, while also taking the time to position the project in relation to previous research and perspectives on the same topic in the academic fields of game and player studies. This chapter will serve these two purposes.

The first goal of the chapter is to establish the project's perspective on the act of playing digital games – a perspective that is derived from the sociological domain of *practice theory*. In order to do so, in the first section of this chapter (2.1), I will present a general overview of practice theory and its core tenets. Following the general overview, I will also present Pierre Bourdieu's theoretical and conceptual framework of practice (2.1.1), upon which this project's understanding of the act of playing digital games is based. In particular, I will highlight Bourdieu's concepts of *habitus* and *field*, which will later form the core of the general theoretical framework of digital gaming practice. This section of the chapter will conclude with working definitions of two derived concepts, *ludic habitus* and *subfields of digital games*, as well a definition of digital gaming practice itself (2.1.2), all of which will be used throughout the later parts of the dissertation and refined on the basis of the results of the three player studies.

The second goal of the chapter is to present relevant examples of prior research on digital gaming practice, as well as on the game- and player-related factors relevant for its structuring and maintenance. This will be accomplished in the second (2.2) and third (2.3) sections of the chapter, where I will present an overview of work done in theoretical game studies as well as examples of empirical research from the field of player studies. The second section of the chapter will examine the concept of *gameplay* (2.2.1) and some of the theoretical models and frameworks from game studies used to make sense of it, as well as present an overview of philosophical theories of game interpretation (also known as *game hermeneutics* (2.2.2)). In the third section of the chapter, I will focus on examples of game- and player-centric research regarding influences on digital gaming practice. Here, I will first present research in the domain of *game genres*, understood as conventionalized, historically developed configurations of game design elements (2.3.1). I will then shift the attention to the players and their influences on digital gaming practice, in a review of predominately empirical work done in the field of player studies (2.3.2). Here, I

will focus on two types of player research: *classificatory* player studies, which have sought to group players on the basis of some of their properties or attributes, and *sociocultural* player studies, which have examined sociocultural factors relevant for the act of playing digital games. The reviews in these sections will not be exhaustive of the work done in a particular area, but rather illustrative of precedents to, and influences on, this research project, helping to better position it in relation to existing frameworks and perspectives.

For now, however, let us leave the fields of game and player studies aside and start with the concept that underpins the entire project – *practice*.

## 2.1. Practice theory

In order to discuss digital gaming as a practice, we first need to understand what practice *is* – and for that, we turn to *practice theory*. Practice theory is a collective term for a set of sociological theories that, as a common trait, emphasize the role of routinized activities and performances in structuring, perpetuating, and reshaping various elements of social life (Nicolini, 2012, p. 3). Emerging in the late 1970s, practice theory is distinguished by its *dialectical* framing of the relationship between social structures and systems on the one hand, and social actors on the other (Ortner, 2006, p. 2). Rather than giving primacy to either one of these poles in its explanation of social life, practice theorists, as their name suggests, focus on *practices*, which they view as “the ‘smallest unit’ of social analysis” (Reckwitz, 2002, p. 249).

In the context of practice theory, the concept of practice has been defined and understood in several manners, sometimes with significant overlap between theorists. Theodore Schatzki distinguishes between *dispersed* and *integrative* practice in his work (1999, pp. 88-111). The former appear in many areas of life and constitute general acts of inquiry and action, while the latter are tied to and constitutive of specific domains of practice. According to Schatzki, integrative practices are characterized by domain-specific viewpoints, understandings, rules and regulations, and teleoaffective structures such as projects, beliefs, needs, and moods. Along similar lines, Davide Nicolini sees practices as performances organized around a particular goal, mediated by tools, technologies, and discourses, and legitimized by a social group that develops and regularly performs them over time (2017, pp. 21-22). In her description of the concept, Ann Swidler similarly focuses on repetition and automatism as attributes that distinguish or elevate practice from general actions, referring to practice as “routine activities (rather than consciously

chosen actions) notable for their unconscious, automatic, un-thought character” (Swidler, 2001, p. 74; cited in Couldry, 2004, p. 121). Perhaps the most succinct definition is provided by Andreas Reckwitz, who sees practice as simply “a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood” (2002, p. 250).

These definitions highlight several aspects of the concept of practice that are important for this research project and its view of digital gaming as a form of human practice. These aspects include:

- *a routinized, recurring character* (practice is a sequence of actions performed from time to time),
- *unconscious or automatic qualities* (practice is instinctive and habitual),
- *corporeal, technological, and affective involvement* (practice mobilizes bodies, tools, emotions, needs, and goals), and
- *ties to a particular set of social and material circumstances* (practice is an integrative, object-oriented activity in a given sociocultural domain).

For Joseph Rouse, the concept of practice also addresses the criticisms of the view of social life as rational and conscious interpretation and reproduction of rules and norms (2007, pp. 501-504). Rouse dates this criticism to the writings of Ludwig Wittgenstein and Martin Heidegger on the topics of interpretation and understanding. According to Rouse, both Wittgenstein and Heidegger challenged “the autonomy of rules or explicitly articulated meanings or norms” (ibid., p. 503) in social functioning, arguing that there must be a basic, unconscious level of understanding involved in human action that enables us to navigate rules, meanings, and norms without explicitly interpreting them at all times. With its understanding of practice as routinized, habitual action that structures social life, practice theory examines the principles behind this unconscious understanding that acts as premise for social functioning in general.

Having established the basic elements of practice theory and described the relevant elements of the concept of practice therein, I will now more closely discuss the specific theoretical and conceptual framework that I adopt and adapt as part of this research project – namely, the work of Pierre Bourdieu.

### 2.1.1. Bourdieusian practice theory

Pierre Bourdieu is often cited as one of the founders and leading proponents of practice theory (see e.g. Ortner, 2006, p. 2; Green, 2009, p. 46). In his work, Bourdieu sought to bridge the perceived gap in social sciences between subjectivist and objectivist theories of society. According to Bourdieu, both of these approaches put emphasis on only a single side of the social equation, and in the process failed to address the crucial matters of how agents and structures develop and function. Subjectivist theories describe society in terms of phenomenological knowledge (Bourdieu, 1972/2013, p. 3); they are concerned with the primary experience and mental representations of the social world, and fail to adequately address the objective social conditions that give rise to this experience. On the other hand, objectivist theories, such as structural hermeneutics (ibid.), functionalism, and network theory (Bourdieu, 1988, p. 781), focus on explaining social structures and how they are reproduced over time, and reduce the figure of the human actor to that of a mechanistic follower of predetermined social rules.

As an alternative to these two approaches – which Bourdieu summarizes as “structuralism without subject and the philosophy of the subject” (1990, p. 10) – Bourdieu argues for a middle-of-the-road view of the social, one that instead focuses on “the *dialectical* relations between the objective structures to which the objectivist mode of knowledge gives access and the structured dispositions within which those structures are actualized and which tend to reproduce them” (1972/2013, p. 3, italics original). These dialectical relations connect the human agent and their subjective view and experience of the world on one hand, with objective social structures (artefacts, institutions, norms, and values, among others) on the other. By examining these relations, Bourdieu seeks to explain the origins, development, and functioning of both agents and social structures without giving explicit primacy to either. Because of this approach, his work can be classified as *a holistic attempt at genetic structuralism*<sup>8</sup>.

Interestingly, Bourdieu’s work on a theory of practice (understood in the sense mentioned earlier in the overview) is not preoccupied with defining or elaborating practice as a concept. As pointed out by Bill Green, for Bourdieu, practice is something that occurs “in the operational interplay” (2009, p. 47) between three other concepts that are central to Bourdieu’s social theory:

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<sup>8</sup> Apart from being described in similar terms by Bourdieu himself (see e.g. 1990, p. 14), these qualifiers are also often seen in works of Bourdieu scholars in subsequent generations (see e.g. Lizardo, 2014; France, 2015).



*habitus*, *field*, and *capital*. The first two of these concepts<sup>9</sup> are of fundamental importance for the present research project, and each warrants further elaboration before they can be used to discuss digital gaming practice.

#### 2.1.1.1. *Habitus*

In Bourdieu's work, and understood in a very broad sense, the term *habitus*<sup>10</sup> refers to the physical, mental, and emotional structures that are produced in an agent through participation in practice in a given domain, and that subsequently guide the agent's involvement in practice in the original and similar domains. As a quick (and by no means complete) illustration, let us imagine a professional chef. Through years of training and experimentation in the kitchen, the tasting of food and ingredients of various kinds, the interactions with other chefs, farmers, restaurateurs, and many other agents involved in the domain of cooking and food – in other words, through taking part in *cooking as a form of human practice*, this person has developed a corresponding habitus. This *cooking* habitus is a collection of different ways of perceiving, understanding, categorizing, feeling, and performing, all tied to the domain of food preparation. It is, in simple terms, that specific person's unique understanding of, and relation to, the world of cooking – its activities, actors, artefacts, institutions, and values – developed through all prior instances of cooking practice and affecting all future instances of the same, or similar, practice.

This broad understanding belies the numerous subtleties and specifications that are present across multiple definitions, in multiple works by Bourdieu and other scholars. However, precisely because it is such a complex concept, we need a simple, initial idea in mind to serve as a heuristic while we unpack its various aspects and attributes that are relevant for this project.

As a concept, habitus predates Bourdieu, being previously discussed by Hegel, Husserl, Weber, Durkheim and Mauss (Bourdieu, 1990, p. 12), and dating as far back as Aristotle (Nederman, 1990). What distinguishes habitus in Bourdieu's work is the author's generative, productive, and creative understanding of the notion (1990, p. 13). This understanding can be seen in the following definition, occurring in similar formulations in two of Bourdieu's major

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<sup>9</sup> The concept of capital – in particular, of *cultural* capital – will be mentioned along the way, although, as will be explained later in the discussion of the framework, it bears less relevance for the project and its focus on the act of playing a digital game.

<sup>10</sup> The same form is used both in the singular and in the plural, e.g. a habitus, many habitus.

works, *Outline of a Theory of Practice* (Bourdieu, 1972/2013, p. 72) and *The Logic of Practice* (Bourdieu, 1980/2014, p. 53, cited below, italics original):

The conditionings associated with a particular class of conditions of existence produce *habitus*, systems of durable, transposable dispositions, structured structures predisposed to function as structuring structures, that is, as principles which generate and organize practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of the operations necessary in order to attain them.

This definition highlights five elements of habitus that are important in Bourdieu's theory, and in particular for the purposes of this research project:

- 1) Firstly, Bourdieu sees habitus as *systems of dispositions* – in other words, as collections of habitual states of being, perceiving, thinking, feeling, and acting<sup>11</sup>.
- 2) These systems are *durable* – in other words, they persist through time in an individual in a relatively stable state, rather than coming into being momentarily during a practice and vanishing after the participation in a practice comes to some sort of an end.
- 3) These systems are also *transposable* – in other words, once developed through participation in one practice (say, cooking), they guide and structure the agent's understanding and participation in related practices and domains (say, restaurant management).
- 4) These systems are both *structures*, in the sense that they exist as mental models and bodily states of a practitioner, and help *to structure* practices, in the sense that they act as filters through which a practice, or a domain of practice, is experienced and evaluated.
- 5) Lastly, the disposition systems are *generative* on an *unconscious* level, in the sense that any practice consists of them being deployed as automatisms, habits, and instincts as part of the agent's involvement in a given practical domain.

This focus on unconscious, habitual deployment of habitus reveals another important point for the concept – that of the primacy of *the agent's body* in acquiring and implementing these systems of dispositions. The ways in which a body unconsciously comports in practice, its posture, gait, expressions, and other qualities comprising bodily states or *hexis* (Bourdieu, 1972/2013, p. 87) are inculcated through socialization from an early age. These bodily automatisms are what makes an agent's practical action sensible and logical in a given domain

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<sup>11</sup> See Bourdieu, 1972/2013, p. 214, for a more detailed unpacking of the term “disposition” within the context of Bourdieu's work.

of practice: “[it] is because agents never know completely what they are doing that what they do has more sense than they know” (Bourdieu, 1980/2014, p. 69). Bourdieu illustrates this idea with the image of a tennis player, who instinctively runs up to the net to punish an opponent’s weak reply without any conscious decision to do so, and yet with the utmost belief of it being the most sensible, logical action to take in the given circumstance (1990, p. 11). In his review of Bourdieu’s work, Omar Lizardo links Bourdieu’s understanding of hexis (and, more broadly, of habitus) with Piaget’s cognitive operations (2004, p. 388), remarking that Bourdieu’s sociology needs to be interpreted in a cognitive context, with habitus representing “socially produced cognitive structures” that, through systems of bodily hexis, generate sensible action in a given domain of practice (ibid., p. 393). This relationship between cognitive models, bodily states, and sensible action is very relevant for the present research project and its understanding of digital gaming, and I will return to it later in the dissertation when discussing the results of the three player studies.

Since its establishment in the 1970s, the Bourdieusian habitus has frequently been utilized in sociological and culturological research, appearing in domains such as education (e.g. Harker, 1984; Colley et al., 2003; Nora, 2004; Reay, 2004), sports (e.g. Wacquant, 1992; Wacquant, 2011; Mennesson, 2012; García & Spenser, 2013), music (e.g. Becker, 2010; Rimmer, 2012), and workplace management (e.g. Corsun & Costen, 2001; McDonough & Polzer, 2012). The concept’s versatility has also been subject to criticism for perceived ambiguity (e.g. Jenkins, 1992, p. 59), as well as for its tendencies towards determinism (e.g. King, 2000, p. 424; Peters, 2014, pp. 139-143). This last point, challenged both by Bourdieu (1990) and later scholars of his work (e.g. Hilgers, 2009; Harker et al., 1990, p. 12), calls for a brief clarification of the relation between habitus and practice.

Habitus does not *in and of itself* determine how an instance of practice will look like. As stated by Karl Maton, “[p]ractices are [...] not simply the result of one’s habitus but rather of *relations between* one’s habitus and one’s current circumstances” (2013, p. 52, italics original). In other words, the subjective structures of an agent’s habitus are only one type or kind of structure that, together with objective structures of a particular physical and social *field*, result in practices:

On one side it is a relation of *conditioning*: the field structures the habitus . . . On the other side, it is a relation of knowledge or *cognitive construction*. Habitus contributes to constituting the field as a meaningful world (Bourdieu & Wacquant, 1992, p. 127, cited in Maton, 2013, p. 52, italics original).

In the next section of the dissertation, I will present the concept of the field of practice, illustrating its role in Bourdieu's theory and highlighting its relevant points for this research project.

#### 2.1.1.2. *Field*

If habitus represents the structures and systems that are produced in the agent as a result of practice, the concept of the field stands for those structures and systems that surround the agent in the social and physical spaces of the outside world. In the simplest of terms, the field is *the domain in which a practice takes place*. It is both *physical*, in the sense that it consists of certain physical environments, and *sociocultural*, in the sense that it includes the values and norms, as well as relations between those elements (agents and institutions) that it encompasses. To illustrate it, let us return again to our professional chef from the habitus example. We can imagine that this person developed their habitus through experience in several restaurants, at different positions of increasing seniority, that were populated by different staff members. As corporate institutions, these restaurants specialized in and valued different cuisines and flavor profiles, catered to different clientele, and had different methods of operation and approaches to culinary work. Despite their differences, the restaurants and the people working in them were all engaged in the same *social game* of competition for more customers, better reviews, and ultimately, bigger profits.

From a Bourdieusian perspective, all of these disparate elements – restaurants as corporate entities and as physical locations, their employees, the ethics, norms, and values they fostered, their understanding of culinary work, and their end goals – comprise a single social field, in this case the culinary field. In her detailed summary of the concept, Patricia Thomson uses analogies from three different domains to help illustrate Bourdieu's understanding of the field as a social concept: a football field from sports, a force field from science fiction, and a field of forces in physics (2013, pp. 68-75)<sup>12</sup>:

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<sup>12</sup> This triple understanding is similar to Bourdieu's description of the field as "a structured social space, a field of forces, a force field" (1996/1998, p. 40). The football field analogy is particularly apt, as Bourdieu often uses sports to illustrate habitus and field, and frequently talks about the concept of practical sense as "a feel for the game" (1990, p. 61) that one develops through participation in a field of practice.

- Like a football field, the social field is *spatially bound*, subject to certain *rules* which govern behavior, consisting of *positions* occupied by dedicated agents (players in the former, people and institutions in the latter) who are *engaged in pursuit of a particular goal* (winning score in the former, social/cultural/economic status in the form of *capital* in the latter).
- Like a force field, the social field serves as a *barrier*, demarcating one domain from another and turning it into “[a] separate universe, governed by its own laws” (Bourdieu, 2005, p. 7). These laws give the field its distinctive *logic of practice*, i.e. a set of beliefs and norms that govern the agents’ practices within the field and make them sensible. Each social field is *semi-autonomous*, in the sense that its boundaries are not always perfectly clear and easy to describe, but are socially and spatially constructed, and evolve through time and in relation to other social fields.
- Like a field of forces, the social field is *hierarchical* and *governed by power relations*<sup>13</sup>. Agents operating within a social field are affected by its forces and inequalities, which result in *distinctions* (Bourdieu, 1979/1996) between positions. In other words, certain positions in a social field (occupied by agents, artefacts, institutions, values, or norms) dominate over others. Consequently, each field can be further subdivided into smaller *subfields*, which follow the logic of practice of the wider field while having their own individual rules, norms, and regulations.

Whereas habitus is an internal, subjective system, a field is an external and perceivable space, and therefore objective in the sense that there is a broad consensus on its existence, positions, and relations. Thomson mentions that the field as a concept needs to be “developed on a case-by-case basis” (2013, p. 75), with the researcher mapping out the positions, structures, and relations that constitute a field to get an image of its functioning. For Bourdieu himself, the end result of these mappings were detailed statistical tables and diagrams of antagonisms, created using multiple correspondence analysis and showcasing the various tensions between positions in a given field (see e.g. 1979/1996, p. 452). With enough data, therefore, one can *describe* a social field or subfield at a given space and time, charting its agents, institutions, and other elements, and showing how they relate to each other.

As already noted in the discussion of habitus, the field and habitus are co-constitutive: one shapes the development of the other. While a field can be analyzed and mapped, tracing the structure of habitus is more problematic, due to its subjective nature. As habitus is both constructed and deployed in practice, through action, Maton recommends focusing on actual

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<sup>13</sup> In fact, *all* social fields are part of a larger field of power, which acts as a fundamental driver of social relations and which Bourdieu often equates with capitalist economy (see e.g. Bourdieu, 1990, pp. 127, 144). In that sense, Bourdieu’s theory shares similarities with Foucauldian views on power relations (see e.g. Foucault, 1980).

instances of practice and working backwards to discover the structure and functioning of habitus. He states that:

... empirically, one does not “see” a habitus but rather the *effects* of a habitus in the practices and beliefs to which it gives rise. The structure of the habitus must be captured by excavating beneath practices to capture its relational structure as one among a range of possible structures (Maton, 2013, p. 62, italics original).

This approach matches the one employed in this research project when talking about habitus of game players. Having presented two of Bourdieu’s concepts relevant for the project, I will now return to the domain of digital games and briefly outline how I view and operationalize these concepts in the context of my research to talk about digital gaming practice. I will also offer the initial, working definitions of the relevant concepts, that will be used from that point on in this dissertation.

### 2.1.2. Digital gaming practice – a Bourdieusian view

Bourdieu’s conceptual framework of habitus, field, and capital, as well as his theoretical understanding of practice and methodological approach to its research, have all been used in research on games, players, and gaming. When it comes to the concepts, Mia Consalvo (2007) has conducted research on *gaming capital*, a game-centric version of Bourdieu’s notion, that encompasses the various knowledges, opinions, and values that circulate among those participating in the sociocultural field of digital games. Along similar lines, Graeme Kirkpatrick (2015) has explored the concept of habitus in relation to gaming in his work on the role of gaming magazines in the formation of *gamer habitus* in the UK in the 1980s. Both Consalvo and Kirkpatrick have used Bourdieu’s concepts to research the cultural and social aspects of gaming – the issues of identity, authenticity, gender, value, and power, among others. Other researchers applying Bourdieu’s work to games have similarly focused on specific cultural and social aspects. These include David Dietrich (2013), who investigated race presentation in avatar creation in games and the creation of white habitus, Wallace McNeish and Stefano De Paoli (2016), who empirically investigated practices and discourses in education which contribute to the creation of gaming habitus, and Feng Zhu (2018), who discussed habitus development during gaming in the context of Foucauldian practices of the self. On a more general note, Claus Toft-

Nielsen and Stinne Gunder Strøm Krogager (2015) have applied Bourdieu's field theory to investigate the intersection of various practices that obtain within the field of digital games through interviews and focus groups. An example of methodology inspired by Bourdieu is Rune Klevjer's and Jan Fredrik Hovden's (2017) empirical research on game preference, which employed Bourdieusian multiple correspondence analysis to chart the field of digital games using data from surveys of students in Norway.

The works cited above are not meant to comprise a definitive list of Bourdieusian research in game and player studies, but rather to illustrate the kind of work, theoretical and empirical, that has been done so far. Despite the research on players' sociocultural relations and functioning in the field of digital games, however, notable aspects of Bourdieu's theories remain underexplored – in particular, those pertaining to the *actual instances of the practice of playing digital games*.

To illustrate this, let us once again return to the professional chef example from earlier in the chapter, and imagine that comparable types of research have been conducted on cooking-related habitus, field, and capital. Existing research could describe many aspects of cooking: among others, how chefs communicate with and perceive each other as employees of different restaurants, how certain restaurants and cuisines have cultural dominance over others, and how chefs are viewed (and how they view themselves) in relation to the practice of cooking. What we would *not* be able to tell, however, are the *practical matters of cooking*: how chefs leverage their training and knowledge to produce certain dishes, how ingredients in these dishes have evolved over time to create different flavor profiles characteristic of different cuisines, and how preferences of chefs for some ingredients and cuisines over others result in unique dishes and cooking methods. In other words, we could not describe the very fundamental matter of *how actual chefs actually cook*. The parallel understanding in digital gaming – *how actual players actually play*, i.e. use their past experiences and knowledge to interpret and act in games – is precisely what has been lacking in Bourdieusian approaches to games, players, and the act of play, until now.

This research project investigates the acts of playing digital games as *instances of gaming practice*, understood in the general light of practice theory and the more specific light of Bourdieu's work on the concept of practice. When I talk about digital gaming practice, I simply refer to situations of actual, concrete play of digital games – the player equivalent of a chef preparing a meal. We can imagine these situations as being bracketed by the starting and stopping of gaming software and characterized by ongoing interactions with it via some form of hardware

that accepts inputs and that produces outputs. This understanding is not derived from any one specific definition of game playing; rather, it is a common, everyday view of digital play. It is the kind of understanding of digital play that we employ when discussing the acts of playing with friends or family members, or when we read about the experience of others on online forums, or when we watch videos of people playing or talking about digital games on YouTube. This understanding of digital gaming practice bears repeating and remembering, because those actual, concrete acts of playing – and not the many other examples of practices that occur in the broader field of digital games – are the main focus of the research project. This perspective is also the reason why Bourdieu's notion of (cultural) capital is rarely utilized within this research context; as it is mainly used in a Bourdieusian sense to analyze cultural and social functioning of agents in a field, capital, *as a concept*, is of less concern when discussing concrete acts of playing<sup>14</sup>.

With that understanding in mind, the goal of this research is to investigate how a game-specific habitus functions and develops in digital gaming practice. As a reminder, Bourdieu's understanding of habitus is that of a system of dispositions, in other words of states of being, perceiving, thinking, feeling, and acting, which develop through participation in a practice and which structure and guide involvement in subsequent instances of the same, or similar, practice. The project imagines a player's game-specific habitus as a set of personal filters through which that player sees, thinks of, and plays digital games. The project seeks to investigate a game-specific habitus's *structure* – what elements it is comprised of – and *functioning* – how these elements relate to each other, and to certain common elements of digital games as designed artefacts, during the act of playing a digital game.

The game-specific example of habitus has previously been referred to as *gamer* (Kirkpatrick, 2015) or *gaming* (McNeish & De Paoli, 2016) habitus. However, in this research project – and from this point on in the dissertation – I use the term *ludic habitus* instead. This (re)naming is intended to reflect the project's focus on object-oriented ludic behavior – in other words, on acts of playing digital games – as opposed to the broader social and cultural aspects of being a game-playing agent (player, gamer, etc.) operating in the field of games.

This perspective does not seek to *reduce* habitus in the field of digital games to only the acts of playing games, digital or otherwise – or the field itself to a set of game design conventions. I do not dispute the views on habitus and field taken by game and player researchers in the past,

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<sup>14</sup> By this I mean that those aspects of being a player that others frame as capital and discuss in relation to sociocultural functioning – e.g. knowledge about and experience with specific game titles and categories – are here instead reframed as properties of one's game-related habitus as deployed in digital gaming practice.



who have used the concepts and Bourdieu's theories with a focus on social and cultural issues more so than the concrete acts of playing. Rather, with my project, I mean to *complement* this existing research. Any habitus can be analyzed in light of many different practices in a field that constitute it and in which it manifests. This is, in part, what lends the concept its versatility in research: it can be operationalized to explore issues ranging from the broad and systemic, such as power relations in the corresponding field, to the deeply personal, such as identity and beliefs. Deeper explanations of a type of habitus require a multiplicity of perspectives and research approaches. The present project's focus on examining concrete acts of digital gaming practice is, I argue, very much needed in order to achieve this richer understanding of the specific habitus developed in relation to games.

#### 2.1.2.1. *Ludic habitus and the (sub)field(s) of digital games*

In this project, digital gameplay practice is understood in a Bourdieusian fashion, in terms of interaction between two historically developed sets of structures. The first are the subjective structures comprising one's ludic habitus, while the second are the objective structures in the field of digital games. Before moving on to the discussion of the project's methodology, it is important to point out the *initial, working definitions* of these concepts. These definitions were derived from literature review and in accordance with the project's perspective discussed above. They were used as broad starting points for empirical investigations in the player studies, and, as concepts, were progressively developed using the data from the studies, with the final result being the general framework of digital gaming practice.

- 1) *Ludic habitus* is a system of dispositions obtained through experience in the field of digital games which structure and direct our perceptions, interpretations, valuations, and behaviors in the field of digital games.
  - *The aim of the project is to describe the structure and functioning of ludic habitus in the act of playing digital games.*
- 2) *The field of digital games* is a broad sociocultural domain centered around digital games, and comprising:
  - the digital game artefacts themselves,

- the productive, disseminative, and consumptive practices connected to these artefacts,
  - the agents and institutions involved in these practices, and
  - the norms and values propagated among these agents and institutions.
- 3) The field of digital games can be further subdivided into smaller, more specialized *subfields* – in other words, into smaller communities or domains with their own norms and values. For example, we can imagine *generic subfields* (centered around certain configurations of game design, e.g. role-playing games (RPGs) or first-person shooters (FPSs)), *practice subfields* (centered around practices, e.g. cosplaying or walkthrough creation), or *institutional subfields* (centered around various institutions, e.g. e-sports teams or game production or distribution companies).

This research project predominately focuses on generic subfields and their game design configurations. I see these configurations as historically developed and often conventionalized under the heading of a *game genre* or *game type*, and as serving to structure the player's experience of the game during the act of play. When I discuss *the subfields of digital games* in this dissertation, I do so with a content perspective – that is to say, with these historically developed configurations of game design elements in mind. I refer to these as *generic subfields of digital games* throughout the dissertation.

From this understanding, we can derive a Bourdieusian understanding of digital gaming practice that will be used in the rest of the dissertation.

4) *Digital gaming practice* is here discussed on two temporal levels:

- a. as *concrete acts of gaming*, involving an agent, possessing a ludic habitus, and a digital game artefact, containing game design elements in specific, often conventionalized configurations; and
- b. as *a long-term practical activity* through which an agent's ludic habitus grows and develops.

Of these two levels, the project empirically investigates the former while using the latter as a perspective on players as historical entities, framing them as evolving practitioners of digital gaming, whose prior experiences under the guise of ludic habitus help them to interpret and navigate concrete acts of gaming on a moment-to-moment basis.

These working definitions were, by necessity, limited in scope and detail, because they were derived from the preceding literature review of practice theory and meant to be further developed empirically. At this stage of the dissertation, they are intended to help the reader to better understand the starting point for the project's empirical work, as well as to provide a general idea of the research approach and objectives of the project. In light of results from the three player studies and as part of the discussion and development of the digital gaming practice framework, these concepts will be fully explored and expanded later.

Having established the practice-theoretical framing of the research project, it is now time to examine previous research in the fields of game and player studies, and to position the present research project in relation to this work.

## 2.2. Perspectives on digital gaming practice

What are we talking about when we talk about the act of playing digital games? And how does that affect how we view and what we say about the act? Research on digital games is, by this point in time, an established academic endeavor, with the work of many scholars acting as precedent and influence for the present research project. The act of playing – its structure, its phenomenological qualities, the factors which affect how it is constituted, guided, and maintained – has been frequently investigated from the perspective of games, players, and in a more holistic fashion accounting for both. It is, therefore, important to present some examples of this work that have informed the present research project.

In this section, I will focus on *general theories of digital gaming*, presenting examples of research that describes how players interpret and play digital games. The section is structured in three smaller parts. The first discusses the concept of *gameplay*, as researched and understood in the field of game studies. This concept is particularly important for the present project, as it relates closely to the notion of digital gaming practice. The second presents approaches to game interpretation through a review of *hermeneutic theories of digital gaming*. As a collection of theories which seek to describe how players understand digital games as designed artefacts during the act of play, this work is also highly relevant for the present research project. At the end of the section, I will summarize the outlined research and explain how the present project draws on, expands, and generally relates to, these precedents from the field of game studies.

### 2.2.1. Gameplay

In scholarly, design, and popular discourses on games alike, the term “gameplay” is frequently used as a shorthand for discussing the various aspects of the act of playing. However, as noted by both scholars (e.g. Giddens & Kennedy, 2008; Rollings & Adams, 2003) and game designers (e.g. Crawford, 1982/1997), gameplay remains an elusive term, with no definitive understanding. Seth Giddens and Helen Kennedy (2008) attribute this conceptual fuzziness to the difficulty of analytically approaching the act of playing – according to them, players are often too involved in the act to reflect about it, while researchers observing players as they play can only capture limited aspects of the act (ibid., p. 14). Andrew Rollings and Ernest Adams (2003), on the other hand, note that the term is difficult to define because it is “the result of a large number of contributing elements” (ibid., p. 199). Despite the frequent remarks about the difficulty of defining gameplay, many scholars and designers have attempted to do precisely that. These definitions – as well as other elaborations of the term – reveal some broad commonalities that are relevant for how the act of playing games is understood in the present research project. For this reason, it is important to list some of the definitions of gameplay and conversations regarding the term, while also discussing some examples of research that centers around this concept in more detail.

Rollings and Adams see gameplay as “one or more causally linked challenges in a simulated environment” (ibid., p. 200). Giddens and Kennedy use the term in a dual sense, to refer to both the specific design configuration of a game, created with hypothetical players in mind, and to the spatiotemporally bound event of play (2008, p. 15). According to Grant Tavinor (2008), gameplay can pragmatically be understood as “the modes of interaction typically involved in videogaming [sic]” (ibid.). Katie Salen and Eric Zimmerman (2003) offer a more specific definition of gameplay as “the formalized, focused interaction that occurs when players follow the rules of a game in order to play it” (ibid., p. 303). Salen and Zimmerman also frame gameplay in cybernetic terms, as set of feedback loops involving the player and the various hardware and software components of the game artefact<sup>15</sup> (ibid., p. 218). In his discussion of the term, Jesper Juul (2005) states that gameplay is fundamentally dynamic, representing “the way the game is actually played” (ibid., p. 83), and coming about as a result of both the formal,

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<sup>15</sup> I use the term “game artefact” in a similar manner to Leino (2012, p. 70), to refer to all technological components involved in gaming – in other words, to refer to game software (i.e. code) as run on a hardware platform with input and output modules (e.g. a PlayStation console attached to a TV and controlled with a DualShock controller).

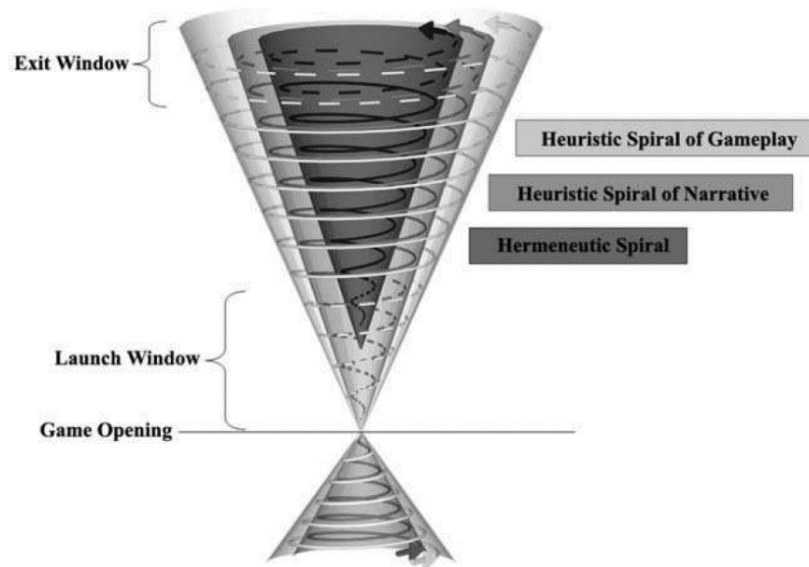
designed properties of the game and the dispositions of the game player (ibid., p. 88). Olli Leino (2012) also highlights this entwinement of game and player when offering his view of gameplay as a hybrid phenomenon with “experiential, processual, and material qualities” (ibid., p. 73), each instance of which depends on the particular qualities of both the player and the game artefact. Similar perspectives on gameplay – as *a dynamic, back-and-forth interaction between player and game* – have been offered by game designers such as Tom Heaton (2006) and Daniel Cook (2007), among others.

Several scholars have also offered more in-depth analyses of the concept of gameplay, from a variety of research standpoints. A notable example is the gameplay model of Dominic Arsenault and Bernard Perron (2008). The authors begin their examination of gameplay by pointing out two common misconceptions about it. The first is seeing gameplay solely in algorithmic terms, as a set of computer procedures that the player somehow decodes and learns during the act of playing. The system level of the game, Arsenault and Perron argue, is far too multifaceted and obscure for the player to ever fully grasp; the experience of the person playing the game never directly overlaps with algorithmic procedures of the game software (ibid., p. 110). The second misconception the authors note is the understanding of the act of playing in terms of spatial metaphors. Specifically, they criticize the concept of *the magic circle*, dating back to the work of Johan Huizinga (1938/2001), that posits that the act of playing is in some way delimited from other aspects of life. Arsenault and Perron agree that the act of playing is characterized by a different *psychological* or *cognitive frame*<sup>16</sup> than participating in other activities, but, since humans switch between frames quite adeptly, Huizinga’s original conception of the magic circle in spatial terms, as a hard boundary that demarcates playing from other activities, does not hold.

Arsenault’s and Perron’s analysis of gameplay begins with a concession to the premise that is often stated or implied in other definitions of gameplay, as illustrated above: “playing a video game is always a continuous loop between the gamer’s input and the game’s output” (2008, p. 113). However, the authors then proceed to highlight the temporal dimension of gameplay, imagining the act of playing as a *cycle* or a set of *spirals* (Fig. 2) in an attempt to more accurately show the one element which they claim has been left unaddressed in prior theorizations: “the evolution of the gamer’s relationship with the game” (ibid., 115).

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<sup>16</sup> As previously discussed by, among others, Daniel Pargman and Peter Jakobsson (2008).



**Figure 2.** Arsenault's and Perron's magic cycle (taken from Arsenault & Perron, 2008, p. 115).

Arsenault's and Perron's magic cycle is comprised of three spirals, nestled in each other and expanding as time passes from the moment a player first starts up a game to the time when they stop playing it altogether. The outermost, and most fundamental, spiral is *the heuristic spiral of gameplay*, which (as has been noted before) the authors understand in terms of player input and game output. Its expansion over time illustrates the expanding possibility space of the game – for example, the move from managing a handful of resources or having access to a few in-game actions, to more complicated managerial tasks and a large repertoire of abilities. The middle spiral is *the heuristic spiral of narrative*. It represents the unfolding of the game's narrative (if any) and the player's evolving understanding of it over time. Following from Perron's (2006) earlier essay, which influenced Arsenault's and Perron's idea of the magic cycle and its spirals, the term 'heuristic' here refers to the *perceptual-cognitive activity* of successively sampling information about a particular situation, and then using said information to infer knowledge or behavior that best suit said situation (ibid., p. 64). As part of this activity, the player continuously analyzes information provided by the game, decides on what to do with this information in light of prior knowledge (e.g. understanding of genre conventions, or simply similar, prior situations in the same game), and implements said decision through their embodied, sensorimotor skills (Arsenault & Perron, 2008, p. 114). Understood in this fashion, the player's temporal progression through the two heuristic spirals can also be seen as a process of progressively greater comprehension of the game's *explicit meanings* through analytical and performative trial-and-error.

The innermost spiral of the magic cycle is *the hermeneutic spiral*, illustrating the player's developing interpretation of the game's meaning or 'aboutness' over time and through play. As hinted at by Perron (2006) in his earlier essay, the term 'hermeneutic' here refers to the player's interpretative reconstruction of *implicit, symbolic meanings* (ibid., p. 68) which the game as a piece of text might carry<sup>17</sup>. This spiral is placed in the center of Arsenault's and Perron's model not because it is the most vital for the gaming experience, but rather the opposite: because it is not a required part of said experience (2008, p. 117). In fact, the authors stress that the relationship between the three spirals is "one of inclusion: the gameplay leads to the unfolding of the narrative, and together the gameplay and the narrative can make possible some sort of interpretation" (ibid., pp. 117-118). Hermeneutic interpretation can take place during the gaming experience, but also outside of it; it is potentially a never-ending process of shifting understandings about a game's implicit meanings, since these meanings can always be reinterpreted in relation to different texts and contexts that a player encounters during their lifetime.

Lastly, since different players begin playing a game with different preconceptions, knowledges, and skills acquired by playing other digital games, they enter the cycle at different points of the cycle's *launch window*. Similarly, different players stop playing a particular game at different stages and after different amounts of time – in other words, they exit the cycle at different points of its *exit window*.

In this cyclical view of the act of playing a digital game, a minimal unit of interaction (in other words, a singular gameplay act) corresponds to a single loop across the three spirals (or however many are present, with the heuristic spiral of gameplay the only one that is mandatory). This loop consists of the following four steps (adapted from ibid., pp. 120-121):

- 1) *Rendering* of the audio-visual environment and other elements of the game state;
- 2) *Output* via the screen, speaker, or other device, and the player's bottom-up *perception* of said output;
- 3) The player's top-down *analysis* of the data and subsequent decision-making in light of it;
- 4) The player's *reaction* to the game event in the form of input of data into the game system, which the game recognizes and factors in when changing the game state.

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<sup>17</sup> Or, rather, might be perceived by the player to be carrying.

This single loop is repeated many times and expands over time as the player plays, as illustrated by the widening spirals of the magic cycle. By repeating loops and moving from simple to more complicated ones, the player progressively develops their analytic and performative skills, expanding on their *player repertoire* of methods for playing (a concept earlier discussed by Juul, 2005, pp. 95-97). As part of that process, the player also forms a *mental image of the game* – in other words, their individual understanding of the game system – which they use to structure and support their act of playing, and which sets up expectations for future events during that act. Arsenault and Perron call this mental image *Game*<sup>18</sup>. With it in mind, they describe the act of playing a digital game as:

[...] a symbiosis between the gamer (with all his background, expectations, preferences, knowledge, and skills), the gameplay (with all the spectrum of possible actions and reactions) and the Game' (with all its varying shades of understanding). The experience of a game is a gradual shift from predominantly bottom-up processes, where individual elements are analyzed before reacting, to top-down processes, where a mental image of the game system guides the gamer's reactions and expectations (ibid., p. 126).

With its description of the gaming experience as a series of loops that result in the advancement of heuristic skills and understandings, as well as optional generation of hermeneutic interpretations of meaning, Arsenault's and Perron's magic cycle can be seen as a model of the practical aspects of the act of playing a digital game. Much like Bourdieu's understanding of practice, the magic cycle of Arsenault and Perron is fundamentally concerned with the issues of time and evolution. In their view, by progressing further through the magic cycle, a player develops their practical comprehension of the game in question, while possibly also engaging in interpretations of the game's implicit meanings along the way. While the authors do mention that these developments can also be seen from the perspective of one's lifetime as a player – by taking into account a player's long-term gaming experience with different game titles and genres – their model is more focused on theorizing the middle ground between the player and the game, rather than on further explicating what this particular perspective might entail for the act of playing a digital game. The closest they come to this is the notion that different players enter and exit the magic cycle at a different point of the game's launch and exit windows, respectively. Nonetheless, the magic cycle model is a relevant explanation of the practice of digital gaming, and will be mentioned again later in this dissertation, when I present and discuss my own framework of said practice.

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<sup>18</sup> Pronounced as "game prime" (ibid., p. 125).



Another example of extensive work on describing and defining gameplay is that of Jukka Vahlo (2017), who approaches the phenomenon in question from the perspective of enactivism. In simple terms, enactivism is a branch of cognitive science which posits that cognition emerges from recurring patterns of sensorimotor activity through which an organism constructs (or, rather, *enacts*) its environment (see e.g. Varela, Rosch, & Thompson, 1991, p. 173). Enactivism, therefore, places an emphasis on interaction between an organism and its environment, with said interaction being understood as an active process by which an organism demarcates and defines itself through the establishment of boundaries between self and environment (see e.g. Maturana & Varela, 2012; cited in Vahlo, 2017). In his approach to the concept of gameplay from the perspective of enactivism, and with an aim towards a theoretically solid definition of gameplay, Vahlo posits several properties that characterize the gameplay experience:

- Gameplay is *co-coordinated* by both the player and the game artefact. Player participation in the act of playing consists of two levels of regulation: the regulation of one's *actions* in light of game events, and the regulation of one's *player position* (through the adoption of a playful attitude and the understanding that one is playing). For the game, on the other hand, participation consists of coordinating its game states on the basis of its rules (in the form of computer code) and the external input (i.e. player actions). This co-coordination is what lends gameplay its autonomy.
- During gameplay, the player takes part in two related processes: *exploration* of the possibilities that the game has to offer, and *coordination* of skills, knowledges, and tools needed to overcome challenges or make progress. These two processes occur as part of a cycle of *growth in adaptation*, that sees the player evaluating their needs in the context of the game and expanding on their means for achieving them.
- Gameplay is a *dynamic, co-emergent* phenomenon, in the sense that it arises from the precarious interplay between a player and a game artefact that gives both of these components their momentary identity. This interplay continues only for as long as it is both reciprocal and autonomous. In cases where it is not (for example, when a game presents the player with what they perceive to be an insurmountable challenge, or when the player loses their motivation or interest in playing the game), gameplay may come to an end.
- Gameplay – even when it does not involve more than a single player – is *a form of social participation*, in the sense that it involves patterns of social interaction as part of its dynamics. The player relies on their social interaction skills during play, expecting that the game artefact “responds to our communicative acts, that it evaluates us and praises us when we succeed, and provides us with consistent, reliable, clear and relevant information” (ibid., 2017).

Based on these properties, Vahlo offers a concise definition of gameplay as “the self-sustaining autonomy that arises in a dynamic reciprocity of between [sic] at least one autonomous agent and a responsive game artifact” (ibid.).

Some aspects of Vahlo’s enactivist approach to gameplay, as well as of Arsenault’s and Perron’s conceptualization of the magic cycle, are evocative of earlier work in the domain of games and learning, notably that by James Paul Gee (2003). Gee sees the act of playing digital games in a similar fashion, as a situated, embodied, reflexive *practice*, which, he posits, can be broken down into four steps (adapted from ibid., p. 90):

- 1) *Probing*: the player examines the game environment and performs actions;
- 2) *Hypothesizing*: the player creates a hypothesis about the meaning and instrumental relevance of a certain aspect of the game (such as texts, objects, artefacts, events, or actions);
- 3) *Reprobing*: the player once again examines the game environment and performs actions, this time in light of the hypothesis;
- 4) *Accepting/rethinking*: the player analyzes feedback from the game environment and either accepts or rethinks their hypothesis.

The learning loop that Gee identifies as fundamental to digital gameplay is similar to the cycle of exploration and coordination that Vahlo discusses from the perspective of enactivism, as well as to the single loop of gameplay discussed by Arsenault and Perron. The premise of Gee’s work is that participating in gameplay teaches players a new form of literacy (ibid., p. 13). Much like other forms of literacy, this *ludic* literacy is developed in relation to a specific *semiotic domain* – in this case, digital games, that Gee sees as a family of smaller, interrelated domains that he frames as different game types or genres (ibid., pp. 18-19). According to Gee, a semiotic domain is “any set of practices that recruits one or more modalities [...] to communicate distinctive types of meanings” (ibid., p. 18). These domains can be examined both *internally*, in terms of their content, and *externally*, in terms of the communities which surround them. Semiotic domains are also characterized by internal and external *design grammars* – sets of principles and patterns that define typical content or community behavior/attitude in a given domain (ibid., pp. 26-30). Over the course of playing many games and familiarizing oneself with content in many smaller semiotic domains that comprise the larger domain of digital games, a player goes through many iterations of the learning loop described above. Because these smaller semiotic domains (or genres) are related in terms of content to a greater or lesser extent, the

player is able to transfer their knowledge and skills from one semiotic domain or game genre to another over the course of many learning loops. In other words, with time and with repetition of instances of gameplay, players learn to play not just individual games, but entire game genres, adapting their skills and performance along the way (ibid., pp. 123-127). Gee's perspective on games is, in many ways, similar to the practice-theoretical understanding employed in this project, and will be invoked again later in the dissertation.

A similar view on generic content in games, which Gee examines in terms of semiotic domains and design grammars, is offered by Craig Lindley (2002). Like Gee, Lindley posits that gameplay can be seen as a learning process for the player, approaching this process in terms of patterns of interaction that games of a given genre foster in players. Lindley refers to these patterns as *gameplay gestalts*, and defines them as “a particular way of thinking about the game state, together with a pattern of perceptual, cognitive, and motor operations” (ibid., p. 207). The act of playing a digital game, according to Lindley, involves learning and performing the gameplay gestalts that the game's designers have envisioned. Lindley specifically states that learning how to play a particular game does *not* require learning all of its algorithmic rules as encoded in the game software (ibid.) – but does not specify how, or on what grounds, these gestalts manifest in the act of playing. He discusses them in terms of what we might commonly understand as gameplay mechanics, giving an example of strategy games, in which the player is usually tasked with resource management, infrastructure construction, and combat against enemy troops, all of which can be understood as gestalts (ibid., p. 208). At first glance, this makes gameplay gestalts appear similar to the concept of *game design patterns*, discussed by, among others, Staffan Björk, Sus Lundgren, and Jussi Holopainen (2006). However, Lindley specifically describes gameplay gestalts as frequently *recurring across games, game genres, and players* (2002, p. 208) – in other words, they can typify both a category of game artefacts *and* a category of player or *playing* tendencies. This understanding is particularly relevant for the present research project, and will be further explored later, during the construction of the digital gaming practice framework.

### 2.2.2. Game hermeneutics

As noted by Espen Aarseth and Sebastian Möring (2020), the issue of game interpretation – how players generate meanings and understandings of the games they play<sup>19</sup> – has been present

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<sup>19</sup> The issue of how *games* convey meaning – as examined in the works of, among others, Ian Bogost (2007, 2008) – is less relevant for the present discussion, and will therefore not be addressed in detail here.

in research on digital games from its earliest stages. As the authors mention, game interpretation figured as a concern in one of the earliest academic works on digital games, the dissertation of Mary Ann Buckles (1985) concerning the game *Colossal Cave Adventure* (Crowther & Woods, 1976/1977). In the following years, many authors have discussed interpretation in relation to digital games and the act of playing them, trying to develop hermeneutic theories of games. This approach is inspired by the hermeneutic theories of Martin Heidegger and (in particular) Hans-Georg Gadamer, and referred to as *game-*, *ludic-*, or *ludo-hermeneutics*. I will present a relevant overview of this research here, beginning with some brief remarks on play in the work of Gadamer that are crucial for understanding said research, and later comment on the links between these works and my own research approach.

The concept of *play* has a central role in Gadamerian hermeneutics. Gadamer understands play in a broad and varied sense that, crucially, decentralizes or deemphasizes the ones playing for the sake of focus on the play itself. For Gadamer, play is a “to-and-fro movement that is not tied to any goal that would bring it to an end” (1960/2013, p. 104). As discussed by Cynthia Nielsen (2021), for Gadamer, this to-and-fro play-movement is a key component of games, but also of *art*: “both are presented or come forth only through being played, performed, or enacted [...] without the ongoing movement of play, the game ceases, and the artwork falls silent” (ibid., p. 144). Understood in this fashion, interpretation, for Gadamer, *is* play: it is *a creative dialogue* between the hermeneutic subject (e.g. viewer, reader, listener) and an object or a process that they are interpreting (e.g. painting, book, radio play) which constitutes the *work* of art. This is paralleled in games, where players are given “a freedom of decision which at the same time is endangered and irrevocably limited” (Gadamer, 1960/2013, p. 106), and are tasked with ‘keeping the game alive’ through maintenance of this precarious state through appropriate choices – i.e., those that will sustain the game<sup>20</sup>.

When discussing interpretation in relation to digital games, scholars often frame this process as distinct from that of interpreting other media, like books, films, or music. According to Aarseth, players of digital games are constantly engaged in a real-time, moment-to-moment pragmatic analysis, experimenting and learning how to play *by* playing. This form of analysis, necessary for the continuation of the play act, gives digital game interpretation its distinct character:

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<sup>20</sup> For more on this, see e.g. Leino, 2009, who draws on Gadamer’s writings on play to discuss the limited freedom to make responsible choices in order to keep the game going, which he dubs the *gameplay condition*.

While the interpretation of a literary or filmatic [sic] work will require certain analytical skills, the game requires *analysis practiced as performance*, with direct feedback from the system. This is a dynamic, *real-time hermeneutics* that lacks a corresponding structure in film or literature (Aarseth, 2003, p. 5, italics mine).

It is important to note that the term ‘hermeneutics’ is here used by Aarseth in a different manner to how it is employed by Arsenault and Perron in their work cited earlier in this chapter. For Arsenault and Perron, ‘hermeneutic’ refers to interpretation as construction of implicit or symbolic meanings based on the information available in a particular game. The products of the player’s traversal through the hermeneutic spiral are ideas regarding what the game signifies as a media text, rather than heuristic hypotheses about possible gameplay actions or narrative directions, which can either be implemented and tested (in the case of gameplay progression) or validated or denied by the game (in the case of narrative progression). Aarseth, on the other hand, understands interpretation processes during the play of games in a different light, seemingly closer to the *heuristic* processes at play in Arsenault’s and Perron’s magic cycle<sup>21</sup>. In his description of real-time hermeneutics, Aarseth offers a metaphor for digital gameplay that we have already seen in earlier discussions of the concept: that of a feedback loop of analysis and performance that takes place between the player and the game<sup>22</sup>. Interpretation, as understood by Aarseth, is not aimed at constructing hidden or implicit meanings of the game-as-text – or, rather, not *exclusively* aimed at this. Instead, it is *a more general and vitally important component of the act of digital gameplay*, that has to be seen in tandem with embodied performances, via controllers or other methods of input, to which the game system responds and which serve to sustain the act itself. This is a crucial point that needs to be kept in mind throughout this section of the chapter, as most of the authors cited below share Aarseth’s broader understanding of hermeneutics and interpretation, rather than Arsenault’s and Perron’s more specific one, pertaining to implicit meanings.

This view of digital gameplay recurs in the writings of other scholars working on the topic of game hermeneutics, with their understanding of interpretation – in a manner that once again echoes Gadamer – often tied on some level to the sustaining of the act of digital gameplay.

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<sup>21</sup> Along these lines, in the paper co-authored with Möring (2020) that I cited earlier, Aarseth specifically criticizes Arsenault’s and Perron’s understanding of hermeneutics as being too narrow and confined to exclusively textual interpretation (ibid., pp. 2-3).

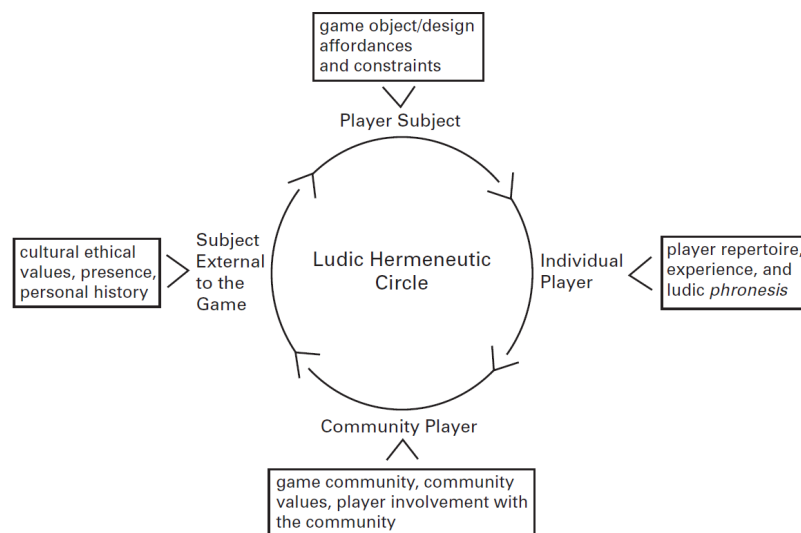
<sup>22</sup> Aarseth previously discussed the feedback loop in his work on ergodic literature, in the context of cybernetics (1997, p. 1).

For example, Veli-Matti Karhulahti discusses the idea that players are engaged in a *double hermeneutic cycle* of interpretation and configuration during the act of playing digital games (2012; 2015a). Karhulahti argues that the player interprets digital games in two lights: as “an aesthetic-textual object and a ludo-performative process” (2015a, p. 4). As part of the double hermeneutic cycle, players switch between *ludic interpretation* (aimed at generating an instrumental understanding of game components, which might help the players achieve certain goals or aims in the game) and *extra-ludic interpretation* (aimed at generating those understandings that are not necessarily relevant for continuation of the act of playing). To once again compare this to Arsenault’s and Perron’s magic cycle, ludic interpretations generate practical comprehension of the game as part of the necessary heuristic spiral of gameplay, while extra-ludic interpretations construct implicit meanings *about* the game as part of the optional hermeneutic spiral. As an illustration, a player might interpret a sword in a game ludically, as a weapon for defeating an enemy, and/or extra-ludically, within the context of the game’s storyline, as an ancient artefact of mysterious power and significance in the narrative world of the game. The ludic interpretations that the player generates “often materialize as physical performance” (Karhulahti, 2015a, p. 4) that can potentially change the configuration of the game as part of the feedback loop of gameplay. The fact that the digital game, as a piece of software, evaluates the player’s performance and can respond to it is what, in Karhulahti’s view, differentiates digital games from other types of games (2015b, p. 12).

A similar perspective on hermeneutics is offered by Jonne Arjoranta (2011), who notes that three dimensions of digital games have to be taken into account when discussing their meaning and interpretation. Firstly, digital games are *procedural systems*, with algorithmic internal logics that can change the structure of the game, and in turn, change the meanings that the game creates. Secondly, digital games are *interactive* systems whose operation is controlled by the player. Lastly, the meanings of digital games *change with the passage of time*. Arjoranta seems to understand this last point in two ways. The first is derived from his discussion of procedurality and interactivity, and is in line with the feedback loop understanding of the act of play discussed thus far. Because digital games are procedural, interactive systems, their structures change over time, with player input as the game is played, which leads to new meanings for the player to interpret. The second understanding relates to the temporal distance from the interpreted object (the digital game). In other words, the passage of time in the real world, after play, affects retrospective player interpretations of a particular game. Having outlined the three dimensions of digital games relevant for their interpretation, Arjoranta concludes that, for the purposes of interpreting a game, players “must rely on different cultural

meanings filtered though [sic] temporal frames and the fact that games as interactive systems give feedback on the success of interpretations” (ibid., pp. 11-12).

In his approach to game hermeneutics, Miguel Sicart (2009) stresses the phenomenological dimension of game interpretation, stating that “games are the experience of being a player” (ibid., p. 83). For Sicart, the act of playing a game constitutes a process of subjectification through praxis that involves several interpretative stages. This process begins with the initial interpretation of the affordances and constraints of game design – in other words, what one can and cannot do as part of playing the game. This interpretation creates the initial player-subject. At further stages in the subjectification process, the player interprets the game in three other contexts – in relation to their own previous gaming experience and attitudes<sup>23</sup> (as *individual players*), in relation to player community values (as *communal players*), and lastly in relation to their broader cultural, ethical, and personal values (as *subjects external to the game*) (ibid., p. 112). The final stage of this interpretative process of subjectification – what Sicart calls *the ludic hermeneutic circle* (ibid., Fig. 3), in the tradition of Gadamer’s understanding of the hermeneutic process as circular in nature – is the establishment of a dialogue between the player-subject conditioned by the game and the cultural and moral being who exists outside its confines.



**Figure 3.** Sicart’s ludic hermeneutic circle (taken from Sicart, 2009, p. 122).

<sup>23</sup> Sicart here places particular importance on the player’s *ludic phronesis* – a player’s capacity to ethically evaluate the subjectivity imposed by the game, in light of their personal ethical and cultural values that transcend the game (ibid., p. 117).

Much like other scholars who have worked with hermeneutic theories, Sicart also sees the experience of playing a game as a feedback loop, stating that it is “a dialogue between the system that imposes restrictions and affords behaviors, and a player who reflects upon those” (ibid., p. 119). However, he also highlights the diachronic dimension of this loop when discussing the ludic hermeneutic circle and the player’s ethical capacities, stating that “players are beings who come to a game experience with the cultural baggage of previous game experience” (ibid., p. 65). This long-term, practical engagement develops not only a player’s skills or their knowledge of game conventions, but also their ethical capacities in relation to games. In turn, the accumulation of this experience and the development of a player’s capacities affect how they approach and interpret new games (e.g. ibid., p. 89).

The possibility of creating a unified ludo-hermeneutic theory, applicable to a wide range of digital games, has also been criticized – for example, by Aarseth and Möring in their 2020 article cited earlier. In their review of previous research in the area of ludo-hermeneutics, Aarseth and Möring discuss the already mentioned works of Karhulahti, Arjoranta, and Arsenault and Perron (but, curiously, *not* the ludic hermeneutic circle of Sicart), faulting these approaches for, among other things, not being properly grounded in Heideggerian or Gadamerian hermeneutic theory (2002, p. 4). For the authors, the primary challenge in creating a unified theory of game interpretation lies in the fact that games (digital or otherwise) are not “one type of phenomenon” (ibid., p. 5), offering one kind of gameplay, but rather a family of game artefacts or ludic objects that requires a corresponding family of theories/models. For this reason, Aarseth and Möring argue against approaches to game hermeneutics that contend that all games can be understood in light of some universal feedback loop model, claiming that these approaches describe something else altogether:

What has been called game hermeneutics [in previous research] is rather the player’s hermeneutics: the process of becoming-a-player. This is also the uncovering of the game’s ontology; the realization of what it takes to be a player of that particular game, and of getting to know the game’s here-and-now (ibid., p. 6).

For Aarseth and Möring, “[e]ach game (or, depending on how we delimit games, game genre [...]) comes with its own implied hermeneutics [...] its own circular process or interpretive ‘feedback loop’ by which we play, learn and grasp” (ibid., p. 5). The method of interpretation that a player might use for one game or game type might not be adequate for another game or



game type, and depends on several factors, such as the player's own set of genre-related habits<sup>24</sup> or the communal resources available to the player (ibid., p. 6).

Before summarizing this chapter, I want to briefly position my research project in relation to game hermeneutics as a research area. The writings on game hermeneutics presented here are meant to showcase precedents regarding the practical aspects of the player-game relationship in the broader field of research on digital games and gaming – precedents which are relevant for how that relationship is understood in the context of this project. However, as I will show later, processes of game interpretation are framed in a more specific light in my framework than in game hermeneutics as described above – they are just one component of the perceptual tier of the player's ludic habitus and its functioning in gaming practice. This framing addresses some issues relevant to scholars of game hermeneutics – for example, Aarseth's and Möring's claim that we need to see game interpretation as both player- and game-specific.

With that in mind, while some of my research findings might be relevant for scholars of hermeneutics working with games, it would be ill-advised of me to claim that this project contributes directly and specifically to game hermeneutics. Though my framework could possibly be seen as a kind of hermeneutic theory – inasmuch as it is concerned with principles of the player's understanding and behavior in concrete acts of digital gaming – advancing game hermeneutics as a research area is *not* my principal interest, nor are my project's goals positioned as such. Simply put, the framework developed in this project is built on different theoretical grounds than game hermeneutics (practice theory of Bourdieu versus philosophical hermeneutics of Gadamer). Consequently, it needs to be seen first and foremost in light of that tradition, currently underrepresented in game studies as an academic field.

### 2.2.3. Summary

As the above review of research from the field of game studies has illustrated, the act of playing digital games has previously been theorized and discussed in broad terms, under the heading of *gameplay*. Though gameplay has been understood in various manners, some overlaps can be noted. As shown in the overview of definitions, gameplay is frequently seen as *an act, process*,

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<sup>24</sup> In a somewhat reductionist fashion, Aarseth and Möring refer to these habits as a “ludo-habitus” (ibid., p. 7) – though, not citing any sources for their understanding of the term *habitus*, it is possible they conceive of it in a limited fashion, rather than as it is examined in this dissertation.

or experience involving both the player and the game artefact, which implies that both of these agents<sup>25</sup> influence its structure and qualities. As illustrated by most of the cited scholars, gameplay is fundamentally characterized by its *dynamic quality* – it is a process whose character changes over time, as part of the ongoing interaction between the player and the game. Lastly, gameplay is also often seen in terms of cybernetic, heuristic, hermeneutic, or enactivist *loops*, which, over time, change both the player (who learns how the game operates and expands on their repertoire of game-related skills and knowledges) and the game artefact (whose properties and possibility space change as its algorithmic structure unfolds).

The perspective that I take on digital gaming practice in this research project accepts the broad premises listed above as fundamentals of the act of playing digital games. Where it principally differs is in *its more detailed understanding* of the two main components of gameplay – the player and the game artefact. While some scholars (notably Arsenault and Perron, Sicart, Arjoranta, and Vahlo) have stressed the temporal aspects of gameplay and discussed how the act of playing evolves over time, most have either downplayed or left underexplored the implications that the player is – in all but the earliest of their gaming acts – *a historically developed agent* in digital gaming practice. Likewise, what this agent is interacting with is a designed digital artefact incorporating, to a lesser or greater extent, *historically developed conventions and configurations of elements of game design*. Neither the player nor the digital game artifact are *tabulae rasae*: they are co-constituted in both a *momentary* (at particular points during a particular act of gaming practice) and *long-term* fashion (over the course of their development throughout the years as a player and a medium, respectively). As I will show later in the dissertation, the practice-theoretical approach to the act of playing digital games and the concepts of ludic habitus and subfields of digital games can account for these two levels of co-constitution.

With that in mind, several specific perspectives and understandings from those mentioned in this section need to be highlighted, as they will be particularly relevant when discussing the general framework of digital gaming practice later in the dissertation. These include the following:

- Arsenault’s and Perron’s (2008) ideas of *Game’* (the mental image of a particular game that the player forms during play), *launch window* and *exit window* (the

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<sup>25</sup> I use the term “agent” here to connote the understanding that both the player and the game artefact are capable of responding to and (re)acting towards one another – though it must be mentioned that the notion that digital games have a comparable level of agency to human players has been contested by some scholars (see e.g. Stang, 2019; also see e.g. Tulloch, 2010, for a wider problematization of the *player’s* agency).

different points at which a player enters and exits the cycle of gameplay), as well as their understanding of gameplay and narrative as heuristic spirals (revolving around generation of *practical comprehension*);

- Elements of Vahlo's (2017) enactivist understanding of gameplay as the cyclical process of *exploration* and *coordination*, as well as the understanding of gameplay as *a form of social participation*;
- Lindley's (2002) and Gee's (2003) pattern view of gameplay (in terms of, respectively, *gestalts* or *design grammars*), and the latter's understanding of semiotic domains in terms of *content* and *community*;
- Sicart's (2009) understanding of the act of playing as *a process of subjectification*;
- Aarseth's and Möring's (2020) arguments in favor of individual, player- and game-particular methods of interpretation.

In the next section, I will address each of the two agents involved in gameplay – the game and the player – separately, accounting for some of the factors which play a role in structuring digital gaming practice and in giving it a particular expression or character.

### 2.3. Game- and player-centric research on digital gaming practice

It should go without saying (and yet, one always needs to remember) that different types of games provide different experiences of gaming, and that different players play in different ways. While the acts of playing, for example, *Quake* (iD Software, 1996), *Journey* (thatgamecompany, 2012), and *Hades* (Supergiant Games, 2020) could all be understood in *general* terms of loops of interpretation and configuration, each example of digital gaming practice involving these game titles will differ from the other. These differences arise from game design dissimilarities (e.g. *Quake* is a fast-paced FPS game, *Journey* a slower, more contemplative third-person title), but also from different attributes of players playing the title in question (e.g. I play *Hades* in a fast and loose, offensive manner, while another player might play more carefully and defensively). While it would be difficult and unwieldy to account for all *possible* influences on digital gaming practice, we should nevertheless review some of them in more detail to better understand what the player and the game bring into the act of playing, and how each side helps lend said act its structure and quality.

With this in mind, the first part of this section explores game genre theories, while the second presents examples of classificatory and sociocultural player research. As was the case

with the overview of models of gameplay and game hermeneutics, the third part summarizes the findings presented in this section and relates them to the present research project.

### 2.3.1. Game genre theories

Although the institutional usefulness of game genres as methods of classification has, on occasion, been challenged (see e.g. Clarke et al., 2017, for a discussion on alternatives to genre for heritage institutions), they are ubiquitous in popular gaming discourse. In game studies, discussions of game genres have predominately taken either an object-centered approach (focusing on the properties of different categories of game artefacts), or a broad cultural perspective (examining the actors involved in genre delineation, and the purposes which these delineations might serve). At times, these perspectives have intersected, with scholars both commenting on the notion of genre and proposing their own generic categorizations. In this section, I will highlight those aspects of the concept of genre that are relevant for the present research project's practice-based approach to the act of playing digital games, and its understanding of game design conventions as subfields of digital games.

Throughout the years, the field of game studies has seen several pragmatic attempts at creating taxonomies of genre, most often on the basis of perceived artefactual properties of digital games. One such example is the 42-item classification by Mark Wolf (2001), whose generic labels are meant to designate the various forms of interactivity which different games are seen to provide<sup>26</sup>. In his classification, Wolf relies on established and popular labels for game types, such as "Adventure," "Shoot 'Em Up," and "Puzzle," but also includes labels that, as he himself notes, perhaps better describe a type of software rather than a type of interaction in a game, such as "Diagnostic," "Demo," or "Utility"<sup>27</sup>. One of the earliest examples of such work in the field of game studies, Wolf's classification has faced criticism due to lack of clarity with regards to what is being designated as a game genre (see e.g. Raczkowski, 2012, p. 64). More recently, there have been synthetic attempts at categorization, such as the one by Jin Ha Lee and colleagues (2014), who employed facet analysis on a corpus of generic labels from academic, commercial, and popular discourses to create a list of twelve indexing terms or rubrics which can be used when analyzing games. Alternatives to genre as a concept for classifying game design

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<sup>26</sup> Curiously enough, though Wolf's labels supposedly chart different forms of interactivity, the very first genre in his list is *Abstract*, i.e. a group of games classified on the basis of representational properties (ibid., p. 117).

<sup>27</sup> See ibid., pp. 117-134, for a complete list.

configurations have also been proposed, with one such example being *HACS (Historical-Analytical Comparative System)*, a system for documenting models of agency as historically implemented through game design (Therrien, 2017). Broadly speaking, taxonomical efforts such as these have as their goal a standardization of discourse on game types. Notwithstanding their degree of success, they help underline the fact that existing genre labels, as utilized both in popular and professional discourses, are in some ways conceptually fuzzy and ever in need of further systematization.

These points have frequently been echoed by the more theory-inclined game genre scholars, as part of debates on the points of designation of generic game labels. However, rather than trying to pinpoint specific properties of digital games which would be useful when classifying them, theoretical discussions on game genres have mostly revolved around expanding the understanding of the game genre concept itself. Tom Apperley (2006), for example, has argued that digital game genres need to be reconsidered with a critical perspective which would account for a “complex layering of genre that occurs within [digital] games” (ibid., p. 9). In his work, Apperley highlights the interactive or ergodic aspects of digital games as paramount when discussing generic game categorizations, lamenting what he perceives to be an overreliance on representational (primarily visual) aspects of digital games for genre classification (ibid., p. 7). Apperley offers case studies of “four of the more popular [digital] game genres: simulation, strategy, action, and role-playing games” (ibid., p. 8). In his discussion of these four genres, he posits that each game can belong to several genres at once, depending on the generic feature that one uses as a point of classification. In Apperley’s opinion, a more diverse view of game genres – one which would incorporate generic features that extend beyond the visual ones, and acknowledge the existence of genre overlaps – would pave the way towards more enduring and precise game classifications (ibid., pp. 19-21).

In a similar fashion, Dominic Arsenault (2009) has claimed that game genres “play the part of the middle-man in a complex ecosystem of functional considerations and aesthetic ideas” (ibid., p. 150). Arsenault states that generic markers are to be inferred from the gameplay act, rather than specific artefactual properties, claiming that:

... the genre of a game is tied not to an isolated, abstracted checklist of features, but to the phenomenological, pragmatic deployment of actions through the gameplay experience. Gameplay is partly functional and partly aesthetic. Video game genre is rooted in game aesthetics, not game mechanics (ibid., p. 171).

In the concluding section of his paper, Arsenault highlights what he sees as the primary purpose of game genre: communication between the industry and players. However, as hinted at by both Arsenault and Apperley, what is being conveyed by generic attributes of games, such as genre labels and conventionalized design patterns, often includes a set of specifically *performative* expectations or positions. These serve to streamline the players' consumption by referring to sets of knowledges and skills they may have acquired in their previous encounters with particular categories of games. Therefore, it ought to be stressed that an important element of what game genres communicate to a seasoned player is what *type of experience* is on offer, what *kind of a performance* is expected of them, and which *competencies* the game in question may require.

This aspect of game genres seems to be rather unique compared to other kinds of media artefacts, and has frequently been remarked upon in other research on genre in the field of game studies.

For Felix Raczkowski (2012), generic attributes have the potential to both “determine the way games are played” and be constituted by the various different forms that the act of play may take as part of the players' interaction with a given game (ibid., p. 72), making genre a complex performative construct. Along similar lines, Jonathan Lessard (2014) links genre to higher-level design patterns he dubs *game architectures*, hypothesizing that the relatively rigid structure of these patterns (coalesced into distinct digital game genres) functions to facilitate a transfer of competencies among games which share them, at the same time allowing for enough variety from game to game to afford dedicated specialization (ibid., p. 6). As Lessard points out, the notion of *interrelation between certain design patterns* and their conventionalization into game architectures had already been previously hinted by Björk and colleagues (2006). A similar argument has also previously been made by Jesper Juul (2010, p. 67), framing design conventions of certain genres in more ambiguous terms, as being both shorthands that allow for recombination and ease of access to those familiar with them from previous experiences, and potential points of alienation for players who are not familiar with these conventions.

The idea of genres signaling a specific, conventionalized kind of performance has also been examined in the context of material technologies of gaming by authors such as Andreas Gregersen (2011). Gregersen argues that genre theory needs to incorporate “salient patterns of generic physical interaction” (ibid., p. 107) – in other words, take into account the physical actions that the player, as an embodied being, takes in order to play a game. These actions are mediated by specific controller interfaces of the game system and are, by extension, tied to generic configurations of the software component of the game. In addition to physical interfaces

such as controllers, *virtual* interfaces have also been linked to genre conventions, for example by Kristine Jørgensen (2013). According to Jørgensen, the degree of complexity of virtual interface designs tends to correlate with mechanical and systemic complexity of the genre in which they are used, with some genres (for example, real-time strategies) conventionally featuring more complicated interfaces; in turn, seasoned players accept and even expect these interface conventions as standards of certain genres, using them as shorthands when approaching the game (ibid., pp. 44-53).

Finally, this perspective on games can also be connected to the broader notion of intertextuality, previously explored in the context of games by authors such as Mia Consalvo (2003) and James Newman (2004). As noted by Apperley in his discussion of Consalvo's and Newman's work, game scholars working with the notion of genre need to keep in mind that digital games are "at least in part, textual, in that they make reference to what is outside of the game" (2006, p. 20). This intertextuality means that digital games are always "played in negotiation with, and through understanding of, other [digital] games" (ibid.).

### 2.3.2. Player research

The generic attributes of digital games – in other words, the conventionalized, historically developed design elements and configurations that recur in games – enable certain kinds or types of gameplay experiences for their players. However, the players themselves bring into the act of playing a vast array of knowledges, skills, preferences, habits, motivations, and other attributes, which shape each particular act of playing a particular game. This complexity on the side of the player presents a notable challenge for the present research project. When discussing any habitus, be it in relation to cooking, education, digital gaming, or any other form of practice, it can be difficult to know where to draw the line – what, so to speak, goes into one's habitus, and what does not<sup>28</sup>?

This challenge will be addressed in more detail later, when discussing the project's methodology. However, it also needs to be noted here, in the section of the dissertation that reviews prior work on (some of the) player-related influences on digital gaming practice. Player studies is a vast research field, with varied perspectives, voices, methods, and topics of

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<sup>28</sup> For more discussions of this issue outside of the context of digital games, see e.g. Reay, 1995.

examination. Here, I approach it in a pragmatic manner, by illustrating two schools of research, with often differing methodological approaches, but same broad interest in *how certain players relate to digital gaming practice* – an interest that overlaps with that of the present research project, and that is very relevant for its conceptualization of ludic habitus. The first school of research is *classificatory player research* – in other words, attempts at typologizing, taxonomizing, or otherwise grouping players according to how, why, and what they play. The second school of research is *sociocultural player research* – in other words, studies of sociocultural factors (age, gender, sexuality, etc.) in relation to digital gameplay (and, more broadly, participation in digital gaming culture).

### 2.3.2.1. *Classificatory player research*

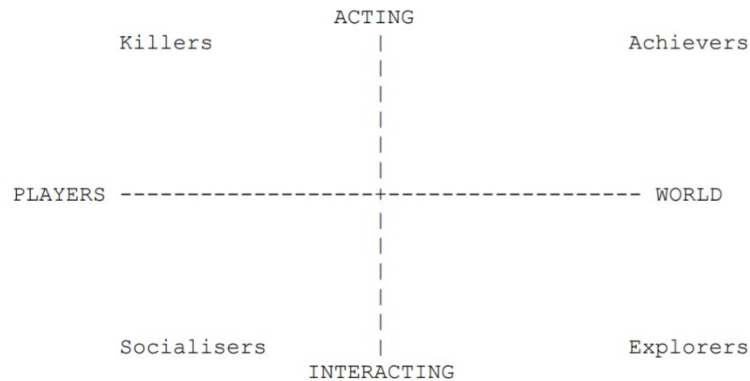
One of the earliest and most frequently cited examples of classificatory player research is the work of Richard Bartle (1996), which establishes a taxonomy of players of *multi-user dungeons* (or MUDs; early examples of virtual multiplayer game worlds)<sup>29</sup>. It is worth examining in more detail here, not just for its status as an early player taxonomy, but also for implications about the link between player attributes and game design.

Bartle's taxonomy, created on the basis of analyzing forum posts made by MUD players, categorizes MUD players into one of four groups, on the basis of what they enjoy when playing a game of this kind. The four groups are *Achievers* (players who enjoy goals within the context of the game's world or narrative), *Explorers* (players who enjoy discovering the topological game environment, both by mapping it out and by experimenting with its various aspects), *Socializers* (players who enjoy communicating with other players), and *Killers* (players who enjoy interacting with other players using tools and props in the game environment – most often killing others with weapons) (1998, p. 3-4). As a way of illustrating the four player groups, Bartle presents a graph of player interest (Fig. 4), which places the four groups in four corners, depending on their preference to *act* or *interact* (mapped on the Y-axis) onto/with *other players* or *the game world* (mapped on the X-axis).

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<sup>29</sup> Olli Sotamaa (2007) has gone as far as to refer to it as “[t]he most thorough and influential model based on play styles” (ibid., p. 460).





**Figure 4.** Bartle's graph of MUD player interest (taken from Bartle, 1996, p. 7).

Though Bartle's paper, and his classification of players into four types based on what they find appealing during play, is concerned specifically with MUDs, some of the observations that he makes are nevertheless relevant for understanding gameplay in more general terms. In the closing section of his paper, Bartle concludes that MUDs fulfill different purposes for different kinds of players, which, in turn, leads them to see the experience of playing MUDs in different lights (ibid., pp. 24-25). For example, those who prefer to pursue goals set by the game system would see MUDs as a game (something to play and to win), while those who prefer communicating with other players might see them in broader terms, as places of entertainment and socialization (*somewhere* to be and interact with others in). This observation is, in essence, the reverse of the argument presented by genre researchers: while a descriptive label such as genre can signal certain conventionalized interpretations and performances, thereby impacting how it is played, a player's tendencies and preferences can result in a different framing of the game and of the experiences on offer therein, and will therefore also impact the act of playing said game. This point will be further explored later, in particular when discussing the results of the second study taken as part of the present research project.

Over the years following Bartle's work, the field of player studies has seen numerous examples of player classifications, varying in terms of factors that they account for and created using a range of research methods. In their meta-review of classificatory player research, Juho Hamari and Janne Tuunanen (2014) categorize examples of this work in light of factors that are involved in the process of player segmentation. Hamari and Tuunanen conclude that most typologies and taxonomies of players have been conducted on one of two bases: *psychographic*

segmentation (grouping players on the basis of their values, attitudes, or interests), or *behavioral* segmentation (grouping players on the basis of their behavior during gameplay) (ibid., p. 32)<sup>30</sup>.

Player classifications created on a psychographic basis have frequently approached players in light of their *motivation* to play in certain manners<sup>31</sup>. One such example is the survey research work of Nick Yee (2006), conducted on a sample of 3,500 players of massively multiplayer online role-playing games (MMORPGs). Yee adapts Bartle's taxonomy of MUD players into a set of ten motivational categories, which are then further grouped into three main motivational clusters – *Achievement*, *Social*, and *Immersion*. Motivation has also been used as a factor for typologizing players in qualitative studies, for example in the work of Henrik Schønau-Fog and Thomas Bjørner (2012), who present a typology of six types of player engagement – intellectual, physical, sensory, social, narrative, and emotional. In addition to motivation, *preference* for certain games has also been the subject of psychographic player investigations and the basis for player classifications, such as in the case of the work by Jukka Vahlo and colleagues (2017). The feasibility of creating a comprehensive psychographic player typology has also been the subject of critical discussions, notably by Chris Bateman and colleagues (2011), who dispute psychographic type theories and the idea of distinct player categories. Instead, the authors argue for a need to work towards *trait* theories, which would see players in light of multiple psychosocial characteristics and thus be useful for studying player satisfaction in relation to digital games, as well as help describe different styles of play (ibid., p. 14). More recently, there have been examples of player research work combining behavioral and psychometric perspectives – for example, the work of Alessandro Canossa and colleagues (2015) which investigated correlations between personality traits and game behavior in players of *Fallout: New Vegas* (Obsidian Entertainment, 2010).

Behavioral player classifications are constructed on the basis of actual player behavior during play of certain digital games. In recent years, behavioral researchers have begun using detailed and complex game telemetry data for the purposes of creating these classifications. One such example of telemetric behavioral player research is the work of Anders Drachen and colleagues (2009), who examined data from 1,365 players of *Tomb Raider: Underworld* (Crystal Dynamics, 2008), clustering players into four categories – *Veterans*, *Solvers*, *Pacifists*, and *Runners* – based on their style of play (ibid., pp. 6-7). A later, similar study expanded this

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<sup>30</sup> The authors also note that most examples of classificatory player research looked at massively multiplayer online games (MMOs), and only rarely examined single-player games (ibid.).

<sup>31</sup> In recent years, player motivation has also become the focus of behavioral player researchers (see e.g. Melhart et al., 2019).

approach to multiplayer games, resulting in game-specific behavior clusters created from analyses of features in very large data sets (up to 250,000 players) (Drachen et al., 2012). Player behavior analysis is not restricted to individual games, but can be conducted in a cross-game manner, with the aim of showing certain patterns that persist across individual titles. An example of this research is the study by Rafet Sifa and colleagues (2015) who examined the game distribution platform Steam, looking into the profiles of six million players and over three thousand games to reveal patterns in game ownership, playtime, and genre preferences. In addition to using large sets of telemetry data, behavioral classifications can also be constructed using other methods, such as surveys or forum posts. The former approach can be seen in the study by Barry Ip and Gabriel Jacobs (2005), which classified players as either hardcore or casual on the basis of general gaming attitudes and knowledge, and playing and purchasing habits. The latter approach is exemplified by Bartle's taxonomy, already discussed previously.

#### 2.3.2.2. *Sociocultural player research*

In addition to classificatory work in the form of taxonomies, typologies, and player clusters, which group players in terms of their psychological aspects or in-game behavior, player research has also focused on one or more sociocultural factors that impact the player's relation to digital games and the act of playing them. Studies of this kind have often examined similar research areas or topics as the classificatory, predominately quantitative studies detailed above. One such example is the work of Diane Carr (2005) in the domain of game preferences, which Carr examines with a focus on *gender*. In her analysis of game preferences of girls attending a game club at a single-sex state school in London, Carr utilizes a variety of qualitative research methods – questionnaires, interviews, and participant observation – concluding that multiple factors shape the choice of games and the attitudes of the players towards them. These factors include social context and physical setting, availability of games and the kinds of gaming experiences on offer, intertextual and paratextual elements (relation to an existing franchise, or the look of the game's packaging), and the player's mood, among other things (ibid., pp. 470-471). This leads Carr to conclude that gaming preferences are “situated, conditional, and changeable” (ibid., p. 473), and that they need to be considered holistically in two ways: in light of a player's repertoire of skills

(i.e. as related to *game content*), and in light of their knowledge of sociocultural elements of gaming (i.e. as related to communities surrounding certain games) (ibid., p. 478)<sup>32</sup>.

In addition to gender, which has frequently been the topic of research in relation to play practices (see e.g. Royse et al., 2007; Jenson & De Castell, 2011; Chess, 2017), player researchers have also investigated the impact of *age* on digital gameplay habits and preferences, uncovering certain tendencies in older player demographics. A study of over 300 players over the age of 40, by Celia Pearce (2008), found that this age group exhibited preferences for role-playing, adventure, and mystery games, the PC as a gaming platform, single-player titles, and intellectual challenges in games, while generally disliking fighting, sports, or racing games, or titles which put too much emphasis on reflexes and reaction time. In a later study of 124 Flemish digital game players over the age of 45, Bob De Schutter (2011) came to similar conclusions, finding that older player audiences tend to favor the PC as their platform of choice, generally prefer simpler, casual, single-player games to more demanding titles, and spend less and less time playing as they age. Along similar lines, a study of 463 Canadian players over the age of 55, by David Kaufman and colleagues (2016), found that people in this age group predominately play digital games for enjoyment and for perceived usefulness of the activity for their mental health.

Player researchers have also investigated online communities and multiplayer games in light of the topic of *identity*, examining the players and practices in these communities and games in relation to the intersection of elements that contribute to exclusion, oppression, or marginalization of certain identities. These examinations have often invoked Aarseth's (2007) concept of *transgressive play*, used to refer to those play practices that subvert, disobey, or otherwise challenge what is expected of a player by the designers of a given digital game (ibid., pp. 132). In her autoethnographic examination of sexuality in online games, Jenny Sundén (2009) aligns queer play with Aarseth's understanding of transgressive play, describing the former as "a symbolic act of rebellion, of disobedience, of deviance from dominating ways of inscribing and imagining 'the player'" and as a form of play that "[...] reorients players, desires, and shapes the bodies at play differently" (ibid., p. 7). Examples of intersectional research include the work of Kishonna Gray (2012), who has utilized qualitative methods such as participant observation and interviews to investigate the experiences of women of color playing on the Xbox Live platform. In her paper, Gray details that women of color are often targets of linguistic profiling, racism,

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<sup>32</sup> Carr here echoes Gee's aforementioned two-tiered understanding of semiotic domains in terms of both content and community.

and sexism during play, to which they respond by self-segregating or engaging in transgressive play practices such as griefing<sup>33</sup>. In a similar study conducted with Black lesbian players, Gray (2018) discusses online communities created by these players in the context of empowerment – more specifically, as places without judgment, where they can safely explore their intersecting identities with others. As Gray notes, for the players she interviewed, gaming is not just a means for connecting with others, but also for resisting oppression and harassment through various play practices, for example by winning matches with male opponents and embarrassing them for losing to women (ibid., pp. 10-11).

The topics mentioned here – gender, age, and sexual/racial identity – are meant to illustrate the range of issues investigated by player researchers in connection to the acts of playing digital games and participation in gaming communities. Much like with examples of classificatory player research, this list is not meant to be exhaustive. Rather, the cited studies and their conclusions are meant to showcase the fact that sociocultural factors, in isolation or combination, can affect one’s digital gameplay and contribute to specific play patterns or practices. In addition to this, some of the cited studies, such as those of Carr and Gray, represent examples of *qualitative* approaches to player research, thereby acting as precursors in terms of methodology to the present research project, which also adopts a set of qualitative methods in its examination of digital gaming practice. These methods, and the overall methodology of the study, will be discussed in more detail in the next chapter of the dissertation. Before that, however, I will summarize and highlight the relevance of the work reviewed in this final section of the present chapter.

### 2.3.3. Summary

In the two reviews above – of game genre theories and player research, respectively – I have examined some of the game- and player-related factors relevant for digital gaming practice.

On the side of the game, I examined the concept of genre as applicable to digital games, highlighting the view of game genres as *complex, layered, overlapping sets of conventionalized configurations of game design elements deployed in gaming practice*. In addition, I also discussed game genres in light of their communicative function, as *indicators of specific*,

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<sup>33</sup> “Griefing” refers to actions whose goal is to annoy or harass other players, thereby negatively affecting their enjoyment of the game.

*conventionalized performative expectations and competency requirements*. This understanding was linked to the notion of intertextuality and the understanding that any individual act of digital gaming practice (save for perhaps the very first one) draws from a player's past gaming experiences.

For the present research project, the concept of game genre and the related concept of design patterns will be relevant in two ways. Firstly, the notion that patterns of game design, coalesced into specific game genres, create expectations for conventionalized performances and understandings in the minds of players will be important when discussing perceptual and performative aspects of ludic habitus in all three player studies. This aspect of game genre will also be vital for the understanding the subfields of digital games, which will act as an alternative to the notion of genre as a content category in the framework of digital gaming practice. Secondly, the claim that individual digital games are understood in reference and relation to other digital games aligns with the project's approach to the relationship between ludic habitus and subfields of digital games, and to the intertextual aspects of interpretation during digital gaming practice.

On the side of the players, I presented examples of classificatory and sociocultural player research. In addition to illustrating prior research on some of the different factors which influence the act of playing of particular player groups, this review also highlighted different methodologies utilized in the field of player research. When it came to classificatory studies, I presented Bartle's taxonomy as an early example of research in the area of player classification, and then showcased other, more recent empirical *psychographic* and *behavioral classifications*. The studies cited in this section were characterized by a predominately quantitative methodology, as well as large sample sets (in the case of behavioral classifications, hundreds of thousands, and even millions, of players). When it came to sociocultural studies, I presented a sample of research on topics of *gender*, *age*, and *sexual/racial identity*. The studies cited here were either quantitative survey studies (those on the topic of age) on smaller samples (compared to behavioral classification studies), or qualitative studies employing methods of participant observation and interview (those on the topic of gender and identity).

The present research project differs from prior player research in that it frames players as evolving, developing practitioners, whose relationship to games and gaming is governed by *systems* of game-related dispositions – in other words, by their ludic habitus. In contrast to the view of players employed in many earlier player studies, this framing is fundamentally trait-based and *holistic*, in that it argues that any one aspect of being a player – one's motivations,

preferences, playstyles, habits, and the like – cannot be understood outside of its relation to other aspects. With that in mind, though the project aligns more with sociocultural player research in terms of methods and its exploratory nature, it also accepts the basic premise of classificatory player research – namely, the understanding that there exist certain similarities between players that allow for their grouping into types or categories. These similarities, however, are here examined and discussed in practice-theoretical terms – as historically developed, multifaceted, and interconnected. The implications of this view will be discussed further in the following chapters of this dissertation.

Having summarized the literature review from the previous two sections and positioned the project in relation to examples of previous work on games and players, it is time to close the background chapter and move on to the presentation of the project's methodology.

### 3. Methodology

As was mentioned in the dissertation's introduction, this project employs an interdisciplinary, exploratory methodology for researching ludic habitus and digital gaming practice. The empirical cornerstone of this methodology are *three player studies*, which were conducted using *custom digital game prototypes* that I developed for the purposes of exploring ludic habitus in concrete acts of playing digital games.

In this chapter, I will present details on the research format and strategies employed in the project, give more details about the development of the digital game prototypes used in the three studies, and account for the methods of participant recruitment, data collection, and data analysis. Since all three studies have been written up into corresponding study papers, found in the appendix of this dissertation (see Appendices I, II, and III), the goal of this chapter will be twofold: to summarize the relevant information already presented in the three papers, and to provide additional details regarding the methods and approaches employed in the overall project, and the theoretical reasoning behind this selection of methods.

The chapter is structured into five sections. The first (3.1) presents a short overview of the methodology, focusing on the specific relationship between theoretical and empirical work in the project and on the importance of the plurality of perspectives that were facilitated by the particular choice of methods. The second (3.2) describes the general research strategy used in the project – *qualitative research*. The third (3.3) describes the general approach to theory development used in the project – *grounded theory*. The fourth (3.4) presents my understanding of the use of game prototypes as research tools (3.4.1), provides a general description of the prototype design and development processes in this project (3.4.2), and contains specific information regarding the design and development of the prototypes for each of the three studies (3.4.3, 3.4.4, and 3.4.5, respectively). The fifth and final section (3.5) describes the methods used in the three player studies, including participant recruitment strategies (3.5.1), data collection methods (3.5.2), and data analysis methods (3.5.3), as well as a section on researcher reflexivity and a statement of bias (3.5.4).

#### 3.1. Overview

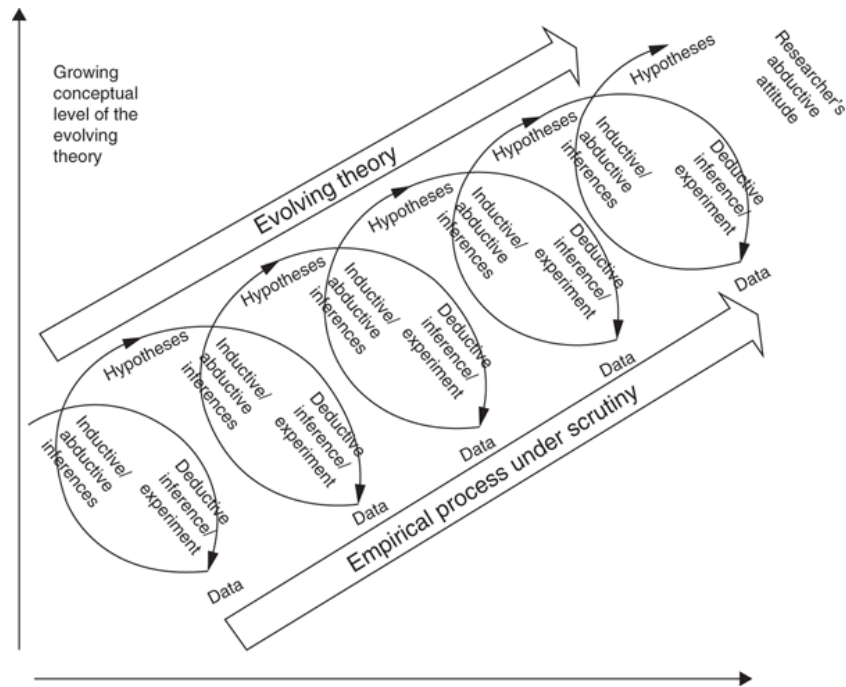
As stated before, the goal of the project was to develop a framework of digital gaming as a practice, centered around the view of players and games as historically developed entities. In



order to do that, this project relied on a mix of complementary research frames and methods, which included:

- 1) *Bourdieuian practice theory* and *prior perspectives on digital gaming practice* as theoretical bases for approaching digital gaming,
- 2) *qualitative methodology* as a research strategy,
- 3) *abductive grounded theory* as an approach to theory construction,
- 4) *game design and development practice* as a method of creating research instruments – i.e. game prototypes that would enable the exploration of specific research topics, and
- 5) *small-scale laboratory playtesting studies* as sources of empirical data.

The elements of the project's methodology listed above can be grouped into two types of research: *theoretical*, comprising literature reviews of Bourdieusian practice theory and of prior research on digital gaming practice from game and player studies, and *empirical*, comprising prototype design, development, and testing under the umbrella of qualitative research. The first year of the project was characterized primarily by theoretical research, setting the stage for the later empirical work. The main contributions of this research – outlined in the previous chapter of the dissertation – were *a broad perspective on digital gaming as a type or kind of long-term practical activity*, as well as *initial working definitions of ludic habitus and subfields of digital games*. The perspective and the concepts in question subsequently acted as theoretical framings for the empirical stage, which took place in the second and third year of the project and which examined digital gaming practice as a concrete phenomenon, involving actual players and actual games. Despite its title, the empirical stage was never 'removed from theory.' Rather, game design practice and player observations fed into the initial theoretical understanding of ludic habitus and subfields of digital games, helping to expand and evolve these until the project's end and the emergence of the final version of the general framework of digital gaming practice.



**Figure 5.** Jörg Strübing's (2007, p. 567) illustration of the abductive logic of inquiry in (specifically) grounded theory research.

Because its goal was a better *theoretical* understanding of a specific type of practical *activity*, the project employed an *abductive* logic of inquiry (see e.g. Tavory & Timmermans, 2014; see Fig. 5 above for an illustration of said logic). In contrast to purely deductive or inductive approaches to research, which view the relationship between theory and data as unidirectional, abductive research sees the researcher moving back and forth between existing theories which frame their study and the empirical data that emerge as products of the study. In this fashion, theory is generated through a process of interplay of deduction and induction, on the basis of both prior theoretical knowledge and novel observations that arise throughout the empirical stage of research. Adherents of abductive approaches argue that, when conducting empirical research, “researchers should enter the field with the deepest and broadest theoretical base possible and develop their theoretical repertoires throughout the research process. [...] Instead of theories emerging from data, new concepts are developed to account for puzzling empirical materials” (Timmermans & Tavory, 2012, p. 180). While this approach could initially be seen as being at odds with certain methodologies, such as grounded theory, this is not necessarily the case, as will be shown later in this chapter when grounded theory and the manner in which it is used in this project are discussed at greater length. For now, it bears remembering that the relationship between existing theory and empirical work throughout the project was multidirectional and complementary – in other words, existing theories framed and guided

empirical investigations, which then expanded on said theories to produce a novel, dedicated theory of digital gaming as a form of human practice.

A key element of the project was the integration of game design practice and empirical player studies. This integration enabled me to investigate digital gaming practice and the ludic habitus in a novel fashion, with *a plurality of complementary perspectives* throughout the project that enabled a more detailed and nuanced picture of the subject matter. These perspectives included:

- 1) a *designer's* perspective, i.e. experimentation with game design elements, their combinations, and their conventions. This experimentation led to prototypes that guided the studies, while at the same time contributing to a deeper understanding of the role of the game artefact and generic subfields of practice in the act of playing digital games;
- 2) a *player's* perspective, i.e. testing the designed prototypes before the study participants got a chance to play them. This testing of prototypes through play enabled me to hone in on particular aspects of gaming practice that were interesting to examine in light of the particular focus of each of the studies, as well as the project as a whole;
- 3) a *researcher's* perspective, i.e. investigating in-depth how players play the prototypes that I developed in small-scale laboratory playtests. These investigations, which involved multiple data sources and interpretative analyses, led to information about particular attributes of ludic habitus and their functioning in the act of playing digital games.

All three perspectives were crucial for the development of the general framework of digital gaming practice, which will be presented in the following chapter of the dissertation. First, I will describe each element of the project's methodology in more detail.

### 3.2. Qualitative research

In broad terms, qualitative research refers to a collection of methods and perspectives that are focused on examining people's experiences in particular social, cultural, economic, or physical contexts (Hennink et al., 2020, p. 10). According to Sharan Merriam (2002), qualitative research is predicated on the understanding that "meaning is socially constructed by individuals in interaction with their world" (ibid., p. 3). There exist several different traditions or approaches to qualitative research. For example, the *interpretative* approach is interested in uncovering the

meanings that certain experiences and interactions have for certain individuals or groups, the *critical* approach examines how contextual (social, political, etc.) factors affect one's perception and experience of reality, while the *poststructural* approach brings into question all aspects of reality as socially constructed (ibid., p. 4).

As a strategy for conducting research, qualitative research is frequently contrasted with *quantitative* research. Some of the key differences between the two are presented below, in the overview of characteristics of qualitative research (adapted from Hennink et al., 2020, pp. 16-17, and Creswell, 2008, p. 175):

- *The why and the how.* In qualitative research, research objectives involve developing contextualized understandings of individuals and groups – their behaviors, motivations, and beliefs. This form of research seeks to answer questions of *why* and *how* something happens or is experienced, in contrast to quantitative research, which seeks to quantify and measure specific variables.
- *Textual data and purposive samples.* Qualitative research deals with textual rather than numerical data, and involves smaller samples, selected in a purposive manner, rather than large representative samples. The smaller samples in qualitative research are investigated using methods that allow for in-depth, open-ended examination of a given topic of interest, such as interviews, participant observations, and focus group discussions.
- *Interpretative analysis strategy.* Qualitative research involves interpretative and inductive, rather than statistical analysis. Its aim is to develop an initial understanding of a topic, rather than to uncover patterns or correlations, or to generalize findings to larger populations.
- *Active role of researcher.* In qualitative research, the researcher is the principal agent of investigation. Rather than relying on instruments developed by other researchers, qualitative researchers usually create their own testing procedures and specific methods, and are personally involved in the gathering of data. This makes qualitative research studies prone to bias due to the researcher's own background and prior understanding of the subject matter.
- *Emergent study design.* Qualitative studies are often characterized by emergent design, rather than a tightly prescribed plan or set of procedures. In practice, this means that different stages of a qualitative study can be altered as the study progresses, at times even after the data collection process has begun.
- *Holistic nature.* Lastly, qualitative researchers are focused on developing a complex understanding of the topic under investigation. In practice, this approach entails accounting for multiple perspectives and different factors involved in the topic of investigation, with the end result often being visual models or rich, holistic descriptions of said topic.

This research project utilizes qualitative research for multiple reasons, which align with the abovementioned characteristics of this research strategy. Firstly, as shown in the previous chapter, there is a notable lack of prior applications of Bourdieusian practice theory to the act of playing digital games. This state of affairs calls for smaller-scale exploratory studies and the use of qualitative methods, in order to establish a Bourdieusian theoretical and conceptual framework of digital gaming practice upon which later, larger investigations could iterate and expand. As the literature review chapter has also illustrated, digital gaming practice is a complex phenomenon, involving multiple qualities of both the player and the game even in the simplest of configurations. This complexity lends itself well to a holistic, qualitative investigation, one which would create and examine specific situations of digital gaming to map the different relevant properties of player and game and, on that basis, develop a general model of digital gaming practice. Last but not least, the processual and experiential complexity of individual acts of digital gaming practice also acts as a counterargument to the use of quantitative methods and statistical analysis, at least at this early stage of developing a games-related practice theory. While one could certainly isolate particular player- and game-related aspects relevant for the act of playing digital games (and, as previously shown, many examples of such research already exist), these singular aspects would not be enough to accurately describe digital gaming practice when examined in isolation. A comprehensive, multiple-factor quantitative analysis of digital gaming practice might be a viable (if time- and resource-intensive) alternative to a qualitative approach, but it is predicated on an established theoretical framework of gaming practice – in other words, the very thing that the present research project is aimed at developing. For these principal reasons, this project has been designed as qualitative in nature.

### 3.3. Grounded theory

Grounded theory is a qualitative approach to theory development that, as its name suggest, seeks to ground the theory in empirical data (Strauss & Corbin, 1998). Originally developed by sociologists Barney Glaser and Anselm Strauss (1967), grounded theory is an evolving method, understood and employed in different fashions by different researchers. Over the years, several versions of grounded theory have emerged. Its two authors have developed the framework along differing lines of *Glaserian* and *Straussian* grounded theory (Thornberg, 2012, p. 2); the former, labeled by some authors as “classic” grounded theory (ibid.), employs a less strict set of techniques for extracting categories from data and discourages literature reviews before the study

proper, while the latter embodies a structured coding process and generally allows for literature reviews at all stages of the study (see e.g. Alammari et al., 2018). Another well-established strand is *constructivist* grounded theory developed by Kathy Charmaz (see e.g. Charmaz, 2017), which highlights the importance of spatiotemporal contexts and participant collaboration for theory creation (Oktay, 2012, p. 21). Broadly speaking, the constructivist approaches to grounded theory acknowledge the possibility of multiple ways of interpreting the same set of data, while classic grounded theory holds the view that theory is *a priori* embedded in the data and that it is the job of the researcher to bring it to light via analysis (Corbin & Holt, 2005, p. 49).

Despite the different approaches to grounded theory, its application generally involves the following (adapted from Christensen et al., 2014, p. 361, and Corbin & Holt, 2005, pp. 49-52):

- *Multiple data sources.* When applying grounded theory as a method of research, it is generally recommended to use multiple sources of qualitative data. This ensures that the generated theory will be well validated (in other words, grounded in a variety of empirical data). While most data types are suitable for grounded theory, interviews and observations are most commonly used.
- *A continuous, cyclical process of data collection and analysis.* Data is collected and analyzed as part of a continuous process, with the researcher deciding which data points are important and collecting additional data, if needed, to construct the theory.
- *A three-stage process of data analysis.* A researcher working with grounded theory analyzes the data in stages, all of which involve labeling the data with *codes* – words or phrases which describe the material in light of the topic under investigation. The different schools of grounded theory use different coding methods in different stages of coding, though most agree that the process involves three separate stages (see e.g. Biaggi & Wa-Mbaleka, 2018, p. 17). The first stage of initial coding involves reading the transcribed materials and labeling the relevant sections with preliminary codes. The codes are refined in the second stage of intermediate coding, with some being discarded and others being rephrased or merged with other codes, until a final code set is achieved. The final, advanced coding stage of data analysis involves the focused use of codes and coded fragments of text to generate a suitable theoretical explanation of the investigated topic. The data analysis process stops when the researcher reaches *theoretical saturation* – the point at which no new concepts come about from the data, and the theoretical explanation is sufficient to describe the data.
- *Researcher reflexivity and sensitivity.* Grounded theory stresses the importance of reflexivity and analytical sensitivity on behalf of the researcher. In practice, this entails being able to sort important from less important data, as well as understanding what kinds of data to collect and when more data is needed. Some scholars recommend *memo writing* (continually creating notes about the

developing theory during data analysis) as a technique for iterative theory development (see e.g. Corbin & Holt, 2005, p. 51). In addition, each researcher should also be as aware as possible of the biases, ideologies, and other prejudices that they bring into the processes of data collection and analysis, and how these might affect theory development. This is particularly important, because the theory needs to be developed on the basis of available data, rather than imposed onto it.

In the context of the current research project, that last point regarding theory development requires additional attention and clarification, as it is one of the principal points of difference between classic and constructivist grounded theory. Classic grounded theory strongly advocates delaying literature reviews until after the analysis portion of the study, in order for the researcher to avoid forcing data into pre-existing categories and concepts which might result in a constructed, rather than emergent, theory (see e.g. Thornberg, 2012, p. 2; Heath, 2006, p. 520). This approach characterizes classic grounded theory as an *inductive* form of research, in which theory is principally developed from observations and generalizations on the basis of available data. However, as outlined by some authors, the notion of not engaging in literature reviews until after data analysis has been completed is problematic on several counts. Goldkuhl and Cronholm (2010) argue that “the use of preexisting theories might give inspiration and perhaps also challenge some of the abstractions made” (p. 188) during theory development using grounded theory, whereas conversely, the developed theory runs the risk of being isolated from other forms of knowledge. Thornberg (2012, pp. 2-4) echoes this reasoning, adding that delaying literature reviews and engagement with other theories seemingly bars researchers from conducting studies in their own areas of expertise; in addition, from a pragmatic standpoint, the researcher *has* to theorize and read literature before embarking on a study in order to prepare meaningful proposals and secure funding. Alammar and colleagues (2018) further highlight the importance of literature reviews for PhD students working with grounded theory, stating that, for them:

... conducting a literature review is a necessary step to satisfy university procedures and to find an area of interest and justify it. Normally, students conduct a literature review in a general area of interest and then focus on a particular area (i.e., substantive area) as they progress. Out of this literature review, the main area of research emerges. By then, the students will have been immersed in the related and unrelated literature under study (p. 3).

In contrast to the purely *inductive* approach of classic grounded theory in which theory *emerges* from the data, later versions of grounded theory – such as Charmaz’s constructivist

grounded theory (2017), Goldkuhl's and Cronholm's multi-grounded theory (2010), and Thornberg's informed grounded theory (2012) – are characterized by an *abductive* approach, which sees the researcher moving back and forth between deduction and induction, i.e. pre-existing theory and empirical data. In abductive approaches to grounded theory, literature reviews are seen as an important and valuable component of the research project, with the theory *constructed* on the basis of comparison and interpretation of both empirical data and the researcher's prior knowledge of theory. As Thornberg explains, as part of this process:

[t]he researcher tries to be open and sensitive to the data, without rejecting pre-existing theoretical concepts and constructions. Theories are used, not to mechanically derive a hypothesis to test (as in deduction), but as a source of inspiration, seeing, and interpretation in order to detect patterns... (ibid, p. 5).

With a view to create a robust framework of digital gaming practice, this research project utilized the abductive approach to grounded theory development, rather than the classic, inductive approach. In practice, and as mentioned earlier, this means that the methodological work leading to the theoretical framework of digital gaming as a form of practice alternated between deduction and induction, with the framework drawing both deductively on Bourdieu's practice theory and prior research from game and player studies, and inductively on game design practice and empirical player data generated in the three studies. There were several reasons for adopting the abductive approach. As a broad method of theory development, grounded theory was seen as a good fit for the research project and its goal of developing a *dedicated* theoretical framework of digital gaming practice. By *dedicated*, I here mean to emphasize the framework's character as a particular kind or type of practice theory – one explaining digital gaming, rather than any other form of human practice. Because a literature review of Bourdieu's work preceded the empirical component of the study (and was indeed necessary for situating the project in the proposal), a purely inductive approach advocated by classic grounded theory was not possible to implement. Instead, the project took as its starting point Bourdieu's broad and general tenets of practice theory, and sought to investigate these in concrete acts of a specific practice – digital gaming. Rather than being developed exclusively from empirical data, as is the case with classic, inductive grounded theory, the framework developed in this project is therefore *multi-grounded*. In other words, it is grounded both theoretically (in Bourdieu's general theory of practice, the review of which facilitated structure and direction for empirical research) and empirically (in data obtained during the course of the three player studies, as well as in game design practice which resulted in the developed game prototypes). To use the terminology of Glaser and Strauss



(1967), the present research project utilized a *formal* theory (Bourdieu's practice theory) and implemented the grounded theory approach to develop a *substantive* theory (of digital gaming practice as a specific form of practice). Such an approach has already been utilized to research habitus in particular contexts or with a focus on a particular aspect such as gender (e.g. Behnke & Meuser, 2001).

Another important reason for adopting a grounded theory approach to theory development in this project lies in its flexibility as a research strategy, which is present across its varieties, including the abductive one specifically used here. Grounded theory allowed for the use of several methods of data collection, both textual and audio-visual data, and the integration of game design practice as a research method with an empirical, laboratory playtesting setup. This integration of design work and player research was, from the very beginning of the project, seen as necessary for the controlled setup and examination of the concrete acts of playing, and was a major factor in deciding on grounded theory as a research strategy.

Alternate qualitative strategies, such as ethnographic or case study research, were deemed less adequate for this project, as their more specific methodological and analytical requirements did not allow for the combination of practice-based research and studies in the form of laboratory playtests. Ethnography traditionally involves fieldwork rather than bounded laboratory setups, and focuses on a particular sociocultural group; as such, it is better suited to more traditional sociological and psychological research. Case study research, on the other hand, usually requires an *a priori* selection of a subject and an analytical frame of reference suited for discussing that subject (see e.g. Thomas, 2021, pp. 12-25), rather than allowing for exploratory setups. While the present research project could, arguably, broadly be framed in these two lights – as it has examined certain groups of players in three smaller studies centered around different digital game prototypes – this framing would unnecessarily stretch the understanding of both ethnography and case study research, while still not accounting for the specificities in methods, data collection and analysis that characterized the project.

### 3.4. Game design practice

Digital game design and development was an integral element of the research project, and constituted a distinct method of inquiry into digital gaming practice. In simple terms, this method involved the conceptualization and creation of prototype games, which were used in the three

player studies in order to precisely and specifically examine certain aspects of ludic habitus in digital gaming practice. Incorporating design practice and creating custom prototypes for the player studies resulted in two significant contributions to the project:

- 1) Firstly, design experimentations and prototype creation activities – user experience sketching (Buxton, 2007), level creation, work on visual and sound design, etc. – helped to bring game elements and their conventionalized configurations into special focus. In essence, prototype creation provided *a designer's perspective* to the project, deepening the understanding of the role of the game artefact in structuring the act of playing. During the project, from one study to the next, game design practice proved increasingly critical for informing the conceptualization of subfields of digital games as one of the two elements of the digital gaming practice framework. The prototypes created for this research project were, therefore, not just *instruments for the manifestation and examining of concrete acts of digital gaming practice*, but also *knowledge-generating design experiments* in their own right.
- 2) Secondly, the prototypes enabled *a controlled, dedicated examination of digital gaming practice and ludic habitus*. By designing the games that the study participants would play, I could create specific interactions, moments, and scenarios for the study participants, and thereby more closely focus on a particular theme or area of digital gaming practice that I wanted to examine. This would have been much more difficult to achieve with the use of commercially developed games, designed by third parties and for purposes of entertainment (however broadly we might construe that term) rather than scholarly research. Even under the best of circumstances – for example, using a single level or mode of play of a commercially developed game – the game in question would still inevitably be repurposed for a situation for which it was not originally intended. In turn, this would have contributed to less clear data on the specific aspect of player behavior under investigation, and would have made data analysis and theory construction much more difficult and complicated. Each game prototype created for the project, on the other hand, served a particular, *dedicated* research purpose, which informed every stage of their development as well as their implementation, giving each of the three studies an individual, distinguishing character.

This form of research, which mobilizes design practice for the creation of knowledge, shares some similarities with practice-based approaches to research, the most prominent of which is *Research-through-Design* (RtD), first detailed by Christopher Frayling (1993). According to Thomas Markussen and colleagues (2012), RtD can broadly be understood as an approach that “recognizes the process of making and designing an artefact as a legitimate method of inquiry for design research” (p. 3). Beyond this general understanding – and despite attempts to more clearly define it (see e.g. Zimmerman et al., 2010; Brandt & Binder, 2007) – RtD remains an

ambiguous approach, frequently used as an umbrella term for various and often dissimilar research practices (Markussen et al., 2012, p. 3). For this reason, some authors have attempted to reframe RtD-related practices under other headings; for example, Ilpo Koskinen and colleagues propose the term *constructive design research*, meant to highlight construction as the means for constructing knowledge (Koskinen et al., 2011, p. 5).

Understood in this broad fashion, the present research project builds on the RtD paradigm inasmuch as it mobilizes design practice to explore issues of game design – namely, how game design elements can be implemented and combined to influence digital gaming practice. This aspect of the project thus serves as an answer to the recent calls for incorporating practice-based game design research into academic games research (e.g. Kultima, 2015; Deterding, 2017). However, the project also employs game design for a more instrumental purpose: to create prototypes for use in exploratory studies, in which players and their interaction with the prototype are the main sources of data. This point of differentiation is significant, because practice-based approaches to research (be they RtD, constructive design research, game design research, or something else) are often defined by their end goal of producing *design knowledge*, rather than more general types and forms of knowledge. The dual nature of game prototypes in this research project – as both *testing instruments for use in player studies* and *game design experiments* – means that it can only partially be understood in light of practice-based research paradigms such as game design research and RtD.

This methodological tension, with, and correction to, prior research formats that involve design practice – and, in broader terms, the relation between the processes of *game design* and *study design* in projects which feature both – has been a significant enough topic thought the project to warrant its own research paper (see Appendix IV). However, for the purposes of this chapter and before the discussion of prototype development in this project, some points from this paper are worth repeating and expanding upon.

#### 3.4.1. Game prototypes as research tools

In design research and practice, prototypes are often considered early-stage design artefacts: they are iteratively developed manifestations of design ideas, produced quickly and often for highly specific purposes, such as the demonstration of a design solution or the initial exploration of a particular problem space (see e.g. Cerny & John, 2002; Buxton, 2007, pp. 139-140; Suchman et

al., 2002, pp. 168, 174; Lim, Stolterman, and Tennenberg, 2008; Eladhari & Ollila, 2012). While some authors (e.g. Eladhari & Ollila, 2012) have argued for the relevance of distinguishing between different contexts in which prototypes are created (e.g. between *commercial* and *research* prototypes), others (e.g. Lim, Stolterman, and Tennenberg, 2008) have approached prototypes and prototyping in a more systematic fashion, with definitions and guidelines that are meant to be applicable in various contexts. In an example of the latter, Lim, Stolterman, and Tennenberg argue for *incompleteness* as the primary strength of prototypes, claiming that this quality makes it “possible to examine an idea’s qualities without building a copy of the final design” (ibid., p. 7). The authors also offer the following guideline for those interested in creating prototypes, labeling it as their *economic principle of prototyping*: “The best prototype is one that, in the simplest and the most efficient way, makes the possibilities and limitations of a design idea visible and measurable” (ibid., p. 4). A prototype’s quality, therefore, can be determined by how well it addresses the specific issue that the designer wants to explore or understand, or the specific purpose for which the prototype was created (ibid., p. 24).

The guidelines and principles outlined by Lim, Stolterman, and Tennenberg provide a useful, albeit general framework for gauging prototypes. However, the context for prototyping and prototype deployment complicate the understanding put forth by these authors. In the dedicated paper on design reflections, I argue that even delineating between commercial and research prototypes, as done by Eladhari and Ollila, is insufficient when it comes to evaluating prototypes and structuring the prototyping process. Focusing more specifically on *game* prototypes, we can see that these can be created for a variety of research purposes, depending on the researcher’s field of interest, with these purposes and fields providing differing criteria upon which to judge the effectiveness and quality of the prototype. For example, prototypes created by a game designer working within the field of game design research often have the goal of expanding design knowledge, whether through experimentation with new design solutions, concrete design recommendations, or postmortem development analyses, to name but a few purposes. These prototypes and the prototyping processes behind them are the focal points of such forms of research. In contrast to them stand game prototypes created as instruments for collecting data in player studies – such as the ones created for this particular project. Unlike with prototypes created and discussed in the context of game design research, prototypes created for use in player studies are often ancillary artefacts used in studies in a variety of academic fields; in their deployment, the researcher’s focus is primarily on answering research questions regarding the players who interact with these prototypes, rather than on the design of the prototypes themselves.

This last point is particularly important when it comes to understanding and evaluating the prototypes created for this project, and therefore needs to be clarified further. It needs to be said that the line between the two contexts of prototype creation mentioned above – game design research and other forms of academic research – is not a clear-cut boundary. Arguably, any project that involves processes of game design and development, no matter the academic field in which it takes place, will contain *some* contributions to design knowledge, even though these might not be its primary purpose<sup>34</sup>. Similarly, players are very often involved in different stages of projects in the field of game design research<sup>35</sup>; their presence or absence should not be the arbiter of the project's character or a guide for gauging the quality of the game prototypes created as part of it. Ultimately, whether a game prototype is a focal point or an ancillary artefact in a research project depends on what that project is trying to achieve, and what sort of knowledge it is primarily seeking to generate – whether about *games* and their design, about *their players* and their behavior or personality, or a mix of these two.

Along these lines, the claim that prototypes used in studies on players are ancillary artefacts is not at all meant to entail that their design and development process are unimportant or irrelevant – but rather, that these matters need to be principally examined with a focus on the overall research goals of the project in which these prototypes are used. This is because these goals provide vital context for prototype design and development, influencing these processes, guiding design solutions (whether rigidly or more obliquely), and limiting the scope of possible design experimentation. Since the goals of the project act as a lens for the researcher and structure the game design work (whether this work is conducted by the researcher or by a third party involved in the project), the game prototypes need to be approached primarily in light of these goals, in order to evaluate how well they fulfilled them.

The overall project goals serve to set certain requirements that the game prototype developed for that project needs to fulfil in order for the project to succeed. For example, in research projects seeking to contribute to design knowledge for developing games for a specific audience, prototype construction is often governed by the requirements and needs of said audience. One such example is the study of Kathrin Maria Gerling and colleagues (2010), which sought to develop design guidelines for exergames targeted at elderly audiences. In their study,

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<sup>34</sup> See e.g. (Arachchilage et al, 2016) for an example of a project on teaching phishing threat avoidance through the use of a game; in presenting the results of their study, the authors also comment on issues of game design, in particular in the sphere of educational games.

<sup>35</sup> See e.g. (Ermi and Mäyrä, 2005) for an example of a game design research project with a strong player research component; the authors utilized gameplay scenarios as part of a player study in order to come up with design requirements for persistent multiplayer mobile games.

Gerling and colleagues first identified several age-related impairments which can affect one's quality of life as an elderly person, then created four preliminary design guidelines for exercise games for the elderly on the basis of these needs and requirements. These guidelines were then put to the test and validated through a game prototype titled *SilverBalance*, deployed as part of a focus group study. Along similar lines, in research projects in the field of education, game prototypes are often developed with the intent of teaching a particular subject or topic to a particular group of learners, which also serves as a criterion for their evaluation. An early example is the work done by Jillian De Jean and colleagues (1999), who conducted longitudinal studies to examine gender-specific reactions to *Phoenix Quest*, a game developed to teach reading, writing, mathematics, and problem-solving skills to young children.

The two projects listed here – that by Gerling and colleagues and by De Jean and colleagues – differed in their principal goal (the former sought to contribute to design knowledge through specific design guidelines, the latter to examine how young players understand mathematical and linguistic concepts when presented in a digital game) and in the approach to game prototype development (design according to self-identified guidelines in the former, iterative and participatory design in the latter), among other things. Yet, both also showcase how a project's research objectives and target audience act as context for design and development of *very particular custom testing instruments* – whether these instruments are the principal point of focus (in the former project) or means to more closely examine a particular population of players (in the latter project). They also make strong arguments for the use of custom game prototypes in similar research studies: in both cases, the research context required a very particular kind of game, tailored to particular purposes and audiences, in order to answer the research questions and achieve the project's goals. Utilizing commercially available games in such projects would not have been a viable strategy as these games would require extensive modification or scoping before being able to adequately address the research questions of the study.

In the next section, I will shift the focus to the current research project and prototypes used therein. I will explain in detail the context that guided the creation of the prototypes, the different stages in their development, the requirements that they needed to fulfil in order to be considered adequate testing instruments for the purposes of this project, as well as the considerations taken during their development to ensure that these requirements are met.

### 3.4.2. Prototype design and development

#### 3.4.2.1. Context (or, a three-tier approach to investigating ludic habitus)

Bourdieu's own understanding and presentation of the concept of habitus are broad and purposefully ambiguous, in order to emphasize that its character depends on the particular domain of practice to which it is linked. Though this allows habitus to be employed in various domains and fashions, it places the responsibility on individual researchers to delineate how they understand and investigate habitus in their own projects. For this particular project, the initial challenge was to establish a more granular understanding of habitus that was to be investigated in the context of digital gaming practice. This was particularly relevant for exploring ludic habitus in practice – i.e. in specific moments of play of digital games – and, in turn, for the development of the game prototypes used for this exploration. While Bourdieu's broad descriptions of habitus were useful for initial formulations of the concepts of *ludic habitus* and (*generic*) *subfields of digital games* presented earlier in the dissertation<sup>36</sup>, these concepts, as defined on the basis of theory review, were too general to investigate pragmatically in the empirical stage of the project. For this reason, there was a need to approach ludic habitus in more specific terms, which would enable the formulation of adequately scoped research questions and goals for the individual player studies.

In order to accomplish this specification, and following the initial definitions of ludic habitus and subfields of digital games, I drew on one particular description of habitus that Bourdieu provides in *Outline of a Theory of Practice*. This description states that habitus “functions at every moment as a *matrix of perceptions, appreciations, and actions*” (Bourdieu, 1972/2013, p. 83, italics original). Compared to other definitions and discussions of habitus found across Bourdieu's works, this matrix understanding of habitus is more clearly delineated into categories of functioning, thus providing a format that would help guide empirical work in the research project. As a result of adopting this perspective on habitus, the empirical stage of the project was structured into *three separate player studies*, each of which was focused on *one tier of habitus – perception, appreciation, and action*.

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<sup>36</sup> For the sake of reference, I will repeat the definitions from 2.1.2.1. here. *Ludic habitus* is a system of dispositions obtained through experience in the field of digital games which structure and direct our perceptions, interpretations, valuations, and behaviors in the field of digital games. *Generic subfields of digital games* are historically developed configurations of game design elements, often conventionalized under the heading of a *game genre* or *game type*, serving to structure the player's experience of the game during the act of play.

In addition to providing structure for the player studies, the three-tier understanding of habitus also acted as vital context for the development of digital game prototypes. Earlier in this chapter, I talked about how the decision to develop and use game prototypes in the studies, as opposed to existing digital games, was made in order to facilitate *controlled* and *dedicated* exploration of ludic habitus and subfields of digital games. By framing empirical investigations in the project around three tiers of habitus, it became more manageable to conceive and conduct player studies; however, at the same time, each of the studies now necessitated a very specific testing instrument, which would allow for a focus on one particular habitus tier. Creating dedicated game prototypes for each of the three studies was a method of ensuring that this focus was obtained. In turn, the use of custom prototypes would also ensure that the resulting studies would be able to answer specific questions about a particular habitus tier and, in doing so, help expand the initial understanding of ludic habitus that was created on the basis of literature review.

In the next section, I will briefly provide a general overview of the prototyping process used across the research project.

#### 3.4.2.2. *Prototyping process*

Each prototype created for this research project was developed in several stages, which I will now outline.

The earliest work on the prototypes involved the creation of *design briefs* – ideas or themes that the prototype was meant to explore in its respective player study. These briefs (see Fig. 6 for an example) usually took the form of a paragraph of text that elaborated on the habitus tier that was to be investigated in the study and that explained how the prototype was to connect to that investigation. In the case of prototypes developed for the first study, the brief took the more structured form of a set of presuppositions or hypotheses about the players which then guided prototype creation; in the case of the other two studies and their prototypes, the briefs were more akin to ruminations on the given habitus tier within the context of digital gaming, that then acted as motivation for the design work. The design briefs functioned as the kernel of the prototype, capturing the principal topic of interest that was to guide its design, development, and deployment. They were discussed with the project’s principal supervisor and occasionally amended based on their feedback to better capture the topic of interest of the study. The briefs also helped in narrowing the scope of the design work to a particular subfield of digital games



(i.e. game genres or types), and the design conventions on which the prototype for the study would draw. Finally, these briefs also provided a vital basis for formulating research questions and goals, as part of the process of study design.

#### Action - General Notes

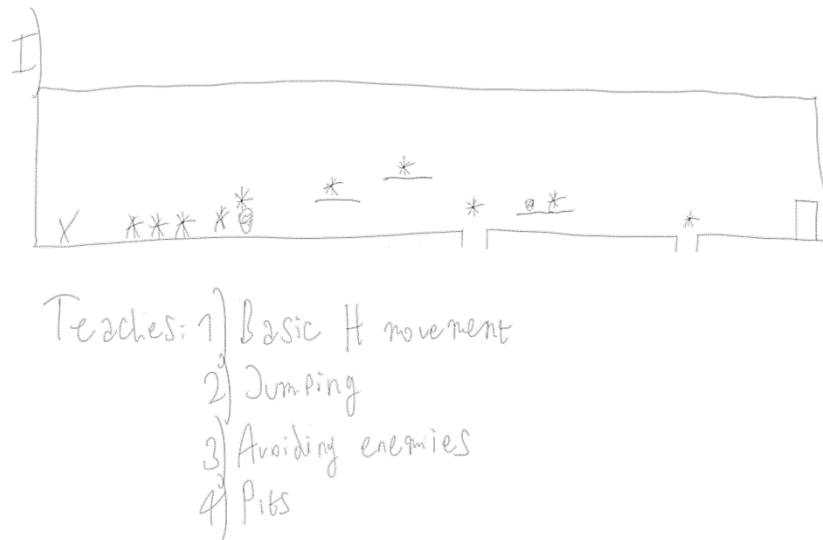
Friday, 4 January 2019 12.47

Shoot. There it is.

Moral decisions in games complicated to make and involve many factors... But what about instantaneous decisions - reflexes, impulses, primal habitual patterns? With a gun in hand and someone running to us in a dark game space, what is the first instinct of our ludic habitus? What are the moral dimensions of these kinds of actions in the eyes of the player?

**Figure 6.** An excerpt of the initial design brief for the third study prototype.

The creation of design briefs was followed by initial design practice, through the creation of *sketches for possible types of interaction and level designs*. These sketches (see Fig. 7 for an example) were created by hand, either on paper or on a tablet, and served as a method of experimenting with the design space that the design brief framed. Depending on the prototype in question, the sketches took various forms and were of varying degrees of complexity. For example, in the case of the first study prototypes, the sketches took the form of initial, rudimentary level and challenge designs, with some ideas later transferred over to the prototypes and others ending up discarded. The reasons for discarding sketches included them drifting from the design brief, or the challenges depicted therein being deemed too complicated or cumbersome for novice players to complete. In the case of the second study prototype, there were only a few sketches created by hand, with most of the early design work done on computer, in the same tool which would later be used to create the prototype. Regardless of the approach, the sketches were drafted with the goal of creating prototypes that were *inclusive for players of varying skill levels and prior degrees of gaming experience* – a criterion that would remain present and important throughout the later stages of the prototype development process.

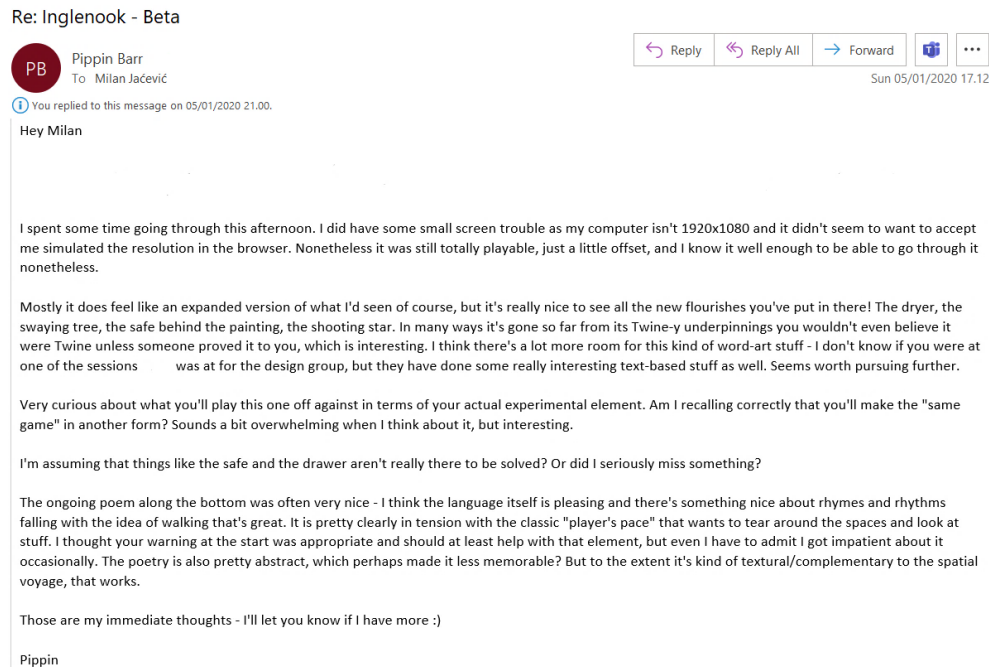


**Figure 7.** An example of a level sketch, created for the first study prototype.

Over time, the design work shifted from sketches to *prototype creation* proper. The two phases overlapped in all three prototyping processes – in other words, sketching continued to be practiced even as the prototype itself was being constructed, albeit to progressively lesser extents. Prototypes for the first and third study (on perception and action, respectively) were developed in the Unity game engine, while the second study prototype was developed in Twine, an HTML5-based tool primarily used for creating hypertext fiction. To ease the prototyping process and make it more time-effective, the prototypes built in Unity utilized free and commercial assets (e.g. visuals, sound clips, scripts, and system kits) obtained from the Unity Asset Store, which were modified for the purposes of the specific prototype and the design brief which guided its development. More details on these modifications are discussed below, in the sections focusing on each of the prototypes. The case of the second study prototype utilized only one add-on to Twine – *Mousetrap* (2012-2017), a JavaScript library created by Craig Campbell for handling keyboard input. All other components of the game’s presentation were created by the researcher.

Prototype creation proceeded in an iterative fashion, with occasional demonstrations of their development and progress to third parties as part of *design feedback sessions*, which took place both in person and remotely. These sessions were principally held with the research project’s supervisor, who gave input on design choices and solutions, as well as overall playability, in light of the research questions and goals that were driving the respective study. The development of the second study prototype, created during a research stay, was demonstrated and discussed as part of weekly design group meetings at Concordia University’s Technoculture, Art and Games (TAG) Lab in Montréal, Canada. Feedback from design sessions would be recorded in the form of notes, or relayed via email in case of remote play (see Fig. 8 for an

example). These notes would later be used to alter certain aspects of the prototype in question, with the purpose of aligning it more closely with the goals of the respective study, as well as in order to improve the prototype's overall design.



**Figure 8.** A sample of an email exchange with Prof Pippin Barr, containing design and usability feedback for to the second prototype. Personal and details of third parties have been omitted.

In addition to broader design feedback sessions, the prototypes were also playtested with third parties (principally the supervisor, but also friends and family members with different levels of experience with digital games) as part of *usability testing sessions*, which took place in the last stages of their development. In these informal sessions, the third party would play the prototype game, with their feedback once again recorded in the form of notes or relayed in email responses. Unlike the design feedback sessions, these testing sessions (as their name implies) focused mostly on issues of usability, with the third party checking how well certain challenges were implemented and balanced, and whether there were any problems understanding the basic premise of the prototype, its control scheme, or other aspects of its design that were vital for the goal of the study. Much like with the design feedback sessions, feedback obtained in these sessions would then be used to improve the prototype before its deployment in the respective study.

Progress on prototype development was documented primarily in the form of *written free form notes*, both paper and digital (see Fig. 9 for an example), covering results of design experiments, justifications for certain design decisions, and discarded alternative solutions to

certain design problems, among others. These notes were referenced during write-up of the study papers, as well as this extended dissertation introduction.

## Inglenook Design Documentation

Thursday, 7 November 2019 19:49

### Avatar Movement

Chronologically, these methods were discovered/used:

- 1) **Basic instantiation** - single avatar per screen, made and completely defined in the style sheet and then just spawned in the passage text.  
**Pros:** Maximum control of individual screens and avatar placement therein, simple and clean passage texts, very easy to do at first, no CSS needed in the passage text, contributes to a picture-book aesthetic & allowing for nice delivery of thematic textual content.  
**Cons:** Time-consuming, not allowing for much in way of interactivity with the scene, occupying a lot of style sheet space, not allowing for any transition other than incremental due to not accommodating relation to previously visited screen in any way.
- 2) **Screen-to-screen position shift** - a step up from basic instantiation, this sees the use of a `PosRange` array and a `Pos` variable, along with the `If` macro, to instantiate one out of several possible avatars based on which screen was previously visited.  
**Pros:** High degree of control of individual screen content and avatar placement, relatively simple passage texts, not too complicated to do, accommodating different kinds of screen transitions, also contributes to a picture-book aesthetic & allowing for nice delivery of thematic textual content.  
**Cons:** A middle-ground solution that seemed really revelatory at first, but ended up not amounting to much; still relying on a lot of style sheet space (as each avatar still has to be defined there), not really accomplishing much in either of the two dominant methods of screen transition (i.e. there are better options for both of those).

**Figure 9.** A section of the note documenting the design of *Inglenook*, the second study prototype.

During prototype development, I also created *periodic backups* of the different versions of each of the prototypes, locally and/or in various online repositories. The first prototypes were stored on GitHub, the second study prototype (produced in Twine as a single file of around 1MB) was stored on Google Drive, while the third study prototype was backed up only locally (due to the high-resolution 3D assets used in its creation, the Unity project at times amounted to more than 18GB of files, which made online backups unfeasible). These backups were not accompanied by detailed code comments or specific progress reports, a sensible procedure which is advocated by some scholars of game design research practice (see e.g. Khaled et al., 2018). The principal reason for this was my own lack of familiarity with such documentation procedures at the time of prototype creation. Reviewing the entire process of prototype development would undoubtedly have been made easier through the inclusion of code comments and other dedicated forms of documentation accompanying each version of the prototype. In retrospect, this is one aspect of prototype development that I would have done differently. While I, unfortunately, cannot retroactively add commit comments and write progress reports for each version of the prototype, I have made the final versions of the prototypes themselves publicly available online (Jaćević, 2019, 2022; 2020, 2022; 2021, 2022), so that the reader or other interested party can

access them. This is a small, but nevertheless important step towards improving the transparency of the game design practice element of this research project.

### 3.4.2.3. *General prototype considerations*

To be considered adequate testing instruments, capable of generating knowledge about ludic habitus when deployed in tests with players, the game prototypes needed to fulfill certain requirements. As discussed earlier in this chapter, in projects of this kind, these requirements are principally tied to the goals and questions of the research. In the case of this project, the prototypes should be seen in light of the habitus tier – perception, appreciation, and action – that was to be researched in each individual study. Each of the three tiers provided a general frame for approaching both study design (i.e. the formulation of research questions and the specification of research goals for each of the studies), and game design and development. The relationship between these processes varied from study to study, as will be shown later when discussing the prototypes individually and in more detail. Before that, I will note some of the general considerations that were important for all of the prototypes created for this project.

Since the project aimed to gather information about ludic habitus from players with a variety of gaming experience and familiarity, it was considered paramount that the design of the game prototypes did not completely gatekeep less experienced players from playing the game and overcoming its challenges. Certain level design and mechanical solutions were discarded in early stages of the prototyping process, when they were present only as sketches, for fear of being too difficult for beginner players; as the prototypes were being created, some of the implemented solutions were altered based on my own playtests and on the experience of third parties in design feedback and usability sessions. With that in mind, it should be stated that the prototypes used in the first study required some degree of non-trivial psychomotor effort<sup>37</sup> to navigate and complete. This did result in some less experienced players in that study performing less well than others, but it was a necessary concession to the game design conventions of that genre (2D side-scrolling platformers), and did not affect the research topic of the study (perception of minute game design differences). By contrast, the second and third study prototypes were designed so as to be playable in a leisurely manner by any and all players, regardless of their gaming skills.

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<sup>37</sup> The phrase is borrowed from Karhulahti (2013); he refers to gaming challenges which require this kind of effort as *kinesthetic* challenges.

All of the prototypes also featured relatively simple control schemes, commonly used in many games across various genres, and very little in terms of mechanical or systemic game complexity. For example, most of the gameplay actions were available to the player from the very start in each of the prototypes, with little to no evolution as the game progressed<sup>38</sup>. A notable exception to this was the addition of a shooting mechanic in the third study prototype, as will be discussed in a later section of this chapter, when that study is presented in more detail.

While care was taken to ensure that players would not be deterred from playing the prototypes due to high skill requirements, complicated gameplay mechanics, or unstandardized control schemes (to name but a few potential usability and balance issues), a player's experience with the prototypes was, inevitably, influenced by their prior gaming history and familiarity with gaming conventions. This was both intended and unavoidable, as capturing these influences and how they manifested in the act of play was the principal goal of this research project. For this reason, differences between players in each of the studies were seen as important data points, providing information about their individual ludic habitus and about its general functioning in digital gaming practice. In certain situations, these differences were *performative* (e.g. one player progressing slower than another), while in others, they were *interpretative* (e.g. one player understanding and solving a puzzle challenge quicker than another) or *appreciative* (e.g. one player expressing preference for the prototype's visual design, compared to another player who expressed ambivalence towards it). In all situations, however, they shed more light about the concept of ludic habitus when analyzed alongside other data points.

What was important from a design perspective during the prototype development processes was that these differences were *not* the product of design solutions that would consistently favor one type of player as opposed to another. Instead, the aim was to facilitate a spectrum of possible, equally valid play behaviors for different types of players and their ludic habitus. Usability testing and design feedback sessions were important methods in the pursuit of this aim, and helped to identify design elements and configurations that could be problematic for certain kinds of players (e.g. overly difficult challenges in the first study prototypes, or unclear instructions for interacting with objects in the second study prototype). Despite these checks, however, a small number of players across the three studies did run into issues during their time with a given prototype, ranging from bugs such as graphical glitches to usability issues such as

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<sup>38</sup> Note that this does not mean that there weren't new gameplay *elements* introduced later on; an example of this are the moving platforms in the first study prototypes. However, throughout both prototypes used in this study, the player could still only move (and, in the first version, jump), with no additional actions introduced as the games progressed.

a lack of understanding of controls. In the case of the latter, after giving the player some time to figure out the issue on their own, I would step in and give hints as to what they could do. These usability difficulties were noted and referenced during the data analysis process, and affected how a player's ludic habitus and their experiences in the study were understood. While my own game design decisions were the cause of these issues, they were seen through the same lens as all other data points in the study – that of specific tiers of ludic habitus and player familiarity with certain subfields of digital games and their design conventions.

#### *3.4.2.4. Research-topic-specific prototype considerations*

This last point is particularly important to note, as it sheds light on how the players' time with the game prototypes was understood, and how this understanding contributed to the general framework of digital gaming practice. It also enables me to present a necessary comment on the possible downsides of using custom prototypes for this kind of research.

The strength of Bourdieu's theoretical and conceptual framework – its general applicability across different domains of practice – is, at the same time, potentially problematic when these theories and concepts are operationalized in empirical research. As pointed out by Diane Reay (2004), it is not uncommon for researchers working with Bourdieu's notion of habitus to assume or appropriate the concept to explain certain clusters of unconscious behavioral and interpretational tendencies, rather than (as Bourdieu himself advises) using it as an analytical lens for critically examining the empirical data. In the context of digital games, which, even in simple forms, feature a complex interplay of visual, aural, textual, procedural, and other design elements, this flexibility of habitus and other related Bourdieusian concepts can lead a researcher to apply them uncritically and in a broad fashion to account for every aspect of observed player behavior. In the context of this study, this flexibility can bring into doubt the design of the game prototypes and raise questions regarding their adequacy as instruments for researching habitus. In other words (and as echoed in the title of Reay's paper), throughout the project, there was a danger of merely claiming that everything the player does in a game reflects their (ludic) habitus, and not proceeding further and working with the concept and the player data in a critical fashion. This danger placed a burden to ensure that Bourdieu's conceptual tools are properly implemented, and called for a high degree of reflection on how these concepts are used in research practice.

In this project, this issue was addressed in several ways. The broad understanding of habitus was further specified in two stages: first, to *the three tiers of habitus* (perception, appreciation, and action), which acted as context for prototype development, and second, to *the specific research topics and questions*, which guided the development and deployment of the finished prototypes, as well as data collection and analysis. This scoping-down of the concept was done in order to ensure that the prototypes examined concrete issues of player behavior, preference, and interpretation, rather than being mere instruments for gathering any sort of player data and labeling these as habitus. This specification was maintained in the analysis stage of the project, with player data examined in light of the particular research topic under investigation in the respective study. In addition, the gameplay data collected in the studies was only one of multiple sources of data for each participant, with questionnaire responses and interviews enabling triangulation and improving study validity. The abductive approach to theory construction also ensured an ongoing conversation between theoretical constructs and empirical data, an integral part of which were reflections on the conceptual nature and boundaries of ludic habitus and subfields of digital games, and on their potential as descriptive and analytical tools. In the final section of this chapter, I also note the personal biases which may have affected how I approached and utilized Bourdieusian concepts in my research, in an attempt to increase the overall transparency of the project.

That being said, it is impossible to claim that these measures were enough to completely safeguard against analytical lapses or misinterpretations of some aspects of player data in my role as a researcher – nor against unforeseen or unintended design aspects in my role as a designer. Such potential problems are not just a characteristic of this particular methodological approach or research topic, however, but of all forms of research that are, to some extent, products of a researcher's subjective interpretation and subject to sample biases. While this subjective aspect limits the generalizability of the research and its findings, it is necessary to produce initial theories regarding a specific subject matter, such as the general framework of digital gaming practice that is the product of this research project. For this reason, said framework – and the research that preceded it – need to be seen as *exploratory*, to be further expanded, validated, or disputed in subsequent research projects.

Having described the general matters concerning prototype design and development in this project, I will now discuss the design and development of each of the prototypes individually. The information here draws on what has already been presented in the three study papers (see Appendices I, II, and III), while also providing additional insights where needed.



### 3.4.3. First Study Prototypes – The Perception Study Platformers

The first study explored ludic habitus in digital gaming practice with a focus on *perception*. More specifically, it investigated *how players with different types and degrees of gaming experiences perceive differences between game design elements*. Perception was here understood in the tradition of cognitive constructivism, as exemplified by Richard Gregory's (1970) work, in which perception is understood as a top-down constructive process that relies on prior knowledge and categories<sup>39</sup>. In order to investigate this topic, the study adopted an A/B testing format (see e.g. Hanington & Martin, 2012), with a set of preliminary hypotheses about the topic of game perception create to guide prototype development.

The A/B testing format was chosen due to the study's concern with issues of discrimination between minute game design elements, which could be explored in a comparative setting that the format provided. This format required two games that were mostly identical, but which (ideally) featured a single point of difference, which the players would hypothetically interpret in different fashions, guided by their prior gaming experiences and attitudes. For this reason, the first player study prototype took the form of *two versions of a two-dimensional (2D) platformer game with a single mechanical difference*. This genre of games was chosen because of its perennial popularity, with these kinds of games featuring heavily in our collective understanding of games and gaming, as well as due to the fact that this genre is characterized by relatively stable patterns of mechanical and level design conventions. The first version was the *control game* (Fig. 10), modeled on a prototypical 2D platformer – Nintendo's *SMB*. It features a simple pastel visual style, a small, white rectangle as the player character, obstacles in the form of platforms, pits, and patrolling enemies, and collectable coins which added to the player's score. The control version is comprised of three short levels, taking around 10 minutes to complete.

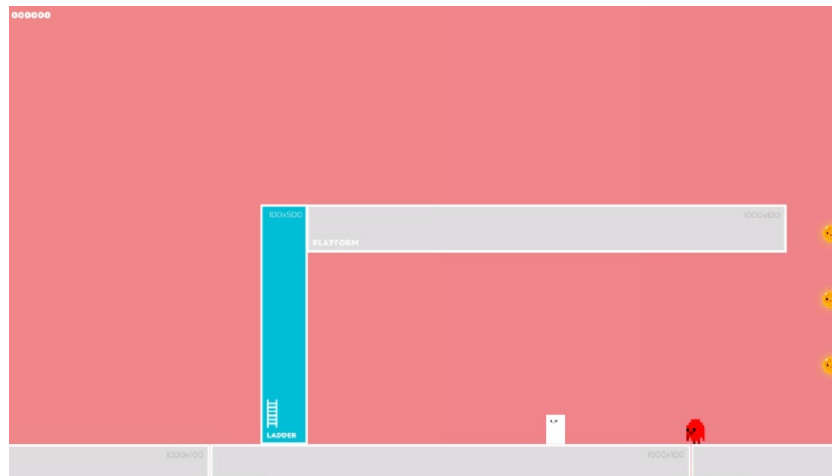
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<sup>39</sup> This understanding, in essence, fuses the second and third step of Arsenault's and Perron's gameplay loop discussed earlier into one distinct operation. The constructivist view of perception stresses that perception is always *intelligent*, in the sense that it includes background cognitive processes that always result in some sort of understanding rather than pure information that is then interpreted at a later stage.



**Figure 10.** The control version of the game prototype developed for the first player study.

The second version was the *experimental game* (Fig. 11), retaining most of the design features of the control game, with one important mechanical difference – in this version, the jumping mechanic is disabled. Consequently, the placement of platforms and enemies is also different to the control version of the prototype, with the player now having to use ladders in order to avoid enemies, rather than being able to jump over them. The experimental version is similar in length to the control version of the prototype, although it contains one extra level for a total of four.



**Figure 11.** The experimental version of the game prototype developed for the first player study.

Both versions of the game prototype featured the same, minimalistic visual design and user interface: apart from descriptive text attached to various objects depending on their function (e.g. “Ladder” and “Platform”), there was a single counter for points in the upper left corner of

the screen, which would increment in tens with each coin the player collected. The two versions featured a rudimentary control scheme common to games of the same genre, with the left and right arrow keys on the attached Xbox controller used for navigation and the A button used for jumping. However, neither of the two versions of the game prototype featured instructions regarding controls, with the players left to intuit and experiment with the controller until they discovered how to move their player character. This was a deliberate design choice, as it enabled quick, early discrimination between those familiar with platformer control schemes (and, more broadly, physical game controllers) and those who were not. Additionally, due to the low mechanical complexity of the two versions of the prototype, it was presumed (and later confirmed in the study) that even the players with very little gaming experience would not take too long to discover how to input commands into the game.

Each version of the prototype initially presented very simple challenges – a single gap to jump over or an individual enemy that could easily be avoided or disposed of – before introducing more complex platform and enemy placements. The reasoning behind this was to onboard the novice players and enable them to practice controlling the player character in situations with less pressure, before putting their skills to the test with progressively more difficult challenges later on. In the control version of the game, this was done by drawing on level design solutions implemented in *SMB*, sometimes copying these verbatim – for example, adding a trail of coins to signal the need to jump over an oncoming enemy. Due to the removal of the jumping mechanic, in the experimental version of the game, the initial challenges were designed with only a single platform, ladder, and enemy, with variations on their placements, while challenges in the later levels introduced more of these elements. In both versions of the prototype, there were no lives or other counters that would stop the game after too many mistakes; the player character would simply respawn at the beginning of the level upon dying due to contact with an enemy or by falling into a pit.

The development process for the two versions of the game prototype took around a month, and utilized the *Corgi Engine* (Version 5.4; More Mountains, 2019) character controller and other related game assets obtained from the Unity Asset Store. Unity was chosen as the engine of development due to prior familiarity with its operation, which facilitated prototyping, as well as owing to its flexibility in creating 2D platformers of the kind outlined here. The Corgi character controller was minimally altered compared to its native state, with some advanced gameplay mechanics, such as double-jumping and the use of jetpack or flight, being disabled.

The overall design goal, for both versions of the prototype, was to create games that could be played by players with different levels of skill and prior knowledge of gameplay conventions pertaining to the genre of 2D platformers. To achieve this, all of the design elements – visuals, sounds, level layout, enemy AI, gameplay mechanics, etc. – were simplified as much as was possible, resulting in two rudimentary versions of a digital game. This simplicity was evident even on the paratextual level: out of the prototypes developed for this research project, these two games were the only ones that were not given a title or even a menu screen, and they were presented to the study participants as playable scenes in the Unity engine, rather than as separate executable game files. Despite this, all of the participants in the study understood these prototypes as digital games, even though that phrase was never used in the questions they were asked.

As their basic nature illustrates, the two versions of the platformer game prototype were conceived and developed primarily as *testing instruments*. In no small part, and as discussed at length in the design reflections paper (Appendix IV), this is because of the central role of research hypotheses in the first study, which directed the study as a whole and placed clear requirements for the prototypes used therein. As a result, there was no need – and little room – for design experimentation, and the development process was pragmatic and quick, aiming to deliver two simple, focused game versions for testing the research hypotheses.

#### 3.4.4. Second Study Prototype – Inglenook

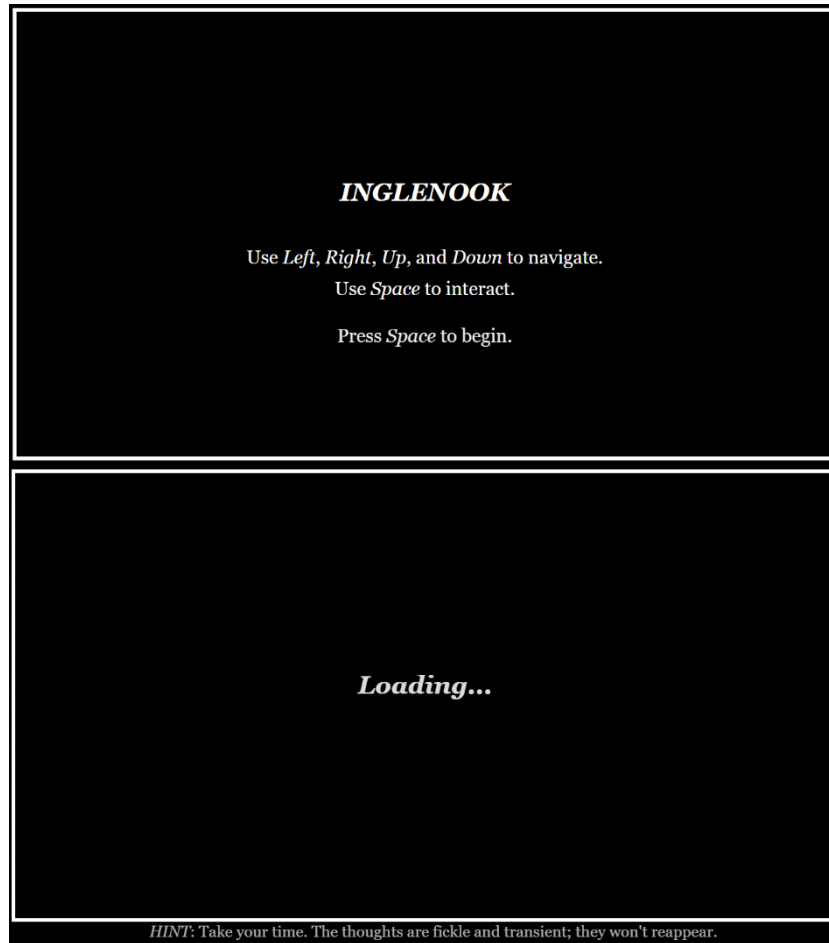
The second study examined ludic habitus in digital gaming practice from the perspective of *appreciation*. The study approached this broad topic with a focus on *playstyles*, understood as characteristic forms of engagement with a digital game. It investigated *how, when, and why players settled into a particular playstyle when playing a new digital game*. While these questions could arguably have been approached from a variety of angles, the overall theme of appreciation required a game prototype that would – at least in the eyes of some players – be regarded as novel and experimental. This factor influenced the decision to work with design conventions from two different genres of games, for the purposes of creating a game with an unorthodox visual and storytelling style. The chosen genres – hypertext fiction and adventure games – were chosen for the similar reasons as 2D platformers in the first study. They represented well-established genres, with a high degree of familiarity among many players, while still

offering plenty of space for design experimentation, especially with regards to the cross-genre combinations of design elements. For the purposes of this study, a hypertext fiction/adventure game hybrid, titled *Inglenook* (Fig. 12), was developed in Twine, a tool for authoring interactive fiction. Game development took place in the fall of 2019, during the research stay at Concordia University's TAG Lab in Montréal, Canada.



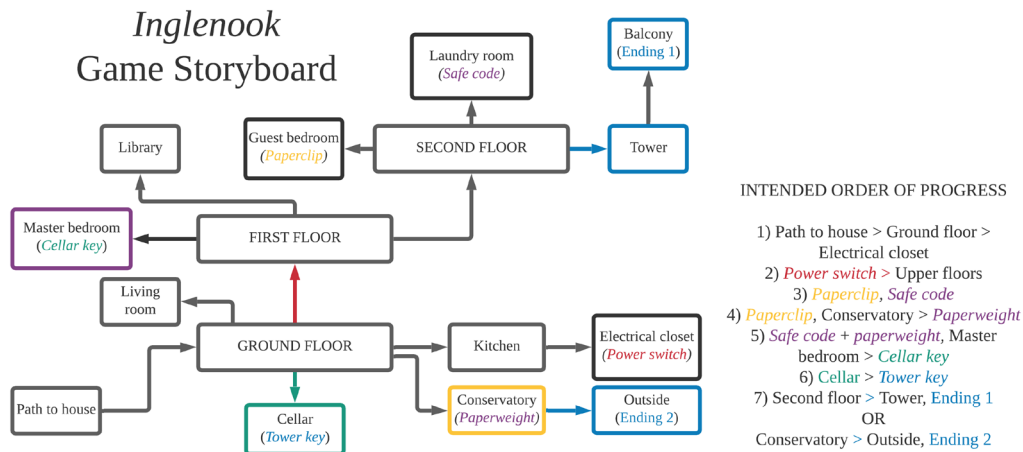
**Figure 12.** One of the screens in *Inglenook*, showcasing the living room area of the explorable house of words.

Inspired by concrete poetry and walking simulators such as *Gone Home* (The Fullbright Company, 2013), *Inglenook* is set in a 2D space constructed entirely out of text, i.e. with words arranged into shapes which suggest certain objects, like tables or chandeliers. The game opens with a title card (Fig. 13), presenting the player with an instruction on controls (arrow keys for movement, Space bar for interaction), followed by a loading screen (Fig. 14) that contains a vague hint about the nature of the game's presentation (more on that below).



**Figures 13 and 14.** The opening title card and subsequent loading screen of *Inglenook*.

The game's environment is presented as a series of screens, with the player navigating between them using the keyboard; with each press of a key, the screen refreshes and the vertical, green word *YOU* changes its position. This change of position creates the illusion of movement, with the green *YOU* taking the role of the player character. *Inglenook* features simple fetch puzzles, which require the player to collect certain objects (e.g. a paperweight from a desk drawer, or a cellar key hidden in a safe) from one room and bring them to another, as well as snippets of thematic text (in the form of short lines of poetry) that appear on the bottom of the screen, only once, with each movement to a new position. In addition, at certain interaction points, question marks appear on top of the screen, with further text revealed upon pressing the Space bar. The game also features two possible ending scenarios for the player to unlock – one in the tower area, and one outside of the house. The level layout of the game, as well as its intended order of progress, are presented in Fig. 15.



**Figure 15.** The storyboard of *Inglenook*.

In every aspect of its development, *Inglenook* was a markedly different prototype to the two platformers created for the first study. The development process lasted around three months, with an additional month and a half of code optimization, done in order to make the game run well on screens of different resolutions. Apart from the general focus on issues of game appreciation, there was little to guide or structure prototype development in its early stages. This lack of direction prolonged development time, but also contributed to a greater degree of experimentation with Twine as a game platform, and to its identity as a hybrid game, drawing on both adventure game and hypertext fiction design.

Out of the three conducted as part of this project, the *Inglenook* study most closely followed the paradigm of RtD, in the sense that it was *shaped through design practice*, rather than that it featured said practice simply as means of creating a testing instrument. Over the three months of *Inglenook*'s development, this practice helped to scope down the broad topic of appreciation into the more specific research focus on playstyle preference. This research focus emerged from the tension between two modes of interaction, characteristic of the two design formats which *Inglenook* incorporates. When approached as an adventure game, *Inglenook* allows the player to swiftly navigate across its 2D space and quickly progress from one puzzle to the next. To be experienced as a work of hypertext fiction, however, the player would need to take their time and move slowly, so as not to risk missing out on lines of poetry at the bottom of the screen. The subsequent player study examined how players employ their ludic habitus to navigate this tension, resulting in characteristic, preferred styles of play. Though this design-practice-driven approach to generating a research topic was not without its downsides (described in more detail in the design reflections paper in Appendix IV), the end result was a prototype

that was successfully used in a player study for research purposes, but which could also stand alone as a complete experimental game in its own right.

#### 3.4.5. Third Study Prototype – TestingHouse

The third study investigated ludic habitus deployment in specific, decisive moments of *action* in digital gaming practice. The idea here was to explore *how a player's past experiences with digital games influence their handling of in-game situations with limited information*, as part of which the player is forced to make a quick decision reliant on their habits or instincts. This research question required a game that presented the player with ambiguous pieces of information, before putting them in a situation where they had to react on the basis of their prior knowledge and interpretations. For this study, Unity was once again the game development engine of choice. In a conscious and deliberate departure from previous prototypes, however, and from a desire to contribute *game design variety* to the overall project, the prototype created for the third study was a three-dimensional (3D), first-person game that drew on elements of the horror genre, and using high-end graphics. Titled *TestingHouse* (Fig. 16), the game prototype took the form of a modern residential house that the player was tasked with exploring.



**Figure 16.** A screenshot from *TestingHouse*, showing the initial player view upon starting the game.

*TestingHouse* was created over a period of a month and a half, using visual assets (*Atmospheric House*, Version 1.0; Finward Studios, 2021) and system kits (*Horror FPS Kit*,



Version 1.6.a; ThunderWire Studios, 2021) purchased from the Unity Asset Store, which considerably sped up production and enabled a higher level of visual fidelity to the game, in line with other modern 3D titles. The development process shared elements of both of the two approaches previously employed when developing prototypes for this project. Like the perception prototypes, *TestingHouse* was designed with a specific idea in mind: to create a tense situation with limited information in order to see how different players would navigate it. Beyond this brief, and the intention to deviate from the previous prototypes in game style and play perspective, there were no other initial design guidelines. Horror iconography was added during development, as part of the exploration of the design space and the construction of the house, which preceded the purchase and inclusion of the *Horror FPS Kit*. As work on the layout of the house progressed, situating the game within the design subfield of horror and working with the respective design conventions seemed more and more appropriate for the exploration of habitual and instinctive forms of action at hand. The final version of the game features a ground floor, an upstairs area, and a basement, initially locked and containing a door leading to a long corridor – the site for the aforementioned situation that was to test the player’s decision-making.

Similar to the first study prototypes, the game’s user interface is minimalistic, initially showing only a health icon and numerical counter in the lower left corner of the screen, with additional instructions for interaction appearing as the player looks at certain objects, such as doors or windows. Upon triggering certain in-game events, such as entering the house for the first time or attempting to open the locked basement door, players would see a line of text describing their objective in the upper left corner (e.g. ‘Investigate the house’ or ‘Find the basement key’). Certain items, such as a key or a handgun, can be viewed, picked up, and used; in the case of the handgun, keyboard and mouse commands for using it pop up on the screen as an overlay text upon collecting it (Fig. 17), and a bullet counter appears in the lower right corner from that point on whenever the handgun is equipped. Much like with the first study prototypes (and for the same reasons), there was no presentation of controls for movement, though these drew on design conventions of FPS games played on the PC, with W, A, S, and D keys used to move the player character, and the left Shift button used for sprinting.



**Figure 17.** Instructions shown to the player upon picking up the gun.

Horror game design tropes abound in *TestingHouse*, and have purposefully been implemented in an ambiguous fashion, with the goal of casting doubt on the events that the player is investigating. One illustrative example is the kitchen area (Fig. 18), that features overturned furniture, objects, blood decals on the floor, as well as a note with a short narrative text, all pointing to a struggle having taken place there, but not providing any clear information as to who was involved or what the reason for the struggle was.



**Figure 18.** The kitchen area in *TestingHouse*. The hand icon indicates that the note on the table is an interactable object and can be read.

In addition to set pieces such as the one found in the kitchen, the game prototype also featured a consistent low background noise during play, deep growling sounds triggered at certain places in the house, and fog effects and a blurry visual filter which limited the player's depth of view. As mentioned before, in the upstairs section of the house, the player could find

and equip a handgun; two boxes of ammo were placed in convenient locations along the player's intended path of progress, to minimize the risk of the player running out of bullets before reaching the basement corridor. The corridor itself featured flickering lights that illuminated a single non-player character (NPC), which would walk towards the player upon spotting them, accompanied by sounds of heavy breathing.

In combination, the horror game design elements in *TestingHouse* were used to create the appropriate *generic expectation* in the player – namely, that the game is to be understood as a horror game, and that person in the basement corridor is an enemy that they have to shoot, even though, at first, they cannot clearly see them. In truth, Olivia, the NPC in the basement corridor, presents no threat to the player, and neither does the other, bed-ridden NPC in the game, encountered in the small room at the end of the corridor and dubbed Remy (Fig. 19).



**Figure 19.** The two NPCs in the basement room in *TestingHouse*; the player's gun is drawn.

Both Olivia and Remy wear simple clothing (medical suit in the case of the former, T shirt and shorts in the case of the latter), and have a limited array of animations and a very simple AI. In the case of Remy, a single animation – of him grabbing his stomach while lying down – plays on a loop, unless he is killed, which triggers a single instance of a short death animation. Olivia has been programmed to follow the player character, with her walking animation made to resemble a limp. Besides that, she does not interact with the player in any way. Both NPCs have very low health, with one or two bullets enough to kill them. Unlike with Olivia, the player can interact with Remy in a non-violent fashion, by examining him as they would an interactable object. Upon doing so, the game's objective system, which presents the player with tasks so as

to aid their navigation of the house and point them in the direction of the basement, informs the player that they should “help the suffering man”. In order to accomplish said objective, the player can either shoot Remy, or locate a first-aid kit in the room and use it on him.

As was the case with the approach to its development, the final version of *TestingHouse* represents the middle ground between the perception prototypes and *Inglenook* in terms of completeness. While the game prototype features menus, examinable and collectable items, a chain of objectives, and a relatively large explorable physical space, it also lacks certain paratextual elements in the form of a title screen or an end game screen. In this sense, it is not a complete, standalone game, like *Inglenook*. However, *TestingHouse*’s development was more than just instrumental for the subsequent player study: it informed the study’s design, the questions pertaining to ethics and morality in games that were posed to the study participants, and the broader understanding of generic subfields of digital games, relevant for the broader goals of the research project. The development of this prototype can therefore be seen as a middle-of-the-road solution between the approaches taken with perception study prototypes (developed as instruments to test research hypotheses) and with *Inglenook* (developed to explore a broad research area and scope it down to an appropriate, specific topic).

### 3.5. Player studies

Despite some variations on the count of the particular study’s focus, the three player studies involved very similar procedures and instruments of data collection and analysis. As was the case with prototype designs, the design of each of the studies and the testing procedure are described in the study papers in the appendix of this dissertation. Here, I will instead focus on summarizing the different aspects of study design in the three studies, and on providing more detail on the implemented methods of data collection and analysis.

#### 3.5.1. Participant recruitment

Due to their preliminary, exploratory character and qualitative methodology, all three studies featured a relatively small number of participants, with varying degrees and types of gaming experience. This was deemed necessary at this early stage of the development of the

Bourdieuian understanding of digital gaming practice. Fewer participants meant that the study results were to be taken as initial hypotheses for further verification later, in wider studies with more participants. In turn, this approach enabled an *in-depth exploration* of ludic habitus, and a richer picture of its elements and functioning for each of the participants taking part in the studies – both aspects considered crucial for initial theory development.

The first study, on the topic of *perception*, was conducted in June and July 2019 on the premises of the Royal Danish Academy. The study involved eight participants (four female, three male, one non-binary, ages 21-29), recruited using *purposive sampling* (see e.g. Teddlie & Yu, 2007) in order to ensure two participant groups of differing degrees and types of gaming experience, in particular with regards to 2D platformers of the kind used in the study. Purposive sampling was here seen as an adequate method of participant recruitment because of the study's focus on gauging how one's prior experience with digital games, in particular 2D platformers, influences one's perception of minute design differences. The principal goal was to achieve comparability between the two groups of participants, warranting the use of *extreme case* or *outlier purposive sampling* (ibid., pp. 80-81) as a technique for participant recruitment. The experienced participants were recruited from the pool of game design students at the Royal Danish Academy, while the inexperienced participants were recruited via social media posts.

The second study, on the topic of *appreciation*, was conducted in July 2020 via Zoom, due to the coronavirus-related restrictions on gathering and social contact imposed by the Danish government at the time. The study involved ten participants (six male, four female, ages 21-33), recruited using *purposive sampling* and *snowball sampling* techniques (Patton, 2002, p. 237). Purposive sampling was here used to ensure *maximum variation* (Teddlie & Yu, 2007, pp. 80-81) in the final sample, with the study being advertised to the game design students at the Royal Danish Academy and to non-designers via social media posts. The first few participants from both pools, having taken part in the study and being familiar with its online format, then recruited others via word-of-mouth snowball sampling. The final sample of participants was heterogenous in terms of degree and type of experience with digital games, with game design students on one end of the gamut and infrequent and non-players on the other.

The third study, on the topic of *action*, was conducted in June 2021, also on the premises of the Royal Danish Academy. The study also involved ten participants (seven male, three female, ages 22-40), all of whom were recruited online, via advertisements on social media and on a dedicated website for participant recruitment in research studies. The sampling technique used in this study could best be described as *maximum variation purposive sampling*, with the

goal once again being to recruit players with varying degrees and types of experience. Like in the second study, the end result was a heterogenous sample of participants: it included game design students, players of specific game genres, casual players who mostly played on mobile devices, and two infrequent/non-players.

### 3.5.2. Data collection methods

All three studies utilized the same three data collection methods: *profiling questionnaire*, *gameplay observation and recording*, and *post-play-session interview*. I will briefly present them here, highlighting the reasons for their use and the differences in implementation from study to study.

The overview of data collected in all three studies can be seen in Table 1. Note that the second study recordings are longer because the playtest and the interview were recorded together.

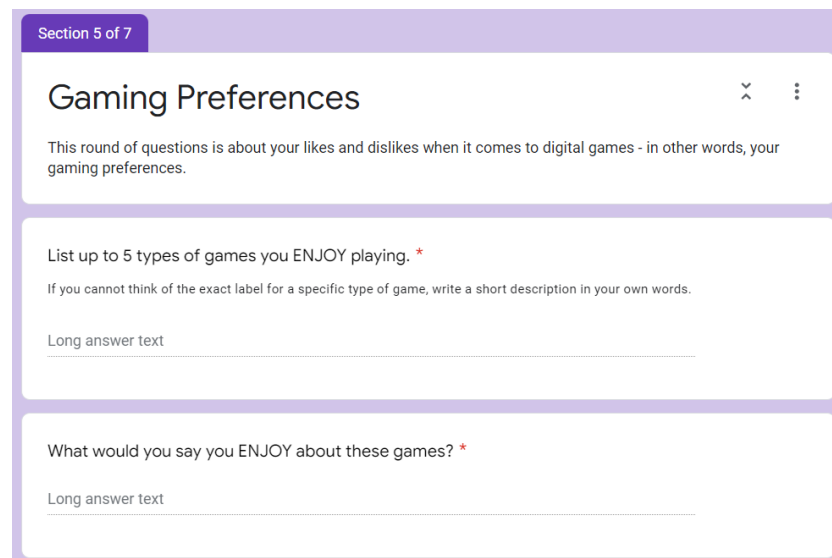
Study	Collected data
Study One - Perception	8 completed profiling questionnaires 2 hours and 55 minutes of gameplay recordings 1 hour and 55 minutes of interview recordings 39 pages of interview transcripts (around 15,000 words in total)
Study Two - Appreciation	10 completed profiling questionnaires 6 hours and 30 minutes of gameplay and interview recordings 70 pages of interview transcripts (around 31,000 words in total) 8 completed follow-up questionnaires
Study Three - Action	10 completed profiling questionnaires 1 hour and 50 minutes of gameplay recordings 3 hours of interview recordings 61 pages of interview transcripts (around 26,000 words in total)

**Table 1.** An overview of data collected as part of the three studies.

#### 3.5.2.1. Profiling questionnaire

The profiling questionnaire (see Fig. 20 for an example) was the initial instrument administered as part of each of the three studies. The initial questionnaire was developed for the first player study, on game perception; the two subsequent studies featured altered versions of the

questionnaire, with changes made to reflect the focus of that particular study. The purpose of the questionnaires was to collect *broad qualitative data on various aspects of one's prior gaming experience*, in essence contributing a basic understanding of a participant's ludic habitus before any gameplay took place. For this reason, developing custom questionnaires was seen as preferable to using more instruments or scales developed for other, more specialized purposes and studies.

The image shows a screenshot of a Google Form titled "Gaming Preferences". At the top left, it says "Section 5 of 7". Below the title, there is a subtitle: "This round of questions is about your likes and dislikes when it comes to digital games - in other words, your gaming preferences." The form contains two main question blocks. The first block asks: "List up to 5 types of games you ENJOY playing. \*" with a red asterisk. Below this is a smaller line of text: "If you cannot think of the exact label for a specific type of game, write a short description in your own words." followed by a "Long answer text" input field. The second block asks: "What would you say you ENJOY about these games? \*" with a red asterisk, followed by another "Long answer text" input field. The form has a purple header and footer.

**Figure 20.** An example of a section from the profiling questionnaire used in the second study.

The questionnaires were created in Google Forms, each taking between 10 and 25 minutes to complete and containing several sections of questions and information fields. They were constructed according to sociological principles and recommendations obtained through literature review (see e.g. Schwarz & Oyserman, 2001; Synodinos, 2003). The focus when constructing the questionnaires was on clarity and precision of questions, as well as on the inclusion of formats that enabled descriptive freedom in the answers. Consequently, each of the three questionnaires features a mix of *Likert scales* (used for gathering data on habits or activities, e.g. in questions like “On average, within the past year, how often have you played digital games?”), *checkbox questions* (used for gathering data on types of activities, e.g. in questions like “In what ways do you participate in gaming culture?”), and *open-ended questions*, which was the dominant question format.

Open-ended questions were used to gather data on, among others, personal gaming history (e.g. “List up to 10 games you remember playing in the past year.”), preferences (e.g.

“List up to 5 types of games you ENJOY playing.”), and values ascribed to digital games (e.g. “List up to 5 games you consider influential to your understanding of games.”). Open-ended questions such as these ones were seen as preferable to scales or checkboxes for these kinds of topics because they allowed the participant to use their own words and provide as much detail as they considered relevant in each instance. The phrasing of each question was purposefully broad and steered as clear as possible of gaming jargon, so as not to avoid priming the participants with gaming categories, labels, specific game titles, or other information that could influence their answers. The questions frequently included a short descriptive text below, which clarified some of the important terms and phrasings or otherwise informed the participant about the relevant points for answering the question. For example, the question asking the participants to describe influential games contained a clarification that these were to be understood as “games which have impacted how [one views] the medium as a whole.” On occasion, the question description would also feature several varied sample answers, which were likewise meant to help the participant in formulating their own.

The second study featured an additional, optional, *follow-up questionnaire*, administered to the participants five to seven days after the playtesting session. This was done in order to capture observations and thoughts regarding the participants’ appreciation of *Inglenook* as these developed after a period of time. To that end, the participants were also told they could keep and replay the game if they so wished after the playtest. The follow-up questionnaire contained similar questions to the post-play-session interview, with a focus on chronicling change in the participants’ opinion towards the game following the playtest. Eight out of ten participants completed this follow-up questionnaire.

The questionnaires were vetted with the principal supervisor of the research project and adjusted according to feedback. Each questionnaire also contained information about its purpose, as well as its contribution to the study and the broader research project. When formulating this text, special care was taken to ensure that the topic of the study itself would not be divulged to the participants, in order not to prime them for their subsequent gameplay sessions.

#### 3.5.2.2. *Gameplay observation and recording*

All three studies centered around playtesting sessions, as part of which the participants would play the game prototype(s) developed for that study, with their performances observed by the



researcher and audio-visually recorded for later analysis. Depending on the game prototype(s) and the participant, these sessions lasted between 4 and 30 minutes.

The first and third playtesting sessions took place on the premises of the Royal Danish Academy, in isolated office spaces or in the dedicated game lab. In both instances, the study participants played the games on a laptop running the Open Broadcasting Software (OBS) program in the background, which was tasked with recording their screen view (i.e. in-game performances), as well as their facial expressions and verbal statements, if any (captured via the laptop's camera and microphone). In the first playtest, the study participants utilized a Xbox 360 wireless controller to play the two prototypes, while in the third playtest, the participants played *TestingHouse* using a mouse-and-keyboard setup, seen as the more traditional and novice-friendly choice for FPS games than a controller.

The second study was conducted via Zoom, due to the COVID-related restrictions. Due to *Inglenook*'s nature as a Twine game – the fact that it was coded as a lightweight (around 1 MB) HTML file, playable in most browsers and without the need for special hardware – the playtesting setup did not suffer too much from the switch to the online setting. The game file was quickly and easily distributed to the participants at the start of the session, and there were no major issues in running the game for any of the participants. Gameplay recording in the second study was done along similar lines to the first and third study: the participants were asked to share their screen while playing the game, and the Zoom call was recorded from that point onward, capturing both gameplay footage, and participant video and audio in the same file. The study participants played *Inglenook* using their respective computer keyboards.

During the three playtesting sessions, I took notes about participant behavior and comments while each of them played the game. The notes mostly consisted of observations of specific player actions or comments, as well as (to a lesser extent) interpretations of these actions/comments in light of the study's topic of investigation. In all three playtests, the participants were told that they were free to comment as much as they were inclined to during play, but they were not explicitly instructed to do so at all times, as is done when using the think-aloud protocol (see e.g. Fonteyn et al., 1993). There were two reasons for this approach. Firstly, the participants would be interviewed immediately after the playtest, so there was no need to force them to share their thoughts and opinions during gameplay. Secondly, the participants were also told to play the game in as natural a style of play as possible; it was reasoned that their style of play would be affected by the obligation to comment on interpretations and actions in the

middle of the act<sup>40</sup>. As a result of this approach, most participants provided only a few comments as they were playing. Still, the observations and interpretations noted during the playtests were later referenced in the post-play-session interviews, to aid participants' recall of specific moments during their time with the game. These notes were also included in the data analysis following the playtesting session.

#### 3.5.2.3. *Post-play-session interview*

The final method of data collection employed in the studies was the post-play-session interview, which took place immediately after the playtesting sessions. The interview took on a *semi-structured* format: a list of questions was prepared in advance, but during the conversation with the participants, some of the questions were skipped or altered, and new ones were added, based on participant responses or on their behavior during their playtests. The semi-structured format was chosen for two reasons: due to the complexity of the subject matter that was being investigated (i.e. ludic habitus and its functioning in digital gaming practice), and on the count of the participants' heterogeneous gaming experiences and backgrounds. Both of these reasons were in accordance with prior recommendations and uses of the semi-structured interview format (see e.g. Barriball & While, 1993, p. 330). In particular, the complexity of the topic at hand required a broader method by which to capture the participants' feelings and thoughts about their experiences with the game prototype(s), and worked as an argument against the use of established questionnaires used for player modelling or profiling (see e.g. Denisova et al., 2016; Azadvar & Canossa, 2018; Vahlo et al., 2018).

Interview questions varied from one study to the next, in accordance with the particular tier of ludic habitus under investigation, and were discussed with the principal supervisor before the study and adjusted according to feedback. Generally speaking, the interview contained three groups of questions: *introductory questions*, covering initial impressions and genre classifications of the gaming experience and the game prototype(s), *tier-specific questions*, covering the particular tier of ludic habitus that was the focus of the study, and *comparison questions*, which asked the participants to position the game's design elements and the

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<sup>40</sup> As noted by Ioanna Iacovides (2009, pp. 30-31) in her exploratory study of player involvement and learning, think-aloud protocols can be cumbersome to implement as part of gameplay observation because of the tendency of players to focus on their own interpretations of, and feelings towards, the game, rather than on their reasoning at specific moments during play.

experience it provided in relation to other digital games and media formats. When formulating the questions, and much like with the design of the profiling questionnaire, special attention was paid to avoid the use of gaming jargon, genre labels, and the mention of individual game titles, to avoid priming or biasing the participants. Instead, the participants were encouraged to use their own words to describe their experiences during the playtest. This strategy resulted in detailed answers, even by those study participants with little or no experience with digital games, and furthermore provided an insight into the participants' familiarity with game design and gaming culture terminology. In this manner, the very phrasings of the interview responses was source of information about the participants' degree and type of ludic habitus.

The interviews lasted between 10 and 25 minutes, though there was no specific time limit imposed on the participants. Instead, the conversation kept going until the point of data saturation. In the first and third study, the interviews were recorded using an audio recording app, while in the second study, conducted online, they were captured along with the participants' video feed during the Zoom call. Each interview was later transcribed, with the texts being used in data analysis prior to the write-up of each of the studies.

#### *3.5.2.4. Ethical considerations*

The design of the first study and the data collection methods employed therein were approved as ethically sound by the PhD School of the Royal Danish Academy. Though the participants in the first study were not presented with a dedicated study information and consent form, they were nonetheless informed of the different elements of their participation in the study, as well as of the manner in which their data would be handled and used. This was done both verbally, prior to the playtest and interview sessions, and in writing, in the introductory section of the profiling questionnaire. All participants in the first study expressed their verbal consent for participating in the study.

In the second and third study, participants were given a study information and consent form that contained information about the researchers involved in the study, its general purpose in light of the broader research project, the study procedure, risks and benefits for the participants, and data collection and handling protocols. This form was adapted from Concordia

University's Information and Consent Form Template<sup>41</sup>. All participants in the second and third study gave both verbal and written consent for their participation.

In all three studies, the participants were free to stop their involvement at any point, without any consequence, with none choosing to do so. In all instances of data use, including this dissertation and the papers presented herein, any identifying personal information (such as the participants' names) was anonymized.

### 3.5.3. Data analysis methods

Data analysis of interview transcripts was conducted in accordance to the principles of grounded theory – i.e., as a three-stage process of textual coding. The coding was done in MAXQDA (Versions 2018 and 2020; VERBI GmbH, 2017/2019), a program for analyzing qualitative and mixed methods data. Interview transcripts were imported into the program, and subsequently read multiple times, and coded in two rounds (initial or *open* coding, subsequent refining or *axial* coding), before the final stage of *selective* coding and theory development. A typical view of MAXQDA, featuring the coding system from the first study and a document opened for analysis, can be seen in Fig. 21. Table 2, in turn, summarizes the code system created on the basis of interview transcripts in each of the studies.

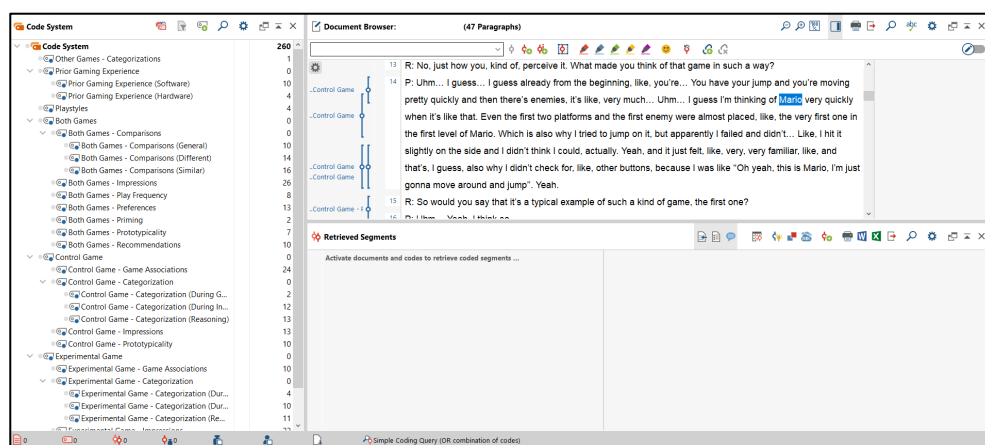


Figure 21. An illustration of coding in MAXQDA.

<sup>41</sup> Found at <http://www.concordia.ca/research/for-researchers/ethics.html>.

<b>Study</b>	<b>Code system</b>
Study One – Perception	6 central code categories 25 different codes 260 coded segments
Study Two – Appreciation	13 central code categories 40 different codes 526 coded segments
Study Three – Action	8 central code categories 33 different codes 430 coded segments

**Table 2.** An overview of the code systems in the three studies.

Transcript analysis formed the core of each study’s iterative data analysis process. During it, and alongside the formation of the codes, questionnaire responses, gameplay recordings, and observation notes were consulted and reviewed repeatedly. This was done in order to create a holistic understanding of the ludic habitus tier that was the focus of the study, as well as to triangulate the data points across sources and ensure their validity. This approach to data analysis varied slightly from one study to the next, in accordance with the study’s design and topic. For example, in the perception study, greater focus was placed on the interview responses, while gameplay recordings proved much more insightful in the second and third study. Data points and codes that were not used in individual studies were saved and used in the development of the framework, presented later in Chapter 5.

All three methods of data collection contributed to the understanding of ludic habitus and digital gaming practice, both in the particular study and in light of the project’s broader view and goals:

- Questionnaire responses gave insight into the participants’ past experiences with games, providing relevant information on their game knowledge, platform and genre preferences, habits, and forms and frequencies of cultural involvement, among other points. This information was gathered not just through the content of the answers, but also through the phrasing and vocabulary of each participant.
- Gameplay recordings and observation notes highlighted player behavior and individual actions during the act of play, as well as pertinent points of discovery or difficulty. They also illustrated each participants’ style of play, which was of particular value in the second and third study.
- Interview responses contained valuable data on each participants’ relation to digital games in general, and to the played game prototype(s) in particular. Much

like the questionnaire responses, interview answers illustrated the participants' reasoning, attitudes, knowledge, and habits in relation to the field of digital games, and helped provide crucial information on their individual interpretations and behavior during the playtest.

#### 3.5.4. Researcher reflexivity and bias

The importance of *researcher reflexivity* is stressed in all approaches utilized across this research project: qualitative research (see e.g. Berger, 2015), grounded theory (see e.g. Christensen et al., 2014, p. 361), and Bourdieusian practice theory (see e.g. Bourdieu & Wacquant, 1992, pp. 36-46). For Bourdieusian scholars in particular, *epistemic reflexivity* is seen as a much needed quality: it entails a thorough examination of the researcher's tools and categories, in order to better reflect on the gap between a practice and its corresponding theory<sup>42</sup>. In this project, this reflexivity has been practiced in conversations with the principal supervisor, as well as other scholars working in various fields with whom I discussed the research project. These discussions contributed to iterative adjustments in the conceptual tools, prototype and study designs, as well as data collection and analysis methods employed in the project.

The interpretative nature of qualitative research, however, means that its researcher(s) inevitably leave a personal trace on the developed theories. Following examples of other game scholars (e.g. Barr, 2008) and researchers working with Bourdieu's theories (e.g. Wacquant, 2011), I will now briefly highlight my own background and prior gaming experiences, which have impacted the approach taken in this research project and its three player studies.

I am a white, cisgender male, living and studying in Denmark for the past five years but originally from Serbia, where I spent most of my life. My personal values and norms have been shaped by both of these cultural settings, as well as by the broader cultural context of the Western world. My academic education – originally in the domain of English language and literature, and subsequently in game design and theory – has predisposed me to analytical methods of viewing and thinking about phenomena,

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<sup>42</sup> For a detailed discussion of the concept, see Loïc Wacquant's (2011) discussion of how *habitus* can be employed both as a *topic* and as a *tool* of research.

situations, and structures, in particular those pertaining to digital games and gaming, which I have researched for the past five years.

As mentioned in the introduction to this dissertation, I have been playing digital games since I was around six years old, predominately on PlayStation consoles and Windows PCs. I have extensive experience and familiarity with multiple game genres and their respective design elements, including platformer games and first-person horror games of the kind that I designed for this research project. Consequently, the design of these games has been influenced by my own understandings of design conventions and tropes related to these genre categories and to the games belonging to them.

Lastly, the practical work on design and development of the game prototypes has also influenced multiple elements of the study setup. These include the process of gameplay observation, the questions posed to the participants following the playtest, as well as the subsequent data analysis. Throughout the project, this practical design work and discussions regarding it with other game scholars and developers have had an impact on how I approach and understand habitus and field in the domain of digital gaming, which is reflected in this dissertation.

Having presented the project's methodology, I will now present the results of the three conducted player studies.

## 4. Results

Much like the previous chapter dealing with the project's overall methodology, the results chapter presents a summary of the study results covered in more detail in each of the individual study papers and the design reflections paper (see Appendices I, II, III, and IV), while also including more information which was omitted from the individual papers for reasons of length or their specific focus.

A broad overview of each of the papers and their findings is presented below, in Table 3. The rest of the chapter will present these findings in more depth. With this structure, the reader will have both *a quick and simple point of reference* (i.e. the table), and *more specific and detailed summaries of the individual papers* available before the subsequent chapter, where the study results will be used to develop the general framework of digital gaming practice.

Paper	Focus	Research questions	Findings
<i>Play Your Own Way: Ludic Habitus and the Subfields of Digital Gaming Practice</i>  (Appendix I; published as Jaćević, 2022)	Perception	How do players with different degrees and types of gaming experience understand and relate to minute game design differences?	Familiar players analyze more deeply, discriminate more strongly, reuse perceptual and action patterns more often, sometimes to the detriment of performance
<i>How the Players Get Their Spots: A Study of Playstyle Emergence in Digital Games</i>  (Appendix II; published as Jaćević, 2021)	Appreciation	How, when, and why do players settle into a particular playstyle when playing a new digital game?	Playstyles emerge at moments of discovery, when one's ludic habitus preferentially interprets design cues and categorizes a game as a kind/type of game



<i>“It’s a video game, and we don’t have all day” – The Ludic Habitus Spectrum and Decision-Making in Digital Games</i>  (Appendix III; submitted for publication)	Action	How do players decide on a course of action when playing digital games?	Players make decisions based on contextual design information and prior experience; behave either proactively (favoring direct action) or reactively (favoring perception/interpretation)
<i>Consider the Participants: Notes on Digital Game Prototype Development for Use in Player Studies</i>  (Appendix IV; submitted for publication)	Relation between processes of study design and game design	How can designer/researchers relate and structure these two processes to better conduct research projects?	Designing prototypes for player studies involves designing for the implied participants – player constructs whose behavior is envisaged in light of the study’s goals. Implied participants can be defined to a lesser or greater extent, and either guide game design or research, depending on the project’s structure

**Table 3.** A broad overview of the four research papers and their findings.

The rest of the chapter is structured into four sections. The first three (4.1, 4.2, and 4.3) present results and findings from the three player studies – on *game perception*, *game appreciation*, and *game action*, respectively. The fourth section (4.4) summarizes findings pertaining to project methodology, based on study and design reflections from the first and second study, with the primary contribution being the concept of *implied participants*, meant to help designer/researchers relate and practically navigate the tandem processes of game and study design.

#### 4.1. Study One – Perception

The first study was concerned with *the role of ludic habitus in perceiving minute differences in game design between two similar platformer game prototypes*. The study was conducted with eight participants: four students of game design – *Mark*, *Wendy*, *Ernest*, and *Logan* – and four infrequent players of digital games – *Nick*, *Eve*, *Amy*, and *Julia*. The game design students, in

general, stated familiarity with diverse game genres and titles; each of them listed more than ten genres, and gave examples of multiple games belonging to most of them. All four also mentioned platformer games among the game genres with which they were familiar. By contrast, platformer games as a genre were only mentioned once in the group of infrequent players (by Eve). Perhaps unsurprisingly, the game design students also reported playing more often, and on more diverse hardware platforms, than the infrequent players. In the latter group, one of the participants, Julia, stated that she did not consider herself a game player, having stopped playing digital games a few years prior to the study. Despite this, one of the few games that she mentioned having played in her childhood was precisely the inspiration for the two game prototypes – *SMB*.

When it came to the style of play in the two platformers developed for the purposes of the study, the participants differed both from one another and depending on which of the two prototypes they played. Generally speaking, the game designers – Mark and Ernest in particular – played faster and completed the control game more quickly than the infrequent players – Amy and Julia in particular – who tended to play more slowly. All participants were slower when playing the experimental game, in part due to the need to think about every enemy encounter as a puzzle, rather than relying on reflexes. Still, the game designers and Nick were generally faster in both reasoning and navigation in the experimental game than Eve, Amy, and Julia.

The differences in playstyle and completion times between the game design students and the infrequent players were also mirrored on a linguistic level, with the former group generally being more adept at talking about the two game prototypes and their design differences than the latter. As design students with greater familiarity with digital games, the first group of participants was able to use standard vernacular when comparing and contrasting the two games. On the other hand, the infrequent players struggled to describe the differences between the games, and generally compared the two on fewer points. They also attached a variety of non-standard labels and terms to either of the two game prototypes.

Perhaps the most interesting point of difference between the two groups was their *categorization of the two game prototypes*.

- Design students perceived the differences between the two game prototypes as *clear-cut* and *definitive*: the control game was deemed a more appropriate, *prototypical* kind of platformer game, while the experimental game was different enough to warrant *additional labels* and *hesitancy to classify it as a platformer proper*. The point of divergence between the two versions, the jump mechanic,

was noted as a *highly important marker of a platform game* by all of the game designers. For this reason, all four design students *expressed preference for the experimental game*, which they saw as more interesting and (somewhat) innovative.

- This was in contrast to the infrequent players, who, in their descriptions of the game prototypes, focused more on the *similarities*, rather than the differences. They saw the two versions as *essentially similar games*, belonging to the same type or category of games, and did not hesitate to state so. The presence or absence of the jump mechanic, in other words, *did not contribute to a notable degree of experiential difference* for the infrequent players – at least not to the extent that they considered the game as different kinds or types of games. The outlier in this group was Julia, who, like the designers, strongly discriminated between the two games precisely on the basis of the differences in experience that they provided – with the control game reminding her of a certain game she played in her childhood. The infrequent players also *expressed differing preferences for the two games*; Nick and Eve preferred the control game, while Amy and Julia preferred the experimental game.

In light of these results, the study's findings regarding ludic habitus and its operation in digital gaming practice can be summarized as follows:

- Multiple points of difference between the study participants can usefully be framed and discussed using Bourdieusian practice theory and the concepts of ludic habitus and subfields of practice:
  - In practice-theoretical terms, the game design students can be described as having comprehensive ludic habitus: they shared a broad familiarity and experience with multiple types of digital games, were very knowledgeable of platformer games as a genre, displayed consistency and rigidity in discussing and labeling the two game versions, played the two games with a similar degree of prowess, and even displayed similar patterns of preference. The ludic habitus of these participants can thus be described as familiar with the platformer subfield and its design conventions and tropes.
  - Conversely, the infrequent players possessed rudimentary ludic habitus: they were familiar with fewer genres and game titles, expressed limited knowledge of the platformer genre, had difficulties in discerning, discussing, and labeling the differences between the two game prototypes, and differed in preferences towards the two games. The ludic habitus of these participants can therefore be described as unfamiliar with the platformer subfield and its design conventions and tropes.
- Greater experience with a subfield of games – or, as Julia's example shows, notable experience with prototypical examples of the subfield – seems to translate into greater degree of discrimination of differences between similar game designs that belong to that subfield.

- Familiarization of one's ludic habitus with a subfield of digital games does not only aid recognition and categorization of games that share the design elements characteristic of that subfield, but may also hinder performance in cases when games register as too similar and identical patterns of play are employed.

## 4.2. Study Two – Appreciation

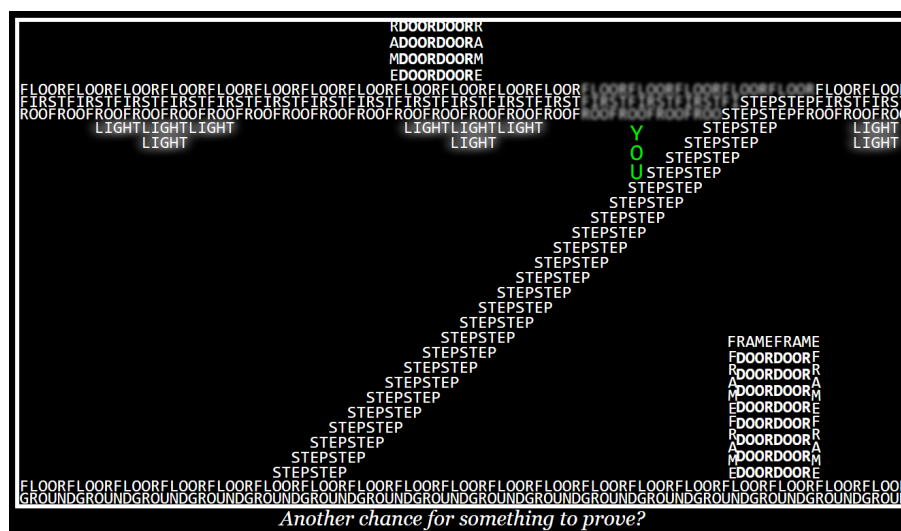
The second study investigated *how, when and why players settle into particular styles of play when playing digital games*. Ten participants were recruited for the second study, with the cohort featuring players of varied levels and types of gaming experience. Five of the participants – *Willow, Alice, Thomas, Evan, and Miles* – were game design students or practitioners, generally reporting familiarity with a diverse range of game titles and genres, and regular and consistent digital gaming habits. Four participants – *Arthur, Joe, Peter, and Susan* – were dedicated players of a handful of game genres, such as grand strategy games, action-adventure, and FPSs; they played frequently, but stuck almost exclusively to these kinds of games. Lastly, *Jill* was the single non-player of the lot, mentioning familiarity with some older titles like *SMB* and *Diablo* (Blizzard North, 1997), but stating that she no longer played digital games.

The ten participants in the second study, playing the adventure game/hypertext fiction hybrid *Inglenook*, approached the prototype in *one of three different styles of play*, which has lead to them being grouped into three separate player clusters:

- 1) **Cluster One (C1; The Puzzle-Solvers)** included Arthur, Joe, and Jill, three players who shared a focus for finding and solving the game's puzzles in a speedy, goal-oriented manner of play.
- 2) **Cluster Two (C2; The Detectives)** included Willow and Alice, two players – both game designers – who seemed eager to investigate every room in the house and interact with all possible points of interest in an attempt to figure out the mystery behind the game's events.
- 3) **Cluster Three (C3; The Explorers)** included Peter, Susan, Thomas, Evan, and Miles five players – the latte three game designers – who explored *Inglenook* in a slow, methodical manner. They approached *Inglenook* as a multilayered designed artefact, incorporating game elements, narrative text, and audio and visual design components, and shifted their attention between these during play, engaging with all layers in a relatively balanced manner.



Participants in the second cluster, Willow and Alice, altered their style of play not long after solving the first puzzle – when realizing they could explore more of the house after restoring power to the upper floors (Fig. 23).



**Figure 23.** A screenshot from *Inglenook*; the player is navigating to the upper floors after solving the initial puzzle in the electrical closet.

Unlike the Puzzle-Solvers, Willow and Alice were equally intrigued by all kinds of points of interaction – whether puzzles or object descriptions – and explored the rooms in the house in a methodical fashion with the goal of discovering the game’s events, earning them their moniker as Detectives. Willow and Alice moved quickly between spaces, at times, but they also cared enough for the game’s narrative dimension to take the time and read most of the lines of poetry they encountered. In the post-play-session interview, these participants expressed different degrees of preference for *Inglenook* as a whole (Willow enjoying its experimental design and independent production, Alice considering it a demo or a visually unfinished project), though both admitted enjoying the lines of poetic text and considering them important additions to the game, more so than the Puzzle-Solvers. For the Detectives, *Inglenook* was primarily *an adventure game*, with mysterious events waiting to be uncovered through investigation and interaction with objects.

Lastly, participants in the third cluster seemingly did not alter their style of play at any point, engaging with it in a balanced manner that required relatively slow and steady exploration of the virtual environment, earning them the label of Explorers. Peter, Susan, Thomas, Evan, and Miles differed in their appreciation of the game *as a whole* – for example, Peter and Evan were

at times confused and frustrated by the lines of poetry, while Susan, Thomas, and Miles found them very important for the overall experience of the game. Miles and Thomas, in particular, recognized and labeled *Inglennook* as an independent or “indie” game, in a similar fashion to Willow in the previous cluster, with this labelling being enough for them to warrant a *more engaged, slower-paced form of play* in comparison to more commercially developed games. For the Explorers, *no single element of the game dominated their attention*; rather than playing it as a puzzle game or an adventure game, these participants engaged with *Inglennook* in an exploratory fashion, attempting to uncover all that it had to offer during their time with it.

In light of these results, the study’s findings regarding ludic habitus and its operation in digital gaming practice can be summarized as follows:

- Player-specific styles of engagement with a digital game – in other words, *playstyles* – are the result of the interplay between *the player’s ludic habitus* and *the specific configurations of game elements*. Elements of a game’s design – its audio-visual presentation, gameplay mechanics, spatial layout, narrative content, etc. – act as *affordances and cues for specific behaviors and interpretations*. The player’s ludic habitus *interprets game design elements continuously* (during real-time interaction with the game artefact) and *contextually*.
- As part of this contextual interpretation, players generate understandings of individual design elements *on multiple levels*. They interpret design elements:
  - in *isolation*,
  - in relation to *other elements in the same game*,
  - in relation to *similar elements in games that register as belonging to the same generic subfield of digital games*, and
  - in relation to *digital games as designed artefacts in general*.
- Playstyles often become fixed at certain *moments of discovery* – e.g. when a player solves a puzzle or unlocks an additional area to explore. At these moments, for some players, *the understanding of the game as a kind or type of game becomes stabilized*, leading to distinct styles of play.
- More versatile and deeper familiarity with generic subfields and their design conventions can result in greater appreciation, deeper & richer analysis, and more comprehensive engagement. This can be seen when comparing the Puzzle-Solvers and the Explorers. Prior experience, however, seems to be less important than *player preferences* when it comes to playstyles. A player’s gaming preferences *play an important role in the attribution of salience to design elements*, with the players in the study focusing on those aspects of the game which fit their broader understandings and attitudes towards digital games and gameplay.

### 4.3. Study Three – Action

The third study examined *how players settle into a course of action when playing digital games*. Much like for the previous study, ten participants were recruited for the third study. The testing cohort's degrees and types of gaming experience and familiarity were also varied, but structured in a similar fashion to the participants in the second study. Four participants – *Irene, Milo, Adam, and Scott* – were game design students, and all reported playing a variety of digital games regularly, and otherwise keeping up with gaming trends and discourses. Three participants – *Martin, Michael, and Kyle* – were keen players of specific genres of games, mostly FPSs and action-adventure titles. Two participants – *Mary and Caroline* – mostly played casual and party games, in an infrequent fashion. The final participant, *Nate*, reported not having played any digital games for the thirty or so years prior to the study.

All ten participants managed to explore all relevant areas and reach the final room in *TestingHouse*, the first-person horror game prototype developed for the study. During the data analysis, the study participants were divided into two groups on the basis of the action they took towards Olivia, the unarmed, medical-suit-clad NPC in the basement corridor.

- 1) **The Gunslingers** included **Martin, Michael, Kyle, Irene, and Mary**, all of whom shot Olivia in the basement corridor.
- 2) **The Holstered** included **Milo, Scott, Adam, Caroline, and Nate**, all of whom did not shoot Olivia in the basement corridor.

Despite this similarity in behavior towards Olivia, the participants in these two groups varied from each other in terms of gaming experience and preferences. While all Gunslingers reported some familiarity with FPSs and horror games, not all of them expressed appreciation for these game types: Irene and Mary, for example, stated that they did not enjoy single-player FPSs nor intense genres like horror, while Martin and Kyle mentioned FPS games as their preferred genres. Among the Holstered, only Milo mentioned FPS games in a neutral light in the profiling questionnaire, while the rest of the participants in the group either outright stated that they did not enjoy them, or they did not mention it as a genre of games. There were also variations in genre familiarity and experience, with the game design students (Irene, Milo, Adam, and Scott) generally mentioning more diverse genres and titles than the rest of the study participants.



When asked for reasons for their actions and behavior during the basement encounter in the post-play-session interview, the Gunslingers listed the following reasons:

- 1) **Security/protection:** Several of the Gunslingers reported feeling threatened and insecure in the basement encounter, mostly because of the various design elements that they encountered earlier in the game. Among others, these included:
  - *the game's physical setting* (an empty residential house, with signs of violent events),
  - *spatial exploration progression* (from the upper floors to the initially-locked basement),
  - *sound design* (the persistent background humming sound and the two audio triggers which resembled deep growls or moans),
  - *lighting design* (inability to see far ahead, blurriness of objects when examined closely),
  - *narrative elements* (the written note warning of danger in the basement), and
  - *the presence of a weapon* in the form of the gun found upstairs.
  - Either in isolation or combination (depending on the participant), these design elements were enough for the Gunslingers to categorize the game as *a horror shooter game*, which served as one form of justification for shooting Olivia.
- 2) **Perceived monstrosity/Otherness:** The Gunslingers also described Olivia and/or Remy in inhumane terms, as *monsters*, *zombies*, *creatures*, or as general threatening *Others*. These descriptions were once again the result of several different design elements working in tandem – most often, the written note and the two sound cues interpreted as growls or moans of something inhumane in the basement. The game's physical setting and spatial exploration progression were also cited as contributing elements to the interpretation that the basement was home to, specifically, enemies to shoot and kill.
- 3) **Instinct:** Lastly, Michael and Kyle in particular mentioned that their violent action towards Olivia was the result of their instincts taking over, rather than of any sort of rational calculation. In simple terms – these two participants saw a silhouette walking towards them in a dark and oppressive basement location, and, having the gun in their possession, had the gut reaction to shoot.

Most of the Gunslingers did not care much for ethical issues in *TestingHouse* or in other games – with the two outliers being Mary (who strongly opposed shooting animals in digital games, but not humans, as long as they were coded as enemies) and Irene (the only Gunslinger who expressed regret over her quick handling of the basement situation). Though most of the Gunslingers played quickly (with Kyle finishing the game in record time of four minutes), their

styles of play were varied, ranging from slow and stealthy (Michael, Martin) to rapid and direct (Kyle, Mary).

On the other hand, when asked for reasons for their *pacifist* handling of the basement corridor situation, the Holstered's responses fell into one of the following four categories:

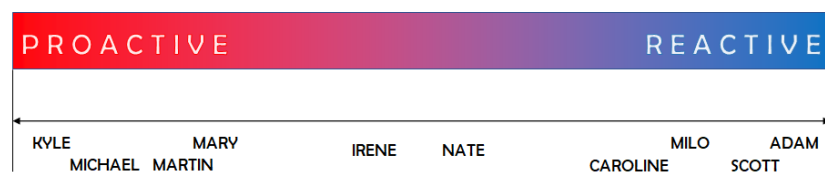
- 1) **Uncertainty:** All of the Holstered chose to wait for Olivia to come to them in the basement corridor section, and were generally not ready to shoot her beforehand. Four of the Holstered – Milo, Scott, Adam, and Caroline) mentioned that they were waiting to see *aggressive movement* on behalf of the NPC before shooting, while Adam and Scott expressed additional doubt that there was any sort of danger for the player in the basement, being *unconvinced by any of the previously encountered horror design elements*. These two participants engaged in meta-interpretation of *TestingHouse's* design, understanding the game as a commentary on the horror game genre or a subversive game design experiment.
- 2) **Lack of (perceived) threat:** For the Holstered, Olivia did not represent any sort of threat primarily because of her *movement speed and walking animation*, which led them to conclude that the game *was not a horror shooter game*, but rather a different kind or type of game altogether (such as “thriller game,” “art game,” “puzzle game,” or “walking simulator”). Furthermore, Milo, Scott, Adam, and Caroline all described Olivia in much more humane terms, as “innocent” or “wounded” – principally because they were able to actually see her character model before taking any sort of action towards her.
- 3) **Preference for non-violence:** In this group, ethical concerns had much more of an effect on gameplay than was the case with the Gunslingers. Milo, Scott, Adam, and Caroline mentioned being guided by their ethical attitudes (to different degrees) in their course of action during the game. These participants reported that they preferred non-violent options in general and, on several occasions, *compared their in-game behavior to real-world behavior* in terms of ethicality (e.g. decided not to shoot a gun in someone's room because such a course of action was not morally correct).
- 4) **Weapon equipping difficulties:** Nate, the outlier in the group, did not shoot Olivia for the simple reason of not being able to equip the gun. Rather, he stated in the interview that he would have shot her had he known how to do that, because of the instinct to defend himself. Caroline and Milo also had problems equipping the gun, but downplayed the role of these difficulties in their actions towards Olivia.

Much like the Gunslingers, there were also differences in the styles of play among the Holstered, with Caroline and Nate – the two less experienced participants – playing much more slowly and cautiously compared to Milo, Scott, and Adam. Nate was not only the slowest

participant among the Holstered, but also in the entire study, taking around 20 minutes to reach Remy and the final area of the game.

In light of these results, the study's findings regarding ludic habitus and its operation in digital gaming practice can be summarized as follows:

- When faced with a situation of limited information and the need to make a quick decision therein, the players of *TestingHouse* tended to act in one of two ways:
  - Some participants acted *proactively*, preferring to shoot Olivia rather than waiting for her to approach.
  - Other participants acted *reactively*, preferring to wait for Olivia to approach rather than shooting her.
- The participants who acted more proactively also interpreted the game as a straightforward action horror experience, on the basis of one or more of its design elements. These participants were less likely to consider issues of ethics at specific moments during their playthrough (such as in the basement corridor) and in general when playing games. They also categorized *TestingHouse* in clearer, stricter terms.
- The participants who acted more reactively interpreted the game as, essentially, a *subversion* of the action horror experience, being unconvinced by one or more of its design elements and not perceiving Olivia as any kind of a threat due to her movement speed and walking animation. These participants were more likely to consider ethical issues and perspectives, both when playing *TestingHouse* and when discussing games in general. They also categorized *TestingHouse* in much less clear, more ambiguous terms.
- The participants' behavior during their time with *TestingHouse* provided the basis for the *ludic habitus spectrum*, a model of player tendencies in digital games which range from proactive to reactive (Fig. 24).



**Figure 24.** The ludic habitus spectrum, mapping the behavior of the participants from the third study.

- More proactive players tend to *act* in digital games; more reactive players tend to *think*. The proactive players interpret and categorize new gaming situations quickly and effectively; the more reactive players are slower and need more time and evidence to disambiguate gaming situations.

- The tendency towards proactivity or reactivity seems to be *a fundamental characteristic of a player's ludic habitus and its deployment during concrete acts of digital gaming practice*, guiding the player's decision-making and style of play on a most basic level. As the questionnaire and interview responses show, these tendencies seem to be built up over a lifetime of playing digital games and on the basis of experience, knowledge, and preference towards particular types or kinds of games. For example, the participants in the study who played proactively were also more likely to list action and FPS games as their preferred or familiar genres, and otherwise had little experience with experimental and genre-subversive games. Conversely, the participants who played reactively were more likely to express preference for slower-paced genres of games and/or familiarity with, and preference for, experimental, unconventional game designs.

#### 4.4. Methodological reflections

In addition to the results about ludic habitus and digital gaming practice, the prototype design and development experiences – principally from the first and second player study – also contributed to knowledge about *the relationship between the processes study design and game design*. As previously mentioned, these results are described in more detail in the design reflections paper (Appendix IV); here, they are summarized as follows:

- The tandem processes of study design and game design in projects that feature both can be framed and organized with *a focus on the study participants*. As study participants figure both as data sources (from the perspective of study design) and as players (from the perspective of game design) in these projects, they provide a useful point around which to structure the study and navigate the role of game design therein.
- Designing a game prototype for a research study involves designing for *implied participants*. I define these as abstract player figures whose relationship to the designed game is understood primarily in terms of research questions, hypotheses, or topics under exploration. Depending on how the study is organized and structured, implied participants can be *defined to a greater or lesser extent*.
- In studies which follow a more sequential research structure, with game design following the specification of research questions, hypotheses, or topics, the implied participants act as *design guides*. This was the case with the first study in the research project, on game perception. In this study, the implied participants were well-defined during hypothesis creation, and directed the process of game design. As part of this approach, the game design process is secondary to study considerations, with the defined character of the implied participants providing game design with structure and direction, but generally leaving less space for experimentation and the generation of design knowledge.

- In studies which follow practice-based research strategies, with game design preceding the specification of research questions, hypotheses, or topics, the implied participants act as *research guides*. This was the case with the second study in the research project, on game appreciation. In this study, the implied participants were defined during the prototyping process and design experimentation, and directed the study design by specifying the topic of investigation. As part of this approach, the game design process is the central, foundational component of study design, facilitating a comprehensive, practice-driven exploration of a problem area, and by extension, more opportunities for generating design knowledge.
- Having in mind their project's goals and research questions, each individual designer/researcher has to decide what project structure is right for them. Generally speaking, using implied participants as design guides benefits *novice designers*, as it helps specify and structure their game design and development work. This works to lower the time and labor requirements of the game design process, as the implied participants will usually dictate the design brief. Conversely, using implied participants as research guides benefits *novice researchers*, allowing them to discover research topics through design experimentation. This approach tends to prolong both game design and study design processes, but is potentially able to generate novel research topics that might otherwise be left unexplored as part of a sequential research structure.

## 5. The general framework of digital gaming practice

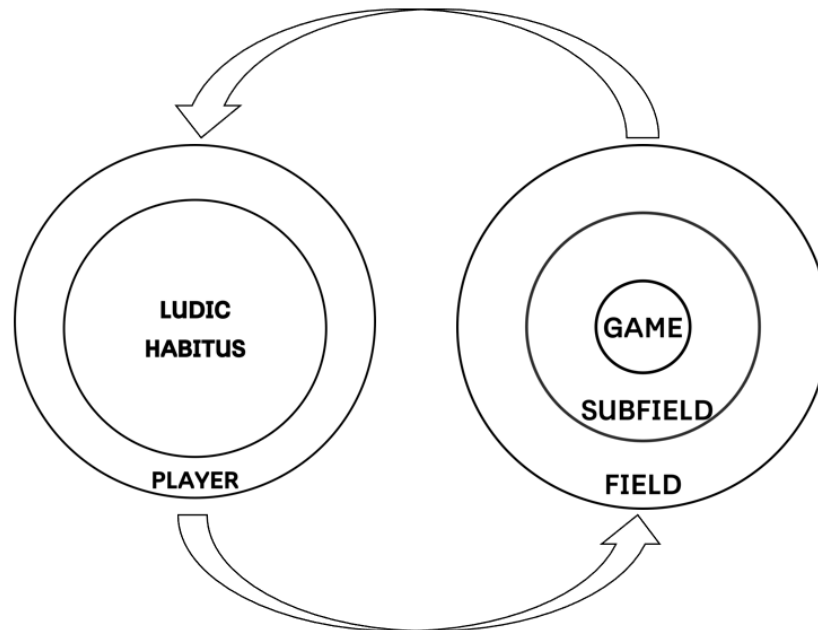
Having presented the outcomes of the individual studies, it is now time to take a higher-level look at their results and synthesize the general framework of digital gaming practice, and illustrate it with a visual model. In other words, this chapter aims to accomplish the central goal of the research project. It presents important stages in the progressive development of the framework, with particular focus on the findings of the three studies, and concludes with the visual model of the act of digital gaming practice, which illustrates the framework in a simplified fashion.

### 5.1. Early framework development

As key concepts for the present research project, ludic habitus and digital gaming practice have been *deliberately progressively developed* from one phase of the project to the next, first through theoretical and then through empirical work. In this section, I will take the reader on a journey through this progressive development, from early sketches and conceptual models to the final framework of digital gaming practice. The attentive reader will likely already be familiar with the entirety of this journey; it essentially mimics the order in which information has been presented in this dissertation. However, because of the scope of the project as a whole, a pragmatic summary such as the one in this section will be useful when conveying the project's findings.

When presenting Bourdieusian practice theory in 2.1, I also presented an initial, working definition of ludic habitus as *a system of dispositions obtained through experience in the field of digital games which structure and direct our perceptions, interpretations, valuations, and behaviors in the field of digital games*. This definition was accompanied by a content-centric working definition of generic subfields of digital games as *historically developed configurations of game design elements*. These definitions, developed on the basis of literature review, served as a broad starting point for further examinations of the two concepts during the act of play. Alongside them, I also discussed the various perspectives on *gameplay*, understood by scholars and game designers as *the dynamic act, process, or experience involving both the player and the game artefact*, and often conceptualized as *a feedback loop* between player and game system.

The earliest understanding of the act of digital gaming practice in this project synthesized all of the abovementioned views into a single *conceptual model*. This model imagined the act of digital gaming as *a process involving an agent, possessing a ludic habitus, and a digital game artefact, containing game design elements in specific, often conventionalized configurations* (Fig. 25).

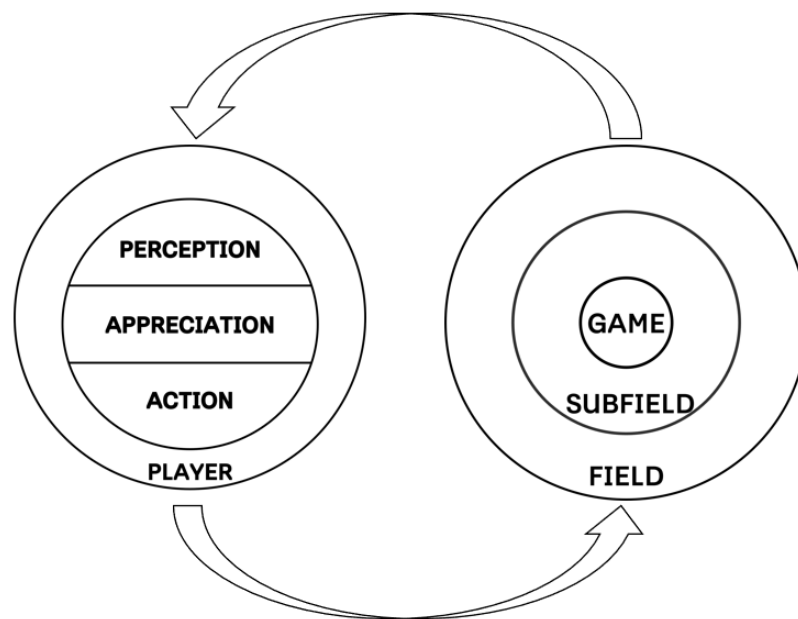


**Figure 25.** First model of digital gaming practice.

This initial model of digital gaming practice in its manifestation as a concrete act of play envisaged it in much the same manner as previous research on gameplay and game interpretation: as *an input-output feedback loop* (illustrated by the arrows). It differed from this general understanding by framing the player as *possessing ludic habitus* and the game artefact as *being situated within a broader generic subfield of digital games* and, in turn, *the overarching field of digital games*. The model did not specify the elements of the agent's ludic habitus or the nature of the interaction between the player and the game. It only assumed the basic hierarchical relationship on the side of the game, with any game containing *some* game design elements and configurations characteristic of *some* generic subfields, which are only *some* of many possible generic subfields in the field of digital games.

In order to further develop the understanding of digital gaming practice, the first point of order was to elaborate ludic habitus. As mentioned in the methodology chapter, each of the three

studies specifically focused on *one tier of habitus* developed as a result of playing digital games. Bourdieu's description of habitus as "*a matrix of perceptions, appreciations, and actions*" (1972/2013, p. 83, italics original) served as a pragmatic guideline for structuring the research project and organizing the studies. In doing so, this description – adopted as a guideline in order to structure the project's approach to player studies – more closely framed the project's understanding of ludic habitus as a *three-tier* system of dispositions related to digital games, playing a role in how players *perceive, appreciate, and act* during play. This further elaboration led to the second model of digital gaming practice (Fig. 26).



**Figure 26.** Second model of digital gaming practice, illustrating the perception, appreciation, and action tiers of ludic habitus.

This second model of digital gaming practice, created as a result of preparatory work for the empirical stage of the project, acted as the basis for investigation of this form of practice in the three player studies. At this stage, the model was still lacking in empirical detail on both ends, with the nature of interaction between player and game was still unspecified, apart from the broad understanding of it in terms of an input/output feedback loop.

It was up to the three player studies, each focused on one tier of ludic habitus, to advance the understanding of the practical act of digital gaming by providing data for specifying the character and relation between one's perception, appreciation, and action when playing digital



games. I will now present each of the three tiers of ludic habitus one by one, in the order in which they were investigated, but drawing on relevant data from all of the studies in doing so.

## 5.2. Contributions from the studies

### 5.2.1. Perception

The *perceptual* component of ludic habitus – understood and approached here in the tradition of cognitive constructivism – *recognizes, interprets, and categorizes design elements of a digital game* as they are encountered during play. As shown in the second study, this process takes place both *continually*, as part of the momentary interaction between player and game, and *contextually*, with the game design elements interpreted not only in isolation, but also in relation to other elements in the game, the conventions of the generic subfield to which the game registers as belonging to, and to the field of digital games as a whole. As part of this process, players generate a *perceptual model* of the played game – what Arsenault and Perron (2008) have earlier dubbed *Game'* and discussed in the context of the heuristic spirals of gameplay and narrative. This model, essentially a player's individual understanding of a particular game as a designed system, is continually updated and refined during the act of play as it unfolds, and as the player explores the possibility space of the game. In addition to the model being generated on the basis of game-specific information, this process also entails relating the model of the played game to models of other games which register as similar, and which the player has previously generated, and to broader models of generic subfields that the player might have. Outside of the context of the act of digital gameplay, these models are often expanded through a player's broader engagement with the field of digital games and through practices other than playing, such as engaging with paratextual material<sup>43</sup> that surrounds a particular game.

Several of the studies showed that individual game design elements perceived very early on during play, such as a game's visual style or background audio, can carry potent cues for game categorization, and are thus often a point of focus for the player's ludic habitus. For

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<sup>43</sup> See Jan Švelch's (2020) article for a broader overview of the concept in gaming; here, I follow the *extended* understanding of paratext (as mentioned by, among others, Mia Consalvo (2007)) that includes both the material created and disseminated by the game's authors and producers, as well as material by other actors that concerns the game – e.g. walkthroughs, Let's Plays, criticisms, reviews, etc..

example, Willow<sup>44</sup> (*Inglenook*) described initially being overwhelmed by the text-heavy visual style of the game she played in the study. This aspect of *Inglenook*'s design took up most of her perceptual processing during the first moments of her gameplay. Subsequently, through exploration of the house, she came to understand that word-objects did not have to be read to be interpreted, and thereafter began to spend less time processing the game's visual style. This allowed her perceptive focus to move from that one design element in isolation to a more integrated view on the game as an environment of 2D spaces with objects and opportunities for interaction. The game's text-heavy visual style was only one component in the specific design configuration that made up *Inglenook* as a digital game, but one which, as Willow pointed out in the interview, was very important for her understanding of the game in generic terms – as an *indie* or *art* game. Similar thoughts were offered by Michael (*TestingHouse*), who first discerned his game's dark lighting and eerie background noise, before even entering the house proper and interacting with any object. Later on, he would connect these elements with others to classify and label the game as a specific kind of game – in his case, a first-person horror game. Both of these players were deeply influenced by initial visual and sound cues in their respective games, interpreting them on the basis of prior perceptual models

Game mechanics, level layout, visual perspective, and player character configurations perceived early on during play can also cue the player to link the game to other games which share those elements as part of a generic subfield, and subsequently categorize the game in specific terms. An example of this was noted by Logan (*Perception prototypes*), who immediately recognized the design similarities between the control game and the first level of *SMB*. This linking – much like the ones made via perception of other design elements, as described above – can impact the method by which a player plays a game. If a game is perceived as similar to some other game, the player will attempt to implement the corresponding *game-/genre-specific method of interpretation* (Aarseth & Möring, 2020) they developed earlier, and play the game in the style of the other, familiar game. In that fashion, the perceptual component of ludic habitus can set the stage early on for the implementation of a specific behavioral pattern or style of play.

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<sup>44</sup> Throughout this section, I will paraphrase the responses of the study participants as illustrations of theoretical points. When doing so, the game prototype(s) that they played, as well as the group into which they were classified, will be mentioned in the brackets following their name, to remind the reader of the study in which said person participated.

### 5.2.2. Appreciation

The *appreciation* component of ludic habitus evaluates design elements of a digital game as they are encountered during play. As part of this process, the player *creates personal opinions* about specific aspects of a game's design – among others, its visual style, its soundscape, its narrative components, its mechanics, and the affective qualities of the feedback loop that the game helps to support through its design configuration (how a game *feels* to play). Like game perception, game appreciation also works on several levels, from evaluations of individual elements as implemented in a specific situation to those of the game as a designed whole. Perceived design choices in individual games can also be evaluated in relation to other familiar games and generic subfields, as illustrated by Scott and Adam (*TestingHouse*) and their meta-interpretation of the game as a commentary on the horror genre or an indictment of violence in digital games.

As the second and third study have shown, this component of ludic habitus has the most impact on the style by which a particular game is played by a particular player. The player's personal play preferences, accumulated over the course of their lifetime of experience with digital games, act as *taste patterns*, guiding the player in their discernment of the played game as a designed possibility space and providing the basis for their mode of engagement with it. While the perceptual component of ludic habitus provides the kernel for a particular pattern of behavior, the appreciative tier “fuels” certain behaviors at a given moment during the act of play.

When deciding on a style of play behavior, the players' taste patterns link their perception of the game and their actions therein. They do so through *attribution of salience* for certain individual design elements and modes of behavior made possible by the game's design, at the expense of others. The differences in play between Arthur (*Inglenook*, Puzzle-Solver) and Miles (*Inglenook*, Explorer) in the second study illustrate this process. The former did not care much for *Inglenook*'s narrative dimension and focused only on puzzle-solving, effectively seeing and playing the game as a puzzle game, while the latter expressed greater appreciation for almost all of the design aspects of *Inglenook*, interpreting the game as an indie game inviting a specific contemplative method of play and playing it accordingly. Because they impact both perception and action in acts of digital gaming practice – how we experience and how we play games – taste patterns are therefore *a vital component of ludic habitus*; they provide the background for *playful, affective* player behavior during the act of digital gaming practice. This was observable across the three studies, but perhaps nowhere as clear as in the case of infrequent or non-players, such

as Amy (*Perception prototypes*) and Nate (*TestingHouse*). Amy enjoyed the sounds that would play upon picking up a coin in the control game to such an extent that she went out of her way to collect as many coins as possible, frequently doubling back after missing some. After not shooting Olivia in the basement, Nate (a non-player) spent a good two minutes next to her, pressing all the buttons on the keyboard and otherwise attempting to somehow interact with her, because of his expectation that a digital game would always provide opportunities for rewarding action. He later attributed this behaviour to his preference for action cinema and close associations between this media form and digital games as category. Simply put, these two players pursued the kinds of interaction they found personally rewarding in digital games – in the case of Nate, however, this pursuit was not a success.

### 5.2.3. Action

The *action* component of ludic habitus implements behavioral patterns during play, thus providing input for the hardware/software system of the game. As part of this process, the player *utilizes and develops their personal action competencies* in a moment-to-moment interaction with the game system, mediated by its input methods (e.g. the controller, the keyboard/mouse, the touchscreen, the Kinect camera). By “action competencies,” I here refer to what Juul (2005, pp. 95-97) would call the *player repertoire*: a collection of skills for playing a particular game. These competencies have a physical element – i.e. the pressing of a button, the movement of a Wiimote – but also a virtual element – i.e. an in-game action to which this physical action is mapped.

Action competencies are always acquired not just in relation to a particular game or generic subfield, but also, crucially, in relation to a particular method of input used to play the game<sup>45</sup>. A good illustration of this is Milo (*TestingHouse*), who initially had a hard time playing the game because he was not used to using the mouse to move the camera. His experiences with FPS games were restricted to older examples of these games on the PC, such as *Doom* (iD Software, 1993), which were entirely played using the keyboard. Milo’s difficulties with *TestingHouse* showcase how all elements in the chain which links physical action, input method,

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<sup>45</sup> As mentioned by Andreas Gregersen and Torben Grodal (2009), physical actions – such as the pressing of a button on a controller – can be *mapped* to the game system in different fashions, with certain mappings being standardized in console and PC games and linked to certain genres. These mappings are also discussed by Kristine Jørgensen (2013, pp. 21-22) in the context of digital game interfaces (understood in both hardware and software terms) as mediators between the player and the game system.

virtual interface, and the game system are *conventionalized* and *interrelated* – both when it comes to players and their action competencies, and when it comes to generic configurations of game design. In turn, a lack of a generic action competency – e.g. the inability to equip a gun in a PC FPS game, as was the case with Nate, who wanted to shoot Olivia – is a barrier for intended play behavior, as the player literally cannot do what they want to do.

Much like taste patterns and perceptual models discussed before, the action competencies on this tier of ludic habitus also grow and evolve over time and with exposure to different kinds of games and generic subfields. As demonstrated by Mark and Logan (*Perception prototypes*) during their playing of the control game in the first study, overreliance on these competencies – brought about by misperceiving one game as similar to some other, previously played game – can result in performance mistakes during gameplay. In such cases, and to overcome a difficult situation in-game, the player has to create a new perceptual model and channel it through experimentation into novel behavior, incrementally expanding and altering their action competencies as they do so. These processes – fundamentally processes of *learning about digital games* and the *gameplay gestalts* (Lindley, 2002) that they feature – are part and parcel for the growth of a player's ludic habitus, and occur as a fundamental part of concrete acts of digital gaming practice.

However, as exemplified by Kyle (*TestingHouse*), it is not always necessary to alter a behavioral pattern, even if it might not be the intended way of playing a particular game. If a player perceives the game as in some way familiar, and the style of play that they want to employ is supported by the game, the game system will not stop them from doing so. This is especially common in games with a wider possibility space, that offer players multiple methods or modes of play – one illustration of this being the equally valid possibilities of killing and not killing any enemies in a game like *Undertale* (Toby Fox, 2015). In fact, designers of games like *Undertale* draw on the player's habitual methods of perceiving and behaving in games, developed over multiple acts of play and with exposure to genre conventions in a generic subfield, to subvert player expectations and experiment with genre and game design tropes, thereby further evolving generic subfields and the field of digital games as a whole. Appropriately enough, this brings us to two important temporal properties of ludic habitus that were highlighted in the studies: *tendencies* and *attunement*.

#### 5.2.4. Tendencies and attunement

During the review of perspectives on digital gaming practice in game and player studies, I mentioned that this research project differs from prior work in the area in (among other things) one fundamental premise: that neither the player nor the game artefact are *tabulae rasae* when the act of play begins, but are rather *co-constituted* both in the moment-to-moment act of gaming, and across a longer period of time. In light of the study results and findings, it is time to elaborate on this premise.

Even a novice player, who has never played digital games, engages in the first play session with *some sort of background knowledge*, be it about gaming as a culture, about digital games as designed artefacts, or about play as a mode of being and relating to the world. In effect, this means that *there is no such thing as not having a ludic habitus* – there are only spectra of degrees and types of ludic habitus, varying from person to person and on the basis of their own, *individual* experience with games, gaming, and broader and related fields of practice. Broadly speaking, as each player plays digital games – moment by moment, minute by minute, day by day, year by year – their ludic habitus develops on all three tiers. Their *perceptual models* of game design elements and their configurations expand and evolve, their *taste patterns* either specialize for certain genres or become more diffuse and broad, and their *action competencies* develop in a manner akin to physical training. This process is the long-term equivalent of what Sicart (2009) calls *player subjectification*: it is the development of the player as a *historical entity*, taking place through many repeated loops of learning and, to an extent, through other forms of participation in the field of digital games.

On the player side of the story, the degree of these changes varies highly from one person to the next, from one time frame to another, and depending on the games that one gets to play. For some players, a single digital game, played at the right time, might be deeply influential to their ludic habitus, forever altering how they understand and practically relate to digital games<sup>46</sup>. For others, the same game could only solidify further their existing patterns towards digital games – perhaps because they thought it looked and played exactly the same as some other games they might previously have encountered, or simply because they found it personally underwhelming.

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<sup>46</sup> As a personal aside, I have been fortunate enough for *two* games to have such an impact on me: *Final Fantasy VIII* (Square, 1999), and *NieR: Automata* (Platinum Games, 2017). I am also friends with people who absolutely detest both of them.

Here, it bears repeating that Bourdieu sees habitus as *durable* systems of dispositions – they display relative stability, which enables one to relate to, and function in, the corresponding domain of practice. When discussing how players play digital games, we can understand this durability in two ways:

- 1) Firstly, the elements of one's ludic habitus – perceptual models, taste patterns, action competencies – have their own durability, the extent of which varies from one player to another. Without this *fundamental* durability, it would be impossible to *be* a long-term player of digital games – one would, in effect, have to learn to play from scratch with each new game.
- 2) In addition to this, there is also another kind of durability, one that characterizes *one's ludic habitus as a whole*. This durability supports the player's engagement with digital games with a high degree of consistency and on a deeper level than the perceptual, appreciative, and actionable schemata. In the third player study, this durability was discussed under the heading of *tendency*, understood as *persistent patterns of engagement with digital games*. The gamut of player tendencies was dubbed *the ludic habitus spectrum*, and described as ranging from the *reactive* (favoring perception and interpretation over direct action) to the *proactive* (favoring direct action over perception and interpretation).

The overall tendency of one's ludic habitus is *the general trend of how it is employed in concrete acts of digital gaming practice*, emerging on the basis of a player's individual tendencies to perceive, appreciate, and act in certain fashions when playing games. In simple terms, this overall tendency is the ratio of thinking to acting during play, in essence underpinning a player's playstyle and in-game behavior. I use the term “tendency” in order to signify that what is being discussed here are relatively durable inclinations, rather than fixed, deterministic properties of ludic habitus.

One's ludic habitus does not operate alone in digital gaming practice, but in response to the design elements and configurations of the given digital game which may necessitate a different tendency to the one the player is used to employing during play. For example, a puzzle game without time constraints such as *The Witness* (Thekla Inc., 2016) would require very little of the player in terms of quick, direct action, but comparatively plenty in terms of perceiving and interpreting the world of the game. Conversely, an FPS like *Quake* demands good reflexes and timely actions, not leaving the player with much time to think in the process. These design configurations can also be understood as tendencies in their own right, but on the side of the game and its corresponding generic subfield, rather than the player and their ludic habitus. Much

like one's ludic habitus and its components are relatively durable, yet can change over time, so too does the design of artefacts within the field of games change through the historical rise, consolidation, and eventual evolution of design patterns and configurations, input methods, and mapping conventions which characterize different generic subfields. Genres appear, trend, and either evolve or disappear – and their players are changed in the process of playing them as well.

Because both player and game come into acts of digital gaming practice with their respective “baggage” – ludic habitus and its tendencies on the one hand, design configurations and their histories on the other – the meeting between the two is not always agreeable. In the second study, Arthur and Joe (*Inglenook*, the Puzzle-Solvers) quickly shifted their gameplay focus solely to the puzzles, and disregarded other design aspects and modes of engagement in the game. They expressed criticism of the design of *Inglenook*, finding it visually baffling, mechanically basic, and boring to play. Arthur's and Joe's situations are examples of a *lack of attunement* between one or more aspects of one's ludic habitus and one or more design elements of the played game. In their case, *Inglenook* was unfamiliar on the perceptual level, unchallenging on the action level, and unremarkable on the appreciation level. In simpler terms, *it was not their kind of game*.

On the other hand, when a game's design and its historical precedents resonate with the player and their own history of gaming experiences, the two can be said to be *in attunement*. This was particularly the case with Scott and Adam (*TestingHouse*). For both of these players, the design of the game they played challenged their perceptual models related to its generic subfield (first-person horror games), enough to engage their meta-interpretation and for them to frame *TestingHouse* as a genre commentary on violence in games. Though the game was not challenging on the level of skills, it facilitated a style of play that these two players found personally appealing – namely, it enabled them to progress without the use of violent means. In the case of these two players, *TestingHouse* was experimental and subversive on the perceptual level, accommodating on the action level, and thematically meaningful on the appreciation level. In equally simpler terms, *it was their kind of game*.

“Attunement” should be understood in light of both the different tiers of one's ludic habitus *and* the different design layers of a digital game – including its generic subfield background. The two examples above, of attunement and lack thereof, are relatively clear-cut; more ambiguous relations between player and game are much more common. Attunement is a matter of degree, changing over time and through play (or, to use Vahlo's (2017) enactivist terminology, through the cyclical process of *exploration* of the game's possibility space and



coordination of skills and knowledge into actions). Attunement can be strengthened in *a moment of discovery* at any point between the game's *launch* and *exit windows* (Arsenault & Perron, 2008) – as in the second study, when some of the participants started understanding *Inglénook* as a distinct kind of game – but it can also exist *to a greater or lesser extent*, depending on the player and the game. As an illustration, let us remember the game design students in the first study, playing the control game prototype. All four of these players found the control game – and its related subfield – familiar, implying a level of attunement between their ludic habitus and the design conventions of the platformer generic subfield<sup>47</sup>, which the game wholeheartedly utilized. However, this familiarity led to a lack of personal interest in the control game on behalf of these players. Their perceptual models and action competencies had already had plenty of experience with similar games, and, as a result, all four designers in the study preferred the experimental game over the control game, because the former brought something new into the mix and subtly challenged their ludic habitus. Therefore, we could say that the ludic habitus of these players were, collectively, *more attuned to the experimental than the control version of the game*; the simple design changes (omission of jumping mechanic and the resulting differences in level layout) were enough to create *a more personally meaningful play experience* for these players.

This point provides the last element needed to offer a proper definition: attunement is *situational alignment between one or more tiers of ludic habitus and one or more aspects of the designed game artefact, which contributes meaning to the play experience*. The extent of this meaning can range from the more basic logical understanding and familiarity (e.g. knowing the design configuration of a certain game, and having the competencies to play it with certain input methods) to deep, personal relevance (e.g. returning again and again to a favorite game, with every act of play feeling right and significant).

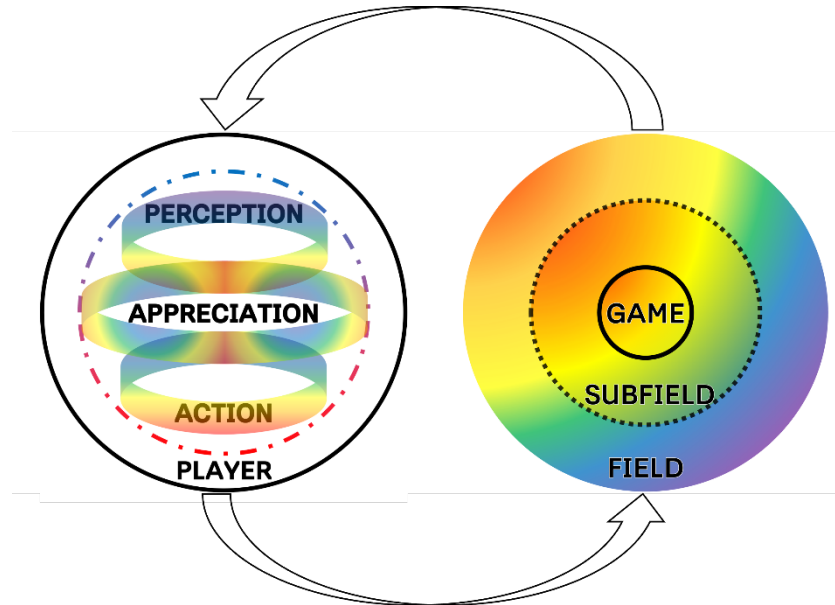
With this concept defined, it is – at last – time to present the final illustration of digital gaming practice that has been developed as part of this project

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<sup>47</sup> This degree of attunement can also be framed as familiarity with the *design grammar* of the platformer (to use Gee's (2003) term) or with the conventionalized platformer *gameplay gestalt* (to use Lindley's (2002) term).

### 5.3. The general model of digital gaming practice

With attunement and tendencies explained, and with each habitus tier discussed in more detail, it is time to once again alter the earlier visualizations of digital gaming practice – and offer the final version of the general model (Fig. 27).



**Figure 27.** The general model of digital gaming practice. The feedback loop interaction between player and game is illustrated with arrows. The player possesses a three-tiered ludic habitus, while the game is nestled within a generic subfields and the broader field of digital games. Color signifies ranges of possibilities at a given time in the development of one's habitus and the field of digital games as a whole.

In the broadest of terms, the act of digital gaming practice can be understood as a feedback loop involving the player (possessing ludic habitus) and the game artefact (designed and developed within the context and conventions of particular generic subfields of digital games). The player's ludic habitus is a *three-tiered system of dispositions*, comprising perceptual models, taste patterns, and action competencies, all of which characterize that player, and all of which work in unison during play to perceive, interpret, evaluate, and respond to the digital game on a moment-to-moment level. The game artefact is a *collection of design elements and configurations*, which draw on conventionalized design patterns within broader generic subfields of practice, which in turn are situated within the general field of digital games as designed digital products.

In the model, ludic habitus tendencies and corresponding game design element conventions and configurations are depicted using the dimension of *color*, with color similarities between player and game corresponding to different degrees of attunement. Each tier of ludic habitus has its own degree of development, with certain tendencies developed on the basis of practical experience with game artefacts, and with gaming as an activity and sociocultural field. The rainbow bands indicate these spectra of tendencies, which are both *tier-specific* (e.g. certain ways of seeing, feeling, and playing) and *systemic* (influencing other habitus tiers, e.g. certain ways of seeing or feeling *contributing* to certain ways of playing). The blue-to-red boundary around the habitus represents its overall tendency – ranging from reactive (perception-focused, blue) to proactive (action-focused, red).

Correspondingly, each digital game artefact draws on and implements certain design conventions from broader subfields, which are in turn situated within the broader field of digital games. In the model, the game artefact is *fully bound* as the object of player interaction, with only a few shades of color signaling comparatively few game design elements and configurations. The generic subfield is *semi-bound* as it is both standalone and overlapping with other subfields, with a greater range of color signaling more design elements and configurations characteristic of that subfield than are present in the individual, nestled game. The field is *boundless* as it is but one of many sociocultural fields, and it contains the entire, ideal spectrum of game design possibilities and configurations.

The color dimension of the model is particularly important for its portrayal of digital gaming practice, and needs to be clarified further. What is presented in the figure above is an *ideal, general* model, and not a depiction of any one player's actual ludic habitus and any one game's actual design configuration. Color bands have been used precisely for this reason: to embrace and illustrate potential and *possibility*, rather than to demarcate any actuality. The spectra of color in the model also help convey *temporality*. Just like the color ranges in the model, so too do tendencies and patterns of ludic habitus and generic subfields shift and change over time, both in individual acts of gaming and across a longer period of time spanning multiple such acts, with attunement between the two always *elusive, partial*, and above all, *situational*.

In its final state, the general framework of digital gaming practice and its visual model represent a synthesis of theory, game design work, and empirical investigations of how actual players play actual games. As this chapter has shown, the framework has been developed progressively, with each stage of research – Bourdieusian practice theory, reviews of work in the domains of game and player studies, design experimentations and player data – further

contributing to the understanding of the phenomenon of digital gaming practice and informing the design of the visual model. This final model incorporates as much as was possible to put into a single visual representation of theory. With that in mind, the model is *not* meant to be used as an analysis model, but merely as a visual shorthand for the described framework. The two are intended to complement one another, together *representing* the act of digital gaming practice and answering the question of how actual players play actual digital games.

Ultimately, rather than envisaging them as abstract, non-specific entities, as was the case in previous understandings, the model and framework developed in this project account for players and games in a more accurate, holistic light: they are portrayed as *historically developed ranges of potentialities, momentarily bound in the situated act of play*. For the player, these potentialities are the different ludic habitus attributes – perceptual models, taste patterns, and action competencies – while for the game, they are the different design elements, their conventionalized configurations, and the methods in which these are implemented in a given game artefact by its designers.

## 6. Discussion

Having presented and explained the framework and model, it is time to close the dissertation with the final chapter, the discussion. Here, I will more concretely outline the project's contributions (6.1), illustrate its applicability with more examples (6.2), take a retrospective, evaluative look at its methodological approach (6.3), and account for its limitations and sketch out avenues for further research (6.4). The chapter, and the dissertation as a whole, ends with brief concluding remarks (6.5).

### 6.1. Scholarly contributions

The research project represents a contribution to academic research in several ways. Firstly, the project offers a perspective on digital gaming practice that *accounts for both its aspects in a concrete act of gaming, and for the development of the player as a specific, unique player over a longer period of time spent playing games*. The general framework of digital gaming practice can explain both how a player develops through multiple experiences with different kinds and types of digital games, and how that same player leverages those past experiences to make sense of a particular digital game during the act of play. This positions the framework as a more detailed and comprehensive alternative to prior theoretical frameworks of the concept of gameplay (e.g. Arsenault's and Perron's (2008) magic cycle, Vahlo's (2017) enactivist account of gameplay), hermeneutic theories of game interpretation (e.g. Arjoranta, 2011; Karhulahti, 2012), and general theories of the act of playing games as a process of learning (e.g. Gee, 2003). The framework's understanding of the act of playing digital games incorporates common elements behind these approaches (e.g. a view of gameplay as a dynamic feedback loop through which players learn and develop), but also builds on them through its practice-theoretical framing of gaming as a practical activity and its *detailed, layered explanation* of dispositions that develop in the player as a result multiple instances of playing games. This explanation lends the framework greater practical applicability and increased potential as a tool for analysis and discussion, which will be illustrated with a variety of examples in the next section.

Similarly, in its understanding of ludic habitus as a three-tiered system of dispositions which guide a player's involvement in gaming practice, the framework offers *a novel perspective for discussing players in gameplay acts*. This perspective sees players in terms of *holistic traits*,

rather than discrete attributes of personality or behavior – an approach called for by certain game scholars who have criticized type-based player classifications and theories in the past (e.g. Bateman et al., 2011). In doing so, the project’s elaboration of ludic habitus results in a concept that can serve as *an alternative method of player comparison* to those previously used in the field of player research. Unlike classificatory player research in the form of player typologies or taxonomies (e.g. Bartle, 1994; Yee, 2006), which tend to look at discrete psychological or behavioral attributes, or examples of sociological player research (e.g. Carr, 2005; Pierce, 2008), which employs more holistic perspectives to understand players but often focuses on specific sociocultural player categories, the ludic habitus model is a *general, multilayered* construct – one that allows for comparing players on the basis of their *traits* and *tendencies*, rather than any single property or attribute. As illustrated in the framework discussion in the previous chapter, the three-tiered understanding of ludic habitus enables one to explain player differences in concrete acts of digital gaming practice – for example, at key moments of decision-making – by tracing in-game behavior back to tendential ways of perceiving, appreciating, and acting in digital games, which serve to characterize and differentiate one player from the next.

The example mentioned here highlights another important contribution of the project to game and player research: the general framework of digital gaming practice represents *a unified perspective for understanding and discussing gaming as a practice, players as practitioners, and games as designed artefacts drawing on conventionalized design elements and configurations*. Though there have been attempts to create a similar understanding in the past (e.g. approaches adapting activity theory to discuss gaming as a situated activity (Nardi, 2010), or approaches developing comprehensive models of player experience (Elson et al., 2014)), they lack the specificity and temporal granularity of the current framework, which can be utilized to examine the moment-to-moment practice of digital gaming equally well and in as detailed a fashion as its diachronic effects. Due to its accounting for players, games, and gaming, the framework is difficult to classify into a single theoretical box, but this is exactly what lends it its potential as an analytical tool – it is an all-in-one theory of gameplay, and of players, and (to a lesser extent, as will be discussed later) of game design.

Outside of the domain of digital games, the project also *contributes to Bourdieusian practice theory* in its detailed description of a dedicated, ludic habitus, and in its methodological setup. The former stands alongside other examples of research into dedicated forms of habitus, such as *music habitus* (e.g. Rimmer, 2012), which have been elaborated in recent years to greater or lesser extents, thus extending Bourdieusian practice theory into new domains of practice. The

project's methodology, combining literature review, game design practice, and empirical player studies, represents a novel, comprehensive approach to habitus research and to the development of a theory of *a* habitus, illustrating that habitus can be explored in a multi-method fashion centering around laboratory playtests, rather than just through fieldwork or survey studies. Furthermore, through its understanding of *implied participants* presented in the design reflections paper (Appendix IV), the project's methodological reflections act as valuable insights for study design in research projects of various kinds that employ custom game prototypes. With this approach, therefore, the project offers an alternative to ethnographic and autoethnographic forms of research previously utilized to investigate certain kinds of habitus (see e.g. Wacquant, 2011).

Contributions to theory are one thing, however; in addition to those, the framework also has practical applicability. In the next section, I will use the general framework to examine a variety of specific gaming practices, on different temporal levels, which will illustrate how the framework can be utilized to help us understand players, games, and gaming in a novel, more detailed fashion.

## 6.2. Applicability

The analysis potential of the practice-theoretical approach to gaming has already been shown using the data from the three player studies, at various stages of data analysis and during the construction of the framework. However, as mentioned throughout this dissertation, the principal motivation behind the project was to create a *general* framework of digital gaming practice – meaning that its true test is in whether it can be used to account for *different varieties* of gaming practices. Let us take a look at some of those now, and analytically describe them using the framework.

In the introduction to the dissertation, I used the example of Niftski's record in *SMB* to illustrate *speedrunning*, one kind or type of specialized practice that involves digital games. I also mentioned Rainforest Scully-Blaker's description of speedrunning as a "practiced practice" (2014). To an extent, that is an accurate understanding of speedrunning; as a form of gaming practice centered around achieving the shortest possible time in a digital game from start to finish (or some other agreed-upon delineation), speedrunning a game does involve training and repeated play of the same title. Generally speaking, this repeated play results in highly attuned

and detailed perceptual models and sets of action competencies, as well as different preferences related to the act of speedrunning – among others, for types of games or categories that one runs, and for the kinds of software and hardware setups one utilizes (with some runners using specific controllers, or even specific methods of holding them during play). However, the concept of ludic habitus and the understanding of gaming practice developed as part of the framework in this research project can help us to differentiate between different kinds of speedruns and to describe their specific requirements and effects on the player, reframing speedrunning as a *category* of related activities rather than as a single, distinct, uniform practice.



Figure 28. Niftski's record run in action, taken from Bismuth's (2021) video explanation of the record.

As illustrated by Bismuth's video deep-dive into Niftski's record (Fig. 28), speedrunning a game like *SMB* involves training to the point of being able to perform frequent frame-perfect inputs, as missing a single one can result in a comparatively drastic loss of time. A short game like *SMB* usually has *one optimal route* or path from beginning to end, with very little variation along the way<sup>48</sup>. Its player needs a perceptual model and action competencies that are deeply attuned to that one specific game and its one specific, optimal route, which can be broken down into a timely series of inputs that need to be performed with frame-perfect precision to reach or break a record<sup>49</sup>. Consequently, *SMB* requires a deeply *proactive ludic habitus* to be successfully

<sup>48</sup> This, of course, depends on the *category* which is being run. For example, Niftski is running the game in the *Any%* category, which allows for use of glitches and level skips in pursuit of the absolute shortest time possible from beginning of the game to its end. Another popular category of *SMB*, *100%*, tasks the player with finishing each and every level of the game (not counting the Minus World and other non-standard levels) in as little time as possible. The categories of a speedrun are *communally arranged*, which is to say they are a matter of consensus among the runners of each particular game.

<sup>49</sup> For this reason, games like *SMB* are particularly popular with developers of *tool-assisted speedruns* (TAS), which are executable programs running series of inputs optimally written for a specific route in a specific



competed in a speedrun setting, heavily favoring action competencies over perceptual skills at any given moment during a run. To put it another way, a speedrunner of *SMB* like Niftski, for all intents and purposes, has no time to think during their run, but also, ideally, does not *need* to – numerous prior attempts have resulted in a detailed and final perceptual model of the optimal route through the game, and, more importantly, a honed and specialized set of action competencies. The latter are attuned to a specific controller setup (in Niftski’s case, the keyboard) and a specific version of the game, played on a specific platform (in Niftski’s case, the emulated NES version played on a PC).

Much like other speedrun practices, the practice of *SMB* speedrunning, over a longer period of time, involves progressively attuning one’s ludic habitus to the game’s proactive requirements and developing the perceptual model and action competencies required for its optimal route. This attunement is conducted through trial and error in concrete acts of digital gaming practice, but also through broader contextual processes of learning about the game’s inner workings from its speedrunning community (for example, from YouTube videos, walkthroughs, or conversations with other speedrunners, all of which are vital for finding new and improved routes and strategies). In a moment-to-moment fashion, however, the act of speedrunning *SMB* involves a distinctly unbalanced functioning of ludic habitus, that sees all resources channeled into *instinctive, immediate action* – as even a single mistimed input can cause the run to be a failure.



**Figure 29.** A screenshot of Ninten’s run of *Kingdom Hearts 2: Final Mix* during the Summer Games Done Quick 2021 charity speedrun event, showing Sora (the game’s protagonist) in Beast’s Castle, one of the worlds in the game (taken from gamesdonequick, 2021a).

game. A TAS record is often notably faster than anything a living, breathing player can accomplish when playing in real life.

Contrast this to a speedrun of an action RPG such as *Kingdom Hearts 2: Final Mix* (KH2; Square Enix Product Development Division 1, 2007; Fig. 29). The current world record for the game, in the fastest, Any% category, is around two hours and fifty minutes (*Kingdom Hearts II Final Mix*, n.d.)<sup>50</sup>. The speedrun of KH2 is much longer than that of *SMB*; broadly speaking, there is still a single optimal or preferred *general* route through the 3D environments of this game, but along the way, the runner takes part in many battles with enemies whose AI might behave differently from one run to the next. In addition, the player's position and movement in these battles, and in other moments of spatial navigation, can add or take away valuable seconds from the run's total time. Apart from skill training to develop specific action competencies, learning to run KH2 involves familiarizing oneself with much more information about the game's level layout and navigation, abilities, player character level progression, and enemy and boss behavior and stats, among other things – as well as paying attention to all of these during the run. Said run can take a turn for the worse in many instances. For example, if a player misperceives an enemy's movement and responds with an inadequate course of action, they might be forced to restart from an earlier point, thus delaying their progress. When a speedrun of *SMB* goes wrong, one loses minutes needed to restart the run; when a speedrun of KH2 goes wrong, one can lose *hours*<sup>51</sup>.

For this reason, speedrunning a game like KH2 requires a finer balance between perception and action in one's ludic habitus than was the case with a shorter game like *SMB*. Action competencies are obviously still very important – without quick, timely inputs and the skills to defeat enemies and bosses quickly, the speedrun of KH2 might take a very long time – but the perceptual component of ludic habitus must pull its weight as well. When something goes wrong in a boss battle or other situation, the player will need to draw on their perceptual model of the game as well as on situational audio-visual cues, and *improvise* a new strategy on the spot, in accordance with the current state of the game. In simpler terms: in a moment-to-moment fashion, the act of speedrunning KH2 differs from that of *SMB* in that it involves a player's ludic habitus spending comparatively more time and resources on *perceptual processing* of the game

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<sup>50</sup> The record is taken from the PS4 version of the game, which features shorter loading times than the original PS2 version. Both versions have their respective runner base, with overlaps between the two being common.

<sup>51</sup> Though KH2 allows for continues after losses in a battle, setting the player back several minutes, there have been more drastic cases of time loss, with the player becoming “softlocked” – i.e. unable to continue playing due to a glitch or because they otherwise have no way of progressing past a certain point.

state, as said state can vary far more than the ones Mario encounters on his journey to save the princess.



**Figure 30.** A screenshot of JHobz’s run of *Kingdom Hearts 2* Randomizer, showing Sora in the Garden of Assemblage, the starting area which contains portals that allow access to all of the game’s worlds. JHobz has just collected the first Proof (upper left corner of the game), one of the three items needed in the randomizer to open the path to the game’s final boss; depending on the randomizer’s settings, these items can be located in any location in any of the worlds (taken from gamesdonequick, 2021b).

The perceptual requirements are even greater in specialized subcategories of *KH2* speedruns, like those involving the *KH2 Randomizer* (Fresquet & Sonicshadowsilver2, 2021; Fig. 30), which grants the player access to all of the game’s worlds early on, but shuffles the items that are found therein. Here, the perceptual model of the game and of the fastest route through it (developed for the speedrun of the original, “vanilla” version of the game) are not adequate for a successful run, as the player cannot rely on certain abilities or weapons being in their original places. For this reason, the set of action competencies developed for the original speedrun is also not sufficient, as the player often has to resort to different tactics and patterns of behavior to progress past a certain situation. For example, if a player cannot find and equip an ability called *Second Chance*, which prevents dying from powerful individual attacks if Sora’s health is above 1 HP, they might lose certain boss fights that would be very easy to win in the vanilla version of the game, where that ability is certain to show up beforehand. For a runner familiar with *KH2*’s vanilla speedrun, the act of speedrunning a *KH2* randomizer involves creating a *parallel, flexible perceptual model of the game* (a possible route through the game’s many worlds, with numerous variations in case of lack of items or abilities) and a *parallel, flexible set of action competencies* (more reliant on starting abilities and on-the-fly improvisation). Over the course of a given run of this kind, the player needs to continually

process the game state, paying attention to the collected items and abilities for every chest they open and every boss they defeat, and adjust their routing and order of progression accordingly in order to successfully complete the game in as little time as possible. Taken together, these qualities make the act of playing a KH2 Randomizer an experientially different practice to the standard KH2 speedrun<sup>52</sup>.



**Figure 31.** A screenshot of *Everybody's Gone to the Rapture* (The Chinese Room, 2015), a game often labeled as *walking simulator* (taken from MKIceAndFire, 2015).

But what about when time is not really a concern? On the opposite end of the speed spectrum are *contemplative, exploratory* gameplay practices such as *slow strolling* (Ruberg, 2019) – the flâneur-like engagement with certain types of digital games, such as walking simulators of the kind illustrated above (Fig. 31). For Bonnie Ruberg, speedrunning and slow strolling are both examples of queer play practices, which propose “alternative desires and logics of moving through time and space” (Ruberg, 2019, p. 206) and thus challenge the chrononormativity of traditional gameplay. Much like speedrunning, this kind of practice requires a *specific kind of player* and a *specific kind of game*. While speedrunning entails completing the game or one of its sections as quickly as possible, slow strolling is – to use the vocabulary of the digital gaming practice framework – not concerned with swiftness of action so much as with the *indulging of one’s perception*. To slow stroll through a game is to engage with it *reactively*, to devote more time to perceiving and considering, and less to inputting commands in a time-critical fashion. In a moment-to-moment fashion, the slow stroller might not even *act*,

<sup>52</sup> At this point, I could also mention the KH2 Randomizer *Blackout Bingo* runs, which increase the perceptual demands on one’s ludic habitus further by introducing a random set of 25 objectives for the player to accomplish during their run – but, in the interest of variety, I will move on to other practices.

at least not in the traditional, physical sense of inputting commands, instead preferring to soak in the output of the game and the sights and sounds of its virtual environment. Slow strolling is a practice without optimal routes or detailed strategies, as it is taken to satisfy a very different pattern of taste. In contrast to the speedrunner, whose ludic habitus is attuned to kinesthetic, performative pleasures, the overcoming of a challenge, or the breaking of a personal record, the ludic habitus of slow strollers is attuned to the pleasures of observing, thinking, and interpreting. In both cases, only certain game design configurations can satisfy these requirements and be suitable for generating these kinds of practices<sup>53</sup>.

The examples listed here, of the various kinds of speedrunning and of slow strolling, showcase the analytical applicability of the general framework of digital gaming practice and of the concept of ludic habitus. With its comprehensive perspective on the act of playing and the capability to account for both its momentary and long-term aspects, the framework can help us to *better make sense of a wide variety of digital gaming practices, on different levels of granularity*. Understanding these practices is essential for anyone engaging with games in an analytical, creative, critical, or simply playful capacity – that is to say, to researchers, designers, game critics, and players alike – which, at a time when digital games represent a more profitable industry than cinema (see e.g. Witkowski, 2020), lends the framework a high degree of relevance.

### 6.3. Methodology retrospective

The goal of this research project has been to create *a general framework of digital gaming practice*, one which would feature a more detailed understanding of both the player and the game component of the practical act of playing games than those in similar frameworks. This goal was pursued using a novel interdisciplinary methodology, combining theoretical research, game design and development, and empirical player studies, and progressively developing the understanding of digital gaming practice and the ludic habitus. The approach can broadly be understood as a move from *theory* (i.e. reviews and syntheses of prior research from domains of game and player studies and Bourdieusian practice theory) through *practice* (i.e. exploratory studies with different players, as well as game design and playtesting practice which featured

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<sup>53</sup> Although one can always (to a greater or lesser extent) impose their own style of play onto a game, no matter its design.

hands-on experimentation with design elements and configurations) to *a theory of gaming practice* (i.e. the framework).

As an approach to theory development, this methodology had several notable benefits. Firstly, it enabled a multiplicity of perspectives on the project's topic, principally that of a *researcher*, a *game designer*, and a *game player*. These perspectives resulted in a richer, multifaceted understanding of the topic of gaming practice, one suited for the project's holistic focus and research goals. As the project moved from one stage to the next, this understanding also progressively developed, with the final framework and model representing a synthesis of knowledge gathered from multiple sources – literature reviews, design and playing practice, and player data. Secondly, this methodology allowed for greater control over the empirical player studies, resulting in the possibility of examining highly specific topics of interest. This resulted in studies that could both stand alone as contributions to game research, and that fit together with each other to lead to broader findings about ludic habitus and digital gaming practice. The choice to use custom game prototypes and multiple qualitative methods of data collection meant that *in-depth player profiles* could be made for each participant in each of the studies, and that *specific and highly granular comparison* could be made between each of the participants. In turn, this led to a better understanding of the participants' own unique ludic habitus, and generated knowledge about its general structure and functioning in digital gaming practice. This depth of focus on each participant's ludic habitus as a unique and characterizing construct was directly facilitated by the project's methodology and its study design: without the use of these methods, and the integration of game design with laboratory playtesting, it would not have been possible to achieve *depth*, *specificity*, and *comparability* of player data at the same time.

That being said, the methodology did provide some unique challenges during the duration of the project, chief of which was *switching between the different perspectives* – researcher, designer, player – taken on the topic of digital gaming practice. The three player studies were conducted over the course of three years; each was preceded by a period of specific literature review and game design development, and followed by write-ups into individual study papers. This process necessitated frequent shifts in workflow and therefore flexibility of focus, as not all perspectives were able to (or *could*) be employed at the same time – in other words, depending on the situation, certain modes of working were dominant over others and influenced the project's progression and development. One example of this was the development of *Inglenook*, the game prototype used in the second study, which began during the research stay at Concordia University's TAG Lab in Montréal, Canada, in the fall of 2019. The initial version of *Inglenook*



was finished by the time the research stay was completed in December, and afterwards successfully deployed in the second study to research the topic of playstyle manifestation. However, the game design work took far longer than originally intended, and the designer perspective dominated the project for the duration of the Montréal research stay. As the house of words was being constructed, more and more elements were progressively added to it; in turn, this prolonged design and development time pushed back the process of participant recruitment and the practicalities of organizing the second study. The *Inglenook* example is perhaps the most prominent one from this project of the dominance of one perspective or mode of working over others. It illustrates the need for flexibility and balance, in order to keep the project progressing without changes to the overall project plan.

In the initial stages of the research project, other methodologies and approaches were considered and discussed with the principal supervisor, but then rejected for various reasons. Among others, these included:

- *a quantitative methodology*, e.g. surveys. This approach was deemed unsuitable due to the preliminary, exploratory character of the research, which necessitated methods that could account for depth rather than breadth, and establish theory rather than test it. This was also the reason for the decision to go with a fully qualitative methodology, rather than attempt a mixed-methods approach.
- *a longitudinal study format*, e.g. the recruitment and tracking of multiple participants over the course of several years. This approach was deemed unsuitable for its lack of flexibility, as it required that the project be defined and structured extensively and in great detail in its early stages – in turn, this would not leave enough time for a detailed literature review prior to the studies to establish initial definitions and understandings, nor space for game design experimentation to influence the focus of the individual studies.
- *a focus on a single genre/type of game with/without the same group of players*, e.g. the development of several platformer games that would become incrementally more complex and/or difficult as the project progressed, and using those to track participants' evolving skills and relations with that genre. This approach was deemed too limited both in terms of game design elements (focusing only on a single set of design conventions/configurations) and in terms of one's ludic habitus (the setup, in particular when conducted with the same group of players, put too much emphasis on the level of *skill acquisition and development* in relation to platformer gameplay, at the expense of other levels/aspects of one's relationship with digital games).
- *a focus on habitus adaptation with the same group of players*, e.g. creating a series of versions of a digital game that would progressively break more and more design conventions associated with its genre/type, and investigating how/if the players' ludic habitus patterns changed from one version to the next. This

approach was deemed too complex, as it presented similar challenges to the previous two rejected approaches (namely, too much potential emphasis on one dimension of ludic habitus, and the need to specify the project in detail very early on and thus preclude input from game design experimentation).

The approaches and research forms outlined here are not inadequate for researching ludic habitus and digital gaming practice in general, and could very well represent potential approaches to these topics in future research. There were simply too many drawbacks to them to employ them within the context of this individual research project, which – as has been stated before – was motivated by the need to develop a holistic framework of players and gaming. This motivation resulted in the specific methodology used in the project which, in turn, enabled the creation of precisely such a framework. Having that goal in mind, the methodological approach in this project is retrospectively seen as appropriate for the project's goals.

#### 6.4. Limitations and further research

The research project has taken a specific perspective on the act of playing digital games, one which has left it with certain limitations which need to be outlined. Some of these limitations have already been mentioned prior (for example, when discussing the methodology in Chapter 3, or when taking a retrospective look at the project in the previous section of this chapter), while certain others will be discussed in more detail here.

Firstly, since its inception, the project was envisioned and conducted as an exploratory project – i.e., it was always meant to be the first step in applying Bourdieusian practice theory to the concrete acts of playing digital games. For this reason, empirical investigations were limited in scope (of both players and games developed/played), and any generalizations must take these limits into account. Furthermore, due to this character, the project took a specific focus on digital gaming practice, one which investigated acts of digital gameplay as essentially bounded phenomena, which left the sociocultural aspects of Bourdieusian practice theory unaccounted for. This deliberate choice means that the project needs to be understood in a very particular, preliminary light: *it is a single piece in a bigger puzzle that is the Bourdieusian understanding of digital gaming as both a situated and a sociocultural practice*, but a piece that has nonetheless been missing thus far. Sociocultural aspects – such as player culture and its various subcultures, the values, norms, activities, and relations therein, and the hegemonic power structures and other



forms of disbalance within the field of digital games – are, inarguably, vital for a more complete picture of how one relates to games and gaming. They also undoubtedly shape one's ludic habitus, and therefore impact how it is deployed and altered in concrete acts of digital gaming practice. By excluding these aspects, I in no way claim that they are irrelevant for the act of playing. Instead, with the project's approach and the general framework, I have simply set the groundwork for understanding digital gaming practice, and in doing so opened the door for examinations and investigations that will expand on this initial understanding by including the social and the cultural.

Secondly, while the framework's conceptualization of the player side of the gaming equation (i.e. the ludic habitus) is presented in an elaborated manner, the understanding of the game as a designed digital artefact is comparatively less detailed. The project has opted for the simplified view of the digital game artefact in order to more closely examine the consequences of the acts of gaming on the player. In other words, as illustrated by the title, *the project's principal focus was the ludic habitus and (its structure and functioning in acts of) digital gaming practice*, rather than an elaboration of any structure or history on the side of the game design. Future research endeavors could build on this project by elaborating the game design frame, perhaps as part of historical examinations of certain subfields and their delineations, or through longer studies which could see a group of players attempt to develop a ludic habitus specifically attuned to a certain genre or design configuration. Such forms of research would introduce more detail to the game side of the digital gaming practice model, and in turn further elaborate ludic habitus as a concept.

The specific setup of the project has also meant that its corresponding framework has been *developed on the basis of data from players playing three single-player digital games*. While this has resulted in vital information about how one's ludic habitus is implemented in gaming practice to process and act in novel situations, it means certain types of gaming experiences – principally, *multiplayer games* – have not been examined here. The social relationships and interactions during acts of digital gaming represent the logical next step in this research area, and in the further development of the understanding of ludic habitus in digital gaming practice. This area could potentially be approached with more traditional ethnographic or case study methods, such as longer participant observation sessions involving certain player groups during play, ideally those clustered around particular genres or game titles, to give the research additional direction and structure.

Though the understanding of ludic habitus in the project accounts for how players perceive, appreciate, and act in digital games in broad terms, it does not specifically account for *the affective dimension* of digital gameplay, apart from connecting certain aspects of it, such as playfulness, to taste patterns and one's habitus tendency towards experimentation. The affective dimension of gameplay has previously been researched from many specific perspectives such as *embodiment* or *incorporation* (e.g. Calleja, 2011), with regards to *kinesthetic pleasures* that gameplay provides (e.g. Newman, 2002), in light of *the rhythms of gaming* (e.g. Apperley, 2010), or as part of broader approaches focused on *the phenomenology of the gaming experience* (e.g. Keogh, 2018). Affective aspects like embodiment or kinesthetic pleasures are important elements of how players experience the situated act of playing digital games, and, with regards to ludic habitus, represent potentially fruitful avenues for future research, left aside here in favor of creating a general understanding of the act of digital gaming as a form of human practice. Such research could, for example, attempt to more closely link certain pleasures with certain game practices or game types (in line with how speedrunning and slow strolling were illustrated in this chapter), or devote more time to exploring the different dimensions of habitus construction through an ethnographic or case study approach. With this in mind, an autoethnographic approach could be particularly useful for exploring affect and habitus in tandem, in an apprenticeship style that has already been implemented by Bourdieusian scholars in other fields in the past (e.g. Wacquant, 1992; Wacquant, 2011). Much like examinations of the social, these investigations would further develop the understanding of ludic habitus present in this project, and account for those elements of it that were omitted here due to the project's more general concerns and framing.

## 6.5. Concluding remarks

I began this dissertation with a story about my sister's childhood gaming exploits, and a concession of personal investment in researching how we as players understand and play digital games. Over the course of the past three years, I have had the unique, confusing pleasure of seeing many different people – hardcore gamers, designers, infrequent and non-players alike – attempt to make practical sense of *my* ludic creations. If I had the opportunity to travel back to those gaming sessions with my sister and our friends, I doubt I would be able to convince my younger self that there would be a time in our lives when *we* would make games and watch them being played by others. At the end of the day, this project feels like a personal triumph on that

one account: it allowed me the chance to be as close to digital games – their creation, their consumption, their pleasures, and their mystery – as I had wanted since I was six years old.

Though it is a privilege when projects of this kind have personal value and meaning, they are ultimately conducted to better our collective understanding – in this case, of digital games, their players, and their shared practices. With this in mind, this project's contribution is its general framework of digital gaming practice – a novel, broad, integrated perspective on players, games, and gaming. The framework fundamentally links practice to *time*: it shows how players become players through successive acts of gaming practice, how these acts form their methods of thinking about, appreciating, and acting in digital games, and how these methods are then employed and further refined in every subsequent instance of playing games. Ludic habitus, the concept that is at the heart of this project, is the embodiment of a player's history, guiding them in thought and action alike and helping them to make sense of new gaming experiences. Because of this, it represents a potent, applicable concept for different parties involved in games. For players, it is a cohesive way of thinking about their gaming experiences and relations to (different categories of) digital games as designed artefacts. For designers, it is a tool for understanding their players as actual historical beings, bringing into the act of play their own individual perceptual models, taste patterns, and sets of action competencies, paramount for how they engage with the designed game. For scholars, ludic habitus and the digital gaming practice framework are foundations of a new, holistic perspective on players as unique agents who develop through time, and on the acts of play as co-constituted between them and the design configurations of digital games, both in the moment and throughout the history of gaming as a practical activity.

That being said, despite these accomplishments, which are to be judged by the gaming community at large, the research project described in this dissertation is envisaged as *a general foundation*, inviting future work inspired by Bourdieu and practice theory in order to further our knowledge of how we, as players, make sense of games. As a specialized form of human practice involving living, breathing practitioners as well as designed hardware and software components, digital gaming is a complex equation, with all of its constituent parts evolving through time. As this project has shown, practice theory is well-equipped for tackling the challenges posed by this equation because it is concerned with its *totality*, rather than any of its parts in isolation. Without such holistic approaches, we will, at best, only understand the parts, but not how they combine to create that practical magic that captivates and charms so many, so early, for so long. Collecting coins or chasing flags will only get us so far; *the game itself is the practice*.

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## APPENDICES

### I

#### *Play Your Own Way: Ludic Habitus and the Subfields of Digital Gaming Practice*

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# Play Your Own Way: Ludic Habitus and the Subfields of Digital Gaming Practice

## Abstract

Existing research on players of digital games has shed light on general player attributes, such as preference or skills, that differentiate one player from another. However, there is currently a lack of models comprehensively accounting for the manifestation of these attributes in the moment of play of a given game. This paper takes steps towards addressing this research gap. It combines Bourdieusian practice theory with an exploratory qualitative study of two groups of players and their behavior in two custom digital games. The paper empirically develops the concepts of *ludic habitus* and *generic subfields of practice*, showing how these concepts account for how past player experiences manifest in the act of gaming practice, in response to minute design variations. In this way, the paper lays the foundation for a theory of digital gaming practice, which aims to connect a player's previous play experience and history with their moment-to-moment gameplay interactions.

Keywords: *player studies, practice theory, ludic habitus, generic subfields of digital games, exploratory study*

## Introduction

A player, controller in hand, is looking at a computer screen, showing a two-dimensional scene consisting of only a few elements. On the left: a small, white block that they control, with black dots for eyes. On the right, floating high in the air: several tiny, yellow circles. In the middle: hovering platforms placed just a bit higher than the white block, and quite close to the yellow circles. A red, bug-like creature enters, stage right. It is moving to the left, directly towards the white block... How does our player interpret the scene? What do they do? Perhaps most importantly – what do the answers to questions like these *depend on*?

Previous research on digital game players has often highlighted and categorized differences between players in terms of their approaches to playing games. Examples include typologies of player behavior, often in relation to specific games or game types (e.g. Bartle, 1996;

Drachen et al., 2009, Kallio et al., 2011), and more general psychometric models of motivations and aims of playing (e.g. Yee, 2006; Zackariasson et al., 2010). Researchers of gaming culture have also frequently examined differences between players and their relationship to games and gaming, often with a critical look on social constructions of gamer identities and the values attached to particular ways of playing. Such research has offered important insights on gameplay activities in light of issues like gender (e.g. Carr, 2011), race (e.g. Gray, 2014), age (e.g. De Schutter & Vanden Abeele, 2008), and identity construction (e.g. Shaw, 2011), among others.

We now know much about individual attributes which mark one player as different from another. However, we still lack *holistic models* of players to understand how individual differences – in playstyle, motivation, preferences, broad-cultural and game-domain-specific knowledge, experience, and skills, among others – converge and manifest when particular players sit down to play a particular game. Without such a model, we may never have more than partial answers to the questions about our player mentioned earlier.

*How do differences between players materialize in the act of play, as a response to particular elements of game design?* This paper is the first part of a larger research project which seeks to explore this question by combining social scientific theories with prototype creation and experimental playtesting. In theoretical terms, the research in this paper draws on practice theory, specifically Pierre Bourdieu's concepts of *habitus* and *field*, which it extends to the domain of digital games. In order to examine the moment-to-moment interactions between player attributes and game design elements, the research presented here takes the form of an exploratory qualitative study, which sought to explore *how players with different degrees and types of gaming experience perceive and practically navigate small differences in game design*. Observations from the study serve as empirical grounds for the identification of a game-related or *ludic habitus*: a personal set of perceptual, evaluative and performative patterns which guide both a player's concrete engagement with digital games and their identification of game types as specialized *generic subfields* of practice requiring specific modes of play. By empirically developing these two concepts, this research seeks to connect psychological and sociological attributes of players of digital games to players' practical gameplay interactions with specific game design choices.

The paper is structured in four parts. The first part presents the tenets of practice theory and Bourdieu's concepts of habitus and field, alongside examples of prior habitus research in the domain of digital games and gaming. The second part presents the methodology and results of a qualitative player study, which serves as means of generating empirical data for the development of the concepts of ludic habitus and generic subfields of digital games. This development is



presented in part three. The paper ends by reflecting on the limitations and challenges of the conducted exploratory study, and by sketching out future steps in the larger research project of developing a Bourdieusian theory of digital gaming practice.

## Literature review

### Bourdiesian practice theory

Practice theory looks at examples of enduring, mutually constituting relationships between agents on the one hand, and global systemic entities on the other (Ortner, 1984, p. 148). According to Davide Nicolini, practice theory can generally be said to present a view of the social world as “a vast array or assemblage of performances made durable by being inscribed in skilled human bodies and minds, objects and texts and knotted together in such a way that the results of one performance become the resource for another” (2017, p. 20). This performance-centric worldview makes practice theory a fitting lens for examining digital games, due to their fundamentally processual nature, often remarked upon by researchers (e.g. Galloway, 2006; Malaby, 2007).

One of the scholars most frequently associated with practice theory is Pierre Bourdieu, whose conceptual framework seems particularly pertinent for examining processes of categorization on a moment-to-moment level. For Bourdieu, participation in a given practice over time results in the development of *habitus* – a set of relatively durable, transposable dispositions which guide our understanding of the practice in question and facilitate sensible, intuitive performance (2013 [1972], p. 72). The dispositions which make up *habitus* operate as “a *matrix of perceptions, appreciations, and actions*” (p. 83), and emerge from one’s involvement in a particular *field of practice* – a social setting which imposes certain constraints and demands on the agents that operate within it (Bourdieu, 1990, p. 63). As such, every *habitus* is distinctly *corporeal*, both acquired and deployed through active bodily participation in a particular field. Appropriately, Bourdieu illustrates this by recourse to a sports metaphor. A practitioner in any field is like a tennis player in the middle of a match, possessing a set of knowledges and skills acquired through experience and training, and which are able to be translated into a sensible, intuitive, *logical* performance (Bourdieu, 1990, pp. 11; 61). Later authors, such as Omar Lizardo, have referred to *habitus* as “a socially produced cognitive structure” (2004, p. 393), highlighting the constructivist and cognitive aspects of the concept.

## Habitus in game and player studies

The concept of habitus has previously been used in the field of game studies, predominately in one of two ways. On the one hand, habitus has been used to investigate gaming as a cultural domain. For example, as part of his exploration of the formation of gaming culture in the United Kingdom in the 1980s, Graeme Kirkpatrick has focused on the role of gaming discourses (principally those constituted by game magazines) in the early constitution of the gamer identity (2015, p. 23). For Kirkpatrick, this identity is enshrined in what he refers to as *gamer habitus*, “the socially acquired, embodied dispositions that ensure someone knows how to respond to a computer game” (p. 19). Along similar lines, Feng Zhu used habitus to discuss of Foucauldian practices of the self in relation to computer games (Zhu, 2018). Mia Consalvo has also touched upon the concept of habitus in her work on *gaming capital*, a reworking of Bourdieu’s notion of *cultural capital*, which she uses to refer to games-related knowledge and resources utilized as part of social interactions within the gaming field (2007, p. 18). Chris Walsh and Tom Apperley have drawn on Consalvo’s work in their further elaboration of gaming capital as an alternative to the concept of game literacy; in their work, the authors link gaming capital to habitus, but stop short of elaborating the latter concept within the domain of gaming (Walsh & Apperley, 2009).

On the other hand, habitus has also been utilized in empirical research involving specific games and/or players. Examples of this kind of approach to habitus include the work by Wallace McNeish and Stefano De Paoli, who have investigated socialization processes among students at a university in Scotland, resulting in the students’ development of a game-related habitus (2016). Another notable example of empirical habitus research in the domain of games is the work of David Dietrich on avatar creation possibilities in MMORPGs and offline RPGs (2013). Dietrich has analyzed capabilities for avatar creation in eighty different games, finding that a vast majority did not facilitate non-white racial appearance and implicating these limitations in the reinforcement of a racialized “white habitus” (2013, p. 97).

## Related concepts and theories

In research on games and gaming, aspects covered by Bourdieu’s concept of habitus have also previously been researched under different framings. One example of this is the concept of *technicity*, present in the work of Jon Dovey and Helen Kennedy (2006). Drawing on Donna

Harraway's (1991 [1985]) cyborg theory and expanding on previous work (e.g. by Tomas, 2000), Dovey and Kennedy use the concept of technicity to refer to "identities that are formed around and through [...] *technological differentiation*" (2006, p. 16, italics original). The authors use technicity alongside Bourdieu's idea of cultural capital to discuss hegemonic dominance of certain taste groups and identities (e.g. white males, frequently associated with digital games) at the expense of others (e.g. women game designers and developers, frequently excluded from mainstream discourses on digital games) within the broad sociocultural field of gaming. Another aspect of Bourdieu's understanding of habitus, *corporeality*, has previously been explored in games research in relation to various topics – *embodiment* or *incorporation* (e.g. Calleja, 2011; Farrow & Iacovides, 2014), *kinesthetics* of play (e.g. Giddings & Kennedy, 2010; De Castell et al., 2014), *affective pleasures* (e.g. Lahti, 2013), and, more broadly, *phenomenology* of play (e.g. Crick, 2011; Keogh, 2018), to name but a few. Scholars have also previously offered holistic frameworks for approaching and researching experiences of digital gameplay, highlighting their multifaceted, situational, and contextual aspects (see e.g. Taylor, 2009, and the notion of *assemblage*; or Barr, 2008, and Nardi, 2010, for examples of applying *activity theory* to digital games).

### Habitus in the act of play

The present research differs from previous related work in game and player studies in its examination of habitus *as a productive force in the act of playing digital games*. While previous research on habitus has focused more broadly on gamer identity and gaming culture, habitus is here approached as a matrix of player attributes which, when deployed in gaming practice, help the player understand and play particular digital games in a particular, player-specific manner. This approach is in line with Bourdieu's framing of habitus as *the core component of practical activities*, acting as a principle behind their generation and organization (see e.g. Bourdieu, 2014 [1980], p. 53). The holistic, generative nature of habitus is what makes it a particularly useful concept for approaching and analyzing digital gameplay from both a *synchronic* (i.e. at specific moments during play of specific games) and *diachronic* perspective (i.e. as a long-term practical activity that shapes the players' minds and bodies in unique ways).

It is important to note that the approach to game-related (or, *ludic*) habitus in this paper does not dispute its sociocultural aspects and functioning. The paper simply *explores how this form of habitus aids players in navigating the moment-to-moment act of digital gameplay*; in

doing so, it is meant to act as complement to previous sociological research on this concept within the field of gaming. The paper's examination of the practical aspects of one's ludic habitus provides the basis for the understanding of the player as *a historically developed practitioner of gaming*, thus providing answers to the questions about our hypothetical player from the introduction, concerning their views on and experience of a given digital game.

## Methodology

This research took on *an inductive, pragmatic approach* to investigating ludic habitus in digital gaming practice. Specifically, this approach consisted of an exploratory, small-scale, qualitative player study, using custom-made digital game prototypes. Rather than attempting to establish a definitive understanding of ludic habitus and its role in the act of playing digital games, the study specifically investigated *how players with different degrees and types of gaming experience understand and respond to minute game design differences*. This research question motivated the study design and its methodology, which included *game design practice and prototype creation, qualitative research* as a general strategy, *grounded theory* as an approach to theory development, and the particular methods of data collection and analysis, all of which will be further discussed below.

The player study should be understood in light of its preliminary, exploratory character: it empirically establishes ludic habitus and generic subfields of digital games as concepts, and sets the foundation for their further research and expansion with the goal of deepening our understanding of the player-game relationship.

## Prototype design

Rather than utilizing commercially developed digital games, the study opted for custom-made digital game prototypes. Several reasons motivated this decision, principal of which was the study's focus on player perception and navigation of minute design differences. This focus spoke in favor of developing custom games, which could be specifically designed so that they differed as little as possible from one another. What is more, developing specific games for the study enabled their design differences to be *fine-tuned*, to the point where they could be specifically accounted for by the designer/researcher behind the study during the processes of

data collection and analysis. Finally, the act of designing the game prototypes also enabled the researcher to get *practically acquainted* with their gameplay experience and design differences, in a manner of *observant participation* similar to how certain scholars have researched habitus in the past (see e.g. Wacquant, 2011, for one example of this). This participation informed the latter processes of participant observation and interviewing, and thus contributed to greater depth and a unique perspective on the research topic.

The two digital game prototypes used in the study were developed in the tradition of A/B testing (Hanington & Martin, 2012). The first served as the *control game* (Figure 1), featuring design patterns and gameplay mechanics conventionalized under a specific genre label – *2D side-scrolling platformers*, of which *Super Mario Bros.* (SMB; Nintendo Creative Department, 1985) may be considered to be the prime example. The game consisted of three levels replete with spatial obstacles and AI enemies, which the participants needed to navigate and complete utilizing basic movement mechanics (walking, running, jumping) whilst collecting pickups in the form of coins.



**Figure 1.** The control game.

The second prototype served as the *experimental game* (Figure 2), and was developed with the goal of testing a deviation from the conventional challenges found in platform games. The experimental game retained the visual elements, assets, and basic navigational challenges of the control game, but with different platform layout and enemy placement due to the removal of one particular movement mechanic – *jumping*. Consequently, the levels (four in total) were laid out in such a way that the player needed to use ladders and entice enemies to move so that they could circumvent them and make progress.



**Figure 2.** The experimental game.

The prototypes were developed to create two rudimentary gaming experiences that differed as little as possible, and only on the level of gameplay mechanics (i.e. actions available for the player to perform) and level design (i.e. the layout and positioning of assets, pickups, and enemies). The decision to work with 2D side-scrolling platformer conventions was made for several reasons. This category of digital games has been perennially popular: from the original *SMB* to more modern games such as *VVVVVV* (Cavanagh, 2010) and *Super Meat Boy* (Team Meat, 2010), games belonging to this category have been played by generations of players and represent important influences on our collective understanding of digital games and gaming. Furthermore, 2D side-scrolling platformers are characterized by a set of (specifically *mechanical* and *level*) design conventions which has remained relatively stable (though also subject to experimentation) and present in most examples of games belonging to this genre since *SMB*, such as the existence of a jump mechanic or some other form of vertical movement.

The prototype games were developed in the Unity3D game engine, utilizing the Corgi Engine pack, consisting of custom character and AI controllers, camera and inventory systems, as well as rudimentary visual assets. Visually, both games had a minimalist, geometric aesthetic, and featured monochromatic assets and simple backgrounds in shades of pastel colors. These aesthetic choices were made with the aim of minimizing the number and range of visual components, thus leading to a greater focus of the participants on the gameplay activity in the two games. Prior to their use in the study, both prototype games were tested for usability to ensure no bugs or glitches, which could affect the participants' gameplay experiences.

## Qualitative research

The exploratory study adopted a qualitative research design. According to Creswell, qualitative research is recommended for inductive theory building, as well as for non-reductionist analysis of complex phenomena (2009, p. 4); this view is further echoed by Hennink and colleagues, who recommend qualitative research approaches for developing contextualized understandings of how and why certain processes happen and are experienced by those taking part in them (Hennink et al., 2020). Since the goal of the study was to construct theory, qualitative data collection based on observations and interviews was the most appropriate methodological choice. Further reasons for adopting a qualitative approach included the preliminary, inductive character of the research, as well as scarcity of prior empirical data on habitus as deployed during gameplay. Lastly, the specific topic - the functioning of habitus in understanding and navigating small design differences - was deemed to be subject-dependent and difficult to pinpoint *a priori* to a single factor or set of factors, requiring flexible data collection instruments and procedures, including more time spent with each individual participant (and the data they provided) in order to capture said complexity in greater detail.

## Grounded theory

As its method of theory development, the study employed *grounded theory* (Glaser & Strauss, 1967; Strauss & Corbin, 1998). This approach to theory construction is predicated on empirical data: though grounded theory does not preclude a researcher from bringing in a specific theoretical frame into the research, it argues for the need for theory to emerge from iterative processes of data analysis. Grounded theory advocates for the use of *multiple methods of data collection* to ensure validity of results, and an *iterative process of data analysis* through three successive stages of data coding (*open – axial – selective*). Both data collection and analysis methods will be further described in their individual sections later in the paper.

Grounded theory was utilized due to its flexibility as a research approach. It allowed for freedom in the choice of data collection and analysis methods, as well as for the crucial integration of game design practice as a research method with an empirical, laboratory playtesting setup. As described earlier when discussing prototype design, this integration was seen as important for exploring the research topic of the study.

## Participant recruitment

The number of participants involved in the study was kept relatively small, due to its qualitative and exploratory character. Eight participants in total (four female, three male, one non-binary, ages 21-29) took part, recruited using the method of purposive sampling (Maxwell, 1997; Teddlie & Yu, 2007). This method was used in order to secure two specific groups of participants: those with an overall high and varied level of digital gaming experience, including 2D side-scrolling platformer games (from here on out referred to as *Group One*), and those who had limited experience with platformer games and otherwise rarely played digital games in general (from here on out referred to as *Group Two*). To that end, the first group was comprised of four bachelor students of game design: Mark, Wendy, Ernest, and Logan<sup>1</sup>. They were first to be recruited, and were purposefully chosen for their high degree of familiarity and experience with different games and design conventions, both as players and as game-makers, as well as with elements of gaming culture. The second group was comprised of four infrequent game players: Nick, Eve, Amy, and Julia. They mostly stuck to a handful of game genres or played games on rare occasions.

All of the participants were volunteers, taking part in the study for no monetary or other forms of compensation, and had no prior knowledge of the research project. All of them also consented, in writing and verbally during the interview, to having the data they provided be used for research purposes. The study design and methodology were also approved by the ethics committee at the researcher's institution.

## Data collection instruments

Three data collection instruments were used in the study: a *profiling questionnaire*, *gameplay observation and recording*, and a *post-play-session, semi-structured interview*.

The profiling questionnaire was created in Google Forms. It employed three question formats: *Likert scale questions*, *checkbox questions*, and *open-ended questions*. Questions were divided into multiple groups, covering topics such as gaming habits, player familiarity with input methods, hardware systems, game genres, and game titles, player attitudes (i.e. preferences) towards these, as well as their self-perceived degree of competence with different gaming titles.

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<sup>1</sup> The names of the participants have been altered, for the sake of anonymity.



The aim of the questionnaire was to cast light on the participants' previous, *individual* experiences with games: for this reason, the questionnaire featured purposefully broad questions and avoided gaming jargon, so as to enable the participants to describe in their own words how they understand and relate to digital games. This was also the reason why open-ended questions featured as the most frequent question type.

The participants' playing of the games was logged in the form of audiovisual recording of their physical selves in tandem with video capture of their in-game activities. The recordings were captured using the camera and microphone of the laptop on which the participants played the two game prototypes, with the final feed consisting of both gameplay footage and footage of the participants during play. The participants were told they were free to comment during their gameplay, but there was no requirement for them to do so if they instead wished to focus on the gameplay. During the sessions, the researcher also took observational notes about the participants' play, highlighting points of interest (e.g. a repeated error, ease of navigation in certain areas, etc.) which would later be referenced in the interview when need be.

Lastly, the participants took part in a post-play-session semi-structured interview, conducted immediately after their play session. The interview was used to gain insight into their experiences with the game prototypes, as well as ascertain how they perceived the similarities and/or differences between the two. The interviews also enabled the participants to provide more information about specific moments that the researcher observed and noted during their play sessions. In a similar manner to the questionnaire, interview questions were framed in such a way as to avoid genre labels and suggestions of categorizations. The aim was to have a neutral, open tone, allowing for more freedom in generating responses and describing the differences between the two games. In situations when participants used a particular genre label themselves, that label was then also part of the interviewer's vocabulary, at times featuring in subsequent questions. After each of the sessions, the interviews were transcribed into textual form.

## Experimental procedure

Each participant took part in the study individually, leading to eight separate testing sessions. Upon arrival to the university game lab, where the study took place, the participants were presented with a general overview of the activities. Afterwards, they were asked to fill out the questionnaire, during which they were able to ask the researcher about specific points, unclear phrasings, or other difficulties. Following the questionnaire, each of the participants played the games (the order of which was randomized) on a laptop and utilizing the Xbox 360 wireless

controller. All of the participants in the study had prior history of controller use, though they were not directly informed about the controls in the games they played in the study. The participants were given a soft time limit of around ten minutes for each of the games, and encouraged to play as they would under normal conditions. The last stage of the test consisted of the semi-structured interview with the researcher, which was recorded using a voice recorder.

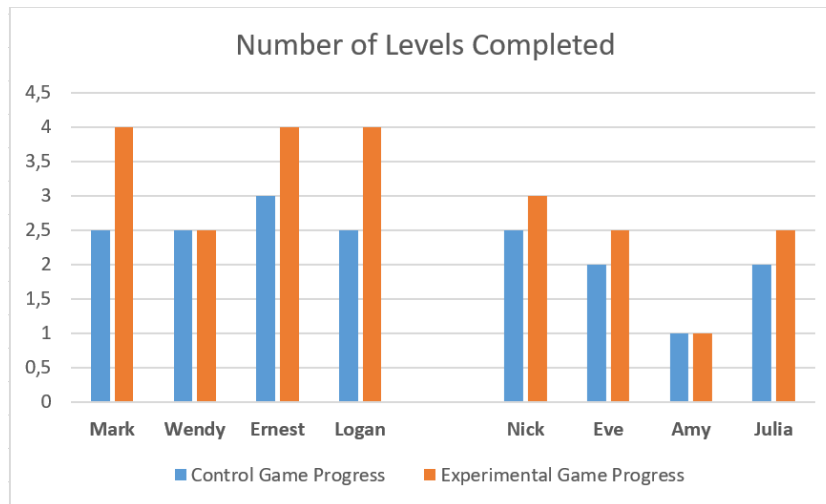
## Data analysis

Interview transcripts were analyzed using the three-level process of coding, characteristic of grounded theory. The available data was imported into the MAXQDA 2018 software package (used to ease and speed up analysis) and then initially examined, which resulted in the extrapolation of a number of concepts related to game categories, perception and classification, prior gaming experiences and game associations, and overall impressions, among others. The concepts developed through this open coding were later grouped and refined in a second round of axial coding for easier examination and cross-reference. The final code system included 25 different codes, grouped under specific headings, and a total of 260 coded interview segments across the eight transcripts.

Interview data formed the focal point of analysis, complemented by gameplay logs of the participants' performances, which were reviewed multiple times and considered in tandem with the interview responses. The questionnaire data was mostly used for providing background information on the participants, and is referenced in the results when needed.

## Results

As illustrated in Table 1, all eight participants successfully completed at least one level in each of the games. The degree of progress varied from player to player: overall, Group One participants did better in both the control and the experimental games, with all four players nearly completing all three levels of the former before their time was out, and three out of four completing all four levels of the latter. In contrast, only one player in Group Two, Nick – who also had the most overall gaming experience in the group – managed to complete the experimental game and to reach the final level in the control game.



**Table 1.** Number of levels completed by the study participants. Half-values indicate partial completion of the subsequent level – i.e., the play session ending before the player had a chance to finish the level.

In general, the control game elicited a clear goal-oriented playstyle from most of the participants, in particular from Mark, Ernest, and Nick, the three players who also frequently made mistakes due to their fast playing style. Amy and Julia, on the other hand, played more tentatively and methodically, with their mistakes during gameplay arising from a seeming lack of experience in navigating virtual spaces and jumping between platforms. Similar playstyles were observed in case of the experimental game, with Group One and Nick displaying quicker reflexes and taking less time to figure out the challenges on each level, while Eve, Amy, and Julia generally took a slower, more careful approach.

In isolation, these metrics are perhaps unsurprising: it seems logical that the more experienced group would complete more levels than the other group, comprised of infrequent players of the platformer genre, as well as that greater gaming experience overall in members of either group seems correlated with better performance. However, level completion data and playstyle differences only tell one side of the story of how these two groups of players related to these two games. Further findings and observations are presented below, for each of the two groups of participants.

#### Group One: The game design students

The four participants in Group One exhibited similarities when it came to interpreting, playing, and classifying the two game prototypes. One notable example was in their use of terminology and methods of classification: all four of them identified the control game quickly

and in the same manner, as a (side-scrolling) platformer. Some variants of the label were observed (such as ‘platform side-scroller’ or simply ‘platform game’), but the consensus seemed to be that the game in question is a fairly standard, prototypical case of a platformer. When asked to elaborate on their reason behind the use of this label, participants in this group stated that they did so due to the format of spatial navigation (left to right), and, in particular, the jump mechanic present in the game. Several of the participants also noted strong similarities between the control game and other platforming games. The most common associative link was with *SMB*, a game whose first level (World 1-1) directly inspired the first level in the control game, but there was also mention of games which also feature platforming elements and a jumping mechanic, like *Alice: Madness Returns* (Spicy Horse, 2011), *Crash Bandicoot* (Naughty Dog, 1996), or *Kao the Kangaroo* (X-Ray Interactive, 2000). On their own, these links were perhaps not quite surprising: after all, all four participants in this group mentioned having playing many platformers in the past, and, as game design students, were familiar with a landmark game such as *SMB*. More interesting was the degree to which these associative links influenced the players’ performance and gameplay activities by placing them in a specific state of mind and method of behaving derived from their experiences with *SMB*. In some cases, as illustrated by Mark’s comment below, this influence resulted in incorrect inferences about the control game and subsequent mistakes during play:

Mark: You have your jump and you’re moving pretty quickly and then there’s enemies [...] I guess I’m thinking of Mario very quickly when it’s like that. Even the first two platforms and the first enemy were almost placed, like, the very first one in the first level of Mario. Which is also why I tried to jump on it, but apparently I failed and didn’t... Like, I hit it slightly on the side and I didn’t think I could, actually. Yeah, and it just felt, like, very, very familiar, and that’s, I guess, also why I didn’t check for other buttons, because I was like “Oh yeah, this is Mario, I’m just gonna move around and jump”.

Logan: The moment I got in and found out “OK, this is how I control, this is how I jump, there is a little guy coming towards me” - I was thinking: Mario, immediately. And I just went by Mario rules. [...] I can definitely see how, because of other games I have in my library of games I’ve played, I went by another game that was very identical in its way of playing.

The experimental game also garnered the same consistent and quick categorization in the case of Group One, with all participants using either the term ‘puzzle game’ or ‘puzzle platformer’ to describe it. When asked to explain their reasoning, the participants mentioned that the experimental game had mechanical twists on the genre – namely, the absence of the jumping

mechanic – which, when coupled with alterations in level design, required a different kind of thinking to complete the levels.

Wendy: This one, I would say it was more of a puzzle game, because you didn't have, like, this jump thing that you have on the platformers, that you jump from one platform to another. There, you need actually to think how to defeat the opponents, by just dragging them down from the platforms. So I feel like it was more of a puzzle game than a platformer.

Logan: The feel to the game was also different, because I went in having this feeling of "This is basically the same game, cause it's all the same elements" [...] But when I figured out that "Oh, you cannot jump!" - then my brain just very fast went "Oh, this is [a] puzzle" (laughs). So I started doing puzzle game and puzzle thinking instead of action game, I-need-to-get-from-point-A-to-B-not-getting-killed...

After describing and classifying the games individually, the participants were asked to categorically compare the two games. The question was purposefully open-ended, and no genre designators were provided to the players unless they first mentioned some themselves. They were simply asked "Would you say that these two games are of the same kind or type?" This question elicited a range of responses; in general, the participants in both groups took longer to answer it, and gave much more complex answers, than when asked about the individual games. Nevertheless, some commonalities could be noticed. In the case of Group One, all four participants discriminated between the games to a much higher degree, classifying them as different types of games due to differences in mechanics and challenge types, despite remarking on their visual similarities. At times when a genre label of 'platformer' was specifically mentioned, the participants were asked whether one of the games was a more prototypical example of the category than the other. In such situations, all of the participants in the group confirmed that the jump mechanic made the control game seem more prototypical, e.g.:

Researcher: Which game would you say is more of a platformer?

Ernest: The second one.

R: Okay. Any reason for that, again? You may have mentioned it in the past, but...

E: Because it follows more closely the conventional platformer.

R: In what way?

E: Jumping, primarily.

All four participants in Group One also expressed greater preference for the experimental game. Among the reasons cited were its insistence on logical thinking, its twist on platformer

conventions, as well as the greater feeling of accomplishment experienced during play. In contrast, the consensus around the control game was that it represented a short, fun, but ultimately highly derivative gameplay experience, of the kind they had encountered many times before. As such, the participants in Group One did not consider it a game which they would play of their own accord in their everyday lives.

#### Group Two: The infrequent players

In contrast to Group One, participants in Group Two were not unanimous in how they perceived and described the control game, generally giving longer, more discursive and diverse answers. Eve, who in the questionnaire expressed having some familiarity and proficiency with platformers, did use the term ‘platform’ to describe the game, associating, specifically, the form of movement and the presence of platforms with the label. The three other participants offered such labels as ‘mechanical game,’ ‘older game,’ ‘running game,’ ‘typical game,’ and, curiously, ‘adventure game’ to describe the control game. Nick and Amy also had associations to *SMB*, specifically in terms of gameplay, although both professed having last played such games a long time ago. When Nick was pressed for a genre label to describe *SMB*., he used the terms ‘adventure game’ and ‘running game,’ the same terms he had used earlier to classify the control game.

When it came to identifying the experimental game, participants in Group Two gave much more elaborate answers than Group One and mostly applied the same labels as those used to describe the first game – namely, terms such as ‘running game’ and ‘adventure game,’ among others. A notable exception was Julia, by far the least experienced with digital games and gaming culture, who made the following observation in which she noted the differences between the two games:

Julia: The [control game] is a mechanical game. But the second one is not. It requires you to use your brain a lot, rather than the first one, where you have to be quick and use buttons. In the second one, you have to use logic.

In contrast to Group One, three out of four members of Group Two answered that they thought the two games were essentially similar, or of the same kind. In explaining their reasoning, they cited not only the visual or asset similarities, but also those on the level of the gameplay experience, which did not play nearly as important a role as for Group One:

Nick: Yeah, I would say so, yeah [...] Because the basic elements are the same. I don't know; the graphics and the gameplay don't change dramatically. One is just kind of simpler, that's it.

Eve: ... Yes, I guess so. As I told you, it could be the same game, but with the second one could be just the part when you level up a bit [...] I associate certain genres to games and even though a person doesn't play them... I think even more if a person hasn't played games before, these would seem similar [...] Both are platforms, I guess.

Amy: Yes, same type [...] I mean, I think they are of the same type, same category, but I think that, for the second game, you need to think a little bit more, I don't know.

As stated earlier, the outlier in Group Two was Julia, who strongly insisted that the two games were of a different kind. When asked for a reason why, she stated that she perceived the control game as a typical game she played when she was younger (which, judging by her questionnaire response, was likely *SMB*), and the experimental game as a more complex, unorthodox kind of game that was unlike anything she had played before.

In terms of preferences, Amy and Julia stated that they preferred the experimental game, mostly due to its perceived complexity and innovation, as well as its focus on logical thinking, while Nick and Eve opted for the control, claiming they enjoyed the greater range of mechanical complexity, which fostered their desire to replay the game.

## Discussion: Ludic habitus & generic subfields of digital games

How can we best conceptualize the differences between these two groups of players? In order to answer this question, we turn to practice theory. In most fundamental terms, prolonged practical engagement with digital games and the cultures which surround results in the development of a game-specific version of Bourdieu's notion of habitus – in other words, in *ludic habitus*. In the context of digital games, and with a focus on gameplay activities, we can understand ludic habitus as acquired patterns of perception, appreciation, and action, built up over the course of prolonged experience with games and gaming culture, and subsequently influencing our practical engagements with digital games in the moment of play. Ludic habitus represents particular, practically acquired ways of perceiving, interpreting, appreciating, and performing, tied to the domain of games. In simple terms, it is one's own personalized way of understanding and relating to games and, more broadly, gaming culture.

Because the corresponding field involved in its creation (that of digital games) contains an incredibly diverse set of designed artefacts, it is reasonable to think that ludic habitus can take on many forms. However, digital games are characterized by substrata of operational and experiential similarities, in the form of conventionalized hardware and software implementations and solutions, which are basic and necessary prerequisites for category formation. From this perspective, genre groupings of digital games can be said to constitute practical categories – conventionalized, often overlapping *generic subfields of digital games*, subsumed under the more general practical umbrella of the digital games field. Our conceptualization and categorization of digital games and gaming develop on the basis of personal experience with these subfields and the games and subcultures which belong to them. In turn, possessing ludic habitus familiar with a particular generic subfield and its design conventions – for example, those characterizing platforming games – works to facilitate gameplay performance and recognition of said patterns in games belonging to the same subfield.

Participants in Group One – seasoned players who were also students of game design – turned out to possess quite similar ludic habitus, familiar with the established generic subfield of platformer games. This is evidenced by similarities in their interpretation, labeling, and to an extent gameplay prowess in both games. Familiar with the conventions of 2D side-scrolling platformers both as players and as designers, participants in Group One distinguished more strongly between the two prototypes in experiential terms, often assigning them different genre labels when prompted (typical/conventional platformer vs. puzzle platformer) and strongly correlating the jumping mechanic with the platformer genre. This correlation was enough for all four members of Group One to describe the experimental game as a departure from their idea of a traditional platformer experience. The platformer domain knowledge that Group One possessed as part of their ludic habitus came in handy during testing, insofar as it enabled them to quickly interpret the mechanics and spatial layout of the two games, and then infer and implement particular methods of play which they previously acquired and refined in encounters with similar games. Lastly, these players also displayed the same pattern of preference, with all of them stating they appreciated the experimental game more because they saw it as somewhat innovative and therefore more interesting than the control game.

Conversely, Group Two featured participants whose ludic habitus were more rudimentary, varied, and restricted to other game types. Due to their limited practical experience with games belonging to the platformer genre and unfamiliarity with the relevant discourse and terminology, they did not possess a firm concept of a platformer game, or associated only the properties recurring in the two games (like the presence of platforms) with the genre. In a notable



departure from Group One, the members of Group Two, for the most part, saw the two games as *essentially similar*, even when it came to the kind of gameplay experience the games provided. With the exception of Julia (who, as noted before, distinguished between the games quite strongly on the level of skills required by them), the less strict understanding of platformers as a delineated game category enabled most participants in Group Two to focus more on the similarities between the two games, rather than to discriminate between them on the basis of their differences.

On the level of performance, the overall greater practical familiarity with games of Group One participants did translate into better results, in both game prototypes, compared to Group Two. However, there were moments when previous experience with similar design patterns and genre gameplay conventions seemed to *hinder*, rather than aid, performance. One example of this was Mark, who, as was mentioned earlier, attributed his initial difficulties when playing the first level of the control game, modeled on World 1-1 in *SMB*, to his overreliance on patterns of action established by the latter game. In these cases, knowledge and skills linked to a particular game led to misinterpretations and errors when playing a game which contained similar design elements, essentially forcing the players to stop and adapt their play styles. While these challenges were temporary and overall minor for the players who experienced them, they still showcase how one's ludic habitus, emerging from experience with specific games – or even with groups of games which share design conventions, i.e. specific generic subfields of digital games – influences how we perceive and approach similarly designed games. This influence is, counterintuitively, not always positive and beneficial to performance.

## Limitations

The present research took the form of an *exploratory* study and offered a *preliminary* understanding of ludic habitus and generic subfields of digital games. As such, the research comes with some limitations which need to be made explicit. From a methodological standpoint, the study relied on purposive sampling to recruit participants. While this form of sampling did result in two groups of players which differed in terms of their level of gaming experience, one of these groups was comprised exclusively of players who are also *game design practitioners*, who potentially approach games in a more outwardly analytical fashion than other experienced players. Similarly, the study relied on qualitative methodology; while this approach is commonly used for theory building, more research with different populations of players is needed to further

elaborate on the theoretical concepts presented here. Ideally, such research would expand on the number and types of participants, potentially incorporating quantitative data as part of a mixed-methods approach already advocated as a paradigm in social research (see e.g. Denscombe, 2008).

It is also important to reflect on the absence of consideration for sociocultural aspects traditionally associated with the notion of habitus. In this study, ludic habitus was viewed in a limited and specific fashion, i.e. purely in terms of one's interactions with (a specific category of) digital game artefacts. Such an approach has not directly addressed the interplay between one's cultural and social background and experiences with said practice. The reason for this was primarily pragmatic and related to issues of scope and the study's focus on habitus deployment in acts of digital gaming practice. In light of limited work to act as precedent in game studies, the specific perspective on ludic habitus offered in this study was necessary as an early, focused step into further empirical investigations of this concept, which would take more general sociocultural matters into account.

## Conclusion

The research presented in this paper was conducted to more closely account for the manifestation of prior experiences which influence how players play, understand, and relate to games. As an initial step in this exploration, the research adopted the perspective of Bourdieusian practice theory, and featured an exploratory empirical study conducted with the aim of establishing the concepts of ludic habitus and generic subfields of digital games within the domain of digital gaming. In tandem, these two concepts help us to better discuss and understand how individual player attributes (such as preference, knowledge, and skills) converge and present in the act of playing digital games, in response to specific game design elements of a given game.

How players interpret a particular gaming situation, and how they act in it, depends on their *ludic habitus*: their acquired patterns of perception, appreciation, and action, which are tied to the broader field of digital games. As evidenced by the findings of the study, these patterns may be specialized for a given subdomain of games and gaming that features conventionalized design configurations – a *generic subfield of digital games*, such as the genre of platforming games. Ludic habitus familiar with a generic subfield of digital games functions as an interpretative, evaluative, and performative framework when encountering games which register as belonging to that subfield. This familiarization seems to result in a greater degree of

discrimination on the basis of conventional features, but also in more rigid schemas of classification and occasional errors in performance.

The analytical strength of the concept of ludic habitus lies in its holism: it represents a novel, complex perspective on players, one which takes into account the various attributes that characterize our experience with games and gaming. It is meant to serve as an alternative to the more individualized examinations of differences between players, such as typological classifications on the basis of a single parameter like motivation, preference, or ability. While the conducted exploratory study has illustrated how we can use ludic habitus to frame and examine digital gameplay practices, more empirical research is needed to further elaborate the aspects of ludic habitus not covered in the study, such as socio-cultural background. As part of a larger research project, a follow-up study that will address these considerations to a greater degree is being planned, and will investigate how specific deployments of ludic habitus (e.g. methods of playing or understanding) are triggered by particular game design solutions within a given subfield of digital games. The ultimate goal of this larger research project is to create a detailed Bourdieusian model of digital gaming as a form of human practice, and, in doing so, contribute towards a richer, more nuanced understanding of the relationship between players and digital games.

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## II

### *How the Players Get Their Spots: A Study of Playstyle Emergence in Digital Games*

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# How the Players Get Their Spots: A Study of Playstyle Emergence in Digital Games

## Abstract

How, when, and why do players settle into a particular playstyle when playing a new digital game? Though some aspects of these questions have been addressed in player research (e.g. through player typologies), we are still lacking comprehensive answers that adequately account for the roles of both the player and the game in the manifestation of playstyles. The qualitative study presented here is a middle-ground look into how playstyles emerge when players sit down to play a new digital game. It frames playstyles as an in-game function of the player's *ludic habitus* – their past experiences, knowledge, and attitudes. The study takes the form of a playtest with ten players, using a custom adventure game/hypertext fiction prototype developed in Twine. The prototype offered two modes of engagement – slower reading of poetic text, and faster-paced exploration and puzzle-solving. The study found that playstyles consolidate at specific *moments of discovery* (e.g. upon solving an early puzzle), when the player's ludic habitus contextually interprets game design cues and reacts with a player-preferred form of engagement.

*Keywords*—playstyle, engagement, habitus, subfields of practice, player studies, game design

## I. INTRODUCTION

In both game and player studies, researchers have discussed what differentiates players from others in their manner of play of certain games – often referred to as their *playstyle*. Such research has elaborated on the connections between playstyle and, among others, topics such as gender (e.g. [18, 20]), age (e.g. [26, 31]), queer identities (e.g. [29]) and ethnicities (e.g. [6]). The depth and variety of existing research show that playstyles touch upon many elements of player psychology, sociology, and game design. Despite this work, fundamental questions about playstyles remain unanswered. *How do playstyles emerge during gameplay? What makes a player play a particular game in a particular fashion?* These issues are indicative of a broader lack of understanding about the practical, moment-to-moment activity of gameplay, which calls for novel methodologies and research perspectives to properly address it.

The exploratory qualitative player study in this research paper seeks to further our understanding of how, why, and when players settle into certain playstyles – understood in this context as *characteristic forms of engagement with a digital game*<sup>1</sup>. Where existing research has examined player or game factors which might contribute to certain playstyles, or created playstyle classifications or categorizations, the present study is a *middle-ground* approach, bridging player and game research; it looks at how forms of engagement emerge when players sit down to play a new digital game title. It examines player interaction with a custom digital game prototype, developed in Twine, which combines design elements from both adventure games and hypertext fiction. Part of a broader research project that aims to extend Bourdieusian practice theory to interactions with digital games, the study is distinguished from previous work in the field by its examination of multiple player and game design factors pertaining to playstyle emergence. It answers the questions about playstyle emergence by framing playstyles as influenced by the players’ game-domain-related experiences, knowledge, and attitudes – their *ludic habitus* – and their perception and understanding of the broader field of digital gaming, including the specialized *subfields of practice* contained therein and clustered around games of specific types or genres. In examining playstyles as they come into being, at *specific moments of discovery during the act of gameplay*, this research contributes a better understanding of the activity of gameplay as being founded on and characterized by the interplay between the psychological and sociological player attributes and different components of a game’s design.

The paper is structured in four parts. The first is an overview of existing classificatory player and game research, which showcases current perspectives on different styles of play of digital games. This section also details the theoretical framework used in the present study – Bourdieusian practice theory, namely the concepts of habitus and field, as well as their game-specific manifestations (ludic habitus and gaming field/subfields of practice). The following section presents the methodology of the exploratory qualitative player study, including details on the design of the prototype used in the study. The third section contains the results of the study, as well as the discussion of its findings. The paper ends with concluding remarks on playstyle emergence derived from the study.

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<sup>1</sup> Understood as that subset of games which require some form of electronic computation for their operation.



## II. PLAYSTYLES IN PLAYER AND GAME RESEARCH

In research, playstyles have generally been examined from one of two perspectives: one that focuses on players, and one that focuses on game design. Before explaining how the present research aims to bridge these two traditions, it is worth briefly presenting this previous work.

The idea of different styles of playing digital games has given rise to classificatory work on *player typologies* or *taxonomies*. In their metareview of this form of research, Hamari and Tuunanen found that existing player typologies have predominately been made on one of two bases: *behavioral* (i.e. based on players' in-game actions) and *psychographic* (i.e. based on players' psychosocial characteristics seen as pertinent to gaming) [17, p. 32]. Behavioral research has been conducted using forum post analyses [4], performance data generated during play of certain titles [15, 16], surveys [19], and/or interviews and focus groups [21]. On the other hand, psychographic player research has frequently looked into topics like player motivations, as part of either empirical [28, 34] or more theoretical studies [7]. Psychographic studies have also examined player preferences [11, 23, 32], as well as the clustering of several psychological traits related to gaming, rather than just individual ones [5]. More recently, psychographic investigations have led to new theoretical frameworks regarding agency in digital games, and a more complex understanding of the emotional aspects of the gameplay experience [12].

The idea of different formats or styles of play experience can also be examined from the perspective of *game artefacts*, in the context of *genres* or *game types* rather than player types. The concept of playstyle has featured, explicitly or implicitly, in various genre classifications [33] and in game genre research in general [1, 3, 27]. In this form of research, playstyles figure as *patterns of play behavior* afforded by particular game design choices, in common to games of a particular kind or type. For example, according to Arsenault, game genres represent “*the codified usage of particular mechanics and game design patterns to express a range of intended play-experiences*” [3, p. 171, italics original]. From this standpoint, different genres of games afford different formats or types of play; consequently, these design affordances form the bases for different playstyles in a game.

The two research strands illustrated here, centered on players and games respectively, describe different influences on playstyles in digital games. However, all of these theories operate on very broad temporal frames, often framing playstyles as fixed properties of players, rather than examining how playstyles manifest and evolve during the act of playing specific titles. Addressing these concerns and expanding our understanding of playstyles – their formation and manifestation – calls for new research methods and designs, able to better examine

and account for the complex confluence of player and game. The exploratory study described in this paper is an example of one such project, and has as its theoretical basis the work of Pierre Bourdieu, in particular his concepts of *habitus* and *field*.

#### *A. Ludic habitus and subfields of practice*

Since both player- and game-related factors seem to be relevant for discussing playstyles, we need to employ a perspective that encompasses both in order to investigate how playstyles emerge. For this reason, this research turns to Pierre Bourdieu's work on practice. His practice theory can be viewed as a constructivist form of structuralism [8, p. 14; 9, p. 14], which reintroduces the figure of the agent into a network of relations with objective social positions in a particular domain. This middle-ground approach makes Bourdieu's work suitable for addressing the divide between player research and game research when approaching playstyles in games.

Two of Bourdieu's concepts, closely coupled in his understanding of all forms of human practice, are highly relevant within the context of the present research project. They are *habitus* and *field*.

*Habitus* is a system of dispositions – thoughts, beliefs, actions, etc. – which structures one's understanding of the cultural and practical field that produces it, and, in turn, acts as a generator of sensible, intelligible practices within said field. *Habitus* is the result of an agent's prolonged participation in activities within a given *field of practice*, which is populated by other agents, artefacts, and institutions, and which fosters certain norms and values at the expense of others. For example, a person's music *habitus* can be seen as comprising patterns of their activities of music production and consumption, tastes and attribution of value for particular musical genres, performers, or institutions, and forms and degrees of cultural involvement within the field of music, amongst other things. In other words, one's music *habitus* is the rich, detailed description at the heart of the fundamental questions of how one relates to, understands, and engages with (the field of) music.

The concepts of *habitus* and *field* be adapted for the domain of games. The cultural and practical domain in which a player builds their game-related or *ludic* *habitus* – i.e., where one becomes a player – is the *ludic field*, encompassing not only game artefacts, but also agents and institutions which operate in their creation, distribution, and valuation – developers, publishers, reviewers, YouTubers, etc. Furthermore, genre groupings of digital games can be seen as distinct

subfields in their own right – as discrete *subfields of practice*. Practical and cultural experience with these subfields – for example, with first-person shooter (FPS) or grand strategy subfields – serves to specialize and differentiate one’s ludic habitus from that of another player.

Though both habitus and field have previously been used in research on digital games and players (see e.g. [2, 13, 14, 22, 24, 35]), they have not been the subject of in-depth empirical investigations on playstyles and play behavior. The present study aims to rectify that. Within the context of this paper, habitus will be used as a conceptual tool for discussing playstyles and player-related factors which influence their emergence, ultimately being framed (in accordance with Bourdieu’s view) as a *generator of characteristic play practices*. The following section of the paper details the exploratory study, beginning with a description of the custom prototype created for investigating playstyle emergence in digital games.

### III. EXPLORATORY STUDY

#### A. *Inglenook*

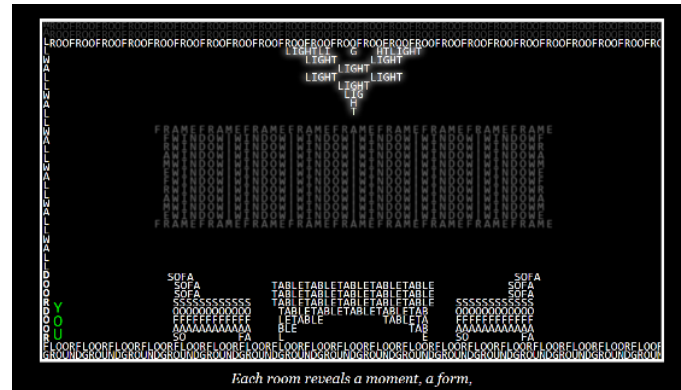
The game prototype, titled *Inglenook*, was developed for the purposes of examining how, why, and when playstyles emerge during digital gameplay. Its visual design was inspired by concrete poetry – a style of poetic writing which features unorthodox typographical arrangements of textual elements. The design goal which guided the prototype development was to create a two-dimensional textual space for players to explore. In *Inglenook*, this space ended up taking the form of a house composed of textual elements, arranged so as to suggest shapes of certain objects (as seen in Figures 1 and 2).

*Inglenook* was developed in Twine, a software tool primarily used to create hypertext fiction in the form of interlinked HTML pages referred to as *passages*. Each passage in the game consists of strings of words which together construct the physical space of the game, and a vertical text string – the word YOU – which is positioned at a particular location on the screen. Several of these passages, each with a different placement of the vertical YOU, collectively comprise a single navigable physical space in the game (e.g. a living room with lights, windows, and furniture). The player navigates through the game by moving between these passages, using the arrow keys on a keyboard<sup>2</sup>, and interacts with objects in the virtual environment by using the

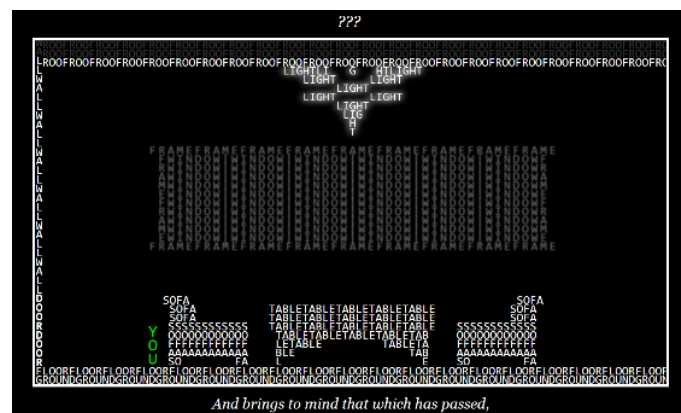
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<sup>2</sup> Mousetrap, a JavaScript library for handling keyboard input developed by Craig Campbell, was used to facilitate navigation with key presses rather than mouse clicks. The latter method of interaction is typical of Twine

Space bar. Because of the change in position of the vertical YOU, the movement between passages registers as traversal of a 2D space. Figures 1 and 2 are meant to serve as illustration of this kind of navigation – i.e. of the basic form of gameplay on offer in *Inglenook*.



**Figure 1.** The initial passage of the living room space in *Inglenook*. The line of text on the bottom is the space’s thematic text, appearing only during the first time this passage is visited.



**Figure 2.** The subsequent living room passage, following a single movement/press of the right arrow key. Note the different position of the green word YOU. The question marks at the top indicate that the current position is an interaction point; the player can examine the sofa object by pressing the Space bar.

The gameplay design of *Inglenook* was influenced by interaction formats characteristic of adventure games and hypertext fiction. The former influence is evident in the game’s spatial and mechanical design and overall goal structure. As part of playing *Inglenook*, the player navigates the house of words, consisting of three floors and nine separate rooms, interacts with

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stories, but was omitted in this project in favor of keyboard input, which allowed for a more natural mapping of movement to the arrow keys.

objects such as doors and switches at interaction points designated by question marks, and solves several simple puzzles involving item retrieval and code input to unlock one of the two ending states of the game.

Each passage in *Inglenook* contains a single line of thematic text which appears only once, the first time a passage is visited, making the navigation between passages akin to flipping pages in a picture book. The lines do not contain any information relevant for progressing through the house; they appear at the bottom of the screen and take about half a second to appear once the passage is first visited. If the player who moves too quickly between several passages, these lines will not display at all for the passages which were speeded through. Taken together, the lines in each of the passages that comprise a discrete space, such as the living room, form short poems which deal with themes of isolation, loneliness, and regret. The ephemeral quality of the thematic lines was a deliberate design choice, indicated to the player at the beginning of the game. The intent was twofold: firstly, to enhance the aesthetic experience of the thematic text, and secondly, to enable a slower, more deliberate form of engagement, contrasting the adventure game genre mechanics, and consequently to gauge player reactions to these kinds of engagement.

## *B. Participants*

A total of ten participants (six male, four female, ages 21-33) took part in the study. They were recruited online, via posts on social media groups, as well as through word-of-mouth snowball sampling [25, p. 237]. The resulting group of participants was relatively heterogenous in terms of their digital game preferences and experiences. Four of the participants were game design students, while one had a master's degree in the same field and was working for a game developer at the time of the study. On the whole, they had a great degree of experience with various kinds of games, although they reported preferences towards different game types and gaming platforms. The other five participants had non-gaming educations and degrees. Overall, they reported very specific gaming preferences and had lower degrees of gaming experience, with one of them not having played digital games at all in the past year.

All participants were informed of the general nature, but not the specific topic, of the research study. In an attempt to elicit more honest thoughts about the game, they were also told that *Inglenook* was designed by a third party. As part of the recruitment process, they signed dedicated consent forms, allowing for the use of their data for research purposes. The forms were

approved by the ethics committee at the researcher's institution prior to participant recruitment. Participants were also issued gift cards as compensation for their participation.

### *C. Data collection*

Participation in the study consisted of a preliminary questionnaire, recorded play session, post-play-session semi-structured interview, and a brief optional questionnaire around a week after the play session.

The initial questionnaire contained questions on current and past gaming habits, type of participation in gaming culture, personal gaming history, game preferences and attitudes, as well as general media habits, preferences, and attitudes. The aim of the questionnaire was to capture *multiple* aspects of one's relationship with the field of gaming, as opposed to a single metric (e.g. preferences towards specific game types), as is the case in more dedicated questionnaires and psychometric scales. Because of the nature of its construction, the questionnaire does not serve as a tool for directly comparing one participant to the next. Rather, it acts as a rich source of background data for each individual participant, painting a picture of their own, unique relationship with the domain of digital games and other media. This approach to background data is in keeping both with the topic under investigation and the overall holistic aim of the study.

Due to restrictions on physical gatherings on the count of the coronavirus pandemic, the play sessions took place via Zoom. To facilitate this, the game prototype (in the form of an HTML file) was shared with the study participants at the start of the conversation. The testing session lasted between 30-50 minutes, with the participants playing the game for around ten minutes with their screen shared, and then being asked a series of questions as part of the post-play-session interview. To avoid being pressured for time, the participants were only told that they would be asked to stop playing after an arbitrary period. The Zoom session was recorded, and the interview portion later transcribed by the researcher.

Much like with the background questionnaire, the questions in the post-play-session interview were formulated as open-ended, to better capture the breadth of the participants' experiences with *Inglénook* and any other game and/or media product of which it had reminded them. The questions were subdivided into three groups: *Gameplay Experience*, *Appreciation*, and *Comparisons*. The first group of questions focused on the participants' opinions about the design of the game, both on a micro level (visuals, themes, mechanics, challenges) and on a macro level (impressions of the overall design approach behind the game). The second group of

questions pertained to the appeal that *Inglenook* carried for the participants, and included questions on cultural perception and positioning of the game within the broader field of digital games and gaming. As part of the final group of questions, the participants were asked to compare *Inglenook* to other games that they may have played or heard of, as well as to other media products of which the game had reminded them during the play session.

At the end of the testing session, the participants were told that the game file was theirs to keep, and asked to participate in an optional follow-up questionnaire, which was distributed to them five to seven days following the testing session and which focused on their experiences with the game in this period. Only one of the participants did not take part in this portion of the study, and out of the remaining nine, three did not return to the game following the testing session or the time immediately after it. There were two reasons for conducting a follow-up questionnaire. Firstly, it was deemed important to allow participants time with the game outside the confines of the testing session, so that they would have a chance to play it on their own terms and complete it, if they so wished. Furthermore, since the participants had time to play the game of their own accord following the testing session, there was a chance that their opinions and feelings towards the game would change and evolve. In light of the overall goal of the study, this evolution was considered relevant and important to track.

#### *D. Data analysis*

Data obtained from the study encompassed around 6 ½ hours of video material and over 70 pages of interview transcripts, in addition to textual data and Likert scale responses from the two questionnaires. The transcripts were first prepared for analysis in the MAXQDA 2020 software package by using the open coding process [30]. Two rounds of open coding were conducted; the final refined code set included 40 different codes grouped into 13 main categories, and a total of 526 coded interview segments. The initial approach to the coded segments was focused on between-participant comparison, in an attempt to determine and classify shared patterns of thought or opinion among the study participants. While this method did result in interesting observations about the participants' cultural perception of the gaming field and the prototype's position within it, it did not prove particularly fruitful in answering the questions behind the study.

As a result of this, a second round of analysis was performed, utilizing the same code system and segments, but instead examining the participants' responses individually and in

depth, in light of their gaming experiences and attitudes reported in the initial questionnaire and their in-game behavior. In essence, this approach treated each participant in the study as an isolated case, seeking to determine – on the basis of interview data and gameplay recordings – how their own ludic habitus reacted when encountering *Inglenook*. Only after all participants' data were analyzed in this fashion was it possible to cross-examine them and draw conclusions regarding the study topic.

#### IV. RESULTS

##### A. Player clusters

The participant profiles created in the second round of analysis were compared and contrasted, with participants with similar playstyles grouped together in a specific cluster. A total of three clusters were thus created:

1. **Cluster One (C1; *The Puzzle-Solvers*)** is comprised of three participants whose playstyles were fast-paced and who quickly disregarded the game's thematic text in favor of rapidly navigating the game's setting and solving the puzzles they encountered.
2. **Cluster Two (C2; *The Detectives*)** is comprised of two participants whose playstyles mainly revolved around investigating the game's mysterious setting and theme, with a moderate degree of engagement with the thematic text.
3. **Cluster Three (C3; *The Explorers*)** is comprised of five participants whose playstyles were the most methodical and slow-paced; they generally showed a high level of engagement with the virtual environment and with the thematic text, only skipping or missing a few of its lines.

The classification does not imply value judgments towards any of clusters nor any of the players, nor is it meant to flatten the individual differences between them. There were at times considerable differences between the participants belonging to the same cluster, though they were still grouped together on the basis of playstyle similarities. Instead, participant clustering is used to deliver a clearer, more organized presentation of the study data, which will help answer the research questions behind the study in a more systematic and comprehensive manner.

The three clusters are presented below. For the sake of relevance to the research questions, the summaries focus on matters of playstyle, opinions regarding thematic text and visual style, and cultural perception and positioning of *Inglenook*.



### 1) *Cluster One – The Puzzle-Solvers*

The first cluster consists of three participants: **Arthur**<sup>3</sup> (a PC gamer of European RPGs and grand strategy games), **Joe** (a PC and console gamer of Western RPGs, FPS games and fighting games), and **Jill** (a non-player, familiar with a handful of older, prominent gaming titles).

Despite differences in their level of practical familiarity with digital games, these three participants all played *Inglenook* in a similar fashion. The first several minutes of their playthroughs were characterized by slower, more exploratory engagement, which saw them investigating the ground floor of the house and turning on the lights upstairs. During this time, they moved relatively slowly between passages, only skipping a few lines of thematic text while navigating the ground floor. However, once these players solved the first puzzle in the game – which involves restoring power and unlocking access to the upper floors of the house by flipping a single switch on the ground floor – they began playing at a more rapid pace, skipping through most of the lines of thematic text and orienting themselves firmly towards finding and solving the game’s puzzles. Joe played the fastest of all three, and at times, his movements were so quick and erratic that they triggered visual glitches in the form of misaligned and misplaced text which made up certain objects. Of the three, Arthur (who played slightly longer than the other participants in the study, due to connection issues) progressed the furthest in the game, followed by Joe and Jill.

In the post-play-session interview, the three participants in this cluster expressed initial confusion, at times even annoyance, due to the game’s visual and mechanical design, although they also praised the game’s atmosphere, intensity of mood, and minimalism. Both Arthur and Jill described the game as a *demo* or an *unfinished* product, primarily because of the visual design. Out of all the participants in the study, Jill was most confused by the game; she mentioned that playing it felt like trying to exit an escape room. In the case of Joe, the game was an interesting *concept*, with simple gameplay mechanics that were just about adequate when paired with the unique visual style. Overall, though, he felt that the game was too rough to appeal to him. Though all three participants mentioned not typically playing games like *Inglenook*, Joe was by far the most vocal of the three about his distant attitude towards the game. When asked if he considered *Inglenook* to be his kind of game, Joe replied:

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<sup>3</sup> The names of all participants have been altered for the sake of anonymity. Their background information is here presented in the form of short summaries, highlighting the players’ preferred platform and game genres.

Joe: No. Absolutely not. Yeah (laughs), first because of the graphic design, which - if I want more of this kind of involved thinking, I would choose reading a book or, I dunno, participating in a discussion and not to go into a computer game, from which I expect more of a relatively easy entertainment.

The three participants in C1 also shared similar reservations towards the thematic text. All mentioned reading it at first, but then, at some point, realizing it is not relevant for the gameplay, and subsequently skipping it in favor of puzzle-solving. All three stated that the text contributed to the atmosphere and feel of the game, but ultimately, puzzle-solving proved to be more of a draw for them as players. This can also be seen in their gameplay recordings. As mentioned before, once these players solved the first puzzle and unlocked the upstairs area of the house, their engagement with the game changed from being relatively balanced between reading and exploration, to predominately goal-oriented. At that point, for all three players, *Inglénook* seemed to become fixed as an adventure-puzzle game, rather than a hybrid of digital game and hypertext fiction.

## 2) Cluster Two – *The Detectives*

The second cluster consists of two participants: **Willow** (smartphone and PC player of story-based games, point-and-click adventures, and city building games) and **Alice** (a multiplatform player of interactive visual novels, story-based games, and puzzle/adventure games). Both are students of game design, who regularly make games and attend game jams, with Willow also creating fan art and Alice working on visual art in general.

Much like the other participants, Willow and Alice at first played slowly, reading each of the lines of thematic text as they would appear on screen. However, as they were moving from room to room on the ground floor, their engagement with the game coalesced into an investigative playstyle, with quicker navigation between passages and more time spent interacting with points of interest in the various rooms. Unlike the first group, this did not mean that Willow and Alice began to disregard the thematic text altogether. Rather, it seemed as though they were now predominately playing *Inglénook* as an adventure game that had an underlying mystery. Their primary goal was to investigate the space of the house – for example, by sequentially interacting with all objects in a room and moving quickly towards switches whenever they would see them. Throughout their playthroughs, this investigative style of play seemed to also make room for reading the snippets of text at the bottom of the screen. Alice seemed to be the more diligent reader, skipping fewer lines overall. Willow, on the other hand,

would occasionally move too quickly between two passages, especially when entering a new room, and would then try and go back in order to read the skipped text.

In the post-play-session interview, Willow admitted to not reading more than half of the thematic text, despite wanting to do so, on the count of excitement brought about by investigating the house. Nevertheless, both her and Alice agreed that the thematic text contributed to the game feeling like a mystery waiting to be solved, and that it worked well in tandem with the space, gameplay, and visual style. Both players remarked on *Inglenook*'s hybrid nature as both a puzzle-based adventure game and a work of hypertext fiction:

Willow: [...] I feel like it was adding a lot to the story where you had this really, like, minimalistic thing going on. So it kind of felt together, like you were playing more of a book than a game, which was really fun. I feel like it added a lot.

Alice: I think that was the part that made the game mysterious. Like, the way that the text was written [...] That was where I got the mysterious feeling the most. And it was... It also seemed like, like a book, or something like that, that you are going to read through the rooms of the home.

The visual style elicited somewhat different responses from the two participants in this cluster. Willow was very enthusiastic about it, even going as far as describing the game as *artistic* and *experimental* due to its visuals and comparing it to works which challenge one's conception of a given medium. She also considered the game well-designed – for “an indie game [and] a short project made by one person.” Alice was more reserved in her evaluation. For her, the visuals were interesting and nice, but they were also a mark of the game's *incomplete* status. On more than a single occasion, she mentioned the visual style of *Inglenook* being “preferable to bad art.” Even though Willow and Alice saw the game in a different light – as an artistic experiment and an unfinished prototype, respectively – they both seem to be more aware of its dual identity as a digital game/interactive fiction hybrid. For the two of them, *Inglenook* primarily seemed to be a digital space inviting investigation, one in which they could solve puzzles and also follow a sort of story.

### 3) Cluster Three – The Explorers

The third, final, and biggest cluster consists of the remaining five participants: **Peter** (a PC player of open-world games), **Susan** (a PC player of FPS games), **Thomas** (a PC player of FPS, strategy, and action-adventure narrative games), **Evan** (a console player of platformers,

action-adventure, and puzzle games), and **Miles** (a PC and console player of FPS games, crafting games, and indie games with unique mechanics). The latter three were or are game design students and makers of digital games.

All five of the players in this cluster played *Inglenook* more slowly and methodically than the other participants in the study. From beginning to end of their play experience, they played in a manner which indicated they were reading the thematic text, skipping these lines only on rare occasions or by accident. In this cluster, gameplay speed did not seem to be affected by time already spent playing, or by reaching a specific point in the game, as was the case in the other two clusters. These five players were not just playing slowly because they had trouble with the controls or navigating the virtual environment: they were perfectly capable of speeding up when navigating already familiar rooms. Rather, their attention seemed to be relatively balanced between reading the thematic text, exploring the virtual environment, and solving the game's puzzles.

The interviews after the play sessions revealed a high degree of appreciation for the game's visual style, but differing attitudes towards the game's thematic text. Peter and Evan considered the text confusing and at times annoying in its presentation, admitting that their appreciation and focus towards it waned as the game progressed. Despite this, they kept on trying to read the lines:

Peter: The only thing which was annoying for me was that I had to wait for every single step, so I [could] read - and I skipped a lot of [the text], because, by habit, when you play, you're not supposed to just tap-wait-tap-wait... And I was just, like, skipping those [lines], but not intentionally. Sometimes I even went back to see if I can read it again.

Evan: I felt like the small text at the bottom stopped mattering to me. [...] But I'm, like, the kind of player that get[s] a bit annoyed by that, because I really want to take in everything. And then when there's something that I don't find interesting, I force myself to take it in, even though I'm not enjoying it a lot (laughs).

Susan, Thomas, and Miles, on the other hand, were more enthusiastic about the text, even though they also found it confusing at times. For them, the thematic text felt like a very important and relevant component of the game's design, enriching their experience and letting their minds wander as they played. Susan mentioned that the lines of thematic text "gave the game itself some [...] definition [and] depth." For the three players with game design backgrounds – Miles, Thomas, as well as Evan – the thematic text (coupled with the game's visual style and other

design elements) led to a categorization of *Inglennook* as an *independent* or *indie* game, drawing comparisons with titles such as *What Remains of Edith Finch* and *Limbo*. In the case of Miles and Thomas, this perception of *Inglennook* was enough for them to adopt a very specific stance towards it. This stance influenced, among other things, their degree of engagement with the thematic text, as illustrated by Miles's comment below:

Miles: If it's a game like this, where you're kind of, like, put in a narrative, I feel like I really want to read it. I feel like it is a very essential part of the story. But in other games, [...] like an *Assassin's Creed* game or something, where they put in audio logs or whatever, I don't feel like I want to read it, because I don't feel like it adds anything to it.

Despite differences in level of appreciation for the thematic text, the five players in this cluster approached *Inglennook* on similar terms. As seen from their gameplay footage and interview responses, the main allure of the game for them did not seem to lie exclusively in any individual aspect of the game's design, such as puzzles, space, or story. Rather, each of these players, in turn, tried to explore and experience as much of the game and its various aspects as possible throughout their time with *Inglennook*. This resulted in a slower, more comprehensive form of engagement than that of participants in either of the two other clusters. For the five participants in C3, *Inglennook* never coalesced solely into a puzzle game *or* an adventure game *or* a work of interactive fiction, but rather retained the properties of all of these forms during the entirety of their respective play sessions.

## V. DISCUSSION

The results show that participants in the study played *Inglennook* in one of three different styles – with a focus on solving puzzles (C1), investigating the house (C2), or in a more balanced, slower fashion which encompassed puzzle-solving, exploration, and thematic text reading (C3). Now we can return to the questions which motivated the study, and ask them again, in light of these results. *How did these three playstyles emerge? What factors were involved in bringing them to light?*

To answer these questions, we need to take a closer look at the behavior of the study participants. All three groups of players seem to take *cues from specific elements of the game's design*, which induced a specific style of play:

- For C1 players, the playstyle change happened when they solved the first puzzle in the game – i.e., when they restored power to the upper floors of the house. The presence of puzzles in the game was, on its own, enough to cue them into a more rapid, problem-solving playstyle.
- For C2 players, the playstyle change seemed to take place when investigating rooms on the ground floor. The mysterious atmosphere in the game, generated by a combination of design elements (unorthodox visual style, poetic thematic text, and abandoned house setting, among others) cued these players into becoming quick, meticulous detectives.
- For C3 players, no notable change in playstyle took place during their time with the game. However, all five players in this cluster were influenced in their style of play by the thematic text at the bottom of the screen. This engagement meant that they maintained a steady, relatively slow style of play, alternating between reading the text, navigating the virtual environment, interacting with objects, and solving puzzles.

At first glance, the differences between the groups might also be attributed to their level of domain knowledge – i.e. play and cultural experience with certain subfields of gaming practice. Players in C1 had limited experience with games that share *Inglenook*'s mechanics, visual perspective and layout, or aesthetic experimentation – or just limited experience with digital games in general. Conversely, three out of five of the players in C3 are or were game design students, with an extensive knowledge of various game genres and genre conventions, including indie/art/experimental games. What is more, they did not hesitate labeling *Inglenook* as just such a game, which, as Miles pointed out, did influence their mode of engagement with it. It is tempting to say that the ludic habitus of C1 players were underdeveloped, or simply not attuned to the subfield of narrative indie games such as *Inglenook*, and that the ludic habitus of C3 players matched the requirements and conventions of the game. The data, however, paints a more complex picture: C3 also had two players who were not well-versed in indie or experimental games, and both players in C2 were also game design practitioners and quite familiar with experimental game titles, yet played in a different way to C3 players. Within the framework of ludic habitus and subfields of practice, how are we to explain these peculiarities?

To an extent, possessing domain knowledge and practical experience with a subfield of practice such as indie/experimental games did seem to translate into greater appreciation, deeper and richer analysis, and a more comprehensive engagement with the various components of the game's design (principally, thematic text and visual style). Beyond that, it would seem that *personal play preferences* played a major role in determining how a particular player would navigate *Inglenook*. Put simply: when caught between the drive to solve puzzles, explore a large, mysterious home, and/or read poetic text, players simply played the way that suited *them*, engaging with those elements that mattered the most to them as players.

Among the participants, these preferences seemed to be linked to several different factors, and to either be marks of their general attitudes to games or very context- or subfield-dependent. As an example, let us look at the participants' engagement with the thematic text. Regardless of the degree to which they read it as individuals, the players in C3 read the thematic text the most of the three clusters. They did so either because they feel compelled to read everything in games (Evan), enjoy reading narrative in games (Peter), enjoyed the thematic text in *this* game (Susan), or because they recognized the text as relevant and meaningful in light of the game's overall experimental/artistic character (Thomas, Miles). For the two players in C2, the text was not as much of a draw as the other elements of the game's design (gameworld, puzzles, visual style), and the excitement of exploration (Willow) or solving a mystery (Alice) ultimately prevailed and influenced their style of play. The players in C1 did not care much for the thematic text, focusing exclusively on the puzzles and completing the game, either because that is how they usually play games (Joe, Arthur), or because that is what they thought this game was about (Jill).

## VI. LIMITATIONS AND DIRECTIONS FOR FURTHER RESEARCH

The study was conducted using a custom-made game prototype; none of the study participants had played it prior to their respective Zoom sessions, which were capped at around ten minutes of playtime. Prior familiarity with a given game, as well as the freedom to play it at one's own pace, will almost certainly impact one's playstyle. This was evident from the follow-up questionnaire responses, where, for example, C2 players (Willow and Alice) reported playing more slowly and with more time devoted to the thematic text in the period after the Zoom session. In light of this, as well as the limited number of study participants, the study findings should best be understood as hypotheses, pertaining only to first instances of playing a particular digital game. Longer observational studies with more participants would be needed to further explore how one's ludic habitus impacts one's engagement with different aspects of a digital game over time and with repeated plays. Additional exploratory studies examining other facets of ludic habitus would also contribute to a more detailed understanding of the concept and how it applies to digital – and other types of – gaming.

The fact that *Inglenook* is a *single-player* digital game must also be taken into account when discussing the study results. Though it was beyond the scope of this study to investigate it, it seems reasonable to claim that the presence and behavior of other players would be considerable factors influencing how one engages with a digital game, novel or familiar. Further research with multiplayer games could shed important light on interactions not just between

game design and one's ludic habitus, but also between ludic habitus of various players in the same game setting.

## VII. CONCLUSION

The study results show that two main factors influence a player's style when playing a new digital game.

1) Firstly, elements of a game's design – e.g. its visual style, gameplay mechanics, ludic systems, and narrative content – cue specific interpretations and afford specific forms of engagement to the player.

2) Secondly, the player's ludic habitus – the collection of their game-domain-related experiences, knowledges, and attitudes – interprets the game's design both *continuously* (as part of the moment-to-moment interaction with the game system) and *contextually* (by comparing each aspect of the game's design with others, in the context of the game as a whole, and with previously encountered games).

As examples from C1 and C2 show, playstyles often consolidate at specific *moments of discovery* – i.e., when certain elements of a game's design cue the player into a breakthrough or realization about the nature of the game they are playing, which, in turn, leads them to adopting a specific stance towards the game as a whole. These moments of discovery are often contingent on one's familiarity with games of a similar genre or type – that is, by other games belonging to the given subfield of practice. While it seems that the most relevant arbiters of choice between modes of engagement are personal preferences for particular ways of playing, these preferences are often bound to design conventions in a given subfield of practice. In other words, players assign *relevance* to certain aspects of a game's design (mechanics, narrative, visual style, etc.) by viewing them in different contexts: of the game as a whole, of other games they have played, and of the subfield of practice (if any) to which they think it belongs. In the end, the player's interpretation of the game as *a specific kind of game*, emerging from their individual analysis of its design, sets the stage for how they will engage with it.

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### III

*“It’s a video game, and we don’t have all day” – The Ludic Habitus Spectrum and Decision-Making in Digital Games*

Submitted for publication

# “It’s a video game, and we don’t have all day” – The Ludic Habitus Spectrum and Decision-Making in Digital Games

## Abstract

How do players decide on a course of action when playing digital games? Though some of its facets have been studied before, we still lack a holistic understanding of decision-making during moment-to-moment interaction with specific design elements. This paper presents a qualitative study of how players interpret and make decisions in situations with limited information. The study frames the player’s decision-making as a function of their *ludic habitus* – understood as individual sets of game-related dispositions developed through gaming personal experience. The study takes the format of a laboratory playtest, employing a custom-made first-person digital game, which puts the player in a tense situation and gives them the option to navigate it violently or non-violently. The study found that players act either *proactively* or *reactively*, based on their past gaming experiences and moral values. The findings provide empirical basis for *the ludic habitus spectrum*, a conceptual tool for understanding behavioral tendencies in player and game research and game design.

Keywords: *decision-making, ludic habitus, player behavior, exploratory study, ethics, violence*

## Introduction

In the opening chapter of his book *Gaming: Essays on an Algorithmic Culture*, Galloway writes:

Begin like this: If photographs are images, and films are moving images, then *video games are actions*. Let this be word one for video game theory. [...] Video games come into being when the machine is powered up and the software is executed; they exist when enacted. (Galloway, 2006, p. 2, italics original).

In research on digital games<sup>1</sup>, the understanding of player action as important or distinguishing feature of the medium is common, although this broad term is not always framed in the same fashion. One prevalent perspective on action as it pertains to games is that of *interaction* between the player on one end, and the hardware and software elements of a game on the other. Among others, Apperley has argued that interactivity<sup>2</sup> is “the specific attribute” (2006, p. 7) that all digital games have in common, while Arsenault and Perron have similarly claimed that “playing a video game is always a continuous loop between the gamer’s input and the game’s output” (2008, p. 113). Though it has been problematized with regards to related issues such as player agency and ethics (e.g. Tulloch, 2010; Stang, 2019), the interactive premise of the relationship between player and game poses questions which are fundamental for our understanding of both of these elements, and which previous research has hinted at, but never specifically addressed. *How do players decide on a course of actions in a gaming situation? What mechanisms guide their action choices when playing digital games?*

In order to properly answer these questions, we need approaches and methodologies that examine and describe how players think and act in specific instances of gameplay – or, in other words, in *acts of digital gaming practice*. The exploratory study outlined in this paper is one example of such research. The study, part of a bigger project that examines digital gaming practice from the standpoint of Bourdieusian practice theory, investigates how players interpret and make decisions in situations with limited information. It frames player decisions as instances of deployment of the player’s *ludic habitus* – their individual set of dispositions (knowledges, skills, preferences, and understandings) pertaining to the field of digital games and developed through personal experience. The study features a custom digital game prototype, developed in Unity and adopting many design elements and conventions of first-person shooters (FPS) and horror game genres. The deployment of the player’s ludic habitus is examined at specific points during the game, most prominently in a sequence in which the player has to make a quick decision, on the basis of limited information, of whether to take violent action towards the NPC or attempt to proceed in a non-violent manner.

The study is distinguished from other research on player action by its in-depth examination of interpretation and behavior strategies in specific *moments of decision-making* in an empirical setting. During these moments, a player may adopt a more proactive or a more

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<sup>1</sup> The term “digital games” – rather than the related “video games” or “computer games” – is used throughout this paper to refer to those games that require some form of computational technology for their functioning.

<sup>2</sup> Apperley’s understanding of interactivity as “the ergodic actions taken in order to play a video game” (2006, p. 7) is, in turn, derived from Aarseth’s (1997) discussion of cybertext and its navigation by the reader.

reactive attitude, depending on the dominant tendencies of their ludic habitus and the specific configuration of game design elements. The study's main contribution to our understanding of digital gaming practice is *the proactive/reactive ludic habitus spectrum*, a model that illustrates the range of responses of the player's ludic habitus to a given situation during digital gameplay. The model can be used as a typology, to *post facto* classify certain players of a certain game, but its main purpose is to be a conceptual tool for understanding interpretational and behavioral tendencies of players in game design and player research.

The paper is comprised of five sections. The first presents an overview of relevant research perspectives and investigations of decision-making in the domain of digital games. The second section presents the general premises of Bourdieusian practice theory and forwards the concept of ludic habitus as an alternative frame for examining player decisions in digital games. The third section contains the details of the exploratory study, including prototype design illustrations and reflections, information on study participants, as well as descriptions of data collection and data analysis methods. The fourth section presents the results and findings of the study, and discusses them in the context of the research topic to formulate and present the ludic habitus spectrum model. The final section of the paper contains concluding remarks and observations pertaining to the topic of the study.

## Perspectives on Decision-Making in Digital Games

How do players make decisions during gameplay, and why do they decide on certain courses of action, as opposed to others? As a research topic, decision-making has previously been examined from multiple perspectives in the academic fields of game and player studies. I will briefly outline two perspectives that are relevant for the present study: player modeling, and research on moral and ethical decision-making.

In the field of player modeling, decision-making has featured as an important concept for modeling styles of play (Holmgård et al., 2013), as well as for the training of procedural personas that exhibit certain archetypical styles of play, characterized by taking similar decision chains (Holmgård et al., 2014). This research is part of a broader trend of investigations into *play personas*, theoretical or data-driven constructs that function as an “aggregate description of possible player behaviour” (Canossa & Drachen, 2009, p. 515). More recently, player decision-making data has also been used to create inferential models of behavioral tendencies

(Shergadwala et al., 2021). In different ways, this research links individual gameplay decisions to more general play styles or play tendencies: it specifically focuses on how different players behave, rather than on explaining the reasons for their behavior.

Interpretational and behavioral strategies of players have frequently been discussed under the umbrella of research on morality and ethics in digital games. Scholars have examined players' processing of moral dilemmas (Holl et al., 2020), moral reasoning during play using think-aloud protocols (Krcmar & Cingel, 2016), as well as the potential for moral learning and empathy development in serious games with ethical decision-making moments (e.g. Hilliard et al., 2018), among others. Of particular note for the present research are the studies examining the influence of moral intuition on decisions during gameplay, such as those by Joeckel and colleagues (2012) and Tamborini and colleagues (2016). The studies were conducted using psychometric questionnaires and instruments for measuring moral intuition, on players who had previously played the same modified version of a commercial role-playing game (RPG). The studies indicate that moral sensitivities play a role in gameplay choices, potentially inhibiting players from making decisions that they find morally questionable, to the extent that a gameplay situation registers as morally relevant to begin with. The authors of the latter study also found that moral sensitivities are affected by both player- and game-related factors, arguing that gameplay decisions need to be understood in light of both player traits and specific in-game situational cues (2016, p. 576).

There have also been attempts to create theoretical models of game interpretation and interaction that take into account the players' ethical and moral capacities, such as Sicart's ludic hermeneutic circle (2009, p. 122). For Sicart, ethical interpretation of a gameplay situation requires a player who is willing and capable of engaging in reflection about the situation's meaning – in other words, of engaging in *reflective* play, as opposed to the more instrumental, systems-focused *reactive* play (2010). In order to create possibilities for this kind of ethical gameplay, Sicart encourages game designers to work on creating “cognitive friction between the choices given to the player, and their meaning and value in the game experience” (2010, p. 9). Sicart's understanding of ethical gameplay has influenced other researchers examining game elements and structures that facilitate ethical interpretations and/or decisions (e.g. Nay & Zagal, 2017; Jačević, 2017; Staines et al., 2019), and will be relevant when discussing the results of the present study.

While previous research has shed some light on the topic of decision-making in games, we are still missing *holistic, integrated explanations* of mechanisms that guide a player's choice

of actions during digital gameplay. The present study offers such an explanation. In contrast to previous research on the topic, this study combines game design practice and empirical player research in order to investigate specific moments at which players make decisions, and relies on Bourdieusian practice theory to describe both *how* and *why* these decisions come about. This explanation is driven by actual player responses and their interpretations of the game prototype, rather than a singular focus on questions of ethics or morality. Unlike studies on player behavior modeling, which look at player decisions primarily or exclusively in an instrumental, means-to-an-end fashion, the approach in this study also allows for insight into issues of personal value and motivation. As will be seen later, these are important drivers of decision-making. To illustrate the study's approach, the next section of the paper will briefly present the main tenets of the school of thought guiding the study – Bourdieusian practice theory.

## Bourdieusian Practice Theory and The (Ludic) Habitus

In general terms, practice theory is concerned with relationships between agents and systemic social entities (Ortner, 1984). These relationships are predicated on *practices* – long-term, domain-specific activities which agents regularly and habitually take part in. In the context of this study and the broader research project to which it belongs, playing digital games is viewed as a practice. The act of playing a digital game is an instance of a gaming practice that takes place in a wider contextual *field* populated by other designed artefacts and their conventions, communities of players with their cultural norms and values, as well as institutions involved in the production and dissemination of game artefacts. Bourdieu's work on practice theory provides us with several concepts which can be used for analyzing the field of digital games, but, for the purposes of the present study on player decision-making, the most relevant is his concept of *habitus*.

Habitus is an enduring, individualized set of mental models and physical forms that develops as a result of participating in some practical activity and that structures subsequent participation in said activity (Bourdieu, 1972/2013, p. 72). In simpler terms, we can think of habitus as a collection of knowledges, skills, values, and habits related to a particular domain of practice. These elements of habitus are gained through practical experience in a domain – in this case, through playing digital games and engaging with the cultures surrounding them – and in turn frame our understanding, valuation, and engagement in that domain. Since habitus is



domain-specific, this study will discuss the habitus related to digital game playing, termed *ludic habitus*<sup>3</sup>. While habitus has been used as a broader concept in game and player research (see e.g. Dietrich, 2013; Kirkpatrick, 2015; McNeish & De Paoli, 2016; Zhu, 2018), it has not yet been utilized to examine concrete acts of digital gaming practice – in other words, specific instances of playing actual digital games – in empirical settings. This is the context in which the study, detailed below, took place, guided by the understanding of ludic habitus as *a generator of play practices* – in other words, interpretations, actions, and valuations characteristic of an individual player.

## Exploratory Study

### *TestingHouse*

As mentioned before, the present study utilized a custom game prototype to explore how and why players make decisions in gameplay situations. Dubbed *TestingHouse*, the prototype was developed in Unity, with visual assets and system kits purchased from the Unity Asset Store. The initial design brief was to create a relatively short first-person exploration game, set in an empty, mysterious residential house (Fig. 1), that would task the players with collecting items to unlock additional areas, culminate in an encounter with a non-player character. This encounter, set in a linear corridor, would put the player in a limited information situation, which they would have to navigate based on clues collected during their exploration of the house as well as player-specific inferences and interpretations constructed during their earlier gameplay. As part of the encounter, the player would have access to a violent option of some sort, much like in many first-person *shooter* games – but taking that option would not be required to reach the game's end state.

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<sup>3</sup> Kirkpatrick refers to the game-related habitus as *gamer habitus* (2015, p. 19) when discussing its culturological aspects. This study uses the term *ludic habitus* to highlight the study's focus on examining the situated deployment of game-related habitus in the act of playing digital games.



**Figure 1.** The living room area of the house. The fog effect makes it difficult to see into the kitchen in the background, despite both areas being lit in the same fashion.

The house utilized in the game prototype was designed in a contemporary style and furnished as a lived-in space, complete with books, lamps, photographs, laundry, food, plants, and various decorations. It consists of three floors. The ground floor features a living room, a lounge, a bathroom, and a kitchen. Apart from interactable doors and windows, the ground floor features only a single item of interest: a note written by a person called John, claiming that he had been attacked by someone. The note also mentions the existence of a handgun somewhere in the house, as well as that John's attackers have been locked in the basement while he is searching for help at the doctor's. The note is located in the kitchen, which has been designed to show signs of struggle (Fig. 2).



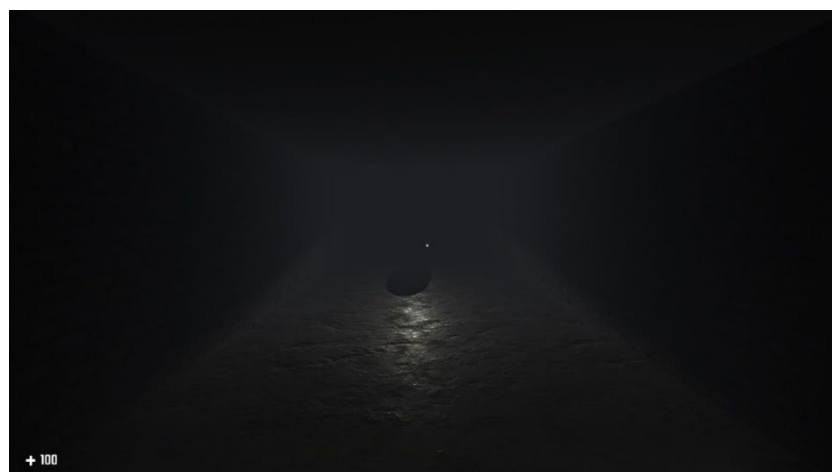
**Figure 2.** The kitchen. The hand icon indicates the note item, which can be read; the blood on the floor leads to the basement door that is initially locked.

The second floor features a laundry room, several bedrooms, as well as an office, which contains two items for the player to collect: the basement key, which unlocks the basement door, and a handgun mentioned in John's letter immediately to its left (Fig. 3).



**Figure 3.** The office upstairs. The cursor is on the basement door key, showcasing the types of actions the player may take with items in the game.

Lastly, the basement floor, designed to be the final area of the game for the player to explore, features a central dimly-lit main area, with a single round of handgun ammo as an interactable item. This area also contains a door that opens on to a corridor, illuminated by a single, rapidly-flickering light, and featuring the first of the two NPCs in the game, nicknamed *Olivia* (Fig. 4).



**Figure 4.** The basement corridor, as seen from its entrance. Olivia's silhouette is on the floor, backlit by the flickering light.

As soon as the player walks past a certain trigger on the floor, Olivia begins to walk towards them, with a slow, limping animation and accompanied by the sound of heavy breathing. Because of the game's lighting design, it is not until a few seconds have passed that the player is able to see her full character model – that of a medical worker, complete with face mask and gloves. At the end of the corridor, behind Olivia, is a small, barely furnished room, with a bed and the game's second NPC, nicknamed *Remy* (Fig. 5).



**Figure 5.** The small basement room, with Olivia and Remy's character models visible.

The game's sound design features a persistent, low-level background hum, which adds texture to the player's exploration of the house, as well as several single sounds akin to screaming or shouting triggered at specific locations – for example, right before the basement door on the ground floor, and before the small basement room. These sounds, conventionally found in horror games, were utilized as further signals to the player that the basement was home to some sort of living creatures. The sounds were muffled and otherwise distorted in an attempt to keep the player uncertain as to the creatures' true nature and attitude.

This design example is illustrative of the broader philosophy behind the game and the development goal of creating *a space of increasing precarity*, where each individual indicator of danger – an obscure note, a low, deep moan, the presence of a gun – might not be substantial or definite enough in isolation, but in tandem with others would convince most players of the need to be on high alert. With that in mind, the basement corridor section, as part of which Olivia emerges from the shadows and walks slowly towards the player, was designed as the culmination of this prompting, and as a location of its resolution. The player, having seen and possibly having

picked up the gun upstairs, now has to *act* based on contextual clues collected up to that point, with very little time for further interpretation. In other words, this situation was designed so as to give the players only a few seconds to utilize their ludic habitus – their collection of habits, skills, and knowledges pertaining to digital games – to determine whether or not the breathing, slow-moving figure represents a threat, and to generate appropriate behavior towards it.

## Participants

Ten participants (seven male, three female, ages 22-40) were recruited for the study. The recruitment process took place online, with notices posted on the university's social media groups, as well as on a dedicated website used for recruiting participants for research studies. The ten participants recruited for the study had differing gaming experiences, habits, and preferences, which will be illustrated later in the paper, when presenting the study results. The study participants were informed of the study's general nature and procedures in a research study information form, which also contained details about how their data would be collected, processed, and used by the researcher in charge of the study. All ten participants signed the form and allowed their data to be used for the purpose of the research study. The form was also pre-approved by the ethics committee at the researcher's institution prior to the study. As compensation for their involvement, the study participants were issued gift cards.

## Data collection

Three data collection methods were used in the study: a preliminary profiling questionnaire, gameplay observation and audio-visual recording, and a post-play-session interview.

The questionnaire consisted of five sections, with a mix of open-ended, multiple-choice, and checkbox questions. The sections covered the participants' gaming habits, their gaming history and familiarity with different games/game types, their gaming preferences, attitudes towards digital games and their design, and their general media habits and attitudes. The questions and topics covered were purposefully broad for two reasons. Firstly, the researcher wanted to avoid priming the participants with any specific games, game types, or other concepts that might create expectations about the game prototype or otherwise affect their gameplay. In

addition, rather than attempting to quantify specific player attributes, such as perceived skill or knowledge connected with a category of games or with a hardware platform, the questionnaire aimed to capture each participant's personal experience with digital gaming, as they understand, remember, and retell it. This required a more open-ended approach to question construction, as part of which participants were asked to use their own words to explain their gaming experiences, habits, and preferences. The result was a rich set of background data for each participant, which helped the researcher to better interpret their gameplay performance and subsequent interview answers in light of the study's research topic.

The play sessions were individual and took place on university campus, in the researcher's office. Each session lasted between 30 and 55 minutes. The participants first played the game on the researcher's laptop, using a mouse and keyboard setup, while recording software captured their gameplay, the feed from the laptop's camera, as well as any voice comments they made during their time playing the game. After the participants had reached the final room in the basement and had some time to investigate it, the recording was stopped and the researcher closed the game.

The interviews were conducted immediately after the play sessions, and were recorded with a voice recording app. The questions were subdivided into three categories. The first consisted of more general questions about the *gameplay experience*, the second contained questions on *habitual and instinctive actions* in each participant's playthrough of *TestingHouse*, and the third dealt with participants' thoughts on *violence and morality in digital games*.

## Data analysis

The collected data set consisted of around two hours of gameplay recordings, along with two hours and forty minutes of recorded conversations, as well as the answers collected in the profiling questionnaire. The interview recordings were transcribed into 61 pages of text, which were then imported into MAXQDA 2020, a software package used to conduct the coding and analysis process, which was done in the tradition of grounded theory research (see e.g. Strauss & Corbin, 1998; Corbin & Holt, 2005). As part of this process, the interview responses were read multiple times and relevant parts of the conversations labeled with codes, which were then grouped into categories and further refined in the second round of coding. The final result was a

code set consisting of 33 codes, further grouped into 8 main categories, which covered a total of 430 coded segments.

After the initial coding of interview data, the analysis process focused on generating themes from the coded interview segments by cross-comparison between the study participants. The aim of this process was to investigate whether there were patterns behind certain individual actions, as well as styles of play and interpretation, shared by the different participants – in other words, to determine whether or not there was a common reason for certain ways of behaving in, or thinking about, the game prototype. Though the coded interview segments guided this process of thematic analysis, other data sources – answers to other questions in the interview, gameplay recordings, and questionnaire responses – were frequently consulted and used. On several occasions, these data points were invaluable in understanding how each participant deployed their ludic habitus during the game to interpret situations and act in them, as well as for distinguishing between participants who behaved in a similar fashion, but for different reasons.

## Results

All ten participants managed to reach the final room of the game in the basement section, albeit with major differences in playstyle and play time. The shortest play session lasted a little over four minutes, while the longest one took around twenty minutes. All ten participants picked up the handgun, although not all of them ended up using it in the basement to shoot Olivia and/or Remy. In fact, participants fell evenly divided into two groups based on their action in the basement corridor, when confronting Olivia: five of them shot her, the other five did not. This binary choice – shooting vs not shooting Olivia – was the first metric used for grouping and analyzing the participants. Each of the two groups is examined in detail below.

It should be noted that the participants' action towards Olivia represented only the *initial* pragmatic point of reference for examining their ludic habitus and how it was deployed during their playing of *TestingHouse*. The division into two groups should not be understood as proof that all participants in one group possess the same ludic habitus. In fact, as the following analyses will show, multiple factors guided the participants' in-game behavior. This, in turn, serves to illustrate the complex functioning of ludic habitus in acts of digital gaming practice, and its usefulness as a concept for analyzing that practice.

## Group One – The Gunslingers

The first group was comprised of the five participants who shot Olivia in the basement corridor: **Martin, Michael, Kyle, Irene, and Mary**<sup>4</sup>. Their game preferences and familiarities, as reported in the questionnaire, are summarized below:

- **Martin** reported familiarity with AAA FPS and sports games, as well as a range of mobile titles and some party multiplayer games. He specifically stated that he enjoys playing FPS games with friends online, due to their action-oriented nature and fast pace.
- **Michael** mentioned playing plenty of well-known AAA action-adventure and sports games in the past year. He expressed particular preference for single-player puzzle and adventure games.
- **Kyle** reported being extensively familiar with FPS and action games, which were also his preferred game genres.
- **Irene**, one of the four game design students in the cohort, stated familiarity with plenty of indie titles, farming simulators, visual novels, and RPGs, as well as FPS games. However, she specifically stated that she does not enjoy playing the latter category, preferring more relaxing game experiences built around developing relationships with the environment and NPCs.
- Lastly, **Mary** reported familiarity with a diverse range of genres, from shooters and adventure games to casual/mobile games and horror titles. Despite this, she specifically stated she does not enjoy *playing* horror games, but rather watching others play them on YouTube. She also dislikes single-player shooters, preferring their multiplayer counterparts due to social interaction.

The participants in this group described feeling threatened and scared in the basement section of the game, and explained that they took the violent action proactively, to avoid being attacked by the figure in the corridor. All of them shot Olivia very soon after entering the corridor. The most proactive of the five was Michael, who fired warning shots immediately upon seeing her silhouette, in order to entice her to move closer. Conversely, Irene waited until she was certain that Olivia was moving towards her, and was the only player in this group to see

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<sup>4</sup> The participants' names have been altered for the sake of maintaining anonymity.



Olivia's character model before shooting her. The three other participants shot in the vague direction of the silhouette only after it started to approach them.

Most of the participants in this group ascribed zombie- or monster-like characteristics to the two NPCs in the basement, in particular to Olivia. The exception was Irene, who mentioned thinking that the NPCs were suffering from some sort of disease, on the count of Olivia's medical suit, and Remy's glowing eyes and bed-ridden state. These perceived non-human qualities were mentioned by all five participants in the group as additional reasons for the violent action taken towards Olivia, but they were particularly highlighted by Michael and Kyle. When pressed further for the reasons why they considered the NPCs to be monsters or zombies, these two participants described several factors as influential in developing this understanding:

Michael: First, I didn't know it was monsters. First, I thought it would be some kind of stalker, some kind of murderer, serial killer... Because of the blood on the floor, and the chairs falling down. But when I read the note, then the first thought came about [...] People biting each other is not completely natural. Maybe cannibals or something like that. Or highly aggressive people. But this is something that caused someone to be rabid and ill, and bite another person. And I could see that the basement door was almost rotten - pretty old. It wasn't as clean as the doors in other rooms.

Kyle: Because of the sounds I heard. When the basement was locked and I clicked on the door, there was this scream, so I knew something would be down there. So when I opened the next door, in the basement, and saw the light and the shadows and the creature walking towards me, and the silhouette, I just thought it was a bad guy.

Though they reported similar reasons for shooting Olivia, Michael and Kyle otherwise played the game quite differently. Michael was the slowest participant in the group, taking close to 15 minutes to reach the final room. His playstyle was *cautious*: he would often crouch and hug walls, slowly moving from one room to the next and peeking around corners to check for enemies. By contrast, Kyle was the fastest participant in the study, finishing the game in only 4 minutes. He played *aggressively*, running from room to room seemingly without fear. Of the other three participants, Martin and Irene played in a slower, more exploratory style similar to Michael's, while Mary's was closer to Kyle's. This is also evident in the time it took them to complete the game, with Martin and Irene taking nearly as long as Michael, and Mary being the second-fastest in the group, after Kyle.

To varying degrees, all of the participants in the Gunslingers group reflected on the game's sound and light design, remarking that these two elements greatly contributed to their understanding of the game as a horror game. The screaming sounds that played in and around

the basement in particular were instrumental in the participants' relationship with Olivia: all of them referenced these sound cues when giving justification for their shooting of Olivia and/or their understanding of her as a zombie, monster, or generic, threatening "bad guy." The note in the kitchen also seemed to reinforce the framing of the game as a horror game, and of the NPCs as zombies. For Mary and Kyle, the note was seemingly not that important, as they had difficulties remembering its contents or forming a coherent understanding of any narrative present in the game. Lastly, the presence of a gun was also linked to the horror and/or action game genre. For Martin, Michael, and Mary, the gun was a means of protection, and an expected pickup item in what Mary referred to as "these kinds of games," while for Irene, it was a Chekhovian indicator of ludic action: "If you pick up a gun, you're gonna use it."

Ethical concerns did not figure extensively in this group. Martin and Kyle reported not feeling any empathy towards the NPCs in the game, and not being too concerned with the ethical qualities of their actions when playing games in general. Both, however, reported feeling bad for making a choice in games that robbed them of *content* – i.e. a mission, a character, or a gameplay mechanic. Michael was more open to ethical issues and feelings of regret over actions taken, but only in cases where said actions had harmed someone innocent, which, for him, was not the case with his playthrough of *TestingHouse*. Mary reported not feeling bad for shooting someone in a game when they are labeled as an enemy, a label she attributed to those NPCs who attack the player or show indications of doing so. Irene was perhaps the most vocal about aggression in the group, stating that she does not enjoy violent games and even expressing regret for having shot Olivia. Still, these concerns were explained away by invoking the presence of the gun, with Irene claiming: "I think because you picked up all these rounds with the gun [...] I just assumed that I have to use it. So, I think that's also why I did it."

Lastly, only Irene mentioned that she would act differently in the corridor if she had a chance to replay the game, out of a desire to see whether or not she would be attacked by Olivia. The other four simply mentioned that they would play through the entire game more quickly.

## Group Two – The Holstered

The second group was comprised of the other five participants, who did not shoot Olivia in the basement corridor: **Milo, Scott, Adam, Caroline, and Nate**. Their questionnaire-derived profiles are summarized below:

- **Milo**, a game design student, reported familiarity with 4X strategy games, older FPSs, RPGs, and platformers, with strategies and RPGs being his preferred – and most often played – genres of games.
- **Scott**, another game design student, gave the most detailed responses to the questionnaire of all the participants, stating familiarity with many diverse genres, from stealth games and interactive fiction to action-adventure, RPG, and strategy titles. He stated preference for RPGs, roguelites, and strategy games, and particular appreciation for complex systems and immersive worlds.
- **Adam**, the last game design student in the cohort, reported being familiar with many AAA third-person action-adventure titles. He expressed preference for action games, RPGs, and open world games, while disliking FPSs and mobile titles.
- **Caroline** mentioned playing only rarely, on home consoles with family and friends. She stated that she is familiar with, and enjoys, platformers and sports titles on the Nintendo Wii, as well as life simulation games.
- **Nate** was the study's only self-proclaimed non-player. He reported not playing digital games since childhood, and could only remember a single racing game title from his youth.

Like with the Gunslingers, the Holstered's actions towards Olivia were due to a variety of factors. For Milo, Scott, Adam, and Caroline, Olivia did not represent any sort of threat that would warrant violent action. The four of them waited as she approached, and were eventually able to see that she was unarmed, dressed in a medical uniform, and walking with a limp. When asked for their reasons for not shooting, the four participants mentioned uncertainty about the level of danger, and that they chose to let the situation play out, rather than react in a way that they might regret later. This uncertainty was down to one of two factors: the participants were specifically scanning the situation for aggressive movement to determine the existence of a threat (all four participants), or they were unconvinced that a threat even existed, based on their experience with the game up to that point (Scott, Adam). All four participants – perhaps unsurprisingly, because they let her live long enough to actually see and approach her – also described Olivia in more humane terms, as “an innocent person” who was possibly sick or injured.

The outlier here was Nate, who did not shoot Olivia for the simple reason of not figuring out how to equip the gun for the duration of this time with the game. He, in fact, proclaimed that

he would have shot Olivia had he known how to, claiming he had felt an instinctive need to try and defend himself. He also stated that he felt that shooting her was the reason why the player had been given the gun in the first place. Both of Nate's reasons are similar to those mentioned by the Gunslingers as their reasons for shooting. Caroline had also not figured out how to equip the weapon, though she remarked that she had no intention of using it anyway. Milo said that he thought he *had* equipped the gun, and that he had just chosen not to use it. Scott and Adam were the only two participants in the group who *had* the gun equipped in the corridor, with both of them holstering the weapon when they were certain that there was no threat.

Perhaps unsurprisingly, the three game design students were faster in reaching the last room in the basement than Caroline and Nate, the participants with less gaming experience. The latter two played in a stop-start fashion, which belied their unfamiliarity with first-person games played with a keyboard and mouse. For example, every time they wanted to turn a corner, they would stop moving, turn to look in the direction they wanted to go, and then proceeded going forward, rather than strafing left or right or continuing to move while adjusting the direction using the mouse. Movement and navigation were much less of a problem for the other three Holstered, with the exception of Milo, who initially defaulted to using the arrow keys to move, rather than W, A, S, and D. He attributed this to his extensive experience with older FPS titles, which utilized that control schema.

Much like the Gunslingers, almost all of the Holstered also remarked on the game's sound, light, and spatial design, stating that they associated the presentation of these elements in the game with the horror genre. The background noise and screaming sounds were major indicators of horror for Milo and Caroline in particular, while Scott and Adam focused more on the spatial design, object placement, narrative elements (the note), and the task progression in the game. Nate did not remark much on light or sound, but he did talk extensively about *action* – or, in his case, lack thereof in the game. His observations can be seen most clearly in this interview snippet, where he discusses Olivia's presence next to him in the game, after encountering her in the corridor:

Nate: I mean, she was just looking at me, like, begging. Just saying nothing. And that's also quite scary. I mean, you panic, in a way, because - well, what am I going to do with her, just ignore her? Well, I could just stand there, and maybe something would have happened. But, I mean, it's a video game, and we don't have all day long. It could be a long day just waiting for something to happen. I think there's the action perspective, as well. I mean, you want something to happen all the time.

Scott and Adam were the only participants in the study who also engaged in meta-interpretation during the interview stage. The two of them presented a more diverse set of labels when asked about the game's genre (art game and walking simulator for Scott, thriller and puzzle game for Adam), and both interpreted design choices in the game (e.g. the stereotypical abandoned house setting, the gun being located next to the basement key) as indicators of *genre subversion*. Both participants remarked that they understood the game as commenting on the ubiquity of violent options in horror games. For Scott, the message of the game was that "the zombie genre is, in a lot of ways, just demonizing people who are sick." For Adam, the game was examining the idea that people take violent options for granted when playing games. While these interpretations influenced how they played, including the actions they took in the basement, they were nevertheless fully formed only *after* the encounter with Olivia. Adam's interpretation is of particular note, because he also referred to the research context under which the game was developed and played – in other words, he directly interpreted the game as a scientific experiment, and actually managed to (somewhat) discern its premise and topic.

When it came to ethical considerations, the Holstered were quite a heterogenous group. Nate outright stated that he did not have any while playing, though he did note that he would have been inclined to choosing a less violent option in the game, as long as that option was presented in the form of an action he could take, as opposed to simple passivity. For Caroline, violent options and actions were simply not fun in digital games, but she did not mention having any attitudes towards their ethicality.

For the three game designers in the group, however, ethical issues figured quite strongly in their method of playing different games. Scott mentioned generally preferring non-violent styles of play in games, citing several examples of games in which he felt confusion over the unequal ethical portrayal of certain violent actions in scripted moments versus in regular gameplay. Similarly, Adam stated that he prefers taking what he perceives as the more ethically correct path in games, and that his empathy towards NPCs often influences the choices he makes and how he plays. Both Adam and Milo were generally OK with shooting and violent actions in games, but, like Scott, they seem to prefer taking other options unless in a situation where violence was absolutely necessary and somewhat normalized. For example, Milo remarked that he had not tried shooting upon picking up the gun, because it "felt like a shitty thing to do in somebody's bedroom." Likewise, Adam chose not to have the gun equipped most of the time, reasoning that "keeping off the gun, you can show [other characters in the game], basically, that you're not hostile. You can be friendly."

Lastly, in this group, only Nate stated that he would change his actions towards Olivia if he had a chance to replay the game, wanting to see what would happen if and when he shot her. Like with the Gunslingers, the other four participants just stated that they would play more quickly.

## Discussion

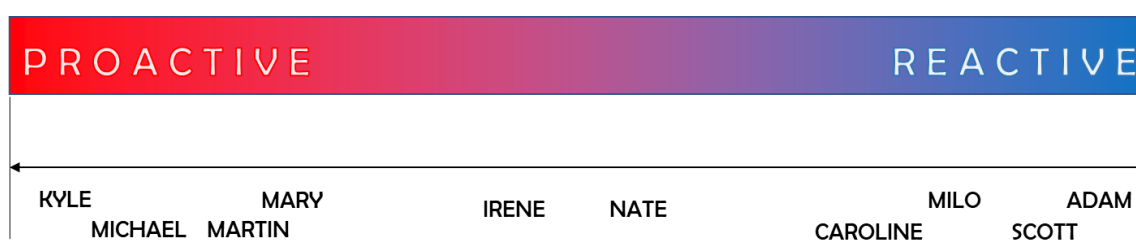
To better understand how ludic habitus operates in tense moments such as the corridor sequence, we should focus on those participants whose habitus seemed to offer diametrically different reactions to that sequence – Kyle and Michael on one end, and Adam and Scott on the other. The similarities in interpretation and behavior in the game between these pairs of participants reveal general, broad tendencies for how ludic habitus can function in digital gaming practice.

For Kyle and Michael, the primary motivation for shooting was to protect themselves and neutralize what they perceived to be a threat. Both of them interpreted the game as a (stereo)typical horror game and the NPCs as horror-related trope characters such as monsters or zombies, labeling the latter as enemies even before they encountered them in the basement. These participants gave little thought about the ethical aspects of their actions in the post-play-session interview, and in moments when they did, they handwaved their actions as being appropriate for the kind of game they were playing. Kyle and Michael's relation to *TestingHouse* – how they understood and played the game – can therefore be seen as emblematic of a *proactive*, assertive, and strict ludic habitus. On the basis of game design elements, such as sound, light, and space design, both of these participants formed a similar understanding of the game as a whole, and did not question it or the actions they took at the critical moment in the basement.

Conversely, Adam and Scott acted in a more calculating fashion, preferring to wait for the situation to unfold rather than taking choices they might have later regretted. For both of them, the game did not clearly fit into the horror genre mold; the collection of tropey design elements that so clearly indicated horror to Kyle and Michael was not enough to convince Adam and Scott of the need to act as if they were playing a straightforward horror game. In the post-play-session interview, both participants talked about ethical dilemmas from their history of playing digital games, as well as moments of empathy towards game characters and worlds. They relied more on direct actions of NPCs as indicators of threat, rather than assigning them

characteristics on the basis of design tropes. Adam and Scott’s understanding and playing of *TestingHouse* showcases a *reactive*, analytical, and flexible ludic habitus. These two participants, with diverse gaming experiences both as players *and* designers, were much more discerning in their playing and interpretation of *TestingHouse*, being more open-minded during their time with the game and offering metatextual readings of it as a genre commentary or a research experiment in habitual and instinctive action.

These two diametrically opposed tendencies towards *TestingHouse* provide the basis for a model of *the ludic habitus spectrum* – in other words, of the range of tendencies that one’s habitus displays in digital gaming practice<sup>5</sup>. The proactive end of the spectrum showcases tendencies towards action, while the reactive end of the spectrum showcases tendencies towards interpretation. A proactive ludic habitus spends little time interpreting an ambiguous or novel gaming situation. It quickly and definitively categorizes that situation, and responds with what is understood to be the appropriate course of action, such as shooting a moaning, approaching silhouette in a dimly lit corridor. A reactive ludic habitus spends more time interpreting the same situation. It waits for clearer, unambiguous indications and conclusions, such as rapid movement by an NPC in the direction of the player, before categorizing the situation and taking action. An illustration of the proactive-reactive ludic habitus spectrum, using the participants in this study, is presented below (Fig. 6).



**Figure 6.** The mapping of the study participants on the proactive-reactive ludic habitus spectrum.

The placement of the participants on the mapping above was done on the basis of their in-game actions and attitudes towards them, as expressed during their interview. For example, Milo and Caroline were both quite adamant about their non-violent actions being correct. They

<sup>5</sup> The spectrum can also be read in light of the idea, from behavioral science, of two different modes of thought, as popularized by Kahneman (2011).

did not express regret about not shooting Olivia, and claimed they would not alter anything about their playstyle if given the chance to play the game again. Martin and Mary were both similarly happy with how they played the game and with the aggressive actions they took towards Olivia. In the middle of the spectrum we find Irene and Nate, whose actions place them as leaning more towards one pole, but whose answers in the interview paint a different picture. Irene shot Olivia, but was the most regretful of her actions out of all the Gunslingers, while Nate did not shoot (for lack of an equipped gun), but claimed he would jump at the chance to do so as he wanted to take meaningful action of some sorts in the game.

It is important to note that the ludic habitus spectrum showcases two diametrically opposed, equally valid *tendencies* of ludic habitus when it comes to playing digital games. In other words, while it may be used as a classificatory tool for individual player behavior in a given game (as was done above), its main purpose is to illustrate the gamut of styles of relating to a digital game, from predominately proactive to predominately reactive, that players adopt during play. This broader focus, on styles of play, differentiates the spectrum from Sicart's understanding of *reactive* versus *reflective* play mentioned earlier in the paper. While Sicart's distinction is concerned primarily with the player's ethical attitude towards a game, the ludic habitus spectrum is more comprehensive, meant to describe tendencies of interpretation and behavior in relation to a specific digital game which may or may not have ethical and other value dimensions.

Though it is difficult to claim for certain without a longer period of observation of the same set of players, the study lends support to the idea that one's tendency to play more proactively or reactively is *habitual*, built up over one's lifetime of play and thus a key mark of an individual's ludic habitus. The participants' ethical gaming attitudes, genre considerations, game and gameplay preferences, and other aspects of their relationship with the field of digital games expressed in the post-play-session interviews all serve as indicators for that being the case.

## Limitations and Further Research

The study used a custom digital game for examining player decision-making – a game that was purposefully built around specific design conventions and tropes. Since none of the participants had played the game prior to their involvement in the study, all of the observations and study results mentioned above should be taken to refer to instances of playing a new digital



game, and to players reacting to novel, unorthodox gameplay situations. It should go without saying that replaying a digital game can and frequently does lead to new types of play and alternate decision-making styles. The extent to which a player's interpretation and behavior in *familiar* gameplay situations (i.e. in games that that player has already played several times prior) differ from their tendencies when encountering new games is therefore a potentially interesting topic for further research in the area of player decision-making.

Furthermore, because *TestingHouse* is a single-player game, the study did not examine how the presence of other players might impact decision-making during play. With this in mind, it would be interesting to explore whether the type of co-presence (local or online), as well as the degree of communication with other players, have different impacts on a player's gameplay tendencies, compared to solo play. Admittedly, such a setup might be complicated by the inability for one player to experience the same gameplay situation as novel in several contexts, but could nevertheless help shed more light on the factors that guide players of digital games in interpreting a situation and deciding on a course of action.

## Conclusions

The study showed that players tend to make decisions in gameplay situations in one of two fashions: either *proactively*, spending more time on action and less on interpretation, or *reactively*, spending more time interpreting and waiting to act until certain. This observation has resulted in the development of *the proactive/reactive ludic habitus spectrum*, a model illustrating the possible gamut of tendencies of interpretation and behavior in a novel gameplay situation. In situations where players have to make a choice, their ludic habitus – a collection of knowledges, skills, preferences, and understandings tied to the domain of digital games – guides their decision-making, generating interpretations and actions that are seen as appropriate in light of what the player had experienced in the game up to that point. With that in mind, the participants' gameplay behavior, in combination with their interview responses and questionnaire data, lends support for the idea that a player's tendency to play proactively or reactively is habitual, built up over the course of their specific experience with digital games and their design conventions. This is in line with Bourdieu's understanding of habitus as an *enduring* set of dispositions, generating similar behavior under similar circumstances.

The ludic habitus spectrum acts as an alternative to more focused models of interpretation and behavior that categorize players and styles of play in light of a single dimension, such as ethical/moral understanding. Its broad nature means that the spectrum can serve as a conceptual tool for describing and discussing player tendencies on different levels and with different attributes in mind. As such, the spectrum is of use to player researchers and game designers alike in their efforts to understand and create user experiences centered around digital games.

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## IV

### *Consider the Participants: Notes on Digital Game Prototype Development for Use in Player Studies*

Submitted for publication

# Consider the Participants: Notes on Digital Game Prototype Development for Use in Player Studies

## Abstract

This paper introduces the concept of *implied participants*, used to relate and organize the processes of game design and study design in research studies with game prototypes. Implied participants are abstract player figures, specified to a lesser or greater extent during the study process, whose relationship to the developing game prototype is considered primarily in light of the study topic and research goals. Building on reflections from two exploratory player studies featuring custom-made games, the paper illustrates how implied participants can be used in two ways: as *design guides*, helping to structure and support the game design process, and as *research guides*, facilitating exploration of a broad research topic and the discovery of specific points of investigation. In forwarding this concept, the paper offers designer-researchers a general, domain-independent tool for connecting study design and game design, and contributes to broader discourse on design processes and products as forms of research.

Keywords: *implied participants, game design, study design, prototype development, design reflections, player studies*

## Introduction

For some time now, there have been calls towards greater incorporation of design research into game studies (see e.g. Mäyrä, 2009; Kultima, 2015; Deterding, 2016), in order to create a richer, more sustainable academic field which could both draw from and inspire digital design practices. As seen in projects such as Douglas Wilson's (2011) article on broken games and unachievements, stemming from his involvement with designing and testing the game *B.U.T.T.O.N.*, those willing to take on the dual roles of researchers and designers have a lot to gain, not least the new research potentials and perspectives regarding their object of study. This

holds true whether said objects of study are the games themselves, the players who play them, the communities that surround them, or something else altogether.

It should go without saying that one does not have to be a game designer to be a game researcher, and vice versa. Those who *do* take on both of these mantles, however, are faced with the challenge of navigating their identities and practices as part of their work towards contributing to games-related knowledge. This is especially true for those designer-researchers<sup>1</sup> who work in the broader domain of *game research*, and not the more specific sphere of *game design research* – according to Lankoski and Holopainen (2017, p. 1), the latter focuses on the creation of knowledge about design, while the former covers various disparate forms of research about games, gaming/playing, and players. While there is no shortage of guidelines and frameworks for design (and) research in the domain of game design research, designer-researchers who make and study games for objectives other than advancing game design knowledge do not have a shared knowledge base in which to ground their projects, in no small part due to the many different academic fields in which this kind of work takes place. This issue is of particular interest for researchers who make games in order to use them in player studies. In these projects, the game design process takes places under the general heading of study design, with both processes imposing different restrictions and requirements on the designer-researcher. Such projects would benefit from more general frameworks – in other words, from concepts, models, and strategies which can help the designer-researcher to successfully navigate game and study design work and conduct a quality study, regardless of the academic field in which they are working.

Building on game and study design reflections from two empirical player studies, conducted as part of a larger research project, this paper introduces the concept of *implied participants* which can be used to discuss and practically set up the relationship between study design and game design processes in projects which feature both of these components. In short, implied participants are *abstract player figures* that may be specified to a greater or lesser degree during the study process and whose relationship with the prototyped game is considered primarily in light of the study topic and research goals. As a central point of consideration during the planning and execution of the research study involving game prototypes, the implied participants can help the designer-researcher to better position the game design process in relation to the broader work on study design, thus gaining the most out of both processes. As a concept, they are also domain-independent, meaning that they can be used in any instance of

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<sup>1</sup> The order of the terms is not meant to indicate any normalizing assumptions about one role's dominance over the other; the compound "researcher-designers" is equally valid.

prototype creation and research, no matter the broader research domain in which it takes place, or the methodology that is being employed.

This paper is structured into four parts. It begins with a general overview of the concept of prototypes, with particular focus on prototypes used for research purposes and the ways in which these have been framed in game research. This section will problematize the distinction between commercial and research prototypes, arguing for a need for specific prototyping and design guidelines for those projects which take place outside the confines of game *design* research. The subsequent section will introduce the concept of the implied participants, which fulfils that need. Examples from two player studies, employing different structures and utilizing the concept of the implied participants in different manners, will then illustrate how different framings of the participants can influence the relationship between the processes of game and study design. Lastly, the discussion will summarize the knowledge gained about the implied participants on the basis of reflections from the studies, and succinctly present two possible ways in which the implied participants can function in research projects that feature design work: as *design guides* and *research guides*, respectively.

## Game Prototypes and Prototyping Guidelines

Within the context of design research and practice, the term *prototype* has generally been used to designate a variety of iteratively developed artefacts, created for particular, often highly specific purposes. Understood in this fashion, prototypes should be differentiated from preliminary *sketches*, to which they are closely aligned. While sketches constitute initial ideational forays into a given design area, are more disposable and are generally quick and cheap to make, prototypes are products of greater investment in time, resources, and labor, tending to be more specific and refined in their design (Buxton, 2007, pp. 139-140). As products of early stages of design work, sketches and prototypes can both be said to act as early mediators between designers and users of particular technologies (Suchman et al., 2002, p. 168), facilitating reflexive iteration and incremental development of said technologies (ibid., p. 174). Over the years, authors working in the field of design research have attempted to elaborate the functions, properties, and formats of prototypes, aiming towards a standardization of discourse and the creation of conceptual toolkits for use by researchers and designers alike. In their article on the

anatomy of prototypes, Lim, Stolterman, and Tennenberg argue that the purpose of prototyping<sup>2</sup> is to create a filtered manifestation of particular qualities which are of interest to the designer, with the best prototype being the one which accomplishes said task in the simplest and most efficient way (2008, p. 4). The degree to which a prototype may be considered good or useful depends on the *purposes* for which it is deployed. A prototype developed for, say, testing of a particular design solution takes on a different form and is meant to fulfill different objectives than one created for evaluation and testing of a research question or hypothesis (ibid, p. 24).

This observation is particularly relevant, in no small part because discourse on prototypes in more specified fields – such as game research – has often downplayed the implications of prototype roles and settings of use when discussing prototypes and offering guidelines for their creation. In terms of settings, it is not uncommon to see a general distinction being made between *commercial* and *research* prototypes – as is the case, for example, in the work of Eladhari and Ollila (2012, p. 396). In their paper on experimental game prototyping, the authors put particular focus on how the difference in setting calls for contrasting ways of data collection and analysis. Drawing on Buxton (2007), the authors claim that prototypes in commercial projects ought to be quick, timely, inexpensive, disposable, and plentiful; as a result, analysis methods need to be efficient and relatively rapid, especially in early stages of testing and development (2012, p. 404). These points are frequently echoed in the game industry context, for example by Cerny and John in their description of the Method process of game development (2002). In contrast, prototypes developed for research projects can benefit from deeper and more comprehensive analyses, as they are made to answer specific research questions.

Though this distinction between game prototypes in commercial and research projects is valid, it misses out on the nuances between various research contexts in which game prototypes are developed and deployed. Depending on the driving goals and traditions behind the research, experimental game prototypes can take on a number of forms and be employed for different purposes. For example, game prototypes are frequently developed with an explicit focus on game design issues, with the aim of furthering design knowledge and practice by way of playtesting particular game mechanics, dynamics, or other design elements (e.g. Back & Waern, 2017; Juul & Begy, 2016; Hicks et al., 2019). However, prototypes are also developed and used for the purposes of player studies whose aims and goals do not solely or primarily relate to the domain of game design (e.g. Sailer et al., 2017, exploring gamification; Katmada et al., 2014, exploring

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<sup>2</sup> The authors make a distinction between *prototypes* as “representative and manifested forms of design ideas,” and *prototyping* as “the activity of making and utilizing prototypes in design” (p. 10), remarking that previous research in the area has mostly examined the process of prototyping, rather than prototypes as artefacts.



game-based learning; or Alves et al., 2013, exploring games as tools for promoting emotional understanding for children with autism).

Though both of these contexts belong under the general heading of academic/scholarly research, they feature fundamental differences in research focus. These differences, in turn, have important implications for the purpose, design, development, and implementation of game prototypes used in the respective studies – as well as for the design knowledge gained from these studies. In game design research projects, the prototype itself is the focal point of the research: it is used to manifest particular design elements or solutions and generate data about them, their interaction with other design elements or solutions, and/or experiences of users playtesting the prototype<sup>3</sup>. In design-focused projects, prototype design and deployment guidelines are a natural byproduct, usually featuring as reflections in published articles and book chapters (see e.g. McMillan et al., 2010; Quinten et al., 2017; Khaled et al., 2018). Conversely, in player research projects in non-design fields, such as psychology and the social sciences, the prototype plays an ancillary role; it is a facilitator for collecting data pertaining to external matters, most often about the study participants. Such projects tend to center the information about study design, data collection and analysis methods, and study results, generally featuring limited reflection on choices and decisions made during the game prototyping process, or recommendations for future design projects in similar studies.

As a result, researchers conducting player studies in non-design fields tend to rely on highly specific recommendations and guidelines in the creation and deployment of their game prototypes, almost exclusively derived from previous research within their respective fields – if any precedents exist at all. Two examples of this are the studies conducted by Adams et al. (2012), with two prototypes for testing educational effectiveness of narrative games, and by Arachchilage et al. (2016), on a prototype for teaching players how to avoid phishing attacks. In the former study, researchers relied on prototypes made by other researchers specializing in educational games. In the latter, the authors based their prototype on their own game design framework for phishing threat avoidance (see Arachchilage & Love, 2013). While these are sensible approaches in light of the specific topics under investigation in these two studies, they nevertheless highlight *the absence of general principles and recommendations*, which would aid prototype development in player studies regardless of the academic field in which they are conducted. Though certain fields (most notably, research on games and learning) have developed

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<sup>3</sup> As noted by Waern and Beck (2017), not all experimental designs need to revolve around playtesting with participants, as game prototypes can, in some cases, also be tested without human players. However – and as the authors also point out – such forms of research are not concerned with human behavior and experience, but other elements of game design.

their own guidelines for prototype design as a result of many theoretical and empirical investigations acting as precedent, these guidelines are often not transferrable to other fields of research due to their specialized nature.

## The Implied Participants

The different research traditions under which studies with games take place make it difficult to specify general prototyping guidelines, beyond very broad recommendations for prototype use (see e.g. Järvelä et al., 2014). One way to overcome this is to shift the focus away from the particularities of various research fields and from the design of the prototype itself, and onto the prototype's future users – in other words, the study participants. The participants are located at the intersection of game design and study design; their interactions with the game prototype often act as principal data points and as the primary topic of investigation in a given player study. By better understanding their role at different stages of game and study design, we will be able to improve both of these processes and improve the overall quality of the conducted study.

As shown by Kristensen and Ravn, who analyzed and discussed recruitment processes in qualitative interview studies, diverse factors such as “research topics, predefined sample, mediators, and the researchers’ positionality and situatedness” (2015, p. 1) can affect the recruitment process, participant selection, and, ultimately, the findings and knowledge gained from a particular study. Therefore, even though their recruitment usually does not take place until later in the study process, participants are nevertheless present throughout said process and affect it from its earliest stages. Before they join a study, participants exist as abstract figures that serve to tie together the various conceptual and structural issues pertaining to the study – research questions or problems, hypotheses, organizational challenges and other practical matters, as well as matters of game design. Any and all decisions in these domains attach further assumptions to the study participants, until the point at which they materialize in the form of actual players in a testing situation. For example, if a researcher creates a certain hypothesis about a particular aspect of player behavior that they want to research, the study participants will be considered in light of that hypothesis – and not certain others – from the point at which it is decided. In turn, this assumption about the participants will influence the game prototype design process, drawing the designer towards certain solutions (those that enable the manifestation and testing of the assumption) at the expense of others (those that do not enable the assumption to be tested).

Understood in this fashion, both the study and the game design processes are underpinned by the progressive attachment of implications about the study participants and their behavior with the game prototype.

When conducted under the general heading of a research study on players, the process of designing a game prototype therefore entails designing for the *implied participants*. In a similar fashion to Iser's notion of the *implied reader* (Iser, 1974) and Aarseth's gaming-centric notion of *implied player* (Aarseth, 2014), the implied participants are here understood as abstract placeholder figures of the game players during the game design process. They are idealized player constructs, whose relationship to the developing prototype is understood primarily in terms of research questions, hypotheses, or topics under exploration. In a given research project, the implied participants can be specified to a lesser or greater extent, depending on the overall methodology and project structure. For example, in cases when the prototyping process comes after the development of concrete, exact hypotheses, the implied participants will be quite defined, structuring and guiding the game design. Conversely, in more inductive and experimental forms of research, where the processes of study and game design occur simultaneously, the implied participants will frequently change character as a consequence of actions taken in both domains. In these instances, the implied participants would not be a driving force behind the design process, but rather a lynchpin for the often contemporaneous work on the game prototype and the broader study<sup>4</sup>.

The next section will present a brief overview of an ongoing research project which utilizes custom game prototypes for the purposes of player research, and describe in detail two studies from the project in order to illustrate how implied participants can shape and structure the.

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<sup>4</sup> The different project structures described here, stemming from variations in definition of the implied participants during the study process, have previously been discussed in relation to project management under various other headings. For example, Turner and Cochrane distinguish between four types of research projects on the basis of the level of certainty of the project's goals and the methods used during its execution (Turner & Cochrane, 1993). Similarly, in the area of experimental design research, many authors have discussed various framings of the relationship between research questions, hypotheses, methodologies, and design practices and experiments (see e.g. Brandt & Binder, 2007; Bang et al., 2012; Krogh et al., 2015).

## A Study in Practice – Research into Ludic Habitus

The research project that provides the context for the current discussion examines digital gaming from the social scientific perspective of practice theory, with the goal of creating a framework of digital gaming as a form of human practice. In order to do so, the project adapts the conceptual toolkit of Pierre Bourdieu – principally his ideas of *habitus* and *field* (see e.g. Bourdieu, 1972/2013) – to the domain of digital gaming, empirically establishing the gaming-focused concepts of *ludic habitus* and *subfields of digital gaming practice*. In fundamental terms, the project presents a view of digital gaming as predicated on the interplay between the players' gaming experiences, knowledges, and attitudes – their ludic habitus – and the design elements and conventions of digital games which characterize specific game genres, understood as subfields of gaming practice. This framing highlights the cognitive and situated aspects of digital gaming and provides an account of the intricate coupling of player, game, context, and history, which can be used both by academic researchers of games and players, as well as game designers looking to improve their design practices.

The project centers around three experimental player studies, each constituting a deeper and more specific examination of the concept of ludic habitus and its functioning in relation to specific subfields of practice. One of Bourdieu's many formulations of habitus was chosen as the working definition for the purposes of the research project; it states that habitus functions as a “*matrix of perceptions, appreciations, and actions*” (Bourdieu, 1972/2013, italics original). As a result, the three studies were originally planned to examine these three aspects respectively.

The first two of these studies, on *game perception* and *game appreciation*, will be discussed here. They featured experimental game designs in the form of two custom game prototypes. These were presented to a small group of players (eight in the first, and ten in the second study) with different levels and types of gaming experience and preferences, who were observed while playing and then interviewed about their experiences with the prototypes. Because the same researcher was tasked both with creating the game prototypes and with organizing and conducting the player studies, the processes of game design and study design were deeply intertwined and required joint consideration. Work on each aspect of study design, from research questions to choice of data analysis methods, contributed to changes in the design of the two prototypes and vice versa, in an iterative cycle that only concluded once the studies had taken place. To further illustrate the relationship between the design processes, and the different influences of the implied participants construct on the structure of the two studies, the

studies will now be presented in more detail, drawing on notes and observations taken during their preparation and execution.

## The Perception Study

The first study conducted as part of the research project followed a literature review of Bourdieusian practice theory, as well as related writings in the domain of game studies and player studies. The study focused on the broad topic of *game perception*, seeking to investigate how different players perceive and practically navigate minimal differences between two digital games. Because of this, the study is here referred to as *the perception study*.

The perception study took place in the summer of 2019, after roughly six months of preparatory work. When that work began, the general methodological approach had already been defined on the project level: each of the studies was to center on player interactions with a custom game prototype, developed to allow for a focused examination of the study theme. However, beyond this general description, there were no specific details in place for the individual studies. This indeterminacy at the early stages of the project affected the approach of designing and planning the perception study. Since the study was the first of three to be conducted, it required a degree of structural support in order to give it focus and direction. This support came in the form of a sequential study design, similar to the waterfall model often encountered in the field of software development (see e.g. Ruparelia, 2010), as part of which each stage of the study had to be completed before the next stage could begin. Consequently, development work on the game prototype did not begin until the point at which the research hypotheses had been finalized.

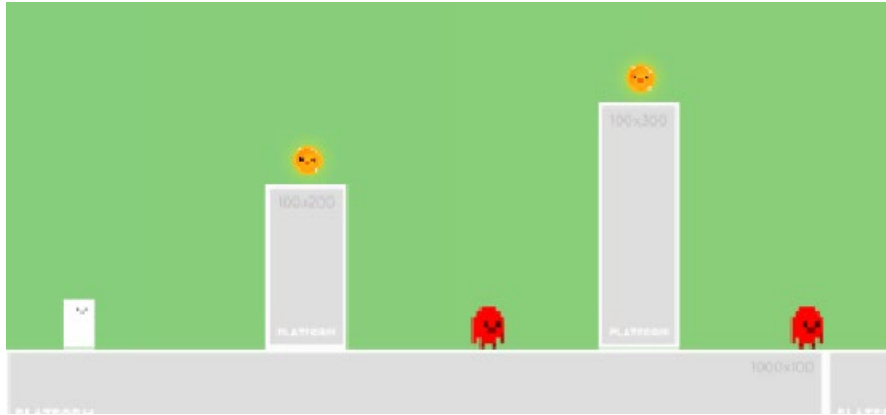
Over the course of several weeks, the study's general theme of research into game perception became more specified into a focus on categorical/genre perception differences between novices and long-time players. Several rounds of hypothesis creation followed, resulting in a set of assumptions about game players (presented in Table 1 below), primarily on the basis of their level of familiarity with game genres and overall experience with games. These assumptions then led to the first game design sketches, and to the decision to organize an A/B test study (Hanington & Martin, 2012) using two digital prototypes: a conventional *control game*, and a minimally-different *experimental game*. The former would adhere as closely as possible to the established conventions of a genre – in this case, 2D sidescrolling platformer games, like *Super Mario Bros.* (Nintendo Creative Department, 1985) – while the latter would alter one of those conventions.

<b>Experienced players</b>	<b>Inexperienced players</b>
Players with more experience have more rigid & comprehensive models of a particular genre	Players with less experience have no/much more flexible & limited models of a particular genre
They identify it easily, on the basis of a few markers	They struggle to identify it, and need plenty of markers to do so
They perform relatively well in games of said genre	They need time to learn, perform not so well overall, and make more mistakes
They are more discerning of variations and able to easily articulate smaller differences compared to other games	They find it more difficult to articulate genre differences and variations
They are more likely to say, of the experimental game, "This, too, is a platformer"	They are more likely to say, of the experimental game, "This is not a platformer"

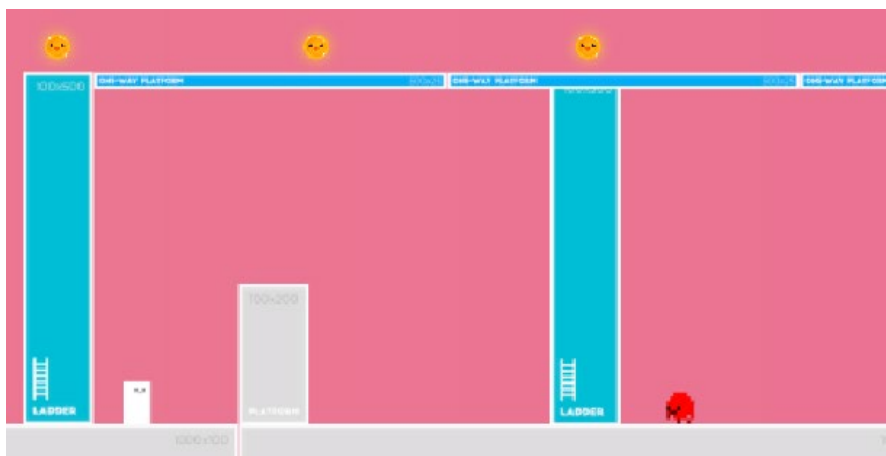
**Table 1.** Hypotheses set created for the perception study.

The hypotheses outlined in Table 1 guided the prototype creation process by specifying assumed ways of playing, thinking about, and differentiating between the two games for two distinct groups of players: those with plenty of experience with 2D platformers, and those without that experience. Therefore, before the game development process began in earnest, the figures of the implied participants had already been defined at two prior points: in a general manner, when the decision was made to focus on the theme of game perception, and in a more specific manner, with the decision to conduct the study as an A/B test and the creation of the research hypotheses. The defined character of the implied participants, achieved in the early stages of study design, meant that the subsequent prototype development work could proceed immediately after hypothesis creation, without too much time being spent on preliminary sketches or other preparatory design work.

The two prototypes for the perception study were developed in the Unity game engine, with which the researcher already had prior familiarity. Both prototypes utilized the Corgi Engine pack, consisting of custom controllers, various camera, level, and inventory systems, and basic audio-visual assets. The two prototypes differed only in terms of a single gameplay mechanic, as well as spatial layout. In both games, the player controlled a little white rectangle, navigating it around red enemies and spatial obstacles to reach the end of the level, while collecting yellow coins for points. In the control game (Figure 1), the player could only move around a 2D space, run, and jump; in the experimental game (Figure 2), the jump mechanic was disabled and the level layout changed as a result.



**Figure 1.** The control game.



**Figure 2.** The experimental game.

Specified as two groups of players with diametrically opposed strategies of perceiving and categorizing games, owing to differences in prior experience, the implied participants drastically streamlined prototype development. The process took only a couple of weeks from start to finish. The resulting prototypes were visually and mechanically simple games. Seen from the perspective of game design, they were not particularly innovative or interesting – because they did not have to be. Considering that their primary function was to facilitate a player study, their simplicity and lack of polish were seen as strengths, rather than flaws. These qualities were the desired result of the game design and development processes, which built on established assumptions about the behavior of players with different degrees of gaming experience. The empirical study utilizing the prototypes was also relatively quick to conduct, and the data analysis process did not require much time, as there were clear focal points that directed the examination.

But what happens in situations when the relationship between the processes of study and game design is not as direct and sequential, as was the case in the perception study? How do the implied participants figure in those research endeavors?

## The Appreciation Study

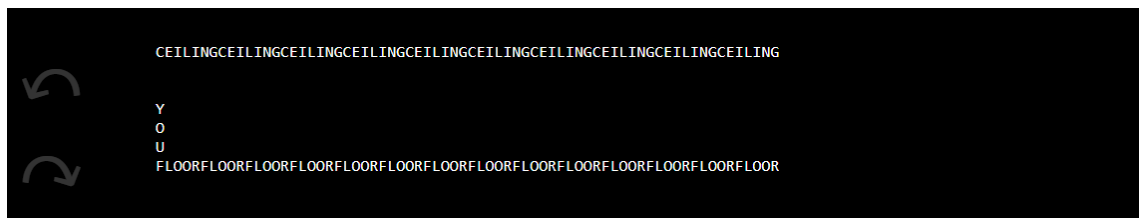
By the fall of 2019, when work begun on the second study, its general theme – *game appreciation* – was already in place, thanks to the earlier literature review. For this study, the sequential study design format was abandoned in favor of an experimentation-driven approach, which prioritized the design and development of the game prototype. To begin with, rather than organizing the study in discrete steps, which had to be completed before the next step could begin, the researcher decided to merge the hypothesis creation and prototype creation processes into one. The reason for this decision was the researcher’s belief that more relevant hypotheses and research questions would emerge during practical experimentation with elements of game design, thus allowing for a more organic specification of the general study theme of game appreciation. During this process, much like during prototype development in the perception study, the researcher kept design documentation and made other notes which inform the present reflections. On the whole, while the perception study design might be comparable to the waterfall model in software development, the design of the appreciation study was more in line with the Research-through-Design (RtD) methodology, first discussed by Christopher Frayling (1993) and frequently employed in the domain of human-computer interaction (see e.g. Zimmerman & Forlizzi, 2014).

Prototype development in the appreciation study did not have the benefit of specified hypotheses about player interaction with games which would guide the process, but the general study theme still provided some initial direction. Though game appreciation is a personal trait and could ostensibly be researched with any kind of game, the researcher decided to develop a prototype that would speak to the tradition of visually experimental independent games. Juul has referred to these games as characterized by “Independent Style” (Juul, 2019, p. 38) – the use of contemporary technology to mimic low-tech graphical materials and visuals. In the case of the appreciation study, the mimicked visual style was that of *concrete poetry*, a style of poetic writing in which individual words or entire lines are visually arranged so as to represent a particular object, process, or sentiment. By virtue of its unorthodox visual style, the resulting game prototype would therefore be used as a tool for researching the players’ preferences towards experimental games. Though this specification was not enough to form the basis of a proper and focused study, it was sufficient to allow the prototype development to begin.

Because its development was not structured and guided by a specific conceptualization of study participants, in the form of developed research questions or hypotheses, the appreciation



study prototype took much longer to manifest, with the development lasting around three months. During this time, the implied participants developed alongside the prototype, with every design decision. The prototype was developed in Twine, a tool for writing hypertext fiction in the form of HTML pages, which was seen as most suited to the intended visual style. In terms of gameplay, the decision was made to work with mechanical and level design conventions of 2D adventure games, such as *The Secret of Monkey Island* (Lucasfilm Games, 1990), albeit in a much simpler fashion so as not to deter any players with unintuitive controls or cumbersome methods of interaction. One of the early sketches (Figure 3) hints at the future game's visual layout and its primary gameplay – spatial navigation of a player character (the vertical word YOU) in a 2D space made of words.



**Figure 3.** An early sketch of the appreciation study prototype.

Early on in the design process, the decision was made to create a house of words that would act as the game's setting, with several simple puzzles, reliant on item retrieval and use, which had to be solved to unlock additional spaces and, eventually, end the game. To construct the house, individual textual objects were created by combining strings of words into shapes and then fixing their position on the screen with HTML code. Several methods for moving the player character were examined, including a real-time approximation of movement, which updated the position of the vertical YOU with every keyboard input. While this approach was relatively easy to implement, the movement illusion left a lot to be desired, and it was nowhere near as fluid as movement in more traditional games, developed in dedicated game engines. Instead, the finished prototype features discrete textual layouts, each with several different *positions* of the vertical YOU for the player to navigate between with the single press of keyboard key (see Figures 4 and 5). The gameplay of the finished prototype involves moving between these positions with the keyboard keys, and utilizing the Space bar to interact with objects at some of these positions. Each position also features a single line of poetic text, which displays once and only once at the bottom of the screen, disappearing on subsequent visits to the same position. In tandem, this presentation lends the game an aesthetic quality akin to that of a picture book.



lack of study design guidance, in the form of hypotheses that would to some extent specify the implied participants, contributed to growing feelings of detachment between the game design process and the broader research study frame. During early design work in particular, the researcher frequently struggled with the issue of the prototype's target audience and setting, with the designed game at times feeling like a standalone artistic or creative endeavor, rather than a testing instrument to be used in an empirical study. This could also be the reason why the development process took much longer than was the case with the prototype developed for the first study; without a clear research topic or assumptions about players that one wished to test, the design process had to progress to a point where relevant and interesting topics emerged in the developed game. In this case, the eventual research topic, emerging after several rounds of analysis of the prototype during its development, was that of *playstyle*, with implications about the study participants revolving around their style of navigating the gameplay tension built into the prototype. The topic was eventually condensed to the following research question: *How, when, and why do specific styles of play emerge when playing a digital game?*

This research topic was much less specified than was the case with the first study, which had an entire set of hypotheses about two distinct groups of implied participants. Consequently, the empirical study and subsequent data analysis processes took much longer to conduct than in the perception study. The interview questions were more general than in the perception study, and pertained to broader issues of appreciation of various game design elements, game feel, and comparisons with other games and different media. Several rounds of open coding did not result in any particularly useful themes or obvious connections between the players' attitudes towards the game prototype and elements of their ludic habitus – e.g. previous experience with games or preference for certain genres. To properly examine the research topic, much more attention had to be devoted to connecting the various sources of data, with gameplay recordings forming the main point of analysis. This approach of analyzing in broad strokes was markedly different to that used in the perception study, where most of the relevant data was already unearthed in the first round of coding of the interview responses. Nevertheless, it ultimately did prove fruitful; the study found that playstyles tend to emerge at specific *moments of discovery* when some game elements become more salient than others for certain groups of players, broadly in line with their previous gaming experiences and, most of all, personal preferences towards certain forms of digital play.

## Discussion

What do these two studies, with two different methods of structuring and relating the game and study design processes, mean for the concept of the implied participants? And, conversely, how can defining implied participants help researchers navigate the relationship between these two processes? In order to answer these questions, it is worth succinctly summarizing the relevant observations from the two studies once more, with a focus on the role that implied participants played during their progression.

The perception study followed the more traditional, sequential research structure, wherein each step of the study had to be completed before the next step could begin. The prototype development was one of those discrete steps, and it took place after the development of research hypotheses. The prototype development process in this study benefitted from the implied participants being specified as part of the earlier work on developing the research topic and hypotheses. Assumptions regarding the behavior of the study participants when playing the two prototypes structured and guided the game design process by acting as a form of design specification for the two prototypes. The end result were two rudimentary, derivative games that enabled a focused examination of very specific points (perception of mechanical and level design differences). The obtained data directly addressed the research hypotheses, and the subsequent analysis and write-up processes were efficient and streamlined.

The appreciation study was conducted according to the RtD methodology, with the design work (on the basis of an established general frame of research) preceding and guiding all other study steps. In this study, prototype development took considerably longer from start to finish, at times veering off the research track and into a standalone artistic endeavor. The assumptions about player behavior were constructed during development – i.e., upon making design decisions regarding various game elements, their manifestation in the prototype game, and their interactions with other design elements. The end result of this process was not only the game prototype, which took much more design liberties than the prototypes in the previous study, but also the research question and assumptions about the study participants and their interaction with the prototype. Because these assumptions were much broader than was the case in the first study, the data analysis process following the study was more complex, requiring several rounds of detailed examination. However, this study also yielded a comprehensive theory of playstyle emergence, which is seen as predicated on the interplay between one's ludic habitus and elements of game design.

These two studies illustrate two different methods for conceptualizing the implied participants, and for relating the study design and game design processes. In the perception study, the implied participants acted as *design guides*; as abstract player figures, they were constructed during hypothesis creation, which preceded prototype design and development. In the appreciation study, the implied participants emerged during prototype design and development; instead of guiding design, they acted as *research guides*, helping the researcher to reach the specific research question and framing of the study on the basis of hands-on experimentation with game design elements.

Each of these two approaches has its benefits and drawbacks. When used as design guides, the implied participants can simplify and focus the game development process to a considerable degree. In turn, this also means that the game design work is secondary to the proving or disproving of research hypotheses, which reduces the opportunities for design experimentation and innovation. Conversely, when used as research guides, the implied participants can facilitate a comprehensive, exploratory investigation of a problem area, allowing for research questions to emerge during experimental design practice. The downside of this approach is the tendency for the design project to drift beyond the confines of the research endeavor, as well as the need to specify research questions of adequate scope and delimitation, in order to minimize difficulties when conducting data analysis. All in all, this approach can take considerably longer from start to finish compared to when the implied participants are used as design guides, but it can also result in more comprehensive and robust theories, as well as other contributions, in the form of design knowledge and observations gained from experimental design practice.

It needs to be said that these approaches to specifying the implied participants and relating the study and game design processes represent only two possible methods and project structures. The relationship between design work and the broader player study frame can be navigated differently, with the research field, theoretical approach, and choice of methods, among others, all playing a role in potential configurations. That being said, by introducing the concept of implied participants and presenting examples of two studies in which these constructs featured as design and research guides respectively, this paper offers designer-researchers a tool for thinking about how game design relates to study design and vice versa, regardless of the research field or other factors which differentiate one player study from the next. Those involved in both processes of making and studying games would do well to follow one simple rule: before all else, consider the participants.

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