YOUTH FRIENDSHIP PLAY

A communication-scientific inquiry into the game-related practices of young people

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Youth, friendship, play

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Dutch summary

Centraal in dit proefschrift staat de vraag hoe en waarom games belangrijk zijn in het leven van jongeren. Deze vraag wordt benaderd vanuit drie centrale thema's: redenen om games te spelen, gamer identiteit en de relatie tussen games en vriendschap.

Op basis van drie studies worden redenen om games te spelen van naderbij bekeken. In een eerste studie wordt een conceptueel kader uitgewerkt dat de relatie tussen motivaties, omgeving en gedrag verduidelijkt. De tweede studie operationaliseert de concepten die ontwikkeld werden in de eerste studie in de vorm van een meetinstrument. Op basis van dit meetinstrument verkent de derde studie de relatie tussen rationele motieven, gewoonte en de sociale structuur waarin spelers zich bevinden enerzijds en spelgerelateerde gedragingen in de vorm van de frequentie en de duur van het spelen en de inhoud die gespeeld wordt anderzijds. Resultaten tonen aan dat het belang van rationele motieven, gewoonten en sociale structuur veranderen als men de wijze verandert waarop spelgerelateerde gedragingen worden geconceptualiseerd.

De studie omtrent gamer identiteit stelt de vraag welke determinanten relevant zijn in het verklaren van de mate waarin mensen zichzelf en andere definiëren als gamers. Resultaten suggereren een dialoog tussen de manier waarop een gamer identiteit cultureel geconstrueerd is en de plaats die games krijgen binnen iemands vriendschapsnetwerk. In de eerste plaats wordt een gamer identiteit bepaald door de mate waarin men voldoet aan stereotypische gedragingen en kenmerken. De sociale omgeving waarin spelers zich bevinden is echter eveneens belangrijk in die zin dat ze het mogelijk kan maken om een omgeving te creëren waarbinnen een gamer identiteit waardevol en belangrijk geacht kan worden.

In onze laatste studie gaan we dieper in op de relatie tussen games en vriendschap. De centrale vraag die hier gesteld wordt is of spelgerelateerde praktijken ook gedeeld worden binnen iemands vriendschapsnetwerk en in welke mate dit samenhangt met de kwaliteit van deze vriendschappen. Zo blijkt dat spreken met elkaar over games een courante praktijk is binnen vriendschapsnetwerken. Een gelijkaardig resultaat komt naar voren bij het samen spelen. Dit toont aan dat games deel uitmaken van het alledaagse leven van jongeren eerder dan dat ze erbuiten staan. Bovendien is het een deel van hun leven dat verbonden is met de sterkte van de vriendschappen die ze hebben. Als men deze studies in hun totaliteit bekijkt dan wordt er een beeld geschetst dat aantoont hoe en waarom games belangrijk kunnen zijn voor jongeren. Games zijn belangrijk voor jongeren omdat ze er op verschillende manieren in slagen om hen een aangenaam tijdverdrijf te verschaffen. Maar er is meer dan dat. Games laten jongeren toe om te delen. Ze laten jongeren toe om op zoek te gaan naar een zinvolle identiteit, naar een plaats waar ze thuishoren. En door het delen van spel en spelgerelateerde praktijken bieden games een manier om vriendschappen te beleven en te verstevigen.

Wat deze studies gemeen hebben is dat ze gebaseerd zijn op een kader dat poogt te begrijpen hoe de relatie tussen gedrag, het individu en de sociale structuur geconceptualiseerd en geoperationaliseerd kan worden. Dit proefschrift wil met andere woorden niet enkel bijdragen aan inzichten gerelateerd en hoe en waarom games belangrijk kunnen zijn. Het wil eveneens, vanuit een pragmatisch standpunt, inzicht verwerven in de relatie tussen het individu en de sociale context waarbinnen dit individu zich begeeft. Dit wordt bereikt door na te gaan hoe netwerkmaten samengaan en zich verhouden tot individuele maten. Gegeven dat sociale netwerken in elk van onze studies een significante rol speelden zijn we er van overtuigd dat sociale netwerk analyse een nuttige toevoeging kan zijn in de gereedschapskist van elke communicatiewetenschapper.

English summary

This dissertation deals with the question how and why digital games are important in in the lives of young people. It does so by focusing on three main topics: game choice, gamer identity and the relation between friendship and digital games.

On account of game choice, three studies are presented. The first study elaborates on the conceptual foundations regarding motives, environment and behavior related to play. The second study operationalizes the relevant concepts developed in the first study by means of a measurement instrument. Using this measurement instrument, the third study explores the relation between conscious motives, habit and the social structure in which players are embedded on the one hand and behaviors in terms of frequency and duration of play and the content that is played on the other hand. Results show that the importance of conscious motives, habit and social structure in explaining behavior varies depending on how behavior is conceptualized.

The study on gamer identity asks which determinants are relevant in understanding why people categorize themselves or others as gamers. Results suggest a dialogue between how being a gamer is culturally constructed and the status of digital games in one's friendship group. A gamer identity is first and foremost constructed through the performance of behaviors and characteristics linked to a prototypical gamer. The social structure, however, can create an environment in which a gamer identity can become relevant and valued. In other words, the social structure in which players are embedded contributes to a gamer identity over and above prototypical behaviors and characteristics.

In our final study, we focus on the relation between friendship and digital games. The central question asks whether game and game-related practices are present in friendship networks and to what extent they are associated with the

quality of those friendships. Findings indicate that talking about games within friendship networks is a widespread practice. To a lesser extent, the same is true for people playing digital games together. Similarly, talking about games and playing games together is associated with stronger friendship ties. In other words, digital games are a part of rather than separate to the everyday life of young people. What is more, it is also a part that significantly contributes to the quality of friendships. Taken together, these studies show how and why digital games can be important in the lives of young people. Digital games are a part of young people's lives because they provide several ways in which players can enjoy their free time. More importantly, however, they are important to young people because they allow them to share. They provide a means for young people to find a place where they belong and through their shared, game-related practices, games allow for friendship relations to be maintained or strengthened.

Underlying these studies is a framework that aims to explore how the relation between behaviors, the individual and social structure can be conceptualized and operationalized. Hence, in addition to understanding how and why digital games are important, this dissertation presents a pragmatic excursion into the question of agency and social structure. It does so by considering how network measures coincide with and relate to individual measures. Considering that social networks play a significant role for each of our topics, we believe that social network analysis can provide a promising addition to the toolbox of communication scientists.

Table of Contents

Tables

Figures

“Stay awhile and listen”

（Deckard Cain, Diablo）

Introduction

In the mid-1980s, against the backdrop of the game industry crash, I discovered my first digital game at a friend's place. The game, Harrier Attack, was played by means of a cassette on a Commodore 64 and was praised for its short loading time of only 20 minutes. Today, almost three decades later, a lot of things seem radically different. In technical terms, digital games and their enabling technologies have taken significant steps forward. The 8-bit machines with their monochrome green screen displays and their analog-to-digital converters seem distant echoes in a world where technological convergence, digitization, supercomputers, next-gen consoles and the internet have become the order of the day. Furthermore, the industry itself has changed. After the downfall of the home computers, the Nintendo Entertainment System (NES) together with IBMs personal computer would herald a new golden era (Wolf, 2008). For the years to come, the market of console- and personal computer games would keep on growing to an extent where it has been claimed that its revenue equaled that of the movie industry (Pavlik, 2008).[1] A more contemporary sign of a matured game industry is the rise of the so-called indie games. Similar to evolutions in the music industry, independent game developers are challenging the traditional business model by exploring different ways of production and distribution. This includes, amongst others, games

[1] Whether this claim is correct or part of a discourse to justify the study of digital games is left to the interpretation of the reader.

being developed by a handful of people and exclusive digital distribution through platforms such as Steam Greenlight (Simon, 2013). When it comes to the content aspect of digital games, it has often evolved on par with the aforementioned technological and economic trends. Indeed, the internet has allowed for online play with other people, often on a massive scale. At the same time, it also enabled a diversity of games that could be described as casual games. With the more recent development of mobile technologies, the growth in casual content seems to have received an extra impetus. Additionally, independent developers and their innovative production practices have given birth to a dynamic that is exploring the limits of what a game is and can be.[2] Alongside these shifts, digital games have given rise to a variety of subcultures, phenomena and practices such as modding, machinima, e-sports, live streaming, LAN events and so on.

Only implicitly present in the story so far, however, are the people playing digital games. The friend I played my first game with was the only person I knew to be in possession of a game console. Today, young people who have never played a digital game in their life are the exception rather than the rule (ESA, 2013; ISFE, 2012). Three decades ago, games were not part of most people's everyday lives. They existed at the periphery of leisure. Today, they seem to have taken a central place in youth's leisure practices. This brings us to the main thread guiding this dissertation. Despite the numerous studies that have investigated specific cultural practices surrounding digital games, there is still much to be explored about the ways digital games are embedded in the everyday lives and practices of people. Therefore, the central question of this dissertation is how and why digital games are important in the lives of young people.[3] This question will be approached through three themes: game choice,

[2] E.g., Papers, please (Pope, 2013)

[3] As will be discussed in the coming chapters, with young people, this dissertation refers to people attending high school.

identity and friendship. The rationale for focusing on these themes lies not so much in the medium, but rather in the characteristics of the population itself. Indeed, the reasons for focusing on young people are manifold. In the first place, compared to adults, the media-saturated world we live in is a given for young people (Livingstone, 2002).[4] This is true for media in general and for digital games in specific. Therefore, the ways in which media and digital games are appropriated are likely to be different than those of so-called "digital immigrants". Furthermore the way in which the daily life is structured in contemporary societies is different for young people compared to that of adults. Especially when it comes to the organization of leisure, young people generally have more options in terms of time they are able to spend on recreational activities. When also considering the fact that figures consistently show that young people remain the largest population playing digital games (ESA, 2013; ISFE, 2012), a first thing that seems worth looking into concerns the processes leading to the behaviors related to playing games, i.e., game choice. Understanding why young people play digital games is important because of the significant amount of time that is being spent on this activity. In addition, however, the activity of playing games also leaks into other everyday practices of people. Understanding how digital games relate to these practices can only gain from understanding why the behavior is being performed in the first place.

These everyday practices include amongst others issues of belonging and identity (Beyers & Çok, 2008; Tarrant et al., 2001). Searching for who we are and where we belong are an important part of growing up. New media in general and digital games in specific offer possibilities to explore, maintain and experiment with one's identity (Corneliussen & Rettberg, 2008; Livingstone, 2008). Although digital games have often been studied as vessels for identity

[4] This is true for most developed countries at least.

work (Van Looy, Courtois, De Vocht, & De Marez, 2012),[5] this dissertation takes a different point of view by asking how gaming as a practice can contribute to one's feelings of belonging. In fact, the second theme that will be explored in order to better understand the importance of digital games in the lives of young people is that of gamer identity. At least equally important during one's youth is forming emotional and long lasting bonds with others (Pahl, 2000). Whilst it goes without saying that new media such as social networking sites offer opportunities to form new friendships or maintain existing ones (Ellison, Steinfield, & Lampe, 2007), the same is true for digital games and game platforms (Ledbetter & Kuznekoff, 2012). Similar to the reasoning employed for gamer identity, the question in this dissertation is not how the virtual spaces provided by digital games relate to friendship. Rather, it asks how gaming as a practice is linked to friendship. Put differently, we are first and foremost interested in friendships and how digital games are embedded within those friendships, rather than how friendships are embedded in the virtual worlds provided by digital games. It should be noted that these three themes are not mutually exclusive. As will be demonstrated in the coming chapters, they are interwoven and reciprocally connected. This is especially true for the role that friendship plays in studying all three themes.

In exploring different ways in which digital games can be important for young people, this dissertation also feeds into the public debate on digital games. More often than not, this debate revolves around possible dangers, especially with regard to young people. Such concerns seem to be a recurring theme in the history of media and digital games are not an exception to this rule. In fact, they have been subject to several waves of moral panic (Ferguson, 2013). It seems paradoxical, yet the public debate on digital games also tends to focus on positive outcomes of games such as learning opportunities or health gains.

[5] But see Courtois, Mechant, Paulussen, and De Marez (2012) on how digital games can be used by adolescents to create a difference between them and adults.

What both trends have in common, however, is a discourse that is focused on direct effects. Whilst this dissertation does not touch on issues such as aggression, addiction or learning, by looking at how digital games are important for young people, an assumption is made that digital games can also be relevant in the context of everyday life. Hence, in addition to contributing to the field of media studies, this dissertation hopes to add to the public debate on digital games in a way that goes beyond the dominant direct-effects discourse (e.g., Dams, 2006).

In summary, the core question guiding this dissertation is concerned with why and how digital games are important in the lives of young people. Importance is conceptualized in terms of three themes: game choice, gamer identity and friendship in relation to games. It goes without saying that the research presented here is not a comprehensive overview of all the ways in which digital games can be important. At best, our findings add to or clarify existing insights and raise new questions for further inquiry.

The research results of this thesis can best be understood with the overarching theoretical, conceptual and methodological framework in mind. This framework is discussed in the first chapter. More specifically, it starts with a consideration of the meta-theoretical position that is taken as a researcher within the field of social sciences. This is followed by a positioning of the topic and the chosen research approach within the field of communication sciences. In the last part of this chapter, the overall theoretical framework is developed together with its associated conceptual and methodological specificities. The second chapter gives an overview of the individual studies that have been performed on the three key themes. Next to providing a resume of these studies, the main contribution of this chapter is that it places the themes within the general framework that was developed in the previous chapter. Chapters three to five present the actual research performed during the doctoral trajectory. Chapter three includes three studies that, taken together, lead to

insights in the process of media choice. Chapter four discusses research on the process of gamer identity whilst chapter five delves into the relations between gaming- and friendship practices. It should be noted that chapters three to five contain copies of papers that have been or are being subjected to international peer review. This dissertation ends with a discussion and a conclusion. The discussion in Chapter 6 first considers to what extent our research has contributed to scientific knowledge on the topic. In addition, it also reflects on the relation between the results and the theoretical, conceptual and methodological considerations elaborated on in the first chapter. The conclusion in Chapter 7 presents a more general and concluding reflection.

“You are in a maze of twisty little passages, all alike”

（Colossal Cave Adventure）

1 Theoretical, conceptual and methodological considerations

1. Ontology, epistemology and axiology

1.1 Introduction

Academic research, especially in the social sciences, is never free of assumptions. Indeed, meta-theoretical questions for any social researcher concern the nature of social reality, how it can be known and the ways in which values are dealt with (Jørgensen & Phillips, 2002; Miller, 2005). Even when the research topic is the same, different positions can lead to different research questions, approaches and methods, and ultimately, to a different kind of results.[6] Therefore, it is important that we specify the positions we have taken in this dissertation.

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[6] Different does not imply a value judgment in this case.

Roughly speaking, one can take an ontological position anywhere between a realist and a nominalist point of view (Burrell & Morgan, 1979). The former assumes social reality to be objective and tangible in that it exists outside of human consciousness. The latter takes a subjective stance and sees the external social world as a mere collection of labels, concepts and names that are created by individuals in order to structure social reality. The ways in which one conceptualizes the nature of social reality has implications for what can be known about it. In other words, different ontologies tend to coincide with different epistemological positions.[7] Approaching social reality from a realist point of view often goes hand in hand with an objectivist epistemology in which social phenomena are known and measured by means of the scientific method (Popper, 2014). Furthermore, knowledge about the social world can be accumulated through the work of the scientific community and knowledge is first and foremost concerned with regularities, universal laws and causal associations between constructs. A nominalist ontology links to an epistemological position that can be described as subjectivist (Miller, 2005). It is only through the subjective experience of others that social reality can be understood. Knowledge in this sense is not so much concerned with accumulation and generalization. Rather, knowledge is situated, relative and historical. It concerns the production of local understandings from the inside as opposed to universal laws observed from the outside. As a consequence, it uses subjective research methods such as ethnography and in-depth interviews rather than the scientific method.

Another relevant question when it comes to academic research is that of values. Whilst it is generally accepted that social science cannot entirely be an objective endeavor free of values, there are different ways to deal with this (Miller, 2005). On one side of the spectrum, there is the position that

[7] However, objective ontologies can coincide with subjective epistemologies and the other way around (Phillips, 1990).

recognizes that research focus or research questions are not purely objective. Yet, by employing a scientifically rigorous approach and philosophy of reproducibility, the actual research itself is considered to be value-free. On the other side of the spectrum is the critical position in which value positions are not only part of all aspects of the research process, they also serve to take an explicit political position regarding the subject matter (Littlejohn & Foss, 2010).

Taken together, a realist ontology, an objectivist epistemology and a belief that research can be value free is often considered as a positivist point of view. As noted by Miller (2005), such position is seldom embraced in contemporary research in the social sciences. Most research in a positivist state of mind takes a post-positivist position rather than a positivist one. Put differently, a post-positivist point of view takes a pragmatic stance towards the more stringent claims of positivism. The idea, for instance, of grand universal claims or of research that is complete value-free is seldom adhered to. Similarly, the idea of an external objective reality is often replaced by a social-constructivist approach (see below).

1.2 Relevance of these positions for our research

Whilst those meta-theoretical considerations have led to opposing schools and paradigms within the social sciences, the positioning in this doctoral thesis is, apart from its axiological viewpoint, meant to be informative rather than ideological. In the first place, it is meant as a guideline to understand the choices we made and to interpret the results that are presented in this work. Indeed, although positivist and anti-positivist positions seem to suggest ontological and epistemological dichotomies, in practice, most research is

situated somewhere in between these dimensions (Burrell & Morgan, 1979). This is also true for the research presented here. In terms of ontology, the research in this dissertation could be described as taking a social constructivist point of view in that it does not consider social reality to be exclusively external or internal to the individual. Rather, it is shaped through human interaction. Social reality, in this sense, is an intersubjective construction (Luckmann & Berger, 1991). The idea of friendship and its associated practices and experiences, for instance, are considered constructed rather than totally objective or subjective. Put differently, friendship is considered to be a subjective construct that, to a certain degree, has become objectified by treating the subjective construction as something real.[8] Hence, to a certain extent, friendship has become a stable construct (Jørgensen & Phillips, 2002). In epistemological terms, the research presented here can be described as objectivist since its main focus lies in understanding the relations between measurable constructs through the use of the scientific method. Furthermore, we consider our results to be reproducible and incremental in that they can contribute to existing knowledge on the topic. It is not purely objectivist, however, in that we do not claim that our results present universal laws or hard causal relations. In fact, a social constructivist ontology implies that the way in which social reality is structured is the result of historical, social and cultural processes.[9] Hence, it goes without saying that our results should be interpreted with these remarks in mind. At best, they give an insight into some patterns through which digital games are relevant for young people today.

Although the research process has been executed with the aim to be as value free as possible, this dissertation has a critical inclination. Considering that critical theory has become an established approach with certain practices in the

[8] Cf. if men define situations as real, they are real in their consequences (Thomas, 1928).

[9] Consequentially, this also puts the reproducibility within certain boundaries.

social sciences, this is a statement in need of clarification. In fact, the rationale for starting this manuscript with a personal anecdote is twofold. First, it makes it easier to situate and explain how digital games have become a part of contemporary societies and hence a worthy object of study. Second, it shows that the viewpoint of the researcher is not an objective one. Indeed, digital games and the researcher have a history: they grew up together. Evidently, this history had an influence on the research questions. This dissertation is not critical in the established sense of the word because such research would aim to uncover and change how digital games sustain, normalize or secure certain power relations. Or it would criticize and expose the ways in which the discourse surrounding games is constructed and normalized (e.g., Shaw, 2012). This dissertation is critical, however, in that it takes a stance opposite to the direct-effects discourse dominating the contemporary public debate. Asking how digital games are important in the everyday life of young people presupposes a value orientation that considers digital games to be part of our everyday lives rather than as a threat to be contained or an opportunity to be exploited. The collection of research presented here is considered to be critical in that it asks questions that find their origin in a critical stance towards the dominant functionalist discourse. Furthermore, it is political in that its aim is not only to contribute to academic insights regarding digital games but also to change the topics that are considered to be acceptable or worthy of discussion in the public arena. In this respect, our critical stance is in accordance with a social constructivist position since our research not only aims to *represent* an aspect of social reality but also aims to *affect* it (Jørgensen & Phillips, 2002). This is not done by taking an open and explicit position against a functionalist discourse but by broadening the kind of questions that are considered to be valid when talking about digital games (Abercrombie & Longhurst, 1998).

Taking the above considerations into account, the position in this dissertation can best be described as a post-positivist one. It embraces an ontology that is social constructivist and aims to understand the relation between phenomena

from an objectivist epistemology. Furthermore, the axiological reasoning underlying our research acknowledges that our research questions are rooted in a political stance, yet the way in which our research is executed aims to be as value-free as possible.

2. Positioning in the academic field of communication

As a consequence of its interdisciplinary character, the field of communication is a house with many rooms.[10] Clarifying our position in this field will provide additional support in which to situate research findings and possible contributions. As our interest lies in a specific medium, this research can be situated within the domain of media studies.[11] Furthermore, our primary focus is on the interaction between people and media which places us in the audience research tradition. Audience research, however, carries a history of several decades on its shoulders and a diversity of research has been labeled as audience research. As a consequence, audience research is characterized by struggles on what it is exactly that is worth researching (Abercrombie & Longhurst, 1998; Ruddock, 2001). In order to position ourselves in this

[10] This makes it even difficult to agree on a name for the house to begin with. Is it to be considered as the field of communication, communications, communication studies or communication sciences?

[11] This is again less straightforward than it seems since some authors consider media studies to be equal to cultural media research, i.e., the branch of cultural studies interested in media (Alasuutari, 1999).

tradition, we first look at how the history of audience research has developed. Next, we consider our research in relation to these developments.

2.1 A short history of audience research

A first strand of audience research is that of effects research. The assumption that a medium can have powerful effects on its audience coincides with the rise of mass media in the beginning of the 20th century and their use in both world wars (McQuail, 2010). A notable milestone in this respect is a collection of studies referred to as the Payne Fund Studies (Lowery & DeFleur, 1995). These privately funded studies were conducted between 1929 and 1932 and were considered as a first serious attempt to look whether and to what extent movies affected children in terms of attitudes, emotions, behavior and health. The Payne fund studies would be the beginning of a multitude of so-called effect studies employing a linear stimulus-response logic.[12] From an academic point of view, "*it has been clear for several decades that mass media simply do not have the direct effects once attributed to them*" (McQuail, 2010, p. 66). This would lead to a more moderate stance in the form of the idea of limited effects and later to that of subtle effects such as agenda setting theory or framing (Perse, 2001). Up to today, research on media effects exists in these distinctive formats. Furthermore, as previously noted, the public debate regarding media effects is still largely framed in terms of a stimulus-response logic.

In the 1940s, the uses and gratifications approach followed effects research. In a way it was a reaction against the media effects tradition in that it looked at what people do with media instead of what media do to people (Jensen &

[12] These effect studies were, moreover, reinforced by a functionalist framework and by the transmission model of communication as proposed by Shannon and Weaver in 1949 (McQuail, 2010).

Rosengren, 1990).[13] As such, it assumes an active audience instead of a passive one. The central question governing the uses and gratifications approach concerns the social and psychological needs that are gratified through differentiated media use (Katz, Blumler, & Gurevitch, 1973; Rubin, 2002). This has resulted in a multitude of individual needs through which media use can be explained. The uses and gratifications approach, however, has been subject to serious criticism on different levels (Ruggiero, 2000). Among others, this concerns the lack of a theoretical framework, unclear conceptualizations of core concepts, the reliance on self-report measures and low predictive power. On a more abstract level, it has been criticized for being too functionalist, positivist and for its exclusive focus on the individual whilst ignoring the social, political and cultural contexts in which individuals live and interact with media.

The criticism on the uses and gratifications approach came from within but also from a then emerging strand within audience research; that of reception studies. Whereas effect studies and the uses and gratifications approach are both situated in a behaviorist, social scientific framework inspired by social psychology, reception studies breaks with the previous strands in a seemingly more radical way. Indeed, reception studies draw heavily on cultural studies and literary criticism (Jensen & Rosengren, 1990). According to Alasuutari (1999), three distinct phases can be discerned in the development of reception studies (see also Nightingale, 2003). The first movement can be linked to Stuart Hall's work on encoding/decoding (Hall, 2006). From this perspective, the audience was given an active role in the *interpretation* of media texts. This has resulted in a series of studies with a strong focus on media texts and how their meaning is constructed against the social background in which they are

[13] Actually, this is a rather blunt assumption since the effects tradition and the uses and gratifications approach are complimentary rather than opposite as illustrated by Rubin (2002).

appropriated (e.g., Morley, 1980). Supposed media effects from this point of view stem from the way in which media texts are decoded not from the way in which they are encoded (Hall, 2006). The second phase in reception studies was characterized by a movement towards audience ethnography (Alasuutari, 1999; Livingstone, 2004). The focus here was on how media are integrated into the everyday life rather than the other way around (Hermes, 1993; Silverstone, Hirsch, & Morley, 1991). Furthermore, the way in which politics were integrated differed between the first and second phase. In the first phase, the analysis of media texts was traditionally conducted from an ideological position with a focus on the reproduction of the social order. In the second phase, attention was first and foremost directed towards identity politics such as gender and race. What is more, in a certain way, a functionalist logic re-entered research in the second phase in that researchers became interested in the functions of the medium. In contrast to the uses and gratifications approach, however, functions were not conceptualized as individual but as social (e.g., Lull, 1980). The boundaries between the second and third phase are far from distinct. In fact, much of the research performed in the second phase also connects to that of the third phase. According to Alasuutari (1999), this third phase is characterized by a critical stance towards the practices of and the concepts forwarded by the field of audience research itself. Furthermore, researchers consider media to be an integral part of contemporary culture instead of something outside of it. As a consequence, the study of media implies the study of culture which broadens the perspective in which media are studied. At the same time, it also puts media back in the picture. Indeed, due to the ethnographic turn in the second phase, media tended to disappear from the picture in favor of a 'radical contextualism' (Ang, 1996; Radway, 1988). By framing media as an integral part of culture, media and the discourses surrounding them become an object of study (Livingstone, 2004). Couldry (2011) considers the changes underlying this third phase to be more radical than Alasuutari (1999) suggests. He argues that the nature of the audience has

changed due to the ways in which the broader media environment and our societies have changed.[14] Media are considered to be pervasive in all spheres of social life and society. From this perspective, media are seen as an important force in shaping and changing "*everyday life, society and culture as a whole.*" (Krotz, 2009, p. 24). This dynamic, often coined as mediatization, also demands a change in the ways in which audience researchers study media and audiences. Studying how and why media matter should not be limited to specific media texts or specific instances of consumption and production. Instead, a more general view is advocated in which the spread of mediated communication and the impact of different media on social change are investigated. It is also from this perspective that Couldry's (2004) call for a practice-oriented approach can be situated. A practice oriented approach starts from the question what people do with, or in relation to, media rather than how individual texts are received or produced. Hence, on the one hand, it avoids a media-centric approach in that the main focus lies on the things people are doing in their everyday lives. On the other hand, by looking at the ways in which media relate to these practices, it does not risk to lose sight of media themselves.

2.2 Finding our place within audience research?

A now pertinent question that needs to be answered is how the research in this dissertation deals with the rich past and present illustrated above. Let us first recapitulate the main aim of this dissertation. It is first and foremost concerned with understanding how digital games are important in the lives of young

[14] A similar argument can be found in Abercrombie and Longhurst (1998).

people. To do so, we will look at three themes: game choice, gamer identity and games and friendship. At first sight, these themes seem to stem from different strands of audience research. Indeed, questions related to game choice come close to a uses and gratifications approach whilst the question of identity is typically rooted in a reception studies logic. Furthermore, research on friendship and media is situated near a practice-based approach. So, whilst these themes seem disconnected from a historical perspective, we argue that they all fit the basic idea of a practice-based approach. However, we consider our main contribution with regard to audience research to lie in the ways that we deviate from the practice-based approach as advocated by Couldry (2012). Let us clarify this statement. The thing Couldry considers important in a practice-based approach is that it looks at what people are doing in relation to media. Subsequently, he points out how similar this question is to the one that is asked by uses and gratifications researchers. In the same movement, however, he distances himself from that approach by claiming that a practice approach "*differs in its social emphasis and in its emphasis on relations not limited to use*" (Couldry, 2012, p. 37). This statement can only be fully understood when considering the history of audience research. In that history, the uses and gratifications approach is part of an old paradigm that has long been cast aside. As noted by Abercrombie and Longhurst (1998), different paradigms in audience research determine the kinds of questions that can be asked. Taking into account that a uses and gratifications approach typically focusses on individual gratifications and that Couldry hints at the beginning of a new paradigm by using a practice approach (Couldry, 2004), the need to contrast his own approach with that of an older one is understandable. When climbing out of the ideological trenches, however, it looks like Couldry's approach is highly complementary with that of the questions asked by uses and gratifications researchers. This can be illustrated by having a closer look at the claims that there should be an emphasis on the social and on the relations not limited to use.

Stressing the importance of the social seems to suggest that one needs to make a choice. The social, however, is inherently connected to the individual since the latter is constitutive of the former. An important question that can be raised is how fruitful it is to frame the social as opposite to the individual. Could it not be more useful to consider both aspects jointly in relation to media and in relation to each other? Let us take our game choice theme. It is closely connected to the uses and gratifications approach in that it ultimately hopes to understand why people play digital games. As we previously noted, the uses and gratifications perspective has been heavily criticized. Amongst others, this critique concerns the exclusive focus on individual motives for media choice.[15] Again, from a historical point of view, Couldry's call for a focus on the social is a not an illogical one. However, it is not because a certain approach has not succeeded in capturing the social context of individuals' media choice in the past that it is not possible in the present. In fact, as we will discuss in the next part of this chapter, one of the main aims of this dissertation is to find a way in which to account for both the individual and the social. This holds true for our research on game choice, but also for our research on identity and friendship. In our opinion, this can be a valuable contribution to the field of audience research.

A similar logic holds true for calling for an emphasis on relations not limited to use. It suggests that media use is disconnected from media-related practices. However, both are related rather than separate. Looking into media use means asking what people get out of using media *hic et nunc*. In itself, such an approach is decontextualized because it does not look at how media fit the larger picture. Looking at media-related practices and how they interact with the everyday effectively avoids a decontextualized approach, yet it also downplays the possibility that people might be using a medium for its own

[15] A criticism that holds for most empirical studies, but not necessarily for the more conceptual work (see e.g., Katz et al., 1973).

sake. If we want to understand how media affect our lives, there might be more interesting ways to approach the problem than by emphasizing the one over the other. Especially when such call can be largely traced back to historical developments and paradigm shifts. Would it not be more logical to keep an open and inclusive mind and to look for ways in which to understand game choice and game-related practices together? This seems especially relevant since playing games is a *conditio sine qua non* for other game-related practices in the first place. Indeed, game choice feeds into everyday social practices. Therefore, an inclusive view entails understanding both sides of the coin. This is an aspiration of this dissertation and in doing so we hope to sketch a more complete picture of how media are important to young people.

Another way in which this dissertation hopes to contribute finds its origin in another limitation that is seemingly inherent to a practice-based approach. More specifically, the objective epistemology that governs our research stands in opposition to the ethnographic approach that is typically advocated by practice researchers (Bräuchler & Postill, 2010). Indeed, the decision to use a quantitative approach for studying practices is not an obvious one. This can again be explained through the historical flow of audience research. Effects researchers and uses and gratifications scholars have typically been using quantitative approaches such as experiments and surveys. Inherent to the reception phase, however, is an interpretive epistemology which implies the use of (semi)ethnographic methodologies (Jensen & Rosengren, 1990). It is in this vein that the claim for ethnography as the ideal method to research media practices can be situated. However, as we have previously argued, different methodologies tend to give different kinds of answers. Therefore, a mainly interpretive approach towards practices will provide a specific yet limited kind

of knowledge.[16] With the research presented in this dissertation, we hope to demonstrate that a quantitative approach towards practices can contribute in solving pieces of the media puzzle. In other words, we hope to expand the toolbox that is available to contemporary researchers who are interested in studying media in the everyday life.

In conclusion, the research in this dissertation approaches a practice-based approach with an open mind and without terms and conditions that exclude certain questions that are based on historical struggles. It allows us to ask what people are doing with *and* in relation to media, both individually *and* socially. And whilst we agree with Couldry and others that an ethnographic approach can yield interesting insights into aspects related to media, we are convinced that enriching interpretative accounts with objective ones will yield a more elaborate view on the relation between media and society.

3. Conceptual and methodological framework

The main thread running through the studies in this dissertation is concerned with the interplay between individuals, their behavior and the social contexts they live in. It is concerned with the question to what extent people's actions can be attributed to individual choices and processes or to their environment. In

[16] A qualitative perspective would for instance yield a thick description of how media are interwoven and influence certain practices whereas a quantitative approach would look for associations between or within certain practices.

other words, it concerns the question of agency and structure (Crothers, 1996). It should be noted that it is not the aim of this dissertation to add to theoretical developments on this topic. Rather our aim is to build a conceptual framework that allows us to empirically investigate the relations between individuals, social structure and game-related behaviors. To do so, we use insights from psychology and sociology. The rationale for drawing on both disciplines is that the former is typically concerned with individuals and individual processes whereas the latter is concerned with social structures. In contrast to Alasuutari (1999) we are not convinced that research on audiences benefits from a move away from social psychology in favor of more sociological approaches. Instead, a viewpoint is advocated in which the strengths of both approaches are reconciled.[17] Our conceptual framework is influenced by the work of Bandura (1986) and more specifically by the idea of a triadic reciprocal relation between individual, environment and behavior (see Chapter 3 for a more detailed discussion). The advantage of this approach is that it offers a relatively clear conceptualization of three building blocks and the opportunity to investigate relations between and within them. In fact, this fits well with our epistemological framework in which we are interested in the relation between empirically measurable constructs. Although the overall idea forwarded by Bandura (1986) is useful, our general framework extends further on its assumptions. Indeed, despite the claim of triadic reciprocity, the main focus of Bandura seems to be on individual processes and their relation with behavior. This is, for instance, exemplified by the importance that is attributed to self-efficacy (Bandura, 1997). The attention given to environmental factors is far less detailed however. This is something that we elaborate on in this dissertation. Furthermore, we do not rigorously adhere to how individual processes are conceptualized. When it comes to game usage, for instance, we

[17] In our opinion, the possibility of an interdisciplinary approach is one of the reasons why communication sciences are needed and interesting.

deviate from Bandura's work in that we do not attribute as much importance to self-efficacy nor do we strictly follow the outcome categories he proposes (Chapter 3). Moreover, our study on gamer identity discusses the processes involved with social identification but its main aim is to understand the determinants rather than the process itself. Additionally, the process is not framed in terms of outcome expectations or self-efficacy (Chapter 4). Our study on friendship reduces the way in which individuals are considered even further. Indeed, individual aspects here are related to characteristics rather than to processes. The reason for this variation in the depth in which individual processes are considered is to be attributed to the fact that we are not only interested in predicting behavior through its relation with individuals. The focus in our studies shifts from behavior (usage) to individual (identity) to environment (friends). This way of working allows us to gain a more extensive insight into different aspects related to digital games in the life of young people. In addition, we are also interested in how each of these building blocks relates to the others. For instance, when focusing on gamer identity, we want to know how this is associated with behaviors and with the social environment. Similarly, when it comes to game choice, we are not only interested in individual motives but also in how individual processes work together with the social context in relating to game behaviors. This way, we can effectively overcome an exclusive focus on the individual. We also extend on Bandura's framework in another way. As noticed previously, despite the idea of triadic reciprocity, environmental factors are under-theorized and under-researched. This is where sociology and more specifically social structural analysis becomes important. Indeed, numerous studies have shown that individual behavior can also be explained in terms of social structure (e.g., Reifman, Watson, & McCourt, 2006). The way in which Bandura (1986) conceptualizes the environment does not allow for a workable empirical translation. Replacing the idea of environment with that of social structure allows for an approach that is more focused than that of the environment. Using social structure, however,

is not without its own problems. First, there is no consensus on the meaning and use of the concept. In fact, they vary considerably over time and between research traditions (Crothers, 1996). Second, in replacing the environment with social structure it is implied that structure is something real and external to individuals. Such a structuralist approach is problematic since it does not fit our ontological position. It is beyond the scope of this dissertation to discuss all possible meanings and uses of social structure.[18] Yet, generally, "*social structure refers to relations (especially more permanent, stable relationships) among people, between groupings or institutions, and backwards and forwards between people and groupings."* (Crothers, 1996, p. 4). Evidently, this needs further refining in order to be empirically of use. Considering our effort to reconcile psychological views with sociological ones and accounting for our focus on players and their everyday lives, we consider the micro-level of analysis (individuals and their interactions) to be especially relevant. Furthermore, and tied to the previous, we do not want to integrate structure at the expense of the individual. Therefore we are interested in the relationships that individuals have with their friends and how these relationships and related behaviors are relevant for the individual and his or her behavior. Since relations with others still imply a vast range of possibilities, this also needs further demarcation. Tying together a preference for stable relationships, our target population and the research topic, the most fruitful structure to be considered would be that of friendship. Indeed, friendship relations tend to be relatively stable. Furthermore, young people are in a life stage where friendship is especially important (see also Chapter 5). Friendship is also to be preferred above the family when we take into account our focus on digital games. Indeed, practices related to digital games are far more likely to be shared with friends than with parents.[19] Considering these arguments, friendship seems to be the

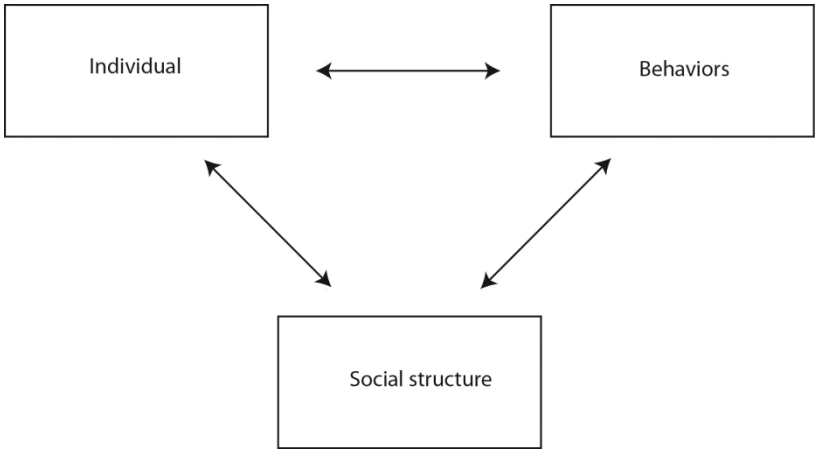
[18] But for an informative account on the evolution of the concept see Crothers (1996).
[19] A notable exception would be practices of parental mediation.

most relevant social structure to be considered. When it comes to the ontology of social structure, we adhere to the social constructivist perspective. In others words, social structures, whilst inherently subjective and socially constructed become real through their consequences.[20] Hence, in contrast to the environment, which more or less consists of everything outside the individual and his or her behavior, social structure provides a solution that puts social relations at the center. Evidently, this is congruent with our social constructionist position.

In conclusion, our conceptual model in which our main research topics can be understood has three building blocks. A first one is the individual with his or her characteristics and internal processes. The second one is the behavior performed by the individual, which in this case concerns behaviors related to digital games. The third one is the social structure that is important in the everyday life of young people: that of friendship. Friendship relations are constitutive of the social structure whilst the structure itself is characterized by the distribution and intensity of friendship- and game-related practices in that network. Figure 1 gives a schematic overview of our conceptual framework. In the next chapter, we will illustrate how this model comes into action when specific research questions are formulated.

[20] In this, we take a different stance compared to scholars such as Giddens (1984) who consider social structure to be virtual.

FIGURE 1 General conceptual framework



As a consequence of our framework, some remarks need to be raised about the methodology used in this dissertation. As a communications scholar trained in typical inferential methods of data collection and analysis, the main challenge regarding the individual measures and behaviors lay first and foremost in methodological rigor. This is best illustrated with the study on scale development presented in Chapter 3. In this study we made use of a variety of methods to build a sound measurement instrument. More specifically, we started with in-depth interviews to build a clear conceptual framework. Based on these interviews, we also constructed an item pool and verified our item wording with additional cognitive interviews. We then launched several surveys to obtain data on which we used structural equation modeling to further validate our instrument within and between samples. Although those steps were sometimes complicated, they can be expected to be part of the toolbox of a communication scholar. Finding out how to measure social structure and how

to combine this analytically with individual measures was a whole different story altogether. To do so, we made use of social network analysis; a method that is particularly suited for social structural analysis (Scott & Carrington, 2011). Due to our focus on the friendship networks of individuals, we were limited to measuring so-called personal or ego networks. This implies that only those people in direct contact with the central actor are taken into account. This is obviously a limitation in how social structure is integrated in a framework that wishes to account for both individual and structural explanations of human action (see also Chapter 6). Nevertheless, and next to gaining understanding of how digital games are important in the lives of young people, by using social network analysis, this dissertation hopes to contribute in finding ways in which to complement the all too often individualistic focus of quantitative audience research with a more structural one.

“Prepare for unforeseen consequences”

（G-Man，Half Life：Episode Two）

2 When theory meets practice

1. Introduction

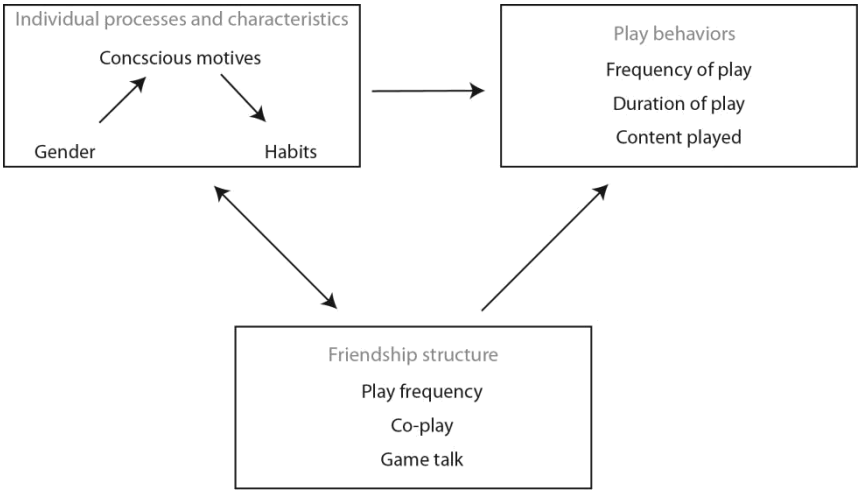
In this chapter, we concisely discuss the five academic papers that form the core of this dissertation. In Chapter 3, three studies that cover the topic of game choice are discussed. The studies containing the insights regarding gamer identity and gaming and friendship are discussed in Chapter 4 and Chapter 5 respectively. The goal of this chapter is to provide the reader with some background regarding these studies. Furthermore, it will link the studies to the conceptual framework and to the methodological considerations developed in the previous chapter. Finally, it will also give a brief overview of the main results for each topic.

2. Chapter 3: Game choice

The main research question governing the topic of game choice was concerned with understanding why and how people chose to play digital games. Although research on motives for media choice has been around for at least half a century, formulating an answer to why people play digital games was not as straightforward as it would seem. The reason for this was twofold. First, when reviewing the literature on the topic, we came to the conclusion that none of the existing theories and conceptual frameworks accounted for the fact that digital games are a medium with specific characteristics (Chapter 3, Study 1). Although we believed that understanding motives for play should be rooted in a theory on human behavior, such theory would need to be translated into the type of human behavior that is being dealt with, i.e. playing games. Second, similar to the critique on the uses and gratifications approach, studies on game motivations all employed a viewpoint that is exclusively focused on the individual. As discussed previously, a main thread binding our research together lies in understanding the interplay between the individual and the social structure in which he or she is embedded. Therefore, in our first study, we propose a conceptual framework which takes both concerns to heart. Based on theory, literature and qualitative research, this study builds a conceptual model in which the triadic reciprocal relations between game choice, individual and social context are explored. On the one hand, this model is more limited than the general framework formulated in the previous chapter. This is a consequence of limiting the kind of behavior under study to game choice. On the other hand, this model is broader than our general model in that it does not limit the environment to social structure. Although this dissertation is concerned with the relation between individual and social structure, we believe that writing a conceptual paper on game choice for the academic community should at least acknowledge the relevance of the broader environment whilst

also keeping the main topic of the study (i.e., game choice) in focus. Hence, whilst we have previously reconceptualized the broader environment to social structure in order to obtain a framework that is empirically manageable, our first study acknowledges that the environment goes beyond mere social structure. Developing this model in our first study gave birth to another problem, however. In general, concepts need to be operationalized in order to be measured. Hence, a measurement instrument to assess these concepts had to be developed. This process is described in the second study of the third chapter. For this study we were explicitly concerned with the methodological rigor that can be expected when developing a measurement instrument. Great care was given to all steps in the development process ranging from the development of an item pool to assessing the structural properties of the instrument over and between different groups. The third study, finally, combines the insights and results from the first two studies and adds the aspect of social structure. It is in this third study that our full conceptual model comes into action. More specifically, our focus is on behaviors in terms of game choice and how these are associated with individual processes and with the friendship structure in which individuals live. Not only were we interested in how individual and structural aspects can be useful in predicting game choice. We also explored how these relations change when game choice is operationalized differently. Figure 2 gives a schematic representation of the relation between different constructs.

FIGURE 2 Game choice



When it comes to results, a first finding was the different contributions of individual processes and social structure in relation to different behaviors. When taking the time one spends playing digital games as dependent variable, social structure did not seem to play a direct role in influencing the behavior. Instead, most of the explained variance could be attributed to individual processes. When considering the kind of games people are playing, however, the variation of gaming practices in the friendship network started to matter. More specifically, the odds to play so-called core genres increased significantly when the degree to which gaming-related practices were present in the network increased. Additionally, the way in which individual processes were important clearly differed between both behaviors. In fact, habit played a central role in understanding behavior when the behavior was conceptualized as a time-related measure. When looking at content choice as behavior, however, habit was no longer directly associated with behavior whilst conscious motives were. Put

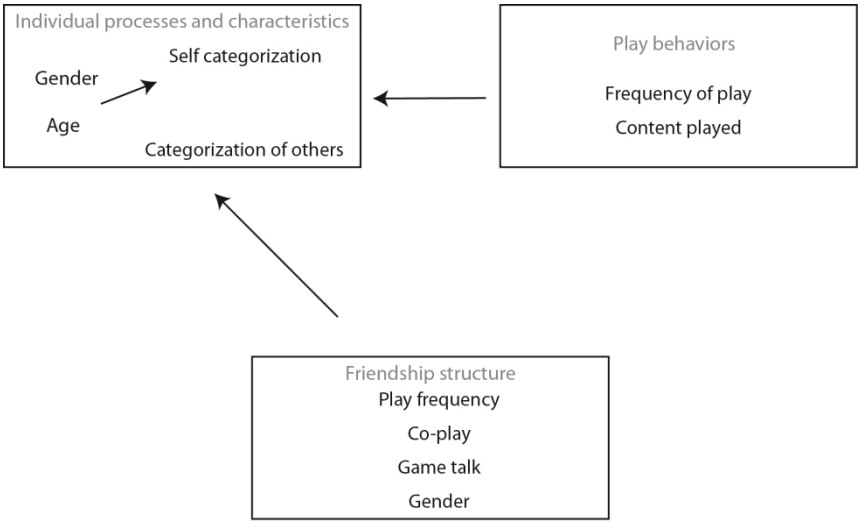
differently, *how frequent* one plays is best explained through habits but *what* one plays is dependent on conscious decisions. In short, these results suggest the fruitfulness of including social structure into the equation and also point out the importance of considering how to conceptualize behavior.

3. Chapter 4: Gamer identity

Compared to game choice, the study on gamer identity shifts the focus from behavior to an individual process. More specifically, the main aim of this study was to understand whether and to what extent behavior and social structure contributed to individuals' self-categorization as gamers. In this study, we took a somewhat different approach towards identity than is common in audience research. When studying audiences, media are typically seen as mediators of identities in that they allow people to express, articulate and experiment with their identities. As discussed previously, digital games have proven useful in providing opportunities for such identity practices. Little attention, however, has been directed to how media and media-related behaviors can themselves become the object around which identities are built. Again, the question here was not only how one's media-related behaviors contributed to a gamer identity. Equally interesting were the behaviors and relations in the friendship network and their association with the way in which individuals saw themselves and their friends as gamers. Another way in which this study differs from typical studies on identity in audience research is that social identity was approached from a social-psychological view instead of a cultural studies one. This is a direct consequence of our ontological and epistemological position. As mentioned previously, audience research has been moving further away

from social psychology in the past decades. By doing so, only one type of knowledge is being gained. In using a social psychological (and quantitative) approach, we are fitting pieces of the puzzle that seem to be ignored when it comes to audience research on identity. In contrast to the study on game choice, we did not need to develop a conceptual framework. In fact, our research was based on the social identity approach in which attention for individual and social aspects is already present. The main challenge here was how to understand and conceptualize the relation between personal and social determinants related to a gamer identity. Figure 3 gives a schematic representation of the relation between different constructs.

FIGURE 3 Gamer identity



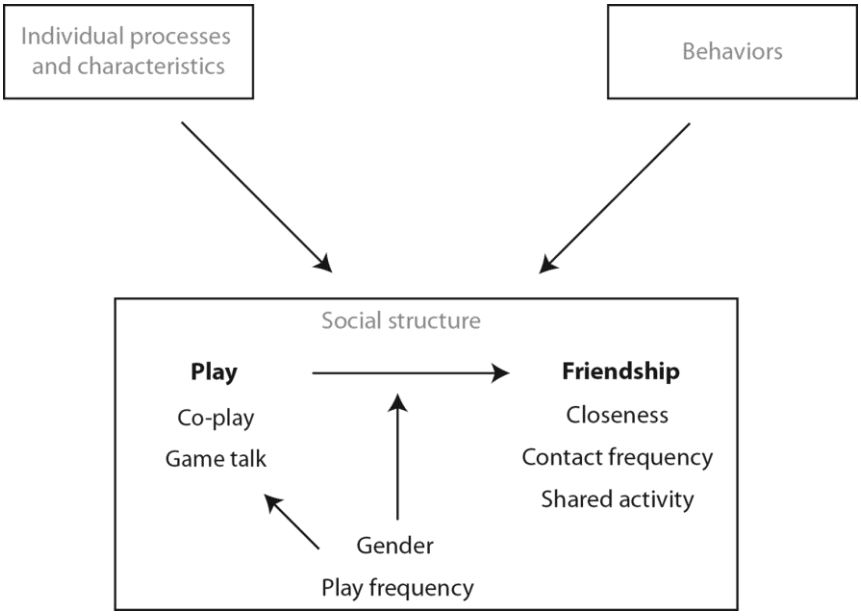
In terms of results, our study confirmed the importance of the social environment in relation to the categorization of others and self as gamers. Constructing a gamer identity, however, was also strongly rooted in consumption practices. It was argued that these practices were in turn connected to how being a gamer has been constructed by the gaming industry in the first place. Put differently, a gamer identity is constructed through what digital games mean as cultural artifacts and what they mean in one's everyday social context.

4. Chapter 5: Gaming and friendship

In this fifth and final study, our main research question was concerned with the way in which gaming and gaming-related practices were part of friendship networks. Not only were we interested in the extent to which such practices were distributed in those networks, we were also curious to what extent those practices coincided with the strength of the friendship bonds in those networks. In a way, this study was the most experimental one in that the previous studies focused on the individual, be it through his or her behavior or individual processes. The focus in the fifth study was the social structure itself. In essence, this concerned the question of how social structure was being reproduced. Focusing on social structure, however, forced us to use our general conceptual model in a slightly different way. Indeed, as long as an individual was our point of interest, all three building blocks played a more or less equal role in understanding and explaining the phenomenon under study. This was different for social structure. In the first place, we tried to understand friendship relations in terms of other types of relations; those related to gaming. Furthermore, when individual characteristics (gender) and behavior (play frequency) came into play, they did so at an aggregate level which is closely related to what can be

understood as part of social structure. In short, it is not fruitful to study social structure through the behavior or characteristics of one individual as the building blocks of a group are typically its members and their relations. Therefore, on the one hand, by making social structure the central point of interest, we have illustrated the flexibility of our general framework in that it allows attributing different weights to factors within and between building blocks. On the other hand, however, the triadic reciprocity between building blocks might not be the most preferred point of view when one wants to study social structure. This model is illustrated in Figure 4.

FIGURE 4 Gaming and friendship



Regarding results, game-related practices proved to be distributed within friendship networks to a surprisingly large degree. Clearly, these practices were not the prerogative of networks in which the majority consisted of gamers or males. Additionally, in most of these networks, game-related practices were significantly associated with the strength of friendship ties. This suggests that game-related practices have become one of the resources for doing friendship.

“Is a man not entitled to the sweat of his brow?”

（Andrew Ryan，BioShock）

3 Game Choice

Paper 1

In pursuit of play. Towards a social cognitive understanding of determinants of digital play[21].

Abstract

Over the years, reasons for playing digital games have been studied from a variety of perspectives. A systematic, theoretically and empirically grounded conceptual framework which takes into account the specificity of gaming as a contextualized social, rule-based, narrative and systemic practice has hitherto been lacking however. This paper proposes such a framework based on social cognitive theory and elaborated on by means of 37 in-depth interviews. Understanding digital play is conceptualized as a reciprocal system of play

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[21] This paper has been published as De Grove, F. , Cauberghe, V., & Van Looy, J. (2014a). In pursuit of play. Towards a social cognitive understanding of determinants of digital play. *Communication Theory*(24), 205-223. doi: 10.1111/comt.12030

behavior, individual factors and environmental aspects. This approach offers a flexible framework for understanding determinants of playing games in a variety of contexts while taking into account the specific characteristics of the medium.

1. Introduction

Since the early days of communication studies, scholars have been interested in understanding and explaining how and why people use media (McQuail, 2010). With digital games taking up an increasingly large part of leisure activities, the motives for playing have become a major topic of interest for the research community (Williams, Yee, & Caplan, 2008). Drawing on different theoretical frameworks, previous research has explained play motivations as the satisfaction of needs (Ryan, Rigby, & Przybylski, 2006), as the search for gratifications(Sherry, Lucas, Greenberg, & Lachlan, 2006), as looking for an optimal experience (Sweetser & Wyeth, 2005), and as behavior based on expected outcomes (Lee & LaRose, 2007). Whilst these theoretical frameworks have proved useful to understand motivations for play, we argue that transposing these general theories to a digital game context is problematic due to the nature of digital games. Digital games can be conceptualized as having a rule-based, a narrative and a social dimension. However, existing research on reasons for digital play does not take this multidimensionality into account. What is more, little research exists that combines individual motives with contextual influences. Hence, the aim of this study is to build a conceptual framework that is rooted in a broad theory of human behavior, yet, conceptually acknowledges gaming as contextualized social rule-based narrative and systemic practices. This is done by confronting insights from theory and literature with empirical data from 37 in-depth interviews.

2. Play and digital games

In order to understand reasons for using a medium necessitates accounting for its specificity. We therefore start by considering the ontological nature of digital games. At the start of the 21st century, a heated debate developed between so-called ludologists and narratologists. The former argued that games should be understood as a digitized form of play. They heavily drew on the works of Caillois (1992) and Huizinga (2006) and conceptualized games as rule-based systems (Juul, 2003). In contrast, narratologists considered digital games as a narrative medium and thus as a vehicle for telling stories and for representing aspects of reality (Ryan, 2006). With the dust largely settled, the usefulness of this debate is that it shows that digital games are a hybrid medium, offering a form of play and a form of telling stories. Furthermore, whilst playing digital games has always been a social activity (Kallio, Mäyrä, & Kaipainen, 2011), the advent of the internet has allowed for a new level of sociability no longer bound to physical space. Finally, most digital games need to be operated by the player in order to progress. In this respect, they can be considered as systems. Digital games are therefore conceptualized as social rule-based narrative systems. It should be noted that each of these three components are to be considered as continuums. Indeed, individual digital games vary in the extent to which they possess each of these dimension. For instance, some game genres will score high on the social and rule-based and low on the narrative dimension (e.g., online first person shooter games) whilst other genres will typically score high on the narrative dimension and low on the social and rule-based ones (e.g., adventure games). Although the rule-based aspect is present in every game, the narrative and social aspects are more difficult to conceptualize as always present. In the case of a narrative layer, some games only consist of an emergent narrative and very little to no back-story (Van Looy, 2006). The same is true for the social dimension. Although

digital games are more and more becoming inherently social, this aspect for some games is limited to the extent that they can only be talked about with, or witnessed by others. It is argued, however, that the absence of a back-story or of inherent sociability in a game can still be considered as a defining characteristic compared to games that are composed of such elements.

It is also important to note that due to the combination of these different dimensions, digital games differ from other popular entertainment media. Digital games, as rule-based systems, create a possibility space of events. In order to experience these possibilities, players constantly have to manipulate the rules of the system. In addition, this possibility space also affects the social and narrative affordances of the medium. Similar to other media, games can be talked about and games can include stories during their production. In contrast to other popular media, however, the possibility space that is created through the rule-based system allows for narratives to emerge and for social interaction to happen within the game. Hence, by manipulating the rules of the system, players participate in shaping the content of the game. It is the extent to which the audience has to participate in making things happen that distinguishes them from other popular entertainment media. As a consequence, understanding digital games calls for an approach that takes this medium specificity into account.

3. Theories on motives for digital play

Before developing a conceptual framework, we provide a concise overview of the theoretical and conceptual frameworks that have most frequently been used to understand determinants of digital play.

The uses and gratifications (U&G) approach has been used by Sherry et al. (2006). They developed 6 U&G gratification categories related to motives for digital play: arousal, challenge, competition, diversion, fantasy, and social interaction. Whilst the U&G approach has been criticized for its difficulty when comparing between media (Ruggiero, 2000), it is argued that this is not necessarily a problem. The U&G approach allows accounting for the specificity of a medium. If the aim is to understand a specific medium instead of comparing different media, this is not a weakness but an advantage. This advantage, however, is not fully exploited by Sherry et al. (2006). When considering digital games as social rule-based narrative systems, their concepts address the rule-based and social aspects yet ignore the narrative aspect of digital games. This also feeds into a more general critique that has been voiced regarding U&G research. Although early writings on U&G acknowledged that gratifications stem from the medium, its content and the social context in which it is used, subsequent U&G research has largely been conducted on audiences without the text (Livingstone, 1998). Moreover, research by different scholars has shown that content is important when considering motives for digital play (Scharkow, Festl, Vogelgesang, & Quandt, 2012; Schneider, Lang, Shin, & Bradley, 2004). Furthermore, all 6 categories relate game behavior to active decisions. As has been pointed out by previous research, however, habit plays an important role in explaining behavior in general and media and game use in particular (Bargh & Chartrand, 1999; Lee & LaRose, 2007).

Ryan, Rigby and Przybylski (2006) have proposed using the SDT framework to understand motivations for playing digital games. They found, amongst others, in-game competence, in-game autonomy and relatedness to be associated with preference for future play. In the same vein, Tamborini, Bowman, Eden, Grizzard, & Organ (2010) found all three needs to be positively related to the enjoyment of playing a single game. Hence, empirical research shows that SDT provides a useful framework for understanding a number of reasons why people play digital games. There are also a number of limitations that need to be discussed however. First, SDT is a macro theory on human behavior rooted in evolutionary psychology. Therefore, it makes abstraction of the specific nature of media use. Whilst the U&G approach has been criticized for its fragmentation, SDT can be situated at the other extreme. Whilst SDT provides an abstract explanation of human behavior, it is less useful to gain a deep understanding of digital gaming as social rule-based narrative and systemic practices. Furthermore, SDT is concerned with universal psychological needs. Therefore reasons for playing digital games are exclusively regarded from the perspective of general needs that are present in everyone. As a consequence, it cannot account for needs that are not universal. What is more, the way SDT is used in studies on motives for playing digital games restricts itself to intrinsic motivation. While it is true that digital games are often played for pleasure or for satisfying other intrinsic needs, this is seldom exclusively the case. Digital games are often played for more casual reasons such as killing time (Kallio, Mäyrä, & Kaipainen, 2011). Finally, the conceptualization of SDT does not account for habitual behavior. Whilst habitual behavior does not necessarily lead to enjoyment, it has been shown to influence digital game attendance (Lee & LaRose, 2007).

Another theory that has been used is that of flow. To conceptualize flow in digital games, Sweetser & Wyeth (2005) developed the GameFlow model, which explains enjoyment in digital games. The GameFlow model retains Csikszenmihalyi's (1990) original flow dimensions and adds social interaction.

Similar to other academic fields, however, flow has been conceptualized in different ways by other researchers. For instance Chou & Ting (2003) use flow as an explanatory construct for problematic game usage. It is conceptualized as concentration, playfulness, time distortion, telepresence and exploratory behavior. In turn, Weibel et al. (2008) conceptualize flow as aspects of involvement, concentration, and optimal challenge whilst Lee & LaRose (2007) define it as concentration, merging of action and awareness, and enjoyment. When considering the usefulness of flow for understanding motives for digital play, we note that flow is a theory that is focused on the optimal experience. Consequently, and similar to SDT, it limits our understanding of behavior to intrinsic motives for play whilst ignoring extrinsic motives and habitual behavior.

Social cognitive theory (SCT) has been used by Lee & LaRose (2007) to understand motives for playing digital games. They conceptualized SCT in terms of the model of media attendance. In this model, four factors are expected to directly influence game usage: flow, self-reactive outcomes, deficient self-regulation and habit strength. Flow is conceptualized as a second order construct composed of enjoyment, merging of action and awareness, and concentration. When considering digital games as social rule-based narrative systems, the current conceptualization does not encompass all relevant aspects of game play, particularly narrative. Furthermore, the integration of flow is problematic as considerable discord exists when it comes to its conceptualization and operationalization. The way SCT is conceptualized by Lee & LaRose (2007) is, however, promising for two reasons. First, it shows that a broad theory on human behavior can be combined with medium-specific characteristics. Thus, in contrast to U&G, SCT provides a clear framework in which to place different outcomes. In contrast to SDT, it allows for taking the specific nature of the medium into account. Second, by using habit strength it acknowledges that not all game use is consciously motivated.

4. A social cognitive theory of human behavior

Before linking digital games to SCT, we provide an introduction of the theory's most important concepts and mechanics (Bandura, 1977, 1986). SCT is concerned with understanding and explaining the processes underlying human behavior. It conceptualizes human functioning as a triadic reciprocal relation between individual, behavior and environment. Regarding the relation between the individual and behavior, cognitive processes partly regulate the motivation to exert certain behavior. People are able to imagine and anticipate consequences of future behavior through the capability of forethought and symbolic activity. In other words, people are self-directed in their actions by cognitively processing consequences of behavior. Such consequences need not be experienced directly. Based on vicarious learning, people can also form beliefs about consequences observed from others. Moreover, outcomes can be either positive or negative and can be classified based on their main source of production. In particular, Bandura (1986) distinguishes between two types of outcomes. In self-produced outcomes, the main process at work is self-regulation. People set goals for themselves and observe and judge their actions according to personal and environmental standards. This leads to self-produced tangible or affective self-reactions. A second type of outcome is produced by factors external to the person. These include material, sensory, token and social outcomes. Material includes consumable or physiological aspects. Sensory concerns enjoyable, novel, familiar or unpleasant sensory stimulations. Token includes things such as financial incentives or grades and social concerns affective interpersonal reactions to the behavior in question. Behavior is motivated by a combination of these different outcome expectations. Moreover, both types of outcomes are interconnected and external outcomes also depend

on self-regulatory influences when it comes to their impact. Governing the functioning of these outcome expectations is the belief of self-efficacy. Whilst outcome expectations concern beliefs regarding possible outcomes of behavior, self-efficacy refers to the belief in one's capabilities to perform such behavior. It is through these efficacy beliefs that the contours of possible outcome expectations are shaped and acted upon. For instance, self-efficacy partly determines how the processes of self-regulation operate. Indeed, the belief in one's capabilities will influence which goals to set, and how subsequent behavior is observed, evaluated and reacted upon. Another mechanism at play when it comes to the relation of individual factors and behavior is that of habitual behavior. Until now, cognitive processes have been discussed as important regulators of behavior. However, research has shown that repeated behavior becomes more automatic and thus less self-directed over time. Indeed, actively considering possible outcomes by means of forethought and symbolic activity is cognitively demanding. In order to make functioning more efficient and lessen the cognitive load, behavior becomes activated in less deliberate way. Thus specific circumstances or internal states can trigger habitual behavior (LaRose, 2010).

In SCT, the link between the individual and the environment is mainly conceptualized as social. Through the mechanism of vicarious learning, the social environment influences outcome expectations. By witnessing others perform certain behavior, one observes consequences of that behavior and thus learns what possible outcomes to expect. Moreover, the social environment is also linked to the individual by means of social outcome expectations. It is only through the social environment that consequences of behavior can become interpersonal. Moreover, environmental influences feed into self-regulatory sub-processes and efficacy beliefs. Research has shown that others can influence which goals are set, activated and how they are evaluated (Vohs & Baumeister, 2011). Furthermore, efficacy beliefs are influenced by the social environment through vicarious experiences and social persuasion. The former

concerns comparing one's performance with that of others; the latter is based on verbal feedback of others. Environmental factors also influence habitual behavior. Habit is formed in stable contexts by repeated behavior. Once habits are formed, context can serve as a trigger for the behavior in question (LaRose, 2010).

Behavior shapes and is shaped by the environment in which it is performed. For instance, certain social situations can elicit a conversation about certain topics whilst other would not (Bandura, 1986). In a domestic setting, rules and regulations can determine which kind of behavior is allowed whilst certain behavior influences the rules and regulations being constructed (see e.g., Berker, Hartmann, & Punie, 2006). This kind of argument also holds true for physical context. From the perspective of social shaping of technology for instance, the technologies that have been developed during the past decades have made new kinds of behavior possible whilst technology itself is also shaped by the behavior of its users (MacKenzie & Wajcman, 1999).

5. Towards a theoretical and conceptual framework of digital play

In building a conceptual model for understanding determinants of digital play, SCT is a good choice for three reasons. First, it has proven its value in providing a flexible framework in which to place and define different determinants of digital play (Lee & LaRose, 2007). This allows for rooting playing digital games as social rule-based narrative and systemic practices into a broad theory on human behavior. Second, the use of outcome expectations is

highly relevant when considering individual motives for digital play. As previously discussed, outcome expectations are not necessarily based on first-hand experiences but can also be based on observation. This is useful since the types of games people play vary and few people play the complete range of digital games. Yet, this does not preclude players from having expectations regarding games or genres they do not play. In this sense, outcome expectations allow for understanding why people do not play certain game genres or why people do not play digital games altogether. In a similar vein, this reasoning holds true in accounting for the variation in the rule-based, social and narrative dimensions. Third, SCT provides a means to theorize about contextual factors and how they are related to the individual and their behavior.

5.1 Behavior

When it comes to the behavior of playing games there are several ways to approach this. Playing a single digital game is an instance of playing digital games which is an instance of media use which is an instance of human behavior. All these related behaviors differ in their level of abstraction. The advantage of a high level of abstraction is that we would be able to compare different types of behavior. The flip side of the coin, however, is that we would be denied an in-depth understanding of any specific instance of this behavior. In developing a conceptual framework, our point of interest lies mainly in understanding why people play digital games and not in comparing between media or in why people play specific games or game genres. Hence, we aim to keep the middle ground between specific instances of play and media use in general. To conceptualize this kind of behavior, we draw on the field of media studies in which the notion of media repertoires has been used to refer to the

exposure to a variety of different media (Hasebrink & Popp, 2006). Similar to the idea of media repertoires, we advance the concept of game repertoires. In this case, it refers to the variety of games a player chooses to be exposed to. Hence, it accounts for the content that is played and the time that is spent with this content. In doing so, we acknowledge that there is a variety of games and game genres and link this to the idea that there is also a variety in how people appropriate this range of different games. Furthermore, this point of focus does not preclude using this framework for individual genres or games. Just as a theory on human behavior should still be applicable when studying specific behavior such as media use, a theory on playing digital games should be applicable to individual games or genres.

5.2 Individual factors

As discussed previously, cognitive processes regulate motivation to a certain extent. Motivators include internal and external outcomes guided by self-efficacy and self-regulatory processes. Moreover, there is a gradual shift from active processes towards more habitual behavior over time. In order to build a framework fine-tuned to digital games, the challenge lies in fitting games into the logic of outcome expectations. From a digital games perspective we argue that it is useful to define three relevant types of expected outcomes: game-internal, game-external, and moral outcomes. Game-internal outcomes are outcomes that stem from digital games being conceptualized as social rule-based narrative systems. They are formed based on direct consequences when playing digital games, be they firsthand or vicarious. They are internal in that the main source of the outcomes lies in the characteristics of the activity. In fact, these outcomes can be mainly considered as that which makes gaming

intrinsically enjoyable. Although these outcome expectations are in the first place not produced within the player, it is interesting to note how close digital games simulate the sub-functions of the self-regulation mechanism. Games set goals, provide extensive feedback mechanisms (self-observation), evaluate whether the performance is according to certain standards (judgmental process) and provide positive or negative reactions to those performances (self-reaction) (Salen & Zimmerman, 2004). Hence, it is argued that game-internal outcome expectations are initially produced by the game, yet they also tend to become self-produced due to their susceptibility to the self-regulation process. This is also linked to the idea of games providing enjoyment. When people play digital games to enjoy themselves this can be considered as goal-directed behavior which is subject to the same self-regulatory processes as other goal-directed behavior. In this sense, enjoyment is as much a game-produced as a self-produced outcome. Whilst game-external outcomes can also be considered as direct outcomes, the underlying goal is not entertainment. Instead, play serves as a mediator between individual and context. In this sense, playing digital games becomes a means and not an end in itself. Normative outcomes, finally, are self-produced outcomes based on moral standards. In contrast to the two previous outcomes, they do not directly stem from the behavior but are concerned with the status of digital games as cultural artifacts in society. The activity of playing digital games is not a neutral one. Therefore, the morality of the behavior can play a role in the judgmental process of self-regulation. This in turn can lead to affective self-reactive outcomes.

With this conceptualization of outcome expectations in mind, the next step lies in filling in these different types of outcome expectations. This is done based on empirical research backed up by literature on the topic. The empirical research was conducted by means of in-depth interviews. The primary aim of the interviews was to let people talk about why they play digital games. This is important. Up to now, in most cases a top-down approach has been used to identify determinants for playing games. Taking into account the specificity of

the medium, however, can only gain from complementing this top-down approach with one that is bottom-up. By empirically engaging with our audience, we give them a voice in what they do with their medium and how they experience this (Christensen & Røpke, 2010). It goes without saying that a conceptual framework informed by theory and refined in empirical research provides the best opportunity to approach playing digital games on its own terms. To perform interviews, a topic list was composed based on the available literature regarding motives for play. Topics were mainly discussed in terms of experiences when playing digital games. The rationale behind this is that outcome expectations are formed based on previous experiences. This makes tapping into experiential aspects of play the preferred way to access outcome expectations. Topics covered the games played, social aspects of play, positive and negative experiences and spatial and social contexts of play. The aim was to have people talk as freely as possible about these topics. Respondents were selected through the networks of the researchers. More specifically, ten people in their network served as go-betweens and were asked to contact people. This way, recruiting people with a direct link to the researchers was avoided. Selection of respondents was done by striving for maximal variation in terms of age, sex and playing frequency. In total, 37 in-depth interviews were administered. Three of those interviews were with dyads which resulted in 40 respondents. Fifteen of the respondents were female. Ages varied between 21 and 69 years old. Play behavior ranged from people never playing (N=5), over monthly (N=7) to weekly (N=11), to (almost) daily (N=17). Analyses of the interviews were done using the software package Nvivo. Open coding resulted in 95 categories. Further axial coding yielded 9 constructs that relate to outcome expectations. In what follows, those constructs are defined by relating them to empirical data, to our theoretical framework and to concepts found in the literature.

Performance

Performance is a game-internal outcome and refers to how well the player expects to perform in the game. Performance takes place when a goal is reached. Goals, however, can have different origins. First, they can be set by the game such as when completing a mission. Second, players can set their own goals. Third, some goals are set by other people involved in the game, for instance when trying to beat each other's scores in a racing game. Moreover, these different goals should not be seen as necessarily independent from each other. Most of the time, goals are set within the rule-based space provided by the game. This is illustrated by Josh (20, male, weekly gamer) when talking about playing a soccer game with his brother:

"[In FIFA] you always need some kind of objective. If you play the game on easy, you have no opposition. […] first of all, you try to keep the score at zero because you know: it is easy. So if they score, you have defended badly. Second, you just do fun stuff or crazy combinations."

Here, Josh talks about how goals are set in interaction with the other player since keeping the score at zero or doing crazy combinations is not a goal of the game per se. It is a goal he and his co-player set for themselves to make the game more challenging which in turn leads to performance. At the same time, however, these goals fall within the affordance space provided by the game itself. Conceptually, performance is similar to the competence construct in self-determination theory and to the balance between skill and challenge in flow theory. Performance, however, is broader in that feelings of progress are also included in the construct. For instance, if a player's farm has grown overnight in Farmville (MacKenzie & Wajcman, 1999), a player can feel to have performed although this does not necessarily include feelings of being effective. In this respect it differs from the skill/challenge balance in flow and from competence in SDT since both constructs require skill or efficacy. In

general, SCT considers performance as leading to an outcome rather than as an outcome itself (Bandura, 1986). Considering our definition of the concept and the centrality of performing in digital games (Salen & Zimmerman, 2004), however, it is considered as an expected outcome when it comes to digital games.

Agency

Agency refers to expectations of the player regarding their ability to play the game according to their own preferences. It is a game-internal outcome. In fact, it is embedded within the core of what digital games are: an interactive medium. For something meaningful to happen in the game, active input from the player is required. The range in which such active input is possible strongly differs between game genres and games however. The importance of being able to choose is illustrated by Mario (20, male, daily player) when he compares three different open-world games:

"In GTA IV you are just the slave of some mafia boss but you don't really build something. For instance, you can't decide for yourself: I'm going to buy this house or that house. In San Andreas, this was possible […] Also, in San Andreas, even the clothing…the clothing in Saints Row was also extensive, but San Andreas also had fairly extensive clothing."

Although agency is similar to the autonomy construct as advanced by SDT, autonomy has a stronger focus on what the player is able to do or is prevented from doing. This implies an activity-oriented focus. Agency, however, accounts for both the narrative and rule-based layer of a game. In a similar way, agency lies close to the concept of being in control in flow theory. Agency is about more than being in control however. It implies freedom of choice, being able to do what one wants to do. In terms of the story, this also refers to the idea of emergent narrative (Van Looy, 2006).

Sociability

Sociability concerns expectations of the player to encounter social interaction with other players. It is a game-internal outcome and resembles the idea of social incentives as advanced by SCT (Bandura, 1986). It is about being together, having fun together, making new friends and sustaining existing friendships. This is illustrated by David (33, male, daily player):

"One can be playing a skating game, the other is playing a racing game and you're all chatting together. That's fun, you know that, right? And also in the games themselves […] like the GTA games, you're really in a virtual world with your friends!"

Sociability is a construct that is in some way accounted for in most of the studies on motivations and games, for example by relatedness in SDT or social interaction in U&G. It is also closely related to the social dimension as proposed by Yee (2007). As it exclusively deals with massively multiplayer online games, however, Yee's conceptualization functions on a different level of abstraction and is more detailed, describing the social as a multidimensional construct with three dimensions: socializing, relationship and teamwork. Although sociability is considered as game-internal, social aspects are not inherent to all digital games. Hence, if people would play for social reasons external to the games, sociability could shift towards an external outcome. In this respect, sociability can cover the whole spectrum from external to self-regulated outcome.

Status

Status concerns expectations of being respected by other players. It is a game-internal outcome and is similar to status incentives as proposed by SCT (Bandura, 1986). In contrast to sociability, status implies the perceived recognition of the player's performance by others. In this sense, if performance

and sociability are important expected outcomes for a player, status will most likely become a salient outcome expectation too. Status aspects can be related to social or individual play. Achieving an exceptional score in a single player game can still instill respect from other players. For some people, status becomes more important when other players are known to them. This is illustrated by Jack (30, male, daily player) when he talks about playing a first person shooter game:

"…it is cool to show your friends what your skills are, you get me, if you play team death match, you and your palls against others, you want to be on the top of the list of your own team."

Similar to sociability, the status outcome can shift to become an external outcome when sharing one's performance does not happen within the structure provided by the game.

Believability

Believability concerns expectations about coherence and realism in terms of audiovisual aspects, story, setting, topic and characters in the game. It is a game-internal outcome and it is strongly focused on the narrative dimension. During the interviews, several times the notion of realism was uttered. When probing deeper into those notions of realism, however, it was not so much about actual resemblance to the real world but more about being in a believable, coherent game environment. This is pointed out by Chris (21, male, weekly player):

"It's also the game world [that is important], I believe, if you have a good game world to play in, very detailed, nicely executed, and everything is believable, and with a good story, that is the most important for me. […] Of course, fantasy games ... it has to be correct. I mean, and you find this in World of Warcraft

although it's not real, not realistic, it is realistic for the universe in which it happens."

What Chris and others point out is the importance of a world that is coherent and is believable, for instance, due to its attention to detail. Whilst believability has not been used in studies on motivations and games, the concept of realism is not new to studies on digital games (Wages, Grünvogel, & Grützmacher, 2004). Moreover, it can also be linked to the idea of willing suspension of disbelief (Vorderer, Klimmt, & Ritterfeld, 2004). It has to be noted, however, that, although focused on the narrative aspect, believability also relates to actions in the game and therefore its rule-based nature. In terms of SCT, believability can be linked to the idea of novel as well as familiarity outcomes. The former relates to the aspect of discovering a new game world whilst the latter is a necessary reference point for a game world to be believable in the first place.

Involvement

Involvement refers to how involved the player expects to be in the narrative of the game and is a game-internal outcome. Similar to believability, this concerns different aspects of the game world. For instance, one of the interviewees was an avid player of simulation games (Philip, 22, male, daily player). When asked about why he plays those games, he says the following:

"Actually, it's only one game: MotoGP. It's a family thing […] And also Train Simulator because my dad was a train operator, so I like to operate a train from time to time."

Involvement need not only be about the topic of the game that is played. Similar to believability, it can also be linked with audiovisual aspects, story, setting, characters or even intertextuality, as illustrated by Andy (34, male, daily player):

"Especially the favorites [games] that you have. Those you buy every time again because you are interested in how the story continues and you want more of the same, basically, but in a new jacket."

Unlike believability, however, action is not part of involvement. The rationale behind this is that action-related involvement is covered by the performance construct. Players focused on the action provided by digital games are mainly concerned with performance-related issues. Players focused on the narrative dimension of digital games are more concerned with involvement. Through this conceptualization, we aim to avoid the confusion that could arise by using a concept such as immersion (Brown & Cairns, 2004; Jennett et al., 2008; McMahan, 2003). Being immersed in a game can be caused by narrative as well as gameplay-related aspects of digital games. Using a construct like immersion would hence prevent us from making a distinction between those dimensions. What is more, based on our in-depth interviews, it was surprising to find out that several interviewees were clearly interested in the narrative and gameplay dimensions of the game, yet due to contextual factors, they seldom got to a situation where they would be immersed. This is illustrated by Philip (22, male, daily player):

"It is a very conscious decision of me to put my laptop in the living room […] I like to sit in an environment where I am among people […] if people come to visit, you connect to the real world again and that is important too."

Similar to believability, involvement can be linked to novel and familiarity outcomes in SCT.

Escapism

Escapism refers to the player leaving the daily routine behind and experiencing things that would not be possible in real life. It is a game-external outcome. Escapism is a concept with a history in research into other media (see e.g., Katz

& Foulkes, 1962). Regarding motives and game play, the fantasy category used by Sherry (2006) comes closest to this category. Fantasy, however, has a stronger connotation of mental transportation to a certain destination than escape from the here and now. Digital games provide a fantasy world in which some of the limitations of the outside world can be overcome. Escapism, on the other hand, also includes getting away from the conditions of the everyday life (Henning & Vorderer, 2001; Knobloch-Westerwick, Hastall, & Rossmann, 2009). This is best illustrated by Ian (male, 23, daily gamer) when he talks about a racing game:

"Well, it has to be different from reality. It has to be more fun and you have to be able to do things that are not possible in real life."

Whilst escapism is considered as a game-external outcome, it can also shift towards a self-reactive outcome expectation. If situational circumstances lead the person to experience stress, playing digital games to escape this stress can be seen as a form of mood regulation and hence as self-reactance (Lee & LaRose, 2007).

Pastime

Pastime refers to the player expecting to kill time when playing. Just like escapism, it is a construct that has been used and discussed to explain media use since the early days of U&G research (Katz et al., 1973). In contrast to previous categories, it is a motivation that is not so much about digital games or other players as about passing time. This is illustrated by Lian (21, male, weekly player):

"And also, if the weather is bad, or you don't want to study for school then you don't have much choice [but to play games] …. It's just when you don't have anything else to do."

Playing games is thus considered as a casual activity rather than a purposeful one (Kallio et al., 2011). It is therefore categorized as a game-extrinsic outcome. Playing games is only one of the possibilities to fill up empty moments. Similar to escapism, pastime can shift towards a self-regulated outcome in that having time to kill might lead to boredom and hence to mood regulation (Lee & LaRose, 2007).

Moral self-reaction

Moral self-reaction refers to normative aspects of how the player evaluates the activity of playing digital games. In contrast to the previous outcome expectations, it is a normative outcome that is self-produced by adhering to certain moral standards. These kinds of outcomes are related to the status of digital games in society. Public concern surrounding the use of entertainment media is not new. As discussed by Alasuutari (1999), people have little problem in admitting they use television for information needs. Yet, when it comes to using television for entertainment, for example soap operas, people are more reluctant to admit watching, downplaying its importance or justifying their choice. We encountered similar issues with some of our interviewees. Although they played games, they were quick to make clear that they were not like 'those real gamers' or ensured that they only played when they really had nothing better to do. This is illustrated by Philip (22, male, daily player) when asked if he wanted to add something to round up the interview:

"As a last word, maybe I want to say that I don't see myself as a hardcore gamer. […]For me gaming is a hobby and I like playing but there is more for me than that and that is really important to me. […] because being a hardcore gamer is not healthy and I think I'm still doing fine."

With moral self-reaction, SCT provides a useful category to take these kinds of normative evaluations into account. If playing digital games is evaluated negatively, it can be expected that people will be less inclined to play.

As a final step, it is important to formulate the link between those factors and the game repertoire. It goes without saying that certain games or game genres tend to facilitate specific outcome expectations. In general, internet-based games will invite sociability and status outcomes. In contrast, single player role-playing games will tend to make believability and involvement salient outcome expectations whilst certain mobile games will invite a pastime outcome. Evidently, most games offer a certain combination of outcomes and the same kind of game might be played for different outcomes on different occasions. The concept of game repertoire provides a useful abstraction to account for this variability in and context dependency of outcome expectations. Indeed, a game repertoire is built up around the collection of games one plays. Therefore, looking at outcome expectations of the full game repertoire of a player allows for understanding why people play digital games in general without losing sight of the specific contents of those games. What is more, considering play behavior in terms of game repertoires in turn yields a specific repertoire of outcome expectations. Finally, the concept of game repertoires is also useful in understanding the role of self-efficacy. Playing a game of *solitaire* does not require the same skills as playing an online first person shooter. Hence, due to the huge variety in the kinds of digital games and thus in the skill levels required, self-efficacy is related to what kind of games one plays rather than whether one plays digital games or not.

5.3 Adding contextual factors

When considering contextual factors in relation to digital games, we make a distinction between social, spatial and temporal contexts (see e.g., Berker et al., 2006). We choose to follow this categorization for the sake of clarity. It goes

without saying, however, that the contextual factors presented here are abstractions of how context shapes and is shaped by the individual and their behavior.

In accordance with SCT, we advocate the importance of the social context when it comes to playing digital games. In relation to behavior, the influence of the social environment can best be understood as influencing the composition of the game repertoire. For instance, certain social contexts stimulate integrating specific games into the game repertoire as illustrated by Lena (20, female, monthly player).

"I really like Guitar Hero if I can play it with other people. But you won't see me playing it by myself."

Moreover, it should be noted that this relation is reciprocal. Indeed, some games are designed to be played in certain social contexts. A gesture-based tennis game is meant to be played in a home setting with family members or friends. Hence one could decide to buy a certain game to play together or vice versa invite friends over to play the game. Certain social contexts therefore invite to play certain games whilst certain games also invite certain social contexts. Another factor influencing the game repertoire lies in domestic rules and regulations regarding play. This may concern content and time-related aspects. The former influence the composition of the game repertoire, the latter the time that is spent playing games. Certain games contain what can be considered as inappropriate content such as depicted violence or strong language. In a domestic setting, players can be forbidden to play these kinds of games which would lead them to be absent from their game repertoire. Rules concerning the time one is allowed to play digital games logically lead to a game repertoire limited in time. Such rules and regulations are not always strict or clearly demarcated however. This is illustrated by Malta (Female, 42, daily player) when she talks about playing Farmville.

"When I started playing, I constantly looked at the time and thought about when I would have to harvest […] Now it's not like that anymore. I don't really have a choice. I have a family of four and my husband has commented several times on the time I spend playing."

The social context also influences the individual in terms of efficacy beliefs, self-regulatory processes, outcome expectations and habit formation. Indeed, efficacy beliefs are partly built on the comparison with other players either by vicarious learning or by verbal communication (Bandura, 1986).

As discussed earlier, the social context can influence which goals are set, how they are evaluated and which affective reactions this provokes. A case in point is the performance outcome. Other players can set certain goals within the possibility space provided by the game. Moreover, the standards by which the evaluation of the performance takes place can also be influenced by the social environment. Furthermore, the social context also has a more direct influence on outcome expectations. People playing mostly with other people will tend to have outcome expectations that are largely focused on sociability and status outcomes. This will be less the case for people playing mostly alone. What is more, the social context is also a source for vicarious learning. By observing other people play, be it directly or mediated, certain outcome expectations might be developed. Finally, the social context can also serve as a trigger for habitual behavior.

"When I come online, I always look whom of my friends is on the chat. Then I start talking to them and look what game we can play (Reyn, 23, weekly player)."

Next to the social context, temporal and spatial aspects are also related to the behavior and the individual. Of interest for the temporal aspect and behavior is the design of certain games. Genres such as role-playing games demand a significant time investment. As a result, some players avoid playing these

games altogether which limits one's game repertoire. This type of reasoning can be extended to the spatial context. Certain games will be better suited for use during the daily train ride to work, which is also related to access. Indeed, in order to play in mobile contexts, one needs the technological devices to do so. In this sense, the material context also influences the games that one can play since game content is also linked to the type of device on which it is played. Furthermore, the spatial context also influences outcome expectations. Playing games when waiting for the bus will make the expectation of pastime more salient. The same holds true for the combination of temporal and social context in that certain contexts will stimulate the expectations of escapism. What is more, similar to social aspects, spatial and temporal aspects are related to habitual behavior. It is in stable context that habits are developed and these contexts can trigger the automated behavior (LaRose, 2010).

Finally, the broader socio-cultural milieu in which games are played and produced is important to consider. Different societies may provide different amounts of leisure time while attaining to different value systems regarding productivity and meaningfulness of certain activities such as gaming. This can lead to a struggle between a desire for enjoyment and trying to live up to certain moral standards. Finally, the conditions in which digital games are produced are reflected in the affordances games can offer. This in turn limits the kinds of outcome expectations players can develop. This relation is also reciprocal in that play behavior can also influence the kind of games that are produced.

6. Conclusion and discussion

In this paper, we present a conceptual framework for describing the determinants of playing digital games based on three interrelated factors: game behavior, individual processes and the environment. Game behavior was conceptualized in terms of game repertoires. The advantage of this approach is that it allows for looking at digital games in general whilst taking into account the broad spectrum of genres that is available to players. The composition of the game repertoire is related to both individual and contextual aspects. The former links game repertoires to outcome expectations that are mainly inherent to digital games and to habitual behavior which emerges when self-regulatory processes shift towards more automatic processes. The relation between the individual and behavior is reciprocal. Certain outcome expectations will lead to certain game repertoire compositions whilst the structure of games themselves afford and stimulate certain outcome expectations. The same holds true for the relation between the environment and game repertoires. Social, spatial and temporal contexts shape and are shaped by the game repertoire. This is not only in line with theoretical considerations suggested by SCT, but also by other theoretical frameworks such as domestication theory (Berker et al., 2006). In a similar vein, individual aspects and the environment are interrelated. Indeed, the environment in which one lives shapes and is shaped by outcome expectations, efficacy beliefs, self-regulatory processes and habitual behavior.

When linking this study to the broader field of communication sciences, this study suggest the importance of formulating the abstraction level at which research is directed. Understanding determinants to use media can be considered as understanding different layers of behavior. Media use in general requires conceptualizations of media that remain on an abstract level. Likewise, understanding a specific medium requires a conceptualization that understands

and accounts for the specific characteristics of that medium. A conceptual framework should therefore not only be aware of the level of media use it is concerned with, it should also explicitly account for it when building a conceptual framework. As such, different layers of abstraction require different conceptual frameworks. We are convinced that a variety of conceptual frameworks should not be considered as problematic, but as an extended toolkit that allows researchers to focus on different aspects of the rich media environments we live in.

7. Limitations and future research

This study has some limitations. First, it addressed digital games as entertainment products. This excludes, for instance, so-called serious games. Furthermore, the framework developed here has tried to take into account the most important aspects of existing frameworks in the literature. As a result, there is considerable conceptual overlap. Future research might try to further integrate these different perspectives into an elaborate framework in which to understand determinants of digital play. Another limitation concerns the links between and within the triadic factors. This study has sketched an overview of the interrelations between those factors. It goes without saying that any of these relations can be explored in more detail. An interesting venue of research in this regard would be the empirical investigation of game content and outcome expectations and to what extent certain game genres link up to certain outcome expectations. Another approach might be to dig deeper into how social context relates to the individual and play behavior. Finally, although respondents varied in age and play behavior, they could all be described as white, middle class and

fairly educated. It might be interesting to see how this framework holds when exploring other cultural milieus.

Paper 2

Development and Validation of an Instrument for Measuring Individual Motives for Playing Digital Games.[22]

Abstract

Individual motives for playing digital games have been studied from a variety of theoretical perspectives using different measurement instruments. However, an instrument that roots the social, rule-based narrative essence of digital games in a theory on human behavior acknowledging that not all behavior is consciously motivated has hitherto been lacking. A framework based on social cognitive theory that integrates these dimensions is proposed. After comparing the advantages of this framework to existing approaches, the development of a measurement instrument is discussed. This development concerns the generation and evaluation of an item pool and testing the instrument for reliability and validity on different samples and different populations. Results suggest psychometric as well as theoretical soundness of the instrument.

[22] This paper has been published as De Grove, F. , Cauberghe, V., & Van Looy, J. (2014). Development and Validation of an Instrument for Measuring Individual Motives for Playing Digital Games. *Media Psychology*, 1-25. doi: 10.1080/15213269.2014.902318.

1. Introduction

Playing digital games has become a widespread phenomenon in everyday leisure (ESA, 2013; ISFE, 2012). Understanding why millions of people engage in this activity is important for several reasons. In the first place, it allows for explaining and understanding the growing popularity of the medium in question while it additionally fosters further inquiry into motivational processes regarding mediated human action. Furthermore, understanding motives for play provides a necessary starting point for related research questions such as those concerning positive or negative effects of playing digital games (Ferguson & Olson, 2013). Academic research on the topic has been approached from different perspectives. Drawing on self-determination theory (Deci & Ryan, 1985), scholars have regarded motives for playing digital games as an intrinsically enjoyable experience explained by the need for competence, relatedness, and autonomy (Przybylski, Rigby, & Ryan, 2010; Tamborini, Bowman, Eden, Grizzard, & Organ, 2010). From a uses and gratifications perspective, digital play has been explained by constructs such as arousal, challenge, competition, diversion, fantasy, and social interaction (Jansz & Tanis, 2007; Sherry et al., 2006). In a similar vein, Lee and LaRose (2007) used social cognitive theory and flow to explain play behavior in terms of concentration, merging of action and awareness, enjoyment, optimal balance, habit, self-reactive outcomes, and self-regulation. On a theoretical level, these theories have proven to present distinct yet fruitful starting points to approach motives for playing digital games. On a conceptual level, they all result in motivational dimensions that are more often similar than not. It has been remarked however that these approaches do not fully account for the specificity of the medium under scrutiny. In order to overcome this obstacle, De Grove, Cauberghe, and Van Looy (2014b) have conceptualized games as social, rule-

based narrative systems and have linked this to social cognitive theory, a broad theory on human behavior.

2. A Social Cognitive Theory of Digital Games

According to social cognitive theory (SCT), people are motivated to perform certain actions by cognitively processing consequences of behavior (Bandura, 1986). Indeed, action is partly determined by anticipating consequences of behavior through the capability of forethought. These consequences can be based on experiential or vicarious learning. In the latter case, people form beliefs about consequences observed from others. Outcomes can be classified based on their main source of production. First, self-produced outcomes result from evaluating the outcome of actions according to personal or environmental standards, which results in self-produced tangible or affective self-reactions. A second type of outcomes stems from factors external to the person, such as material, sensory, token, and social outcomes. In practice, behavior emerges from combining these different types of outcome expectations. Moreover, both types are interconnected. Indeed, external outcomes also depend on self-regulatory influences when it comes to their impact (Bandura, 1986). Guiding the functioning of these outcome expectations is the belief of self-efficacy, which concerns the belief in one's capabilities to perform certain behavior. The belief in one's capabilities will influence which goals to set, and how subsequent behavior is observed and evaluated. Whilst research on media use has shown that outcome expectations serve as predictors of behavior, it has also been pointed out that not all behavior is consciously motivated (LaRose &

Eastin, 2004). Indeed, repeated behavior in stable contexts leads to habit formation in order to reduce the cognitive load related to decision making (LaRose, 2010). Hence, over time, outcome expectations are transformed into habits, which guide behavior that was previously consciously motivated.

From a digital games perspective, three relevant types of expected outcomes have been defined: game-internal, game-external, and normative outcomes (De Grove et al., 2014b). Game-internal outcomes are outcomes that stem from digital games being conceptualized as social rule-based narrative systems and are formed based on direct consequences when playing digital games, be they firsthand or vicarious. They are internal in that the main source of the outcomes lies in the characteristics of the activity. In fact, these outcomes can be mainly considered as that which makes gaming intrinsically enjoyable. It should be noted that these game-internal outcome expectations are initially produced by the game, yet they also tend to become self-produced due to their susceptibility to the self-regulation process (De Grove et al., 2014b). Similarly, game-external outcomes can also be considered as direct outcomes. The underlying goal is not enjoyment however. Instead, play serves as a mediator between individual and context. In this sense, playing digital games becomes a means and not an end in itself. Normative outcomes, finally, are self-produced outcomes based on moral standards. In contrast to game-internal and game-external outcomes, normative outcomes do not directly stem from the behavior in question but are related to the status of digital games as cultural artifacts in contemporary society. In fact, normative outcomes refer to the idea that the activity of playing digital games is not a neutral one. As a consequence, the morality of the behavior can play a role in the judgmental process of self-regulation, which can, in turn, lead to affective self-reactive outcomes. Indeed, even if one expects the outcome of an activity to be pleasurable, this does not ensure the behavior will be executed. When the behavior in question is negatively evaluated in a normative way, it might prevent performing the relevant activity.

Using SCT as a framework for understanding individual motives for play is advantageous for at least two reasons (De Grove et al., 2014b). First, it has proven its value in providing a flexible framework in which to place and define different determinants of digital play (Lee & LaRose, 2007). Second, outcome expectations can be based on first-hand experiences and on vicarious learning. As a consequence, people can hold expectations about outcomes of actions they did not perform themselves. Hence, outcome expectations allow for understanding why people do not play certain game genres or why people do not play digital games altogether. This reasoning is also useful in accounting for the variation in the rule-based, social, and narrative dimensions. Indeed, if one never plays a digital game with a story, it does not mean that expectations concerning the narrative dimension are absent. These advantages become apparent when comparing the SCT framework with that of self-determination theory (SDT). Indeed, the needs proposed by SDT do not fully account for gaming as a social rule-based narrative practice. This is especially true for the content dimension which is absent in SDT. Furthermore, since SDT is limited to three universal needs, there seems to be little flexibility in accounting for other relevant or culture-specific motives such as normative evaluations of the behavior in question. In addition, research on digital games and SDT typically restricts itself to intrinsic motivation (see Przybylski et al., 2010; Tamborini et al., 2010). While it is true that digital games are generally played for pleasure, this is seldom exclusively the case (Kallio et al., 2011). What is more, the conceptualization of SDT does not account for habitual behavior which has proven to significantly mediate outcome expectations and predict game attendance (Lee & LaRose, 2007). In other words, SCT allows for taking into account the interplay between consciously and less consciously motivated behavior. Finally, SDT is concerned with understanding past behavior. In contrast to SCT, it does not allow for understanding why people would start playing games in the first place, nor why people would refrain from playing digital games or certain game genres.

Drawing on social cognitive theory, literature on motivations for gaming, and in-depth interviews, De Grove et al. (2014b) have proposed nine expected outcomes for play: performance, agency, believability, involvement, sociability, status, moral self-reaction, escapism, and pastime. In addition to these outcomes, habit has been proposed to account for habitual behavior. Pastime and escapism can be considered as game-external outcomes, moral self-reaction as a normative outcome, and all other outcomes as game-internal outcomes. In what follows, a short discussion of those constructs is provided. For a more elaborate overview, we refer to De Grove et al. (2014b) and for a schematic overview, we refer to Table 1.

TABLE 1 Overview of Motives for Digital Play

Construct	Short description
Performance	The expectation to perform well when playing digital games.
Agency	The expectation to play the game according to the gamers' own preferences.
Status	The expectation of being respected by other players.
Sociability	The expectation to enact non-competitive social behavior when playing.
Believability	The expectation about coherence and believability of the game environment.
Involvement	The expectation about involvement with aspects of the game world.

Construct	Short description
Escapism	The expectation to leave the daily routine behind and experience things that would not be possible outside of the game.
Moral Self-Reaction	Expectations resulting from comparing playing digital games with own, social or moral norms.
Pastime	The expectation to kill time when playing.
Habit	Refers to media use that is not active. It concerns starting to play games without really thinking about it.

Performance refers to the player's expectation to perform well when playing digital games. Performance happens when a goal is reached. Goals, however, can have different origins. First, they can be set by the game, such as beating a boss or completing a level. Second, players can set their own goals. Third, some goals are set by other people involved in the game, for instance, when trying to beat each other's scores in a racing game. These goals should not be seen as necessarily independent from each other. Agency refers to the expectations of the player regarding his or her ability to play the game according to his or her own preferences. It concerns having the feeling of playing a game instead of being played by the game. This can refer to narrative as well as ludological aspects of playing games. Believability concerns expectations about coherence and realism of the game environment in terms of audiovisual aspects, the story, the setting, the actions, the topic, and the characters in the game. It is not so much about actual resemblance to the real world but more about being in a believable, coherent game environment. It has

to be noted, however, that although focused on the narrative aspect, believability also relates to actions in the game. As a consequence, the believability component incorporates both narrative and rule-based dimensions of play. Involvement refers to how involved the player expects to be with different aspects of the game world. Similar to believability, it concerns audiovisual aspects, the story, the setting, or the characters. Unlike believability, however, action is not part of involvement. Sociability concerns expectations of the player to enact non-competitive social behavior when playing digital games. It is about being together, playing together, making new friends as well as sustaining existing friendships. Status concerns expectations of being respected by other players. In contrast to sociability, status implies inequality in the relation with other players. This inequality has its origin in the recognition of the player's performance by others. Escapism refers to the player's expectation to leave the daily routine behind and experience things that would not be possible outside of the game. It takes into account what players escape from and where they go. Pastime concerns the expectation to kill time when playing. It is an expectation that is not so much about digital games or other players as about filling free time. Playing games is then considered as a casual activity rather than a purposeful one (Kallio et al., 2011). Moral self-reaction refers to self-produced normative evaluations regarding the activity of playing digital games. Habit, finally, takes into account that repeated behavior becomes more automatic and less self-directed over time in order to make functioning more efficient and to lessen the cognitive load of active decision making (LaRose, 2010).

This theoretical and conceptual framework is the foundation on which the Digital Games Motivation Scale (DGMS) is operationalized. When constructing a measurement instrument, an important step is to assess its criterion-related validity. If the measurement instrument behaves as could be expected based on its theoretical assumptions, it is an indication that it is measuring what it was intended to measure. In this case, the behavior of

interest is playing digital games. Such behavior can be conceptualized in different ways. A first possibility is to look at the frequency of digital play. Several studies have operationalized this as the time someone plays during a typical week, measured in hours and minutes (LaRose & Eastin, 2004; Sherry et al., 2006). Hence, it is expected that differences in frequency will be related to differences in motives for digital play. Research has shown, however, that measuring behavior in hours and minutes raises problems regarding reliability (Blake & Klimmt, 2012). To avoid such problems, we argue that using categorical instead of ratio variables is a solution. As such, we expect a positive relation between the motives for play and the frequency of play. Similar to frequency, duration of an average gaming session is a measure that has been used as a dependent variable in relation with motives for play (Hou, 2011). Therefore, we expect differences in the average play session duration to be related positively with all motives for play except for pastime, where we expect a negative relation. The rationale for expecting this negative relation is that playing just to pass time suggests less investment in the gaming situation.

Behavior related to playing digital games, however, is more than frequency or duration alone. People differ on account of the games and genres that they play. Furthermore, most people play a variety of digital games and multiple games interchangeably (Williams et al., 2008). To conceptualize this kind of behavior, we draw on the field of media studies in which the concept of media repertoires is used to refer to the exposure to a variety of different media (Hasebrink & Popp, 2006). Similar to the idea of media repertoires, we advance the concept of game repertoires. In this case, it refers to the exposure of a player to different game genres. Previous studies on gaming motives have either focused on single games (Ryan et al., 2006), single game genres (Jansz & Tanis, 2007), or digital games in general (Lee & LaRose, 2007) when assessing motives for play. By focusing on single games or genres, it is not taken into account that most people play more than only one game or genre. Looking at digital games in general, however, makes an abstraction of the differences in content a player is

exposed to. Hence, the idea of game repertoires allows for taking into account the diversity of exposures between people.

3. Current Measurement Instruments

The past decade has seen several studies that have looked into measuring motivations for play. In what follows, some of these instruments are evaluated based on five criteria. First, we consider to what extent they take the social, rule-based, and narrative dimensions of digital games into account. Second, as digital games are also played for reasons outside of the game, we examine to what extent such external motivators are present. Third, we assess whether habitual behavior is taken into account. Fourth, we consider how behavior itself is conceptualized. This is important in that motives are always related to certain behavior. It goes without saying that different motivations underlie different behavior. It is, for instance, not unreasonable to expect that motivations for playing a game genre, such as multiplayer massive online games differ from motivations for playing sports or fighting games (De Grove et al., 2014b). Fifth, we evaluate to what extent the motivation measures are rooted in a theory on human behavior. This is important for at least two reasons. First, building an instrument from a theoretical and conceptual framework allows for formulating expectations concerning the relationship of the measure with other variables and thus for testing its validity. Second, it serves as the basis for generating and evaluating an item pool in a theoretically informed way and is thus a prerequisite for qualitative scale construction (Clark & Watson, 1995).

Table 2 gives an overview of 14 studies that have used or developed an instrument to measure motivations for digital play. A first thing that catches the eye is that all studies acknowledge the rule-based character of digital games and that all but two studies take the social dimension into account. Only three studies, however, explicitly acknowledge that people might play games for their narrative component. What is more, none of the studies consider normative outcomes whilst only one study accounts for habitual behavior. When it comes to the conceptualization of behavior itself, we see four different approaches. A first one looks into motivations to play specific games. For instance, the study by Hilgard, Engelhardt, and Bartholow (2013) asks about the three most-played games of players. Consequentially, this study does not account for the multitude of games that people play next to their top games and thus does not look into motivations for playing any other games. Another approach lies in focusing on a single genre. As discussed previously, looking into a single genre or type of game (e.g., online games) yields a measurement instrument that is useful for that kind of game. At the same time, it prevents measuring motivations that go beyond the genre for which the instrument was constructed. A third approach uses motivations to construct or explain different gamer profiles. In this case, it can be questioned to what extent motivations are used to understand specific behavior instead of using motivations to define other complex constructs. The study of Westwood and Griffiths (2010) is a case in point. Based on 56 statements regarding motivations for play, six gamer types are extracted. Studies such as these use motivations as a means to construct profiles based on the distribution of scores on motivational constructs.

TABLE 2 Comparison of Studies on Motivations and Digital Games

	Social	Rule-based	Narrative	External	Normative	Habit	Behavior	Theory
Hilgard et al. (2013)	X	X	X	X	-	-	Single games	-
Lafrenière et al. (2012)	-	X	-	X	-	-	Video games	SDT
Lee & LaRose (2007)	-	X	-	-	-	X	Video games	SCT
Li et al. (2012)	X	X	-	-	-	-	MMO's	-
Nacke et al. (2013)	X	X	X	X	-	-	Game players	-
Przybylski et al. (2009)	X	X	-	-	-	-	Single games	SDT
Ryan et al. (2006)	X	X	-	-	-	-	Single games	SDT
Sherry et al. (2006)	X	X	-	X	-	-	Video games	U&G
Tamborini et al. (2010)	X	X	-	-	-	-	Single games	SDT

	Social	Rule-based	Narrative	External	Normative	Habit	Behavior	Theory
Wallenius et al. (2009)	X	X	-	X	-	-	Video games	U&G
Westwood & Griffiths (2010)	X	X	X	X	-	-	Game players	-
Wu et al. (2010)	X	X	-	X	-	-	Online games	-
Yee (2007)	X	X	-	-	-	-	Online games	-
Ferguson et al. (2013)	X	X	-	X	-	-	Video games	-

Note. SDT = Self Determination Theory. U&G = Uses and Gratifications. SCT = Social Cognitive Theory.

This way of working presupposes, however, that the motivational constructs are meaningful and correct. In terms of scale construction, they are *ad-hoc* measures without criteria to assess their validity. A final approach is that of conceptualizing behavior in terms of playing digital games in general. As argued before, this collapses the diversity in the content that games are offering, which leads to a loss of information. Therefore, it is proposed that conceptualizing playing digital games through the concept of game repertoires allows for taking into account that people tend to play a variety of games on the one hand whilst on the other hand, it acknowledges that games vary in the content they offer (see above).

From a theoretical and conceptual perspective, none of the current approaches is sufficient to measure motives for playing digital games in terms of the full range of outcome expectations and habitual behavior while also accounting for the variety in content that digital games offer. Considering these limitations, the aim of the current study is to build a general, reliable and validated instrument that takes into account the specific characteristics of digital games from a social cognitive perspective.

4. Method

In total, seven studies were carried out to cover the full-scale construction process. Table 3 gives an overview of the socio-demographic information of the participants in all studies except for Study 2 which was a study using experts. For Studies 4 to 6, the measurement instrument was presented in the form of five-point Likert scales. Items in online surveys were presented in

blocks of randomized questions. Data cleaning was done based on a control item in the questionnaire (Meade & Craig, 2012). More specifically, for one of the questions, respondents were asked to check the middle option. A wrong answer resulted in removal of the case. For Study 7, additional data cleaning was performed, as it was a paper-and-pencil survey.

TABLE 3 Socio-Demographic Information

	N	Dropped cases	Age		Gender	
			Mean	SD	Male	Female
Study 1: in-depth interviews	40	0	27.7	11.76	25 (62.5%)	15 (37.5%)
Study 2: cognitive interviews	30	0	22.4	4.31	23 (77%)	7 (23%)
Study 4: item evaluation	46	0	26.35	6.34	39 (84.8%)	7 (15.2%)
Study 5: EFA and CFA	232	28	20.83	2.58	67 (28.9%)	165 (71.1%)
Study 6: CFA: validation on same population	296	6	20.94	3.52	91 (30.7%)	205 (69.3%)
Study 7: CFA: validation on different population	545	172	14.87	2.00	158 (30.1%)	376 (69.9%)

Note. EFA = Exploratory Factor Analysis. CFA = Confirmatory Factor Analysis.

Surveys that were not filled out in a decent way (e.g., graphical patterns in the answers, inappropriate remarks) or that were only filled out for a small part were removed from the study. The first study was performed in order to generate an item pool. This was done based on in-depth interviews with 40 respondents and a literature review of scales for measuring motives for play found in the literature (De Grove et al., 2014b). This resulted in an initial item pool of 86 items. In order to evaluate individual items, Studies 2 and 3 were carried out. Study 2 concerned structured face-to-face interviews with 30 gamers. The goal of these interviews was to see how items were interpreted and understood by respondents. The item pool of 86 items was discussed twice with each respondent. Respondents were asked to list their favorite genres and for the first two genres, the interviewer read all items aloud whilst the respondent provided an answer and got the opportunity to give a short explanation why such an answer was given. The rationale for using the item pool on two different genres was that it provided a reference point for detecting items that might mean different things for different genres. Therefore, we took different interpretations between respondents and between genres into account. Based on these interviews, several items were rephrased or omitted. Furthermore, item generation and item evaluation are not considered as a strictly linear process (Clark & Watson, 1995). Based on the interviews, additional items were generated which resulted in an item pool of 91 items. Study 3 concerned the expert evaluation of this item pool. In total, five national and international experts on gaming, motivation, or methodology agreed to evaluate the items. In contrast to Study 2, items were not provided at random. Instead, the theoretical and conceptual framework was explained and items were placed under their corresponding constructs. Experts were asked to score each item on a 10-point scale in terms of uniformity and relevance for the underlying construct. If a score of less than 5 was given, they were asked to elaborate on their decision. Additionally, for each construct, two open-ended questions were asked. The first question was to probe to what extent the expert thinks that all items cover

the underlying construct. The second question was an invitation to provide criticism. From the initial 91 items, 69 items were retained for the first reliability test. Items were omitted based on the scores given by the experts in combination with theoretical and conceptual relevance.

A preliminary reliability test of individual constructs (Study 4) was performed on a small convenience sample of gamers (N = 46) to explore individual item behavior and the reliability for separate constructs. Item means and variances were explored for individual items. Reliability statistics were examined to look at the reliability of the constructs individually. Items with extreme means, little variation, or little contribution to the variance explained of the corresponding construct were candidates for removal. This resulted in 60 items that were retained. Study 5 was performed to assess the reliability of the constructs and to determine the factor structure of the instrument. The questions were presented online, and undergraduate students following the course "methods in social sciences" were asked to fill out the questionnaire. Of the 300 students enrolled in this class, 260 filled out the survey. After data cleaning, 232 remained. Studies 6 and 7 were used to confirm the factor structure and stability of the instrument that was built based on data in Study 5. For Study 6, an invitation to fill out a questionnaire was posted on several forums of different faculty websites of the university. Students were told they would be participating in research on why people play or do not play digital games. As an incentive, 30 euro was given away to 10 random participants. In total, 296 students filled out the survey. Where Study 6 looked at a different sample from the same population (undergraduate students), Study 7 looked at a different population: high school students. This allowed us to assess whether the factor structure remained constant over different populations. More concretely, 1,000 paper-and-pencil surveys were distributed among eight different schools. To avoid an abundance of invalid responses, participants were told they could win a gift card of 10 euro. In total, 727 pupils filled out the survey. After data cleaning, 555 remained.

In order to assess criterion-related validity, Studies 5, 6, and 7 were used. To this end, several criterion variables were included: the game repertoire of the player, the average duration of a play session, and the expected play frequency. The game repertoire was assessed by means of latent cluster analysis and resulted in identifying group membership for each case. Average duration of a play session was a ratio variable measured by asking how long an average play session takes in hours and minutes. Expected play frequency asked to what extent a player expects to play games in the coming year. It is a categorical variable with the categories *daily*, *2-3 days a week*, *at least weekly*, *at least monthly*, *less than monthly*, and *never*.

5. Results

5.1 Preliminary Reliability Testing

In Study 4, item means and standard deviations were inspected to identify items with little variation or skewed means. Reliability was checked by inspecting Cronbach's alpha, item-whole correlations, and squared multiple correlations (Table 4). To attain a parsimonious scale, items performing suboptimally on item or construct level were removed. Removal of an item was considered when a combination of several factors was present: extreme means (< 2 or > 4), limited item variance (< .9), a low squared multiple correlation (< .4), a low item-whole correlation (< .4), and when removing an item would prove a significant increase in a Cronbach's alpha already below .7 (DeVellis, 2003; Spector, 1992). In total, 60 out of 69 items were retained.

TABLE 4 Construct Reliabilities (Item Level Exploration Studies 4 and 5)

	N_{items}	N_{cases}	Cronbach's α	Mean item total	SMC
Performance					
Study 4	6	46	0.823	0.594	0.455
Study 5	6	232	0.875	0.682	0.521
Agency					
Study 4	10	46	0.869	0.594	0.586
Study 5	8	232	0.791	0.503	0.332
Habit					
Study 4	5	46	0.238	0.147	0.401
Study 5	5	232	0.930	0.553	0.420
Escapism					
Study 4	8	46	0.874	0.446	0.598
Study 5	8	232	0.881	0.647	0.480

	N_{items}	N_{cases}	Cronbach's α	Mean item total	SMC
Pastime					
Study 4	4	46	0.707	0.588	0.532
Study 5	4	232	0.886	0.753	0.581
Social					
Study 4	8	46	0.944	0.700	0.738
Study 5	6	232	0.891	0.725	0.575
Status					
Study 4	7	46	0.950	0.815	0.785
Study 5	5	232	0.941	0.842	0.729
Believability					
Study 4	7	46	0.910	0.781	0.636
Study 5	6	232	0.914	0.759	0.593
Involvement					
Study 4	6	46	0.853	0.691	0.554

	N_{items}	N_{cases}	Cronbach's α	Mean item total	SMC
Study 5	5	232	0.918	0.790	0.679
Moral Self-Reaction					
Study 4	8	46	0.805	0.573	0.566
Study 5	7	232	0.793	0.521	0.383

Note. SMC = squared multiple correlations

5.2 Assessing Construct Validity

Similar to Study 4, we first inspected item means and standard deviations as well as reliability, item-whole correlations, and multiple correlations of the data obtained in Study 5 (Table 4). In total, 54 items were retained. To determine the factor structure we used the data of Study 5 to perform an exploratory factor analysis (EFA) and a subsequent confirmatory factor analysis (CFA). Performing an EFA was done using principal axis factoring (PAF) with Oblimin rotation. Based on our conceptual framework, factor extraction was fixed to 10 factors. With a KMO index of .88 and a significant Bartlett's Test of Sphericity (χ^2 = 8683, p < .001), sampling adequacy was considered good. The total variance explained amounted to 60.7%. Inspecting the factor loadings, however, showed that the social and status component and the believability and involvement component could not be considered as separate dimensions due to high cross loadings. Additionally, running a parallel analysis also suggested a structure with 8 factors (Watkins, 2005). Hence, another EFA was run with the number of factors fixed to 8. This resulted in an explained variance of 57.2%. Inspection of the factor matrix showed that all but two items load highly (> .05) and uniquely on their intended factors. Furthermore, on inspection of the communalities, it was decided to additionally remove one extra item from the analysis. A final EFA with the number of factors fixed to 8 and with 51 items was run (PAF, Oblimin rotation). Sampling adequacy was excellent (*KMO* = .89; χ^2 = 7476, p < .001) and 59.2% of the variance in the items was explained. All items load highly (> .05) and uniquely on their intended factors (Table 5). To further refine the factor structure, confirmatory factor analysis in AMOS was used. Running the model with 51 items resulted in an acceptable fit (Table 6). In order to increase parsimony, items were removed based on two grounds. First, on theoretical grounds, narrowly defined constructs need fewer items than broadly defined constructs (Loevinger, 1954). Second, on psychometric grounds, items with low squared multiple correlations

are candidates for removal as far as they do not endanger the conceptual content of the construct. In total, 8 items were removed, thereby providing a good fit (Table 6). Furthermore, inspection of the modification indices showed that connecting the error terms of involvement and believability and of sociability and status would result in a model with a significantly better fit (Table 6, see also discussions section). Table 7 shows the 43 items of the final model.

TABLE 5 Exploratory Factor Analysis Study 5. Factor Loadings.

	F1	F2	F3	F4	F5	F6	F7	F8
INV04	**.822**	.055	-.395	-.135	-.325	-.119	.207	-.280
BEL01	**.816**	.137	-.402	-.106	-.294	-.107	.134	-.274
INV05	**.808**	.005	-.386	-.049	-.355	-.157	.144	-.152
INV03	**.807**	.006	-.426	-.067	-.390	-.141	.186	-.186
BEL04	**.796**	.061	-.433	-.157	-.282	-.191	.091	-.310
BEL03	**.788**	.096	-.383	-.173	-.294	-.211	.029	-.344
INV01	**.784**	.011	-.410	-.160	-.308	-.064	.184	-.281
BEL06	**.766**	.084	-.411	-.179	-.244	-.190	.065	-.286
INV02	**.764**	.038	-.497	-.070	-.340	-.117	.064	-.232
BEL02	**.739**	.100	-.358	-.133	-.231	-.216	.067	-.311
BEL05	**.694**	.024	-.319	-.074	-.273	-.174	-.048	-.226
PER01	.030	**.780**	-.039	-.082	-.207	-.061	.182	-.073
PER03	.059	**.761**	-.063	-.182	-.178	-.209	.187	-.141

	F1	F2	F3	F4	F5	F6	F7	F8
PER06	.095	**.733**	−.068	−.086	−.074	−.159	.190	−.144
PER02	.027	**.722**	−.113	−.134	−.178	−.222	.252	−.162
PER05	.060	**.676**	−.065	−.004	−.211	−.062	.176	−.139
PER04	.091	**.656**	−.061	−.053	−.055	−.155	.254	−.156
SOC02	.421	.025	**−.893**	−.145	−.141	−.086	.127	−.232
STA01	.475	.098	**−.891**	−.140	−.243	−.185	.111	−.239
SOC05	.495	.033	**−.869**	−.145	−.325	−.100	.099	−.257
STA03	.426	.143	**−.860**	−.199	−.270	−.248	.106	−.250
STA05	.364	.122	**−.852**	−.088	−.178	−.089	.078	−.203
STA04	.419	.168	**−.851**	−.168	−.184	−.126	.123	−.253
STA02	.463	.045	**−.848**	−.147	−.210	−.148	.092	−.217
SOC03	.347	.007	**−.790**	−.092	−.196	−.096	.051	−.191
SOC01	.382	.019	**−.781**	−.203	−.146	−.138	.115	−.252
SOC04	.292	−.024	**−.532**	−.067	−.104	−.129	.104	−.272
PAS01	−.197	−.130	.152	**.876**	.063	.063	−.238	.258
PAS04	−.223	−.094	.192	**.794**	.102	−.004	−.205	.290
PAS02	−.133	−.041	.226	**.782**	.058	.039	−.175	.252
PAS03	−.037	−.087	.077	**.755**	.097	−.028	−.128	.190
ESC04	.270	.244	−.178	−.152	**−.806**	−.259	.100	−.193
ESC03	.300	.196	−.190	−.098	**−.796**	−.237	.048	−.070
ESC01	.256	.137	−.173	−.112	**−.793**	−.235	.105	−.128
ESC08	.297	.052	−.184	.040	**−.685**	−.036	−.012	−.075
ESC06	.355	.217	−.280	−.216	**−.626**	−.188	.141	−.344

	F1	F2	F3	F4	F5	F6	F7	F8
ESC05	.254	.166	-.166	-.115	**-.581**	-.131	.123	-.235
ESC07	.332	.061	-.201	.151	**-.537**	-.053	-.069	-.080
HAB02	.214	.155	-.155	.058	-.167	**-.814**	.100	-.131
HAB04	.241	.176	-.287	-.096	-.317	**-.693**	.064	-.396
HAB03	.323	.180	-.329	-.212	-.424	**-.688**	.148	-.416
HAB01	.118	.158	-.071	.021	-.108	**-.569**	.096	.003
AGE03	.111	.210	-.087	-.154	-.092	-.235	**.714**	-.135
AGE04	.040	.219	-.015	-.146	-.032	.058	**.696**	-.087
AGE02	.126	.138	-.175	-.201	-.069	-.131	**.694**	-.201
AGE01	.085	.198	-.114	-.135	-.058	.062	**.650**	-.117
AGE08	.103	.226	-.084	-.172	-.034	-.205	**.625**	-.131
REA07	-.287	-.234	.288	.268	.102	.077	-.132	**.790**
REA04	-.236	-.180	.243	.214	.117	.130	-.178	**.782**
REA03	.307	.089	-.230	-.221	-.236	-.107	.091	**-.662**
REA01	.227	.074	-.156	-.214	-.160	-.263	.212	**-.532**

Note. Principal axis factoring. Direct Oblimin rotation. Fixed to 8 factors. N = 216.

TABLE 6 Fit Indices Study 5 – Confirmatory Factor Analysis

	N	χ^2/df	TLI	CFI	RMSEA	CI90-	CI90+
Model 1	217	1.57	.90	.90	.051	.047	.056
Model 2	217	1.45	.93	.93	.046	.040	.051
Model 3	217	1.24	.96	.96	.034	.026	.040

Note. TLI = Tucker Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

5.3 Confirmation of Construct Validity

The aim of Study 6 was to provide a validation sample to test the factor stability of the final model with the 43 items proposed in Study 5. This was done by an invariance-testing strategy with data from Study 5 and Study 6. More specifically we incrementally constrained model parameters in a multi-group analysis (Blunch, 2008; Byrne, 2013). As a first step, configural invariance was tested to see whether the number of factors and the pattern of their structure were similar across groups (Model 1). Metric invariance was tested by constraining the factor loadings (Model 2), while scale invariance was tested by constraining the intercepts (Model 3). To assess the equivalence of factor variance, variances and covariances were constrained (Model 4). Finally, to assess error invariance, error variances and error covariances were set to equal (Model 5). The fit of each subsequent step was judged by looking at the theoretical fit measures (Table 8) and the incremental fit measures (Table 9).

TABLE 7 Final Items

Construct	Item
Habit (3)	Gaming is something I often start doing automatically
	Gaming is part of my normal routine.
	Gaming has become a habit for me.
Moral Self-	I feel good about playing games.
Reaction (4)	I feel that playing games is a meaningful activity.
	I feel that playing games is a waste of time.
	I feel that playing games is useless.
If you were to play games in the near future, how likely is it that you:	
Agency (5)	can determine for yourself what happens in the game
	are free to do as you please during the game
	can do your own thing during the game
	determine for yourself how the game plays out
	play the game according to your preferences
Narrative (9)	feel that the story comes across as convincing
	feel that the game world comes across as believable
	feel that the characters from the game come

Construct	Item
	across as convincing
	feel that the sounds come across as convincing
	feel that the action in the game comes across as convincing
	are interested in the theme of the game
	are immersed in the events of the game
	feel involved in the story
	are interested in the story
Escapism (5)	forget about the daily routine
	can put daily reality aside
	play to get away from it all
	play to have a moment for yourself
	can be someone else
Pastime (4)	play to pass the time
	play because you are bored
	play to fill in empty moments
	play because you have nothing better to do
Performance (4)	perform well
	get far in the game
	make swift progress
	advance well
Social (9)	play with other players
	cooperate with other players

Construct	Item
	get to know other players better
	keep in touch with friends
	feel connected with other players
	gain respect from others for what you have accomplished
	are admired by other players
	see your advice followed by other players
	are asked for help by other players

Cut-off values that were used for model fit are χ^2/df (< 3), RMSEA (< .1), CFI (< .90) and TLI (< .90) (Hair, Black, Babin, Anderson, & Tatham, 2006). To assess invariance between models we looked at a decrease in the AIC and BIC statistics and at the increase in CLI and TLI statistics (< .01) (Brown, 2006). Considering the good fit indices and the small incremental changes in those indices, it was concluded that the instrument has configural, measurement, and structural invariance (Byrne, 2013). The fact that the number of factors and factor-loading patterns was equal across groups and that there were equal reliabilities for the items and the complete measurement instrument across both samples suggests psychometric as well as theoretical soundness of the instrument (Blunch, 2008). Whilst Study 6 served to assess the invariance of the factor structure on similar samples, we did not know how the instrument would behave when used on a different sample. In Study 7, a sample of high school students was used to confirm the factor structure found in our previous studies. Fitting the data to the model provided an acceptable fit and hence further indication for construct validity (Table 10).

5.4 Assessing Criterion-Related Validity

As a final step in scale construction, we looked at the criterion-related validity of the instrument. This was done based on three behavior-related criteria. First, we expected that different game repertoires would lead to differences in motives. Second, it was expected that differences in motives would vary with expected playing time in the future. Third, we expected the average duration of a play sequence to correlate with different motives for play.

TABLE 8 Fit Indices Instrument Equivalence (Cross Validation Undergraduate Students – Studies 5 and 6)

Model	χ^2/df	NFI	RFI	IFI	TLI	CFI	RMSEA	AIC	BIC
(1) Unconstrained	1.305	.856	.837	.962	.957	.962	.025	2844	3015
(2) Measurement weights	1.303	.853	.838	.962	.957	.961	.025	2816	2971
(3) Measurement intercepts	1.310	.849	.837	.960	.956	.959	.025	2789	2935
(4) Structural covariances	1.302	.846	.838	.960	.957	.959	.025	2761	2881
(5) Measurement residuals	1.315	.838	.836	.956	.956	.956	.026	2735	2823

Note. NFI = normed fit index; RFI = relative fit index; IFI = incremental fit index; TLI = Tucker Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; AIC = akaike information criterion ; BIC = Bayesian information criterion.

TABLE 9 Incremental Fit Indices (Cross Validation Undergraduate Students – Studies 5 and 6)

Model	df	χ^2	p	NFI	IFI	RFI	TLI
(2) Measurement weights	34	39.721	.230	.003	.003	.000	.000
(3) Measurement intercepts	42	66.363	.010	.005	.005	.001	.001
(4) Structural covariances	36	34.442	.543	.002	.003	-.001	-.001
(5) Measurement residuals	70	113.829	.001	.008	.009	.002	.002

Note. NFI = normed fit index; RFI = relative fit index; IFI = incremental fit index; TLI = Tucker Lewis index.

TABLE 10 Fit Indices Study 7 (CFA High School Sample)

N	χ^2/df	TLI	CFI	RMSEA	CI90-	CI90+
554	2.28	.91	.92	.047	.044	.050

Note. TLI = Tucker Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

These three assumptions were tested on the merged sample of undergraduate students and on the sample of high school students.

In order to gain insight into the gaming repertoire of both groups, we used latent class analysis (Vermunt & Magidson, 2002). More specifically, we looked at the genres people play and the frequency (in categories) at which they are played. This yielded three groups that differ in how frequent different genres are played for undergraduate ($L^2_{(525)}$ = 4702, p = .06, Table 11) and high school students ($L^2_{(504)}$ = 14389, p = .36, Table 12). The analysis of those groups returns similar results for high school and undergraduate students. There is one cluster in which most of the so-called core genres are played (e.g., action adventure, shooter, etc.). A second group in which more casual genres are played (e.g., party games, casual games, social network games) and a third group that is defined by scoring lower on most genres compared to the other two groups.

TABLE 11 Latent Class Analysis Undergraduate Students. Beta Parameters and Wald Statistic with Game Genres as Indicators.

	Cluster1 (40%)	Cluster2 (31%)	Cluster3 (29%)	Wald	R^2
Action adventure	-.722	.016	.706	33.216	.456***
Adventure	-.226	-.055	.281	22.880	.071***
Casual games	-.129	.236	-.107	16.716	.076***
Fighting games	-.521	.156	.365	6.770	.063**
Management games	-.287	.153	.134	8.952	.080*
MMORPGs	.914	-2.488	1.574	8.163	.100*

	Cluster1 (40%)	Cluster2 (31%)	Cluster3 (29%)	Wald	R^2
Party games	-.211	.238	-.026	18.940	.144***
Platform games	-.471	.232	.238	5.653	.112
Racing games	-.379	.110	.269	2.963	.177***
RPGs	.161	-1.638	1.477	13.091	.291***
Shooter games	-.440	-1.257	1.697	1.728	.487***
Simulator games	-1.206	.375	.831	3.922	.037
Social network games	-.132	.178	-.046	9.661	.048***
Sports games	-.186	-.073	.258	39.455	.111***
Strategy games	-.116	-.179	.295	35.383	.107***

*** $p < .001$; ** $p < .01$; * $p < .05$

Note: N = 525.

TABLE 12 Latent Class Analysis High School Students. Beta Parameters and Wald Statistic with Game Genres as Indicators.

	Cluster1 (35%)	Cluster2 (35%)	Cluster3 (30%)	Wald	R^2
Action adventure	-.377	1.048	-.671	86.630	.505***
Adventure	.062	.579	-.641	79.576	.308***
Casual games	.322	-.028	-.294	37.733	.127***

	Cluster1	Cluster2	Cluster3	Wald	R^2
Fighting games	-.593	1.604	-1.011	51.666	.374***
Management games	.445	-.048	-.397	44.300	.167***
MMORPGs	-.282	.899	-.617	45.313	.255***
Party games	.687	-.255	-.432	33.146	.227***
Platform games	.343	.175	-.518	73.240	.267***
Racing games	.169	.485	-.653	8.779	.312***
RPGs	-.694	1.707	-1.013	37.049	.262***
Shooter games	-.451	.832	-.381	7.275	.425***
Simulator games	.002	.675	-.677	54.921	.243***
Social network games	.256	.023	-.279	45.704	.148***
Sports games	-.051	.310	-.259	47.065	.121***
Strategy games	-.184	.738	-.554	56.173	.235***

*** $p < .001$; ** $p < .01$; * $p < .05$

Note: N =504

TABLE 13 ANOVA Based on Content Clusters

	Undergraduates (Studies 5+6)		High school students (Study 7)	
	F	N	F	N
Performance	8.87***	525	59.06***	494
Narrative	61.17***	525	57.93***	482
Social	32.58***	525	79.33***	489
Pastime	8.18***	525	1.09	494
Habit	36.49***	486	59.13***	465
Escapism	19.03***	525	33.47***	483
Agency	7.20***	524	20.91***	488
Moral Self-Reaction	57.84***	525	30.61***	473

*** $p < .001$. ** $p < .01$

TABLE 14 Play Expectations for the Coming Year in Absolute Values

	N	Never	Daily	2-3 days / week	At least weekly	Monthly	Less than monthly
Study 4	46	0	13	14	12	3	4
Study 5	232	19	7	28	72	42	64
Study 6	296	21	29	72	70	81	23
Study 7	546	15	158	173	107	54	39

TABLE 15 Spearman Correlation Based on Expected Play Frequency (Categorical)

	Undergraduates (Studies 5+6)		High school students (Study 7)	
	r_s	N	r_s	N
Performance	.282**	525	.412***	532
Narrative	.195***	525	.357***	523
Social	.147***	525	.455***	528
Pastime	.051	525	.058	535
Habit	.662***	486	.575***	504

	Undergraduates (Studies 5+6)		High school students (Study 7)	
	r_s	N	r_s	N
Escapism	.220***	525	.326***	521
Agency	.189***	524	.237***	527
Moral Self-Reaction	.404***	525	.393***	512

*** $p < .001$.

A subsequent step involved performing an analysis of variance to see whether scores on the different motives differed between groups. For the undergraduate sample, we found a difference between the three groups for all motives. For high school students, differences for all motives were found except for the construct of pastime (Table 13). Next, to account for the ordinal level of play expectancy, a Spearman correlation was performed on the motives to see if they differed in the time they expected to play in the coming year (Table 14). This time, we found significant positive correlations for undergraduate and high school students for all motives except for pastime (Table 15). To look into the relation between motives and the average duration of a play session, a Pearson correlation analysis was performed. For undergraduates, we found small to moderate positive correlations for all motives except for pastime, which has a small negative yet significant correlation with the average duration of a play session. A similar picture emerged for high school students, except for pastime, where no significant correlation was found (Table 16). Finally, Table

17 shows the means and standard deviation of all constructs whilst Table 18 shows their bivariate correlations.

6. Discussion

The aim of this study was to construct a measurement instrument capable of reliably and validly measuring motives for digital play (DGMS). We set out from a conceptual framework rooted in social cognitive theory with 10 separate motives. Our results suggest that the DGMS is a valid and reliable instrument. However, considering our framework, some results were unexpected. First, based on social cognitive theory, a distinction was made between sociability and status outcomes. Running an exploratory factor analysis revealed that such distinction was not confirmed by empirical observations. Running a subsequent confirmatory factor analysis, however, showed that connecting the error terms of the sociability and status constructs yielded a significantly better fit. In short: by connecting these error terms, it was acknowledged that the items from status and sociability stem from different conceptual grounds but that they can empirically be measured by means of a single one-dimensional construct which we name *social* outcomes. A similar logic holds for the believability and involvement construct. On a conceptual basis, both can be differentiated. Yet, on empirical grounds, they can be measured as a one-dimensional construct which we name *narrative*. The conceptual breadth of both social and narrative is reflected by their larger number of items compared to the more narrowly defined constructs. More important, however, is that the content dimension of digital games (i.e., the narrative construct) clearly showed to be a relevant motive for playing digital games. Regarding performance, the instrument

acknowledged that not all performance is inherently challenge- or skill-based per se (Przybylski et al., 2010).

TABLE 16 Pearson Correlation Table for Mean Session Duration

	Undergraduates (Studies 5+6)		High school students (Study 7)	
	r	N	r	N
Performance	.190**	525	.319**	500
Narrative	.242**	525	.308**	493
Social	.223**	525	.403**	496
Pastime	-.180**	525	.040	507
Habit	.293**	486	.410**	478
Escapism	.229**	525	.226**	492
Agency	.172**	524	.250**	498
Moral Self-Reaction	.342**	525	.342**	485

*** $p < .001$. ** $p < .01$

TABLE 17 Mean and SD for all Constructs (Studies 5 – 6 – 7)

	Study 5			Study 6			Study 7		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Performance	232	3.47	0.69	293	3.34	0.72	541	3.75	.93
Narrative	232	2.83	1.01	293	2.87	0.99	530	3.19	1.07
Social	232	2.23	1.00	293	2.07	1.00	536	2.88	1.10
Pastime	232	3.68	0.91	293	3.44	1.03	544	3.29	1.09
Habit	217	2.16	0.89	269	2.29	1.00	513	2.98	1.16
Escapism	232	2.58	0.86	293	2.71	0.90	530	2.81	1.00
Agency	231	3.49	0.65	293	3.45	0.70	536	3.50	.88
Moral Self-Reaction	232	3.09	0.72	293	3.00	0.84	521	3.94	.80

TABLE 18 Correlation Matrices (Studies 5 – 6 – 7)

	Narrative	Social	Pastime	Habit	Escapism	Agency	Self-reaction.
Study 5							
Performance	.097	.109	-.145*	.250**	.129*	.295**	.220**
Narrative		.514**	-.186**	.317**	.408**	.138*	.314**
Social			-.188**	.298**	.261**	.151*	.238**
Pastime				-.090	-.085	-.239**	-.242**
Habit					.365**	.138*	.347**
Escapism						.108	.230**
Agency							.182**
Study 6							
Performance	.223**	.132*	-.014	.369**	.250**	.348**	.350**
Narrative		.369**	-.135*	.166**	.435**	.336**	.384**

	Narrative	Social	Pastime	Habit	Escapism	Agency	Self-reaction.
Social			-.143*	.242**	.242**	.160**	.310**
Pastime				-.019	-.099	-.097	-.179**
Habit					.289**	.076	.365**
Escapism						.189**	.357**
Agency							.281**
Study 7							
Performance	.578**	.501**	.095*	.496**	.420**	.609**	.446**
Narrative		.559**	.012	.469**	.454**	.407**	.422**
Social			-.031	.486**	.355**	.359**	.395**
Pastime				.119**	.223**	.060	.070
Habit					.498**	.384**	.557**
Escapism						.338**	.325**
Agency							.312**

*** $p < .001$. ** $p < .01$.* $p < .05$

It shows that expectations of progress are an integral part of performance expectations. The same is true for escapism, which takes into account that one can play to get away from the daily reality and allows one to play in order to be someone else. In this way, it is broader than the fantasy concept proposed by Sherry et al. (2006). Moral self-reaction concerns a moral evaluation. It asks to what extent people think that playing digital games is a worthwhile activity. In none of the previous studies has this concept been taken into account. However, considering how popular entertainment media such as digital games can carry negative connotations, moral self-reaction is deemed important when trying to understand what motivates people to play or to refrain from playing digital games (Berker et al., 2006). Habit, pastime, and agency are relatively narrowly defined and straightforward constructs. This was reflected in their number of items. As could be expected based on the literature, habitual behavior showed a clear relation with all criterion-related variables (LaRose, 2010). The same holds true for agency. Pastime, however, showed different behavior between populations in relation to criterion-related variables. Moreover, no significant relation was found for either population when it came to expected play frequency. Our results, however, indicated the construct validity of pastime. Furthermore, previous research and our own in-depth interviews have shown that pastime is a motive for play. Hence, ignoring pastime as a motive for play would be throwing away the baby with the bathwater. It might be more fruitful to investigate to what specific behavior pastime is actually related and for which populations. In our conceptual framework, we already pointed out the special role of pastime by conceptualizing it as a game-external outcome. Therefore, pastime might play a significant role when it comes to behavior with a more casual nature. This should be further explored in future research.

7. Conclusion

In building the DGMS, we aimed to adhere to rigorous scientific standards found in the literature on scale construction (Clark & Watson, 1995; DeVellis, 2003; Nunnally & Bernstein, 1978; Spector, 1992). This involved several steps: a clear conceptualization of the constructs, building and refining an item pool, and testing the reliability and validity of these items and constructs. Our results suggest that a parsimonious model is built that reliably and validly measures eight motives for digital play. Furthermore, the operationalisation of these dimensions showed to be psychometrically and theoretically sound. In conclusion, we see that individual motives to play are comprised of a habit component and seven outcome expectations: performance, agency, moral self-reaction, social, narrative, pastime, and escapism. All constructs but pastime showed a consistent relation with different behavior-related measures over different samples and populations. The role of pastime might need further exploration from a theoretical point of view. It is not unreasonable to assume that all genre content can be played to pass time and that pastime is a motive that is present at some point for everyone playing games. As such, it might not be the best discriminating factor to look into the types of behavior this study examined.

8. Limitations and Future Research

Although several empirical studies have been performed to assess the reliability and validity of the DGMS, there are several more steps that can be taken.

Indeed, instrument validation entails an ongoing process in which the validity of a scale is tested by each new study making use of the instrument. Such research could involve testing the instrument on different kinds of behavior or on different populations. Regarding the former, we conceptualized behavior mainly as playing digital games in general. Future research could examine whether the DGMS is also useful for specific game genres or specific games. On account of different populations, we do not claim to have tested the full range of the population that plays digital games. It would be interesting to see how the instrument behaves when used for an older population or when used in different cultural settings (i.e., cross-cultural validation) or to look at how these motivation dimensions correlate with other relevant variables related to digital play.

Paper 3

Young people at play. Behaviors, motives and social structure.[23]

Abstract

Research on reasons for playing digital games is more often than not limited to individual motivations and behavior conceptualized in terms of playing duration and/or frequency. The goal of this study is to explore how the process of game choice differs when behaviors are conceptualized differently. In addition, it also considers the role that is played by friendship networks in game choice. Results show that the mediating role of habit in relation to conscious motivations changes as the type of behavior changes. The same is true for the role that is played by the social structure in terms of friendship networks. These findings open up new questions and opportunities in terms of social context and behavior when it comes to the study of media choice in general and game choice in specific.

[23] This paper is accepted as De Grove, F., Van Looy, J. (accepted). Young people at play. Behaviors, motives and social structure. *Computers in Human Behavior*, paper accepted for publication.

1. Introduction

The question why people play digital games has been around for several decades in academic research. To shed light on this issue, researchers have often drawn on theoretical and conceptual frameworks used in the broader field of media studies such as self-determination theory (Ryan et al., 2006; Tamborini et al., 2010), social cognitive theory (De Grove et al., 2014b; Lee & LaRose, 2007) or the uses and gratifications approach (Sherry et al., 2006). As with research on media use in general, these studies have clarified certain aspects of game choice. Several issues require further investigation however (Hartmann, 2009). First, the concept of choice or use is seldom problematized. Typically it is defined in terms of time spent playing. This can either refer to the frequency (e.g., Lee & LaRose, 2007; Sherry et al., 2006) or duration of play (e.g., Hou, 2011). It has been argued, however, that behavior related to playing games also implies a content dimension (De Grove et al., 2014b). Indeed, whilst several studies have focused on the motivations to play specific content (Jansz & Tanis, 2007; Jeng & Teng, 2008; Tychsen, Hitchens, & Brolund, 2008; Yee, 2007), insights into why people choose between different game genres are largely absent. Second, and directly related to the way how behavior is conceptualized, is a question related to the choice process itself. Contemporary research on media and on digital games has shown that the process related to choice consists of an interplay between conscious decisions and habits (LaRose, 2009). To date, however, research has only looked into this process in relation to time-related behaviors. It stands to reason to assume that the way in which habits mediate goals is different when looking into content-related behaviors compared to time-related ones. Finally, current research on media and digital game choice has largely focused on motivations at the individual level. It has been remarked that the social environment of an individual can also contribute to media use however, both in terms of content

and time (De Grove et al., 2014b). Yet, the question of how social context relates to behavior and individual motivations empirically remains unanswered. Therefore, the aim of this study is to look at how individual and social determinants are associated with different types of behavior and whether the process of media choice varies between these behaviors. By exploring these interconnected issues, this study hopes to contribute to research on digital games in specific but also to the field of media studies in general.

In what follows, we explore how behavior, individual motivations and context have been conceptualized and operationalized by previous research on digital game choice. In addition and based on these insights, we develop conceptualizations of each of those aspects as they will be used in this study.

2. Play behavior, motivations and context

2.1 Play behaviors

When it comes to motives for playing digital games, there are several ways in which play behaviors have been conceptualized. Table 19 gives a non-exhaustive overview of such conceptualizations. It shows that two factors are important in defining play behaviors: one related to digital games as objects and one related to the kind of activity in which the player engages. The first factor distinguishes between reasons for playing games in general, reasons for playing certain game genres and reasons for playing specific games. The second factor distinguishes between time- and content-related behaviors (see Table 19). The former can be further split up into frequency and duration.

Frequency is generally measured in the number of times one has played or expects to play during a certain time period. Duration concerns the amount of time one typically plays during a single play session or within a certain time block. Instead of looking at how long one plays, content-related behavior looks at what is played. This is typically done by asking people about the kinds of games or game genres they play. It goes without saying that the object of play and play behavior are connected. Indeed, if one decides to study motives for the time spent playing a specific game genre such as massively multiplayer online games, a decision about content is already made. Problematizing behavior is important when one takes into account that behavior, motivations and context are reciprocally connected (Bandura, 1986). A specific game implies certain outcomes and thus detailed motives for playing it. In contrast, looking at the game repertoire will yield motivations that deal with reasons for digital games in general (De Grove et al., 2014b). This level of abstraction is important in that it determines the scope for which obtained results are valid. In other words, motivations to play a certain game genre such as first person shooters do not necessarily provide insight into why people play social network games or why people play digital games in general.

For this study, we are interested in time and content-related behaviors connected to playing digital games in general. More specifically, when it comes to behaviors, we aim to look into the frequency and duration of play and the content that is played. In fact, our main interest lies in exploring the extent to which the association between motivations and context on the one hand and behavior on the other hand varies when different behaviors are involved.

TABLE 19 Conceptualizations of games and behaviors.

	Object	Behavior
Hilgard et al. (2013)	Single games	Frequency (continuous)
Hou (2011)	Social network games	Frequency (categorical) and duration (categorical)
Lafrenière, Verner-Filion, and Vallerand (2012)	Video games	Frequency (continuous)
Lee and LaRose (2007)	Video games	Frequency (continuous)
Ryan et al. (2006)	Single games	Frequency (continuous) and expected behavior (binary)
Scharkow et al. (2012)	Video games	Genre preference (Likert)
Sherry et al. (2006)	Video games	Frequency (continuous)
Wallenius, Rimpelä, Punamäki, and Lintonen (2009)	Video games	Frequency (continuous)
Wu, Wang, and Tsai (2010)	Online games	Frequency (categorical) and Continuance motivation (Likert)
Yee (2007)	Online games	Frequency (continuous)

2.2 Motivations

Roughly speaking, conceptualizations of motives for play can draw on pre-existing motives rooted in theories on human motivation on the one hand or they can embrace a bottom-up approach in which motives for play emerge from empirical data on the other hand. For instance, studies employing self-determination theory typically use three predefined motives: the needs for competence, autonomy and relatedness (Ryan et al., 2006; Tamborini et al., 2010). Social cognitive theory offers a somewhat more flexible framework in that it allows fitting a set of motivations in terms of outcome expectations (Bandura, 1986; De Grove et al., 2014b; Lee & LaRose, 2007). Studies from a uses and gratification approach are often based on empirical data collection to derive motivations (Ruggiero, 2000; Sherry et al., 2006). These motivations are nevertheless still connected to the conceptual framework of gratifications sought and obtained. Studies such as the one performed by Yee (2007), finally, are not tied to a theoretical or conceptual framework but are purely extracted from empirical data.

Notwithstanding the kind of theoretical foundation that is being used, an important question in relation to individual motives for play is whether actions stem from conscious decision making or whether they are habitual. Indeed, research on media choice has shown the importance of habits in understanding and predicting behavior (Courtois, De Grove, & De Marez, 2014; De Grove et al., 2014b; LaRose, 2010). More specifically, habits can be considered as behavioral dispositions that have been acquired through repeated behavior. Hence, over time, motives for media choice shift to habits due to repeated media choice. To our knowledge, only one study has empirically investigated the relation between conscious motivations for play and habit. The study by Lee and LaRose (2007) found, among others, that the association of

motivations in terms of the flow experience (Csikszentmihalyi, 1990) with frequency of play was fully mediated by habits. Hence, no direct effect was found for internal motivations with behavior.

In order to conceptualize motives for play, we draw on the social cognitive approach toward digital games as proposed by De Grove et al. (2014). This conceptualization provides a framework in which behavior, motivations and context can be integrated. From a social cognitive perspective, behavior is, in part, determined by individual processes. Individual processes concern, among others, the interplay between outcome expectations and habits. Outcome expectations refer to the consequences one expects to derive from performing certain behaviors (Bandura, 1986). In a digital game context, three types of outcome expectations have been proposed: game-internal, game-external and moral outcomes (De Grove et al., 2014). Game internal outcomes are based on consequences that are directly tied to the experience of playing games. They are internal in that they make up what is intrinsically enjoyable about playing digital games. Game-external outcomes, in contrast, refer to those outcomes in which play is not performed for its intrinsic nature but for external reasons, for example passing time. Normative outcomes, finally, refer to outcome expectations based on moral standards (e.g., playing digital games is a waste of time). These outcome expectations can be considered as individual, conscious motivations to play digital games. Over time, they tend to become mediated by habits (Courtois et al., 2014; LaRose, 2010). In this sense, habits can be considered as long-standing motives for play whereas outcome expectations represent more short-term motives (LaRose, 2010). To date, little is known about how and whether habits are associated with content-related behavior or duration of play. Hence, further investigation is required when it comes to different behaviors.

2.3 Context

In general, studies on game choice have directed little attention toward indicators that transcend the individual level. Indeed, reasons for play that are used in empirical research are more often than not limited to individual motives. However, from a social cognitive perspective, it has been pointed out that context is important in relation to behavior and individual motives for playing games (De Grove et al., 2014b). This is especially true for the social context in which individuals are embedded. In fact, it is not unreasonable to assume that social context is related to time and content-related behaviors. For instance, a social situation in which several friends come together after a week in school is typically more inviting to play a music game like *Guitar Hero* (Harmonix, 2005) than to play a single player role-playing game such as *The Elder Scrolls V: Skyrim* (Bethesda, 2011). The relation between social context and behavior can also be more subtle in that the social context in which one lives stimulates individual behaviors. Although this train of thought has not yet been pursued empirically in studies on game- or media choice, academic research on health behaviors such as smoking and alcohol consumption has shown the importance of social networks in relation to individual behavior (Cohen & Lemay, 2007). In a similar vein, it can be assumed that the social network of a player is related to certain play behaviors (see also De Grove et al., 2014b).

A pertinent yet unanswered question with regard to social context concerns how to conceptualize relevant context indicators. Relevant implies, in this case, indicators that are associated with time and content-related play behaviors. In terms of playing digital games, it seems reasonable to look into game-related behaviors and relations that are present in the friendship networks of people playing games. Such behaviors include friends talking to each other about

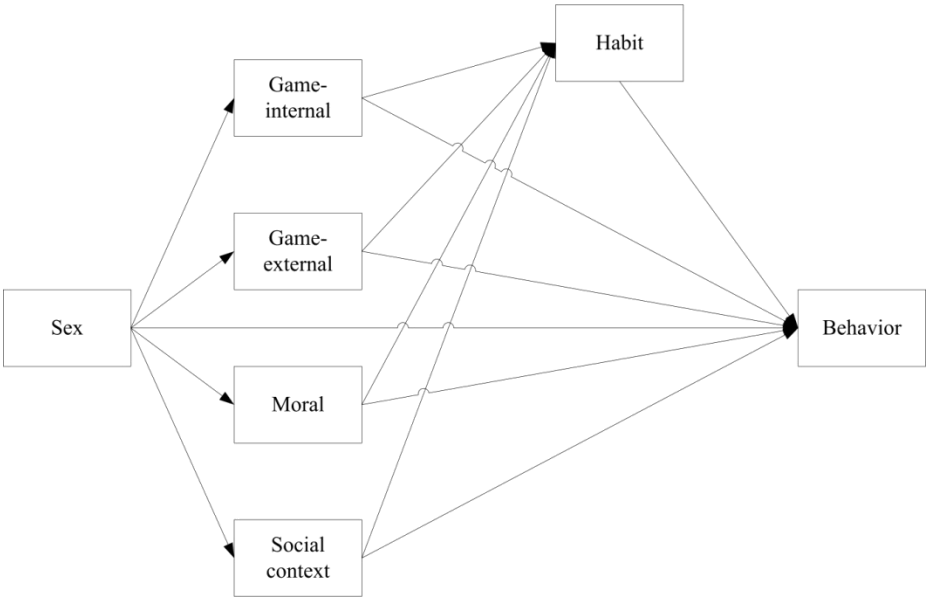
games and play behaviors such as playing games together or individual play behaviors of friends.

3. Models of game choice

For this study, determinants for three different types of behavior are explored. Figure 5 gives an overview of the general conceptual model that will be applied to each type of behavior whilst Table 20 gives an overview of the hypotheses developed in this section.

In terms of individual motives, outcome expectations in terms of game-internal (**H1**), game-external (**H2**) and moral outcomes (**H3**) are expected to be positively associated with play behavior. The same is true for habit (**H4**). Furthermore, as outcome expectations tend to turn into habits over time, we expect that game-internal (**H5a**), game-external (**H5b**) and moral outcomes (**H5c**) will be positively associated with habit (Courtois et al., 2014; LaRose & Eastin, 2004; Lee & LaRose, 2007).

FIGURE 5 Conceptual model



Following De Grove et al. (2014), game-internal outcomes are represented by the first order constructs of performance, agency, narrative and social whilst game-external outcomes are composed of pastime and escapism (De Grove et al., 2014b).

Another aspect related to the individual that should be included is that of gender. Based on previous research, gender can be expected to be associated with behavior as well as with motivations. Indeed, research has indicated that female players tend to invest less in digital games in terms of time compared to male players. In addition, female players are in general more inclined to play

so-called casual genres whilst male players are more inclined to play so-called core genres (**H6a**) (Williams et al., 2008). Furthermore, it has been shown that female players consistently score lower on motives for play compared to male players (**H6b-H6d**) (Van Looy, Courtois, & Vermeulen, 2010).

Similar to individual determinants we expect the social context of players to be directly associated with play behavior (**H7**). Indeed, as argued by De Grove et al. (2014b), the social environment can be important in how a game repertoire is built (i.e., in deciding which games one plays) and how much time is invested in playing digital games. For this study, social context is conceptualized as game-related behaviors that are present in the friendship network of a player. It entails relational behaviors (friends talking about games, friends playing together) as well as individual behaviors of those friends (frequency of play).

Next to the relation of behaviors with individual and social indicators, it can be expected that these indicators are also associated with each other (see De Grove et al., 2014b). This might especially be the case for the relation between social context and habit. A key characteristic of habit is that it is formed through repetition within contexts that are contingent with the behavior (LaRose, 2010; Wood & Neal, 2007). Although the social structure of a friendship network is not necessarily contingent with the behavior in question, it is not unreasonable to assume that a friendship network in which game-related behaviors are ubiquitous provides a more fertile ground for habit formation than one in which game-related behaviors are scarce (**H8**). In a similar vein, a positive association can be expected between outcome expectations and social context. More specifically, previous research has shown that expectations are partly formed through vicarious experiences (Bandura, 1986). Put differently, game-related behaviors of others shape in part what we can expect when playing digital games. This can be expected for game-internal, game-external and moral outcome expectations (**H9a-H9c**) since they are both susceptible to vicarious

experiences (De Grove et al., 2014b). Next, to these specific hypotheses, an important question is whether and to what extent the associations in the model differ between behaviors (**RQ**).

4. Method and procedure

4.1 Participants and procedure

Through the social networks of undergraduate students taking a course in social network analysis, Belgian high school students playing digital games (N = 100) were recruited. Sixty-seven of the respondents were male. For all minors in the sample, parental consent was obtained. In order to allow sufficient variation in the types of players, participants were only required to have played any kind of game on any kind of electronic device in the past year (Kallio et al., 2011). To increase reliability, data were collected by means of structured face-to-face interviews. Special care was taken to obtain independent networks (Carrington, Scott, & Wasserman, 2005; Matzat & Snijders, 2010). Furthermore, several days before the interview took place, participants were asked to complete an online survey in which they had to provide a list of people they considered to be friends. Interviews were built up around two blocks. A first block probed for a list of friends, albeit in a different way than in the survey. Friend names in the survey were obtained by following the approach proposed by Kirke (1996). During the interviews, however, the names of friends were probed by asking whether there were people in specific spheres of life (e.g., at school) they considered as friends. Subsequently, both lists of friends were joined together and respondents were asked to rank all friends in terms of most important

friends at the moment. To limit the duration of the interview, the top ten of friends was used for all following questions if more than ten friends were named. In focusing on the most important friends, we also focused on the most stable relations between our respondents and their friends. The second block of questions consisted of assessing respondent's and their friends' characteristics and mutual relations. Drawing on previous research, friendship in the survey and during the interview was repeatedly described as "people with whom you have a good relationship and/or people who know more of you than mere acquaintances and/or people with whom you regularly do things together and/or people with whom you can have conversations about serious matters" (Bernard et al., 1990; Milardo, 1992). Digital games were described as "any game that can be played on any type of digital platform".

4.2 Measures

For the respondents, information was collected on gender, motivations for playing, frequency of play, duration of an average game session and genres played. Gender was measured as a binary category and frequency and duration were measured in hours and minutes. For play frequency, respondents were asked for how long they expected to play games in the course of the following week, weekend included. For analytical purposes this measure was rescaled to represent the number of hours played per day. Duration was measured by asking how long a typical gaming session lasts. Motivations were measured using the scale developed by De Grove et al. (2014). More specifically, game-internal outcomes were measured by the first order constructs of performance, agency, narrative and social. Game-external outcomes were measured by pastime and escapism. Habitual behavior was measured by habit.

Next, based on the information provided by the respondents, information on friends was collected. This included gender and how frequent they had played during the past month. To ensure reliability, answers on the frequency question for friends were presented on a five-point Likert scale ranging from (*Almost) never* to *Daily*. Moreover, game-related relations were measured for all actors in the network. This included how frequent each pair of nodes played together (co-play) and how frequent each pair of nodes talked to each other about games. Both relations were measured on six-point Likert scales ranging from *Never* to *Daily*. Co-play was conceptualized as playing digital games together in any form. Hence, taking turns in playing a game on a smartphone was also considered as co-play. To compute network parameters, information about the ego (the respondent in the network) was left out. This way, data is obtained about the social environment in which the player is embedded without considering his or her own personal links with that environment (Knoke, Yang, & Kuklinski, 2008). To compute the occurrence of gaming in the network,

frequency of play for all friends was summed up and divided by the number of friends in the network. Network relationship measures were computed in terms of standardized weighted degree. This was done by dividing the sum of the tie strengths by the number of friends in the network (Wasserman & Faust, 1994).

5. Results

5.1 Preliminary analyses

For the preliminary analyses, univariate (Table 21) and bivariate distributions were explored. Table 22 shows the bivariate correlation matrix of all relevant variables whilst Table 23 shows group differences for all variables in relation to gender and content. The finding that the construct of pastime was not significantly associated with any of the other variables together with the fact that escapism was significantly associated with all other game-internal outcome expectations led to two changes in the conceptual model (see Figure 6). First, it was decided to leave out pastime from the model. Second, escapism was added to the construct of game-internal outcomes. Whilst our empirical model confirmed that this decision was acceptable (see below), it is also defendable on a theoretical level. In fact, escapism is dual in nature. It is about "*getting away from the conditions of the everyday life*" (De Grove et al., 2014b, pp. 216-217) whilst it simultaneously involves entering a space in which the limitations of the outside world can be overcome. In that sense, escapism is caught between a game-internal and game-external logic. Based on our empirical findings but also on the results from the initial scale development

study (De Grove, Cauberghe, & Van Looy, 2014a), it seems that escapism tends to be more tied to game-internal outcomes than to game-external ones.

FIGURE 6 Empirically tested model

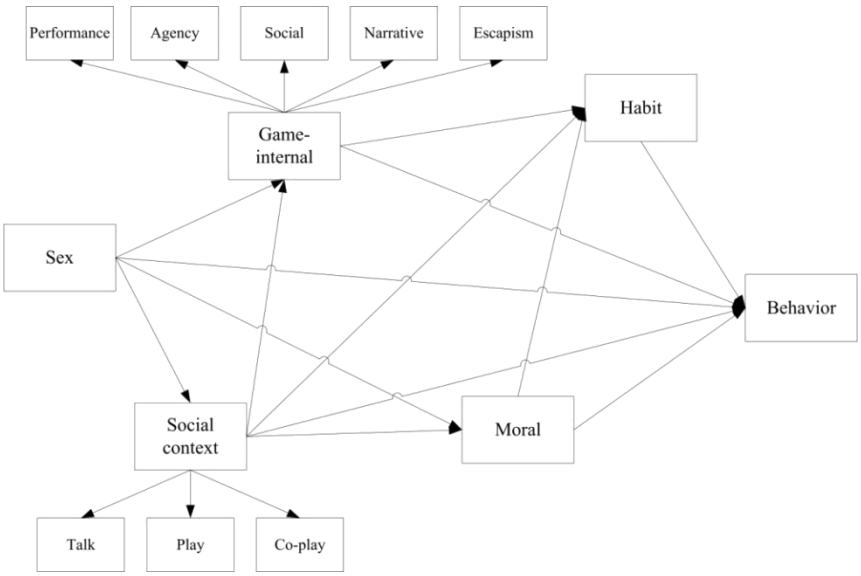


TABLE 20 Hypotheses and results

	Independent	Dependent	Model 1: Frequency	Model 2: Duration	Model 3: Content
H1	Game-internal	Behavior	R	A	A
H2	Game-external	Behavior	NA	NA	NA
H3	Moral	Behavior	R	R	R
H4	Habit	Behavior	A	R	R
H5a	Game-internal	Habit	A	A	A
H5b	Game-external	Habit	NA	NA	NA
H5c	Moral	Habit	A	A	A
H6a	Gender	Behavior	R	A	R
H6b	Gender	Game-internal	A	A	A
H6c	Gender	Game-external	NA	NA	NA
H6d	Gender	Moral	A	A	A
H6e	Gender	Social structure	A	A	A
H7	Social structure	Behavior	R	R	A
H8	Social	Habit	A	A	A

	Independent	Dependent	Model 1: Frequency	Model 2: Duration	Model 3: Content
	structure				
H9a	Social structure	Game-internal	R	R	R
H9b	Social structure	Game-external	NA	NA	NA
H9c	Social structure	Moral	A	A	A

Note: R = Rejected. A = Accepted. NA = Not Applicable.

TABLE 21 Univariate distributions

	Mean	SD	Min	Max
Age (ego only)	16.39	1.81	12	20
Play Frequency (hours/week) (ego only)	7.44	8.25	0	45
Play Duration (hours/session) (ego only)	1.48	1.28	0	8
Performance (ego only)	3.60	.87	1	5
Agency (ego only)	3.15	.86	1	5

	Mean	SD	Min	Max
Social (ego only)	2.57	1.04	1	5
Narrative (ego only)	2.89	.86	1	4.89
Escapism (ego only)	2.66	.95	1	5
Pastime (ego only)	3.42	1.08	1	5
Moral (ego only)	3.67	.78	1.75	5
Habit (ego only)	2.90	1.08	1	5
Network size (ego excluded)	8.87	1.70	4	10
Age network (average) (ego excluded)	15.87	1.81	11.7	20.6
Play frequency (ego excluded)	3	1.1	.78	5.71
Talking about games (ego excluded)	2.34	2.19	0	9.8
Co-play frequency (ego excluded)	.73	1.31	0	8

TABLE 22 Bivariate correlations

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Frequency	.45	.58	.43	**.17**	.34	.29	.23	**.02**	.45	.39	**.19**	.34
2. Duration	–	.27	.41	.23	.27	.21	.28	**–.07**	.31	.23	.24	**.18**
3. Habit		–	.46	.25	.43	.40	.28	**.12**	.53	.43	.29	.37
4. Social			–	.45	.43	.42	.31	**.04**	.43	.34	.36	.28
5. Narrative				–	.47	.48	.44	**–.02**	.30	.11	**.18**	**.09**
6. Performance					–	.33	.33	**.20**	.43	.25	**.17**	**.10**
7. Agency						–	.40	**.08**	.37	.21	**.17**	**.14**
8. Escapism							–	**.19**	.28	.14	**.14**	**.07**
9. Pastime								–	**.03**	**.16**	**.01**	**–.06**
10. Moral									–	.34	.27	.29
11. Play										–	.56	.54
12. Coplay											–	.70
13. Talk												–

Note: bold numbers are correlations that are not significant at the .05 level.

TABLE 23 T-values for nominal variables

	Content	Gender
1. Frequency	4.110***	-4.475***
2. Duration	2.546*	-5.240***
3. Habit	3.406**	-5.437***
4. Social	3.397**	-5.833***
5. Narrative	3.114**	-3.786***
6. Performance	2.178*	-3.108**
7. Agency	4.373***	-3.087**
8. Escapism	2.637*	-2.846**
9. Pastime	.118	.397
10. Moral	2.286*	-5.499***
11. Play	2.538*	-3.083**
12. Coplay	4.811***	-2.729**
13. Talk	3.584**	-2.508*

*** $p < .001$. ** $p < .01$.* $p < .05$

TABLE 24 Player groups and genre probabilities

Genre	Non-core-genre players (N = 30)	Core-genre players (N=70)
Action- adventure	.30	1
Adventure	.17	.43
Casual games	.53	.50
Fighting games	.10	.47
Management games	.21	.30
MMORPGs	.05	.41
Party games	.24	.30
Platform games	.13	.31
Racing games	.44	.67
RPGs	.04	.54
Shooter games	.28	.95
Simulator games	.08	.06
Social network games	.24	.32
Sports games	.48	.43
Strategy games	.10	.74

For game genres, a latent class analysis was performed to extract two groups (Collins & Lanza, 2010). One group can be described as playing core genres, whilst the other group is best described by the absence of playing core genres. Hence, the difference between both groups is not that one group is more

inclined to play casual genres whereas the other group is inclined to play core genres. The relevant difference lies in the probability to play core genres. This is especially true for genres such as shooters, fighting games, action-adventure games and strategy games. Table 24 shows the probabilities of both groups to play each genre.

5.2 Main results

For each type of a behavior, the same model was tested by means of structural equation modeling. Table 7 gives an overview of the results. Fit indices (Table 8) show adequate fit for all models. The results can be split up into two parts: a stable part for all types of behavior for those relations that do not include behavior and a variable part for those relations that are tied to behavior. Apart from some minor differences due to estimations, the results of the stable part are identical for all three models whereas the results for the variable part are different between behaviors.

When considering the variable part we see that frequency of play was positively associated with habit (β = .381, p < .01) but not with game-internal outcomes (β = .091, p = .54), moral outcomes (β = .127, p = .16), social structure (β = .092, p = .44) or gender (β = -.085, p = .28). The duration of a play session was positively associated with game-internal outcomes (β = .269, p < .05) and negatively with gender (β = -.303, p < .01) but not with moral outcomes (β = .054, p = .51), social structure (β = .092, p = .42) or habit (β = -.10, p = .41). Playing certain content, finally, was positively associated with game-internal outcomes (β = -.627, p < .01) and social structure (β = -.45, p < .01) but not with moral outcomes (β = .229, p = .14), habit (β = .07, p = .70) or gender (β = .339, p = .12). A mediation analysis confirms that habit serves as a

mediator between outcome expectations and frequency of play. This holds for game-internal ($\beta = .126$, $p < .05$) and moral ($\beta = .095$, $p < .05$) outcomes. In addition, habit also serves as a mediator for social structure ($\beta = .114$, $p < .05$).

For the stable part, habit served as a mediator for game-internal outcomes ($\beta = .35$, $p < .01$), social structure ($\beta = .22$, $p < .05$) and moral outcomes ($\beta = .28$, $p < .01$). Furthermore, moral outcomes were negatively associated with gender ($\beta = -41$, $p < .001$) and positively with social structure ($\beta = .24$, $p < .01$). Similarly, game-internal outcomes ($\beta = -.51$, $p < .001$) and social structure ($\beta = -.34$, $p < .001$) were also negatively associated with gender. They were, however, not significantly associated with each other ($\beta = .21$, $p = .06$).

TABLE 25 Standardized estimates with standard deviations for three types of behaviors

	Model 1: Frequency	Model 2: Duration	Model 3: Content
Behavior on			
Internal	.091(.149)	.269(.121)*	−.627(.181)**
Social structure	.092(.120)	.092(.114)	−.450(.163)**
Habit	.381(.11)**	−.100(.121)	.070(.185)
Moral	.127(.090)	.054(.082)	.229(.156)
Gender	−.085(.079)	−.303(.096)**	.339(.216)
Habit on			
Internal	.354(.117)**	.356(.117)**	.350(.116)**
Social structure	.221(.102)*	.216(.102)*	.216(.100)*
Moral	.281(.097)**	.281(.097)**	.287(.097)**
Moral on			
Gender	−.405(.09)***	−.405(.090)***	−.407(.092)***
Social structure	.240(.082)**	.239(.083)**	.235(.084)**

	Model 1: Frequency	Model 2: Duration	Model 3: Content
Internal on			
Gender	-.507(.09)***	-.508(.090)***	-.501(.093)***
Social structure	.207(.111)	.212(.111)	.201(.111)
Social structure on			
Gender	-.337(.067)***	-.337(.066)***	-.335(.067)***
Internal by			
Social	.712(.078)***	.717(.077)***	.681(.082) ***
Narrative	.679(.088)***	.674(.088)***	.689(.079) ***
Performance	.617(.071)***	.617(.072) ***	.608(.072) ***
Agency	.619(.094)***	.613(.093) ***	.650(.089) ***
Escapism	.538(.090)***	.542(.090) ***	.550(.082) ***
Social structure by			
Play	.689(.072)***	.687(.071) ***	.672(.068) ***

	Model 1: Frequency	Model 2: Duration	Model 3: Content
Coplay	.816(.053)***	.824(.051) ***	.838(.052) ***
Talk	.830(.066)***	.824(.067) ***	.821(.064) ***

*** $p < .001$. ** $p < .01$.* $p < .05$

Note: All models have been estimated in MPlus using MLR estimation to obtain robust standard errors. The reference category for model 3 is group 1.

TABLE 26 Fit indices

	Chi^2/df	CFI	RMSEA	BIC	R^2
Model 1: Frequency	6.8	.94	.070	2940	38%
Model 2: Duration	6.4	.96	.059	2725	28%
Model 3: Content	NA	NA	NA	2904	NA

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; BIC = Bayesian information criterion.

6. Discussion

This study set out to explore the relation between game-related behaviors and known determinants of those behaviors. One of the main findings is that the process of game choice differs between behaviors. Indeed, when it comes to play frequency, habit mediates outcome expectations. This is in line with previous research on the topic (Lee & LaRose, 2007). Not only is habit a mediating factor for outcome expectations, it also fully mediates social structure. The composition of and behaviors in friendship networks of people playing games are thus only indirectly associated with the time one spends playing digital games. The relation of social structure and habit is interesting in that previous research has shown that habits are formed through contexts that are contingent with the behavior in question. Our results suggest, however, that relatively stable social contexts such as friendship networks also play a role when it comes to habits. A crucial question that now arises is whether such stable but behaviorally non-contingent social contexts make it easier for habits to form or whether they provide a fertile ground for habits to be maintained and developed or both. Although this question cannot be answered with the current study design, the finding that behaviorally non-contingent social contexts are connected to habits provides another piece of the puzzle to be explored when it comes to media and game choice. Such findings become all the more interesting when considering that habit seems to have no significant direct relation with the other types of behavior. Indeed, the amount of time one spends, on average, on a single play session is not connected to habit. In other words, it seems that habits are associated with *how often* one decides to start performing certain behavior (playing digital games) but not to *how long* each behavioral instance takes. Instead, the latter seemed to be connected to game-internal outcomes and gender. Indeed, when controlling for motives for play and social structure, we found no evidence in our data for differences between

male and female players when it comes to the total amount of the time they spend playing digital games. When it comes to the length of an average play session, however, male players, on average, seem to play longer than female players. In addition, players who score higher on game-internal outcomes also tend to spend more time on single playing sessions. When looking at behavior in terms of content, yet another image emerges. Depending on the composition of and behavior in the friendship networks, people behave differently in terms of the content they play. Indeed, the odds to play so-called core genres increase as game-related behaviors in one's friendship network become more frequent. Hence, whilst the social context in which players are embedded does not seem to be associated with game choice in terms of time-related behaviors, it does seem to be associated with content-related behaviors. In other words, the type of games one plays is related to the place digital games take in one's web of close relationships. The question whether playing specific content opens up the way for friends to exhibit game-related behavior or the other way around remains to be seen. Most likely, and based on the logic of social-cognitive theory, this is a reciprocal process rather than a one-directional one. As was the case with duration, game-internal outcomes are associated with content-related behavior. More specifically, the odds of belonging to the group playing core genres increase when game-internal outcomes become more important. This finding is interesting when comparing it with the choice process when frequency of play is involved. Indeed, for frequency, the conscious choice process tends to be shifted towards a more automatic one. This, however, is only true for the total time that is spent on playing. Apparently, habit does not interfere when it comes to content considerations. In other words, the process involved in playing certain types of games does not seem to be an automated one but a conscious and contextual one. This is important in that it shows that conscious motives do not just disappear as habit takes over. Hence, whilst the decision *when* to play might become less consciously motivated over time, the decision *what* to play does not. The same holds true for the decision on *how*

long to play. The reason why moral and game-external outcome expectations are not directly connected to any kind of behavior is difficult to see. For game-external outcome expectations, these findings are similar to the results that were obtained when developing the measurement instrument (De Grove et al., 2014a). Whilst it goes without saying that playing to kill some time can be a motive to play digital games, it is not necessarily a relevant discriminatory one when it comes to behavior as conceptualized in this study. If anything, this finding seems to suggest that although there is variation in playing to kill some time, the contribution of this variation to the specific behaviors under scrutiny is marginal at best. In a sense, this counters the popular belief that an important motivation for so-called casual players would lie in fighting boredom. Our results suggest that those kinds of players indeed tend to differ in game-internal motivations compared to players whom also play so-called core genres. They do not score significantly different, however, for motives that are game-external. A similar logic holds for time-related behaviors. Some people expect that playing games will help them to kill some time whilst others do not. Such expectation does not make them play more or longer. A type of behavior that would likely be relevant in terms of game-external outcomes would be one that is defined by situational characteristics. If one was to study people playing games at a bus stop compared to people playing games in their bedroom, it would not be unreasonable to assume game-external outcomes to play a discriminating role. The story for moral outcome expectations is somewhat different. Although it does not directly affect any of the behaviors, it is indirectly associated with frequency of play through habit. Hence, similar to social structure, normative considerations regarding the acceptability of playing digital games either stimulate habit formation or foster maintenance and development or both. In turn, habit connects to the time one spends playing digital games in general. The reason why moral outcomes are not associated with content-related behavior is probably to be found in the way moral outcomes are conceptualized. Moral outcomes reflect a general normative

appreciation of the activity of playing digital games (e.g., playing digital games is a waste of time). They do not reflect content-related normative evaluations which might explain their lack of discriminatory power. This reasoning, however, does not hold for the duration of a play session. It is reasonable to expect that people considering games a waste of time are less inclined to play for longer periods of time. At this point, there is no straightforward explanation why moral outcomes are not associated with that kind of behavior when keeping the other variables constant. In contrast, the finding that social structure is associated with moral outcomes is easy to understand. Indeed, normative outcomes are formed based on moral standards. When game-related behaviors are common in friendship networks, this can be considered as indicative for how others judge the behavior in question. From a social cognitive viewpoint, this judgment can, in part, affect the way in which one will evaluate his or her own behavior. Finally, it is interesting to consider the role that is played by gender in the model. Based on previous research, it seems counterintuitive that gender does not directly affect frequency of play or content preference. In general, female players are expected to play less compared to male players whilst they are also often expected to be more casual players (Van Looy et al., 2010). Our results, however, suggest that this association is indirect. For content-related behavior, social structure and game-internal outcomes mediate the effect of gender. The effect of gender on play frequency first goes through the antecedents of habit. This puts some of the earlier findings regarding play behavior and gender in perspective. Gender is indeed associated with certain behaviors, but not necessarily in a direct way when controlling for other influences.

7. Conclusion

This study sheds light on some important topics in relation to game choice and by extension to media choice. In the first place, it illustrates the importance of explicitly conceptualizing behavior. Indeed, the choice process involved when playing digital games is different depending on how media choice is defined. Some behaviors seem more susceptible to habit formation than others. In addition, not only the individual process differs between behaviors, also the role of the social context differs between behaviors. The social structure is not only important in relation to behavior, but also in relation to individual motives. To date, however, the social context in which people make choices seems to be highly under-researched when it comes to understanding media choice. We believe that including social networks of media users in the equation can significantly contribute to our understanding of media choice.

8. Limitations and future research

The target population of this study was limited to high school students. This implies that our findings cannot be extrapolated to other populations. What is more, friendships are especially important for adolescents. This is why friendship networks were chosen as social context. Future studies looking into different populations might consider looking into other social contexts. In addition, game-related behaviors in the friendship networks were conceptualized as co-play, play and conversations about games. Future research might also look into other practices and relations that are relevant in understanding media choice. In fact, with social context being a catch-all term,

it seems there is still a long way to go for research to account for the ways in which the social contexts in which people live contribute to their individual actions. Finally, the relation of habit on the one hand and conscious motives and social structure on the other needs to be further investigated. The question why some game-related behaviors are more susceptible to habit formation whilst others are not remains unanswered. The same is true for our understanding about how and why behaviorally non-contingent social contexts contribute to either habit formation, habit maintenance or both.

“What is a man? A miserable little pile of secrets”

（Dracula，Castlevania：Symphony of the Night）

4 Gamer Identity

Paper 4

How to be a gamer! Exploring personal and social indicators of gamer identity.[24]

Abstract

Over the past decades, digital games have continued to extend their audience as they moved into the cultural mainstream. Despite this fact, however, only a portion of those who play games consider themselves a gamer. Drawing on insights from social identity theory, this study explores the factors that contribute to why people attribute a gamer identity to self or others. It does so by considering two sites of identity construction. A first one is the social context of players in the form of friendship networks. A second one concerns the

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comparative relation between individual behaviors and characteristics on the one hand and gamer identity as a culturally predefined category on the other. Results suggest that a gamer identity is first and foremost associated with stereotypical behaviors that find their origin in a consumption logic. Friendship networks, however, provide an important environment in which a gamer identity can be performed.

1. Introduction

In the past decades, digital games have moved from the cultural periphery to its center, reaching an ever greater and diversified audience (ESA, 2013; ISFE, 2012). Remarkably, however, only a portion of those who play games consider themselves gamers (Shaw, 2012). Understanding why some people identify as a gamer is interesting from an academic point of view for at least three reasons. In the first place, it adds to the growing body of research on digital games and its users and thus contributes to our understanding of a contemporary cultural phenomenon. Second, it adds to insights pertaining to research on social identity. Gamer as a social category provides an interesting point of departure in that it is not a typical group. Indeed, research on social identity is often conducted on small social groups of which the membership is unambiguous and arbitrarily assigned (Brown, 2000). Belonging to the social group of gamers, however, carries real meaning and is voluntary and less clear-cut. Gaining insight into why people identify as a gamer hence allows us to apply previous insights on in-group identification to a real-life group of which the boundaries are fluid rather than fixed. Third, digital games are different compared to other media when it comes to identity. Similar to other media, digital games provide a means through which one can express and experiment with one's identity (Murphy, 2004; Papacharissi, 2010). In contrast to other media, however, gaming itself provides opportunities for identity building in a more direct way. Indeed, whilst it would be hard for someone who uses social network sites to deny he or she is 'a social networker', people who use digital games can easily claim they are not gamers. Hence, in exploring gamer identity, we study ways in which a medium offers opportunities for identification that are atypical for most media forms. This allows us to better understand where digital games belong in the contemporary media ecology.

2. Understanding Gamer Identity

In order to understand why people identify as gamers, the research presented by Shaw (2012; 2013) and Consalvo (2007) provides a fruitful starting point, in the first place because they illustrate how a gamer identity, just as any identity, is socially constructed. From a historical perspective, this construction can be traced back to the game industry crash in the early 1980s. As a consequence of this crash, actors connected to the industry started to address players on what it meant to be a gamer. Not only was being a gamer linked to certain types of consumption and knowledge (e.g., which games to buy or which magazines to read) but also to a specific market segment, that of the white, heterosexual, male adolescent boy (Shaw, 2013). Although today's media environment leaves more room to negotiate how being a gamer is constructed, it remains strongly tied to the idea of cultural capital, or using Consalvo's (2007) terminology: gaming capital. It refers to the knowledge and know-how of players regarding digital games and their paratexts (Consalvo, 2007). Drawing on critical feminist theory, Shaw (2012) builds further on the notion of capital by pointing out the importance of performance. Indeed, an important aspect of being a gamer seems to be built around specific types of consumption such as playing certain types of games, spending a certain amount of time playing games, ownership of certain devices and so on. Not only consumption of digital games is indicative for this kind of capital however. Also knowledge regarding paratextual material can serve as an aspect of cultural capital to (be used to) perform a gamer identity. In addition to cultural capital, being a gamer is also connected to social capital. Having the opportunity to talk about digital games to other people can provide a means through which one can identify as a gamer at given moments. This feeds into another aspect related to gamer identity, namely, the way in which digital games are considered to be a legitimate way of spending leisure. Similar to media texts such as soap series, playing digital

games still has a negative connotation attached to it (Shaw, 2012). It goes without saying that people subscribing to such negative views will be less inclined to be sociable about games. Finally, Shaw (2012) also points out the importance of representation in digital games in relation to a gamer identity. More specifically, she illustrates how the lack of representation of members of marginalized groups is connected to how those members position themselves in relation to games in general and gamer identity in specific.

In using critical feminist theory together with an interpretive epistemology, Shaw effectively succeeds in drawing a complex and in-depth picture of how gamer identity is constructed and articulated through a diversity of interrelated factors. Ultimately, her work is aimed at empowering marginalized groups in relation to how they are represented in games. She does so by uncovering the mechanisms underlying the construction of the gamer audience. These insights are relevant in informing the research questions raised in the current paper in that it allows us to identify relevant indicators of a gamer identity. In contrast to the previous studies however, we aim to understand the relative importance of these factors in explaining why some people identity more as gamers than others. To illustrate how this approach can be useful, let us consider the activity of playing digital games. On the one hand, we know that playing games does not equal being a gamer. On the other hand, investing a certain amount of time in playing digital games is part of one's cultural capital and is thus connected to a gamer identity. A question that remains unanswered, however, is *to what extent* time investment matters in relation to a gamer identity when taking other relevant factors into account. With the research presented in this paper, we hope to understand the combined contribution of several of such factors in predicting and understanding why people identify as gamers.

3. Social Identity and Digital Games

In order to build a model that allows us to understand why some players identify as gamers, we draw on the concept of social identity. Social identity is concerned with the processes governing the relations between individuals and groups. It has been defined as "*that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership*" (Tajfel, 1981, p. 255). According to a social identity approach, groups are integrated in the self through the cognitive processes of social categorization, social identification and social comparison (Spears, 2011). Social categorization concerns a cognitive process that serves two functions. First, it allows for systematically defining others by ordering the social environment according to certain stimuli. The person being categorized is subsequently attributed behaviors and characteristics that are prototypical for that category. Second, through the same cognitive process, social categorization allows one to classify oneself in the social environment and in relation to others (Ashforth & Mael, 1989; Turner, 1987). Others who are similar to us are considered to be in-group members, whilst those who are not are considered to be out-group members (Hogg & Abrams, 1998). Social identification follows social categorization and entails the process through which one considers the self as belonging to a social group (Ashforth & Mael, 1989). Governing these processes of categorization and identification is the process of social comparison. By comparing the in-group with the out-group, the self and its associated social groups gain meaning and value. Whilst these processes are fundamental to the social identity approach, the approach itself is composed of two closely related theories: social identity theory and self-categorization theory. Social identity theory's central interest lies in understanding intergroup phenomena such as discrimination, intergroup conflict and social change

(Spears, 2011). Self-categorization theory extends social identity theory and is considered to provide a more general theory on social identity (Hogg & Abrams, 1998; Hogg & Terry, 2000). More specifically, self-categorization theory focuses on how the process of self-categorization works as a cognitive basis for group behaviors. It conceptualizes personal and social identity as two different aspects of the self, arising from different levels of self-categorization (Ashforth & Mael, 1989; Hogg & Terry, 2000). When a social identity becomes salient (i.e., activated), self-conceptualization tends to shift from the personal to the social identity (depersonalization) which in turn leads to cognitions, perceptions, attitudes and behaviors conform to prototypical group characteristics (Turner, Oakes, Haslam, & McGarty, 1994). An important aspect of the theory is that self-categories become salient by the interaction with the immediate social context (Ellemers, Spears, & Doosje, 2002). Indeed, self-categorizing is not fixed and enduring but fluid, variable and highly context-dependent (Turner et al., 1994). Whether a self-category becomes relevant is dependent on its accessibility and fit with the social situation (Hogg & Terry, 2000). Accessibility refers to the 'readiness' of the perceiver in terms of individual characteristics (e.g., previous uses, importance and value of the category) in relation to the specific situation. Fit concerns the match between the category and the social situation in terms of similarities and differences between people (comparative fit) and whether the behavior and attributes of those present fit the expected content of the category (normative fit) (Hogg & Terry, 2000). For instance, when discussing digital games with friends, the self-category gamer might become salient because one has frequently used that category in similar situations before (accessibility). In addition, it could emerge because the knowledge about games differs between people in the group (comparative fit). This difference could be attributed to the perceiver being more knowledgeable about the relevant topic (normative fit). If the context of the discussion was different, consider for instance the same friends discussing religious practices, this situation would most likely render another self-category

salient (e.g., Muslim). Similarly, if one was discussing digital games with professional e-sports players, normative fit (knowing *less* about the topic), might lead to refraining from self-categorizing as a gamer in that context. Underlying the interaction between accessibility and fit are prototypes which can be best described as fuzzy sets of attributes that are typical or representative for a category (Hogg & Terry, 2000; Reid, Byrne, Brundidge, Shoham, & Marlow, 2007). They are cognitive constructs that are formed and maintained in interaction with social contexts. Revisiting the example of friends discussing games, an attribute that is considered as prototypical for a gamer would be knowledge about games. Based on how group members relate to that attribute, i.e., how prototypical they are, in- and out-group membership is decided. As a consequence, prototypes maximize intergroup differences whilst minimizing intragroup ones. This makes social categorization inherently comparative in that identification with the in-group is based on comparisons with the out-group.

At this point, we have used the social identity approach to explore how groups and group behaviors are formed within specific social situations. Ultimately, however, we are interested in how being a gamer can be understood as relatively stable. Drawing on self-categorization theory, several researchers have shown that a social identity can, to a certain extent be integrated in the self-concept (Spears, Doosje, & Ellemers, 1997; Tropp & Wright, 2001; Tyler, Kramer, & John, 1999). Based on these studies, we consider a stable identity category as the extent to which one attributes the in-group to self or to others. Whether or not the in-group becomes a salient category remains dependent on the specific social context. Understanding gamer identity might now be understood through how social categories are formed. According to Turner (1987), there are two main determinants: immediate social situations in which social categorizations can emerge and the availability of preformed, culturally available classifications. In fact, this is similar with the idea that a gamer identity is social constructed and thus a culturally available classification and

that it can be performed in the context of everyday social contexts. In what follows we consider how both aspects can be conceptualized and linked to a gamer identity.

3.1 Gamer identity and immediate social contexts

When it comes to the relation between the a gamer identity and immediate social situations, it can be pointed out that stable categories stem from stable social contexts (recurring social situations, social groups) that provide stable norms, values and motives (Ellemers et al., 2002). In other words, a stable identity category can be considered as a reciprocal process in which recurring social situations provide recurring fit and accessibility of specific categories and vice versa. Stable social contexts are thus an important factor in understanding the degree to which one includes the in-group in the self or to which one attributes a category to others. However, in order to define a relevant social context we first need to demarcate a relevant population. For this study, we are interested in gamer identification of players attending high school. The reason for this is twofold. First, proportionally they represent the group of people who play the most digital games (ESA, 2013; ISFE, 2012). Second, research has shown that the development of a social identity differs between early and late adolescence (Tanti, Stukas, Halloran, & Foddy, 2011; Tarrant et al., 2001). Indeed, it is assumed that due to the transition between elementary and high school, early adolescents' need to belong to valued social groups is, in general, more outspoken than that of late-adolescents still in high-school. This makes considering adolescents interesting. Moreover, the importance of peers in general and of friends in specific has shown to be important in developing a personal identity (Meeus, Oosterwegel, & Vollebergh, 2002). It can therefore

be expected that friends are important in including the category of gamer in the self.

An important question in this context is how to understand the relation between stable social contexts and stable identity categories. This relation is not necessarily evident since the processes underlying social categorization such as normative and comparative fit are dependent on what happens in specific situations. Even within stable social contexts, myriad situations can emerge that may or may not elicit gamer as a salient category. Empirically assessing all those individual situations to see when and where one attributes the category of gamer to self or others is near impossible. A more practical solution would be an approach that considers an aggregate of those specific situations in which a gamer identity has become activated. For this, the interplay between the categorization of the self and the categorization of others can serve as a starting point. Indeed, in order to categorize friends as gamers, one needs situations that provide accessibility and fit rendering the category of gamer salient. Since it are the same situations that allow one to self-categorize as a gamer, it follows that the degree to which others are categorized as gamers is indicative for those situations that make it possible for a gamer identity to become salient. Compare for instance a player of which none of the friends play digital games (player A) with a player who has several friends that are invested in playing games (player B). The probability that gamer will emerge as an important category in social situations is bigger for player B than player A. In other words, gamer as a category can be expected to be more accessible for player B than for player A. Furthermore, for player B, more situations can potentially arise in which similarities and differences among friends can be explained through the category of gamer (comparative fit). Similarly, more situations can arise in which gamer-related behaviors are performed (normative fit). Since the interaction of accessibility and fit turns gamer into a salient category, the social environment of player A offers little opportunities for gamer to become salient whereas the opposite is true for player B. Suppose that all other behaviors and

characteristics are identical between player A and B (e.g., they play the same games for the same amount of time and so on) then it would be easier for player B to identify as a gamer since the category itself is more easily activated. From this perspective, categorizing friends as gamers implies a social environment that is open to a gamer identity. This reasoning is also congruent with the work of Shaw (2012) in that an environment in which a gamer identity can flourish supposes an environment in which one can be sociable about games and in which gaming does not need to be a guilty pleasure. It is also congruent with the work of identity theorists whom have pointed out that the activation of a social identity in specific social situations is associated with the degree to which that identity is embedded in one's social structure (Stets & Burke, 2000; Stryker & Burke, 2000). Furthermore, in considering gamer identity in one's friendship network from an aggregate level, we put it on equal footing with the idea of a relatively stable concept which is also the result of a combination of specific situations rather than the result of a single one. This has a clear advantage in that the influence of extreme cases is flattened out. Take for instance the presence of a professional e-sports player in one's friendship network. For an average player, social situations together with this friend would probably lead one to identify less as a gamer. It would be wrong, however, to conclude that this prevents the inclusion of being a gamer in the self. Indeed, these situations are only a part of the larger collection of social situations in which other friends also have a part to play and in which these friends stand in relation to one another. Some of these friends will be considered as non-gamers whilst others will be considered as gamers to some extent. Therefore, the extent to which one includes being a gamer in the self can best be understood through the way gamer identity is present in the friendship network in general rather than through specific cases or situations. This allows us to formulate our first hypothesis.

H1: The degree to which gamer identity is attributed to friends will be positively associated with respondents' gamer identity.

3.2 Gamer identity and the cultural context

Next to the importance of a social environment, we need to consider how gamer as a predefined cultural category stands in relation to gamer as a relatively stable identity category. Here, the concept of prototypicality might prove useful. People judge others and themselves on how prototypical they are for a certain social category. This is done by considering the degree to which they live up to stereotypical attributes, i.e., those attributes that produce a high contrast between intergroup differences and intragroup similarities. Since prototypes are cognitive constructs, it has been argued that one can compare oneself and others with a prototype, separate from any specific social context (Reid et al., 2007). Therefore, it stands to reason to assume that those who consider themselves or others as highly prototypical for a certain category will more likely attribute the in-group to the self or to others respectively. The challenge now lies in identifying those attributes (i.e., behaviors and characteristics) that can be considered to be prototypical for a gamer. Considering the myriad possibilities addressed by authors such as Shaw (2012; 2013), the question is how we identify those factors that can be expected to be the most efficient in distinguishing between different levels of categorization as a gamer. This is important if one takes the requirement of parsimony in mind. Indeed, when constructing a statistical model, the inclusion of a large number of variables should be avoided (Hair et al., 2006). For this study, we expect two types of behavior to be relevant in terms of self-categorization: the amount of time one invests in playing digital games and the kind of games one plays. In the first place, they seem the most relevant candidates because they are directly tied to the practice of playing games. Looking into the frequency of play furthermore allows for an approach that goes beyond the dichotomy between

playing games or not which has proven to be insufficient in distinguishing between gamers and non-gamers (Shaw, 2012). As for game genres, previous research has shown that there is a difference in the kind of content people play (Williams et al., 2008) and that, due to being a gamer is in part an industry construction, certain content is more prototypical for a gamer than other content (Shaw, 2012). Therefore, we expect those that play so-called core genres (e.g., first person shooters, role-playing games) to identify more strongly as a gamer than those who do not. Other possible behavioral indicators seem less clear relation to a gamer identity. Economic investment and more specifically, buying digital games, for instance, is an indicator that might be troubled by the availability of pirated games. Furthermore, the interaction with paratextual material such as specialized magazines is not inherently tied to gaming as an activity. We believe that indicators that are inherently tied to gaming will be more performant in explaining the degree to which people identify as a gamer than indicators that are not. Therefore, to build a parsimonious model, behaviors that are not directly tied to gaming are not included in the current study. In addition to behaviors, a prototypical characteristic that can be expected to be influential is that of gender. In fact, one of the most consequent findings is that gaming and gamer identity are considerably gendered (Shaw, 2012; Williams, Consalvo, Caplan, & Yee, 2009). Therefore, we expect that it is easier for male players to identify as a gamer than it is for females. We also expect age to be a relevant indicator of gamer identity. In the first place because younger adolescents gain more benefit from adopting a social identity (see above), but also because it can be expected that being invested in games is, in Western societies, considered to be more acceptable for younger people than for older ones as games are often still considered as entertainment for children.

H2a: Frequency of play will be positively associated with gamer identity.

H2b: Players who are more deeply invested in core-genres will identify more strongly as a gamer than those who do not.

H2c: Age will be negatively associated with gamer identity.

H2d: Male respondents will identify more strongly as gamers than female respondents.

Similar to the reasoning applied to self-categorization as a gamer, we expect certain behaviors and characteristics to be relevant in order to categorize others as gamers. In the first place, we expect that the time that is invested by friends in playing digital games will be positively associated with attributing them a gamer identity. This is expected to be the case for play frequency of individuals and for the frequency with which friends play together (co-play). Furthermore, to account for the idea of social capital, the degree to which conversational practices are present in one's network are also expected to be associated with the attribution of a gamer identity. Finally, similar to self-categorization as a gamer, we expect gamer identity to be more widespread in networks in which the composition is male oriented compared to those networks in which the composition is female oriented.

H3a: The frequency of game-talk will be positively associated with the extent to which gamer identity is attributed to friends.

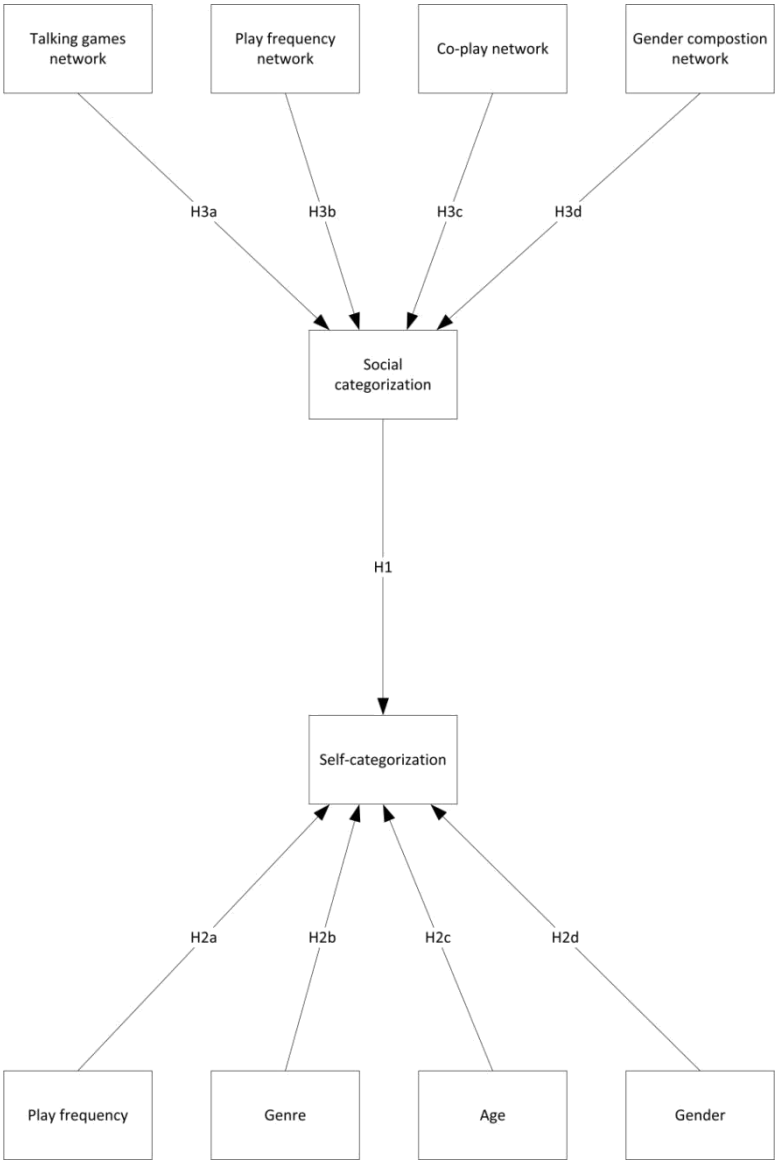
H3b: Play frequency in the network will be positively associated with the extent to which gamer identity is attributed to friends.

H3c: The frequency of co-play will be positively associated with the extent to which gamer identity is attributed to friends.

H3d: Gamer identity in the network will be more widespread in male oriented networks than in female ones.

Figure 7 shows a graphical representation of the hypothesized model with all relevant hypotheses.

FIGURE 7 Hypothesized path model



4. Method

4.1 Participants and procedure

Through the social networks of undergraduate students taking a course in social network analysis, high school students playing digital games (N = 100) were recruited. In total, 67 of the respondents were male. For all minors in the sample, parental consent was obtained. In order to allow sufficient variation in the types of players, participants were only required to have played any kind of game on any kind of electronic device in the past year (Kallio et al., 2011). To increase reliability, data were collected by means of structured face-to-face interviews. Special care was taken to obtain independent networks (Carrington et al., 2005; Matzat & Snijders, 2010). Furthermore, several days before the interview took place, participants were asked to complete an online survey in which they had to provide a list of people they considered to be friends. Interviews were built up around two blocks. A first block probed for a list of friends, albeit in a different way than in the survey. Friend names in the survey were obtained by following the approach proposed by Kirke (1996). During the interviews, however, the names of friends were probed for by asking whether there were people in specific spheres of life (e.g., at school, in the neighborhood, hobby-related, …) they considered as friends. Subsequently, both lists of friends were joined together and respondents were asked to rank all friends in terms of most important friends at the moment. To limit the duration of the interview, the top ten of friends was used for all following questions if more than ten friends were named. In focusing on the most important friends, we also focused on the most stable relations between our respondents and their friends. The second block of questions consisted of assessing respondent's and their friends' characteristics and mutual relations. Drawing on previous research, friendship in the survey and during the interview was repeatedly

described as “people with which you have a good relationship and/or people who know more of you than mere acquaintances and/or people with which you regularly do things together and/or people with which you can have conversations about serious matters” (Bernard et al., 1990; Milardo, 1992). Digital games were described as “any game that can be played on any type of digital platform”.

4.2 Measures

For the respondents, information was collected on gender, age, frequency of play, genres played and to what extent they included the category of gamer in the self. Gender was measured as a binary category and age as a continuous variable in years. To measure play frequency, respondents were asked how often they had played digital games during the past month. Answers were presented on a five-point Likert scale ranging from (*Almost) never* to *Daily*. The inclusion of gamer in the self was measured on a five-point scale using the graphical instrument developed and validated by Tropp and Wright (2001). More specifically, the instrument shows a series of Venn-diagrams. These Venn-diagrams are composed of two circles, one representing the self, the other representing the gamer category. Different levels of overlap between both circles represent different choice options.

Based on the information provided by the respondents, information on friends for gender, age and frequency of play was collected. Similar to the inclusion of gamer in the self, respondents were asked to what extent they attributed a gamer identity to each friend in the network using the instrument developed by Tropp and Wright (2001). In terms of relations, two types were measured on six-point Likert scales: the frequency of conversation about games during the

past month (*Never* to *Daily*) and the frequency of playing games together during the past month (*Never* to *Daily*). Co-play was conceptualized as playing digital games together in any form. Hence, taking turns in playing a game on a smartphone was also considered as co-play.

5. Results

5.1 Preliminary results

Table 27 gives an overview of the relevant descriptive measures. The mean age of our respondents was 16.39 (*SD* = 1.81) and the mean age in the networks was 15.87 (*SD* = 1.81). Average network size was 8.87 (*SD* = 1.70) which is similar to previous research on players' friendship networks (Domahidi, Scharkow, & Quandt, 2012). To compute the gender composition of the network, the ratio between female and male friends was computed. Hence, a score of 1 concerns a network with female friends only and a score of .50 concerns a balanced network in terms of gender. On average, our networks were slightly more male (*M* = .38, *SD* = .36). Furthermore, respondents scored, on average, 2.64 (*SD* = 1.18) on the identity question and the average mean identity in the networks was 2.06 (*SD* = .70). Play frequency of respondents (*M* = 4.15, *SD* = 1.49) was somewhat higher on average than the average mean play frequency in the networks (*M* = 3 , *SD* = 1.07). To compute the occurrence of game talk and co-play between respondents and friends, the standardized weighted degree was computed for both relations (Wasserman & Faust, 1994).

TABLE 27 Descriptive Measures

	Mean	SD	Min	Max
Age	16.39	1.81	12	20
Play frequency	4.15	1.49	1	6
Identity	2.64	1.18	1	5
Network size	8.87	1.70	4	10
Age network (average)	15.87	1.81	11.7	20.6
Play frequency (average)	3	1.07	.78	5.71
Network identity (average)	2.06	.70	.67	4
Gender composition network (ratio)	.38	.36	0	1
Talking about games	.90	.63	0	2.91
Co-play frequency	.25	.37	0	1.72

A low score means that there is little conversation about games or that a respondent and one's friends do not often play games together respectively. On average, respondents talked more about games with their friends (M = .90, SD = .61) compared to playing together (M = .38, SD = .36). For game genres, a latent class analysis was performed to extract two groups (Collins & Lanza, 2010). One group can be described as playing core genres, whilst the other group is best described by the absence of playing core genres. Hence, the difference between both groups is not that one group is more inclined to play casual genres whereas the other group is inclined to play core genres. The relevant difference lies in the probability to play core genres. This is especially

true for genres such as shooters, fighting games, action-adventure games and strategy games. Table 28 shows the probabilities of both groups to play each genre. Finally, Table 29 shows the bivariate correlations for all interval variables.

TABLE 28 Player groups and genre probabilities

Genre	Non-core-genre players (N = 30)	Core-genre players (N=70)
Action- adventure	.30	1
Adventure	.17	.43
Casual games	.53	.50
Fighting games	.10	.47
Management games	.21	.30
MMORPGs	.05	.41
Party games	.24	.30
Platform games	.13	.31
Racing games	.44	.67
RPGs	.04	.54
Shooter games	.28	.95
Simulator games	.08	.06
Social network games	.24	.32
Sports games	.48	.43
Strategy games	.10	.74

TABLE 29 Correlation coefficients

	1	2	3	4	5	6	7	8
1. Age	1	**-.05**	**-.21**	**-.14**	**.08**	**-.11**	**-.20**	**-.09**
2. Play frequency self	-	1	.61	**.40**	-.48	.36	.42	**.37**
3. Identity self	-	-	1	.41	-.52	.47	.53	.43
4. Play frequency others	-	-	-	1	-.39	.82	.66	.56
5. Gender composition	-	-	-	-	1	-.47	-.48	-.37
6. Identity others	-	-	-	-	-	1	.67	.49
7. Talking games	-	-	-	-	-	-	1	.73
8. Co-play frequency	-	-	-	-	-	-	-	1

Note: numbers in bold are correlations that are not significant at the .05 level.

FIGURE 8 Path model with coefficients

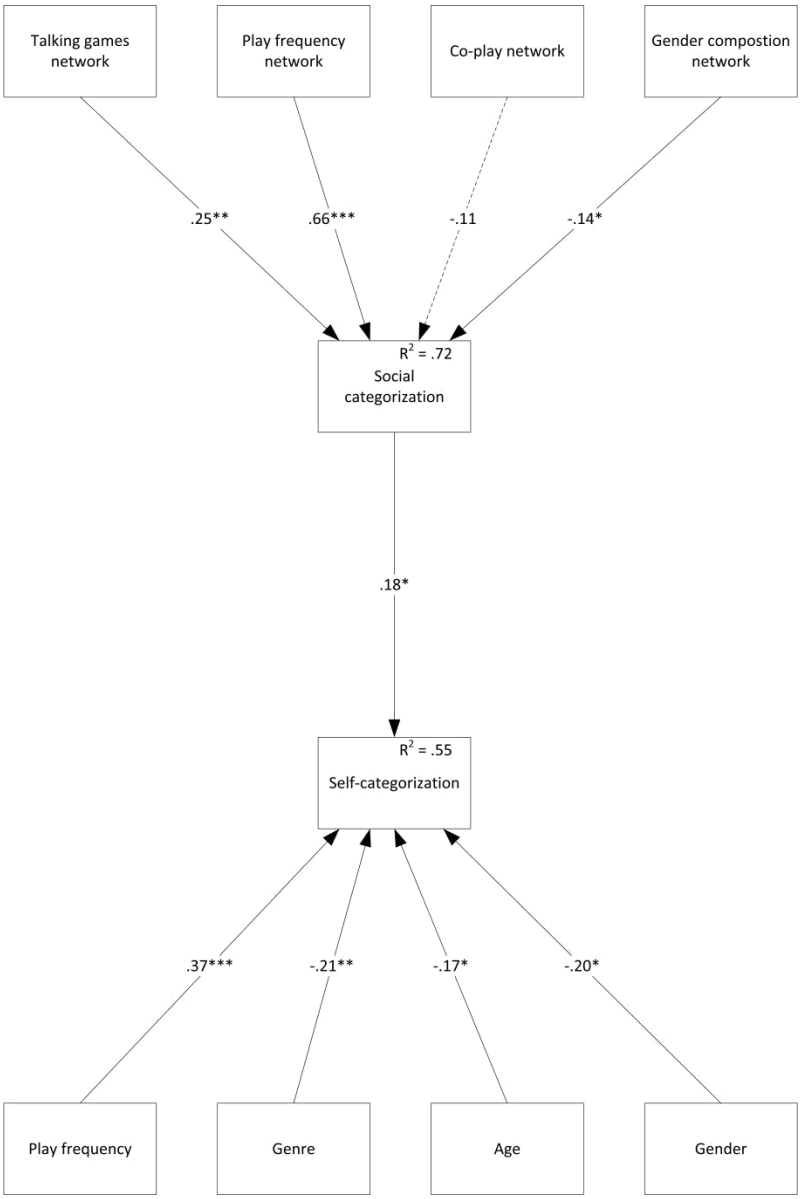


TABLE 30 Path model results

H	Dependent	Independent	β	SD	Std β	Result
H1	Identity self	Identity others	.30*	.13	.18	Accept
H2a	Identity self	Play frequency self	.29***	.06	.37	Accept
H2b		Genres	-.51**	.19	-.21	Accept
H2c		Age	-.11*	.05	-.17	Accept
H2d		Gender	-.51*	.20	-.20	Accept
H3a	Identity others	Talking games network	.28**	.10	.25	Accept
H3b		Play frequency network	.44***	.05	.66	Accept
H3c		Co-play frequency	-.22	.15	-.11	Reject
H3d		Gender composition	-.26*	.12	-.14	Accept

5.2 Main Results

To answer our hypothesis, a path model was constructed using the *lavaan* package in *R* (Rosseel, 2012). Figure 8 shows the model with standardized regression coefficients and Table 30 gives additional information on these estimates. Fit indices of the model indicated a good fit (N = 100, $\chi 2/df$ = .38, CFI = 1, TLI = 1, $RMSEA$ = 0 CI_{90} = [0 ; .034]) (Hair et al., 2006).

When considering the degree to which respondents include the gamer category in the self, all predictors were significantly associated. Indeed, attributed gamer identity in the network was positively associated with respondents' gamer identity **(H1)**. Furthermore, older respondents, on average, tended to identify less as a gamer than younger respondents **(H2c)**. Similar to gender composition in the network, the gender of the respondent was also negatively associated with gamer identity **(H2d)**. More specifically female respondents tended to identify less strongly as a gamer than male respondents. Another negative association was that with genre preference. The group playing fewer core genres tended to identify less strongly than the group that did **(H2b)**. Finally, the frequency by which respondents had played games during the past month was positively associated with inclusion of being a gamer in the self **(H2a)**. In fact, play frequency is the strongest predictor followed by genre preference, gender, gamer identity in the network and age respectively. These predictors explain 55% of the variance in gamer identity.

When it comes to the degree to which the category of gamer is attributed to friends in the network, three predictors were statistically significant. First, a positive association was found for game talk with friends **(H3a)** and for play frequency in the network **(H3b)**. Thus, the more frequent one talks about digital games with friends, the higher the average network identity score. The same was true for the more frequent one's friends play digital games. However, the occurrence of co-play in the network was not significantly associated with

attributed gamer identity **(H3c)**. Hence, playing digital games with friends did not contribute to attributing the gamer category to friends. Finally, the model suggested a negative association between attributed gamer identity and gender composition of the network **(H3d)**. In other words, the higher the ratio of female friends in the network, the lower the average network identity score. When comparing the relative strength of the associations, our data suggest that the frequency of friends' play behavior is the strongest predictor, followed by game talk and gender composition of the network. In total, these variables explain 72% of the variation in the mean network identity.

6. Discussion

The central aim of this study was to identify relevant indicators of why players attribute the category of gamer to themselves or to others. Based on literature on the topic, we expected a gamer identity to be formed and maintained in relation to the broader cultural context and in relation to the everyday social situations in which players live. The latter was conceptualized by means of friendship networks. Our results suggest that these networks are able to provide an environment in which a gamer identity can flourish over and above the influence of individual behaviors and characteristics that are performed in relation to gamer as a cultural category. In general, this confirms the relevance of friendship groups when studying gamer identity as a relatively stable phenomenon. More specifically, the more one sees one's friends in the network as gamers, the more one will tend to include the gamer category in the self **(H1)**. This can mainly be understood through the processes linked to social categorization. It is not just because a gamer identity is attributed to friends that

one will automatically self-identify as a gamer. Rather, the distribution of a gamer identity in one's network is indicative for a social environment in which accessibility and fit allow for a gamer identity to become salient. From this perspective, whether one will self-categorize as a gamer depends partly on the degree to which a gamer identity is relevant in one's important everyday relations. Categorizing as a gamer, however, is not only a conversation with one's direct social environment; it is also a conversations in relation to the way being a gamer relates to one's broader cultural milieu. Indeed, taken together, prototypical behaviors and characteristics prove to be important indicators of a gamer identity over and above the friendship context in which players are embedded. First and foremost, the frequency of play is an important indicator of gamer identity. In fact, it is the most important predictor in relation to self-categorization as a gamer (**H2a**). In other words, the more frequent one plays digital games, the stronger one will, on average, identify as a gamer. In addition, the kind of games that are consumed also showed to be a relevant indicator (**H2b**). People playing those genres that are typically considered as core genres tend to identify more strongly as a gamer than those who do not play those genres. Whilst the division between players of so-called core genres and casual genres, which is typically advocated in information disseminated by the industry (ESA, 2013; ISFE, 2012), is reflected in our data, it is important to note that the difference between both groups is explained by people not playing core genres rather than by people not playing casual genres. As a consequence, there is an alternative explanation for the association of content with gamer identity. It might be that the determining aspect lies in the fact that there is a group that can be considered as omnivores versus a group that plays only a limited amount of genres. At this point, it is hard to say whether it are specific genres that lead one to identify as a gamer, the omnivorous behavior, or a combination of both. In addition to prototypical behaviors, age, as a characteristic also proved to be significantly related to self-identification as a gamer (**H2c**). Indeed, as we expected, younger players tended to identify more

strongly as a gamer than older players. In the first place, this can be explained by the fact that young adolescents tend to be more active in looking for a valued social identity. In addition, it might be that early adolescents are not only more actively looking for a valued social identity but that a gamer identity is simply more valued when one is younger. Indeed, playing games is not a neutral activity but a normative one (Shaw, 2012). From this point of view, age is considered to be an identity category that intersects with the inclusion of being a gamer in the self. The same is true for gender (**H2d**). Indeed, even when all other factors are kept constant, i.e., controlling for the type of games that are played, the amount of time that is spent playing games, the social environment and the age of players, gender is relevant in relation to a gamer identity. This does not mean that female or older players are excluded from self-categorizing as a gamer. It does point out that, on average, female or older players tend to perform more prototypical behaviors in terms of frequency and content before they self-identify as a gamer to the same extent as male or younger players respectively.

When looking at the behaviors and characteristics that are associated with attributing a gamer identity to others, a similar picture emerges. In terms of behaviors, game talk (**H3a**) and play frequency of friends (**H3b**) constitute relevant prototypical behaviors. In contrast, co-play (**H3c**) does not seem to be associated with categorizing friends as gamers. There are at least two possible explanations for this. A first one might be that perceived play frequency catches both the individual and the co-play behavior. As a consequence, co-play would not explain unique variation over and above the aggregation of individual group members' play frequency. Play frequency in the network would in that case be a more adequate predictor than co-play. Another, complementary, explanation might be that the occurrence of co-play in our sample is too low to explain additional variance. Indeed, in principle, co-play can vary between 0 and 5. In practice, however, its mean amounts to .25. It is therefore not unreasonable to assume that co-play will only contribute in

explaining unique variance once a certain threshold is exceeded. This kind of reasoning is supported by the idea of a stable context. Stable and recurrent patterns of play probably benefit more from co-play behavior that is frequent rather than sporadic. In that respect, our study shows that a specific range of co-play is not associated with the extent to which one attributes the gamer category to friends. It is possible, however, that targeting a population in which co-play is more frequent might yield different insights. Whilst behavioral indicators are the most potent predictors of identity attribution, gender composition **(H3d)** also shows to be important when controlling for those behavioral indicators. This shows that the interplay between multiple identities is not only relevant for individuals categorizing themselves, but also for individuals categorizing others.

7. Conclusion

This study has shed light on the relative importance of social context and individual behaviors and characteristics in relation to gamer identity. Whereas previous research on the topic has identified a multitude of potentially relevant indicators, knowledge on *how* important they were in relation to a gamer identity was lacking. When considering the variance explained in the attribution of being a gamer to self (55%) and others (72%), it is not unreasonable to assume that this study has set some first successful steps towards understanding the relative impact of relevant indicators. It goes without saying, however, that these indicators do not fully cover the idea of cultural capital as described by other authors. It might therefore be interesting for future research to look into this matter by means of a measure that more

thoroughly captures concepts such as cultural capital. Such endeavor would in the first place require an instrument able to assess all components of social and cultural capital tied to digital games.

When considering our results more generally, at first sight, a gamer identity still largely seems to be defined in relation to the stereotypical image forwarded by the gaming industry. Indeed, a gamer identity is still constructed, first and foremost through a direct investment in the medium itself, i.e., by playing digital games. This holds true for the categorization of self and of others. A gamer identity is also connected to issues of gender albeit less radical than one might have expected. Indeed, gender plays an equally important role as the kind of content that is played or the age of the player. Hence, whilst a gamer identity started out as an industry construction typically addressing males, today it seems that there is some room to be more inclusive. The role played by a friendship environment is also something to take into account. Considering that players live in a multitude of social contexts and situations, the degree to which a friendship environment is associated with one's gamer identity is highly relevant. It might be interesting for future research to consider how a gamer identity relates to other social environments, for instance, those environments that have been created especially with gamers in mind such as websites.

This also brings us to the relevance of a social identity approach in relation to studying a certain kind of group. Empirical research employing a social identity approach is often executed in experimental settings with clear-cut small groups and arbitrary assignment of participants. Being a gamer, however, is primarily built on consumption practices and it is a group membership that is fuzzy. In addition, people choose whether and to what extent they embrace being a gamer as part of the self-concept. In our opinion, a social identity approach has provided a solid theoretical basis to conceptualize and understand how a stable social context and individual behaviors can be linked to a gamer identity. Although the main focus of a social identity approach lies in specific social

situations, the underlying mechanisms governing category formation allow for extrapolations to relatively stable levels of identity formation in stable social contexts whilst also accounting for the cultural embeddedness of identities.

Finally, as explained previously, a social category is constructed based on comparing the in-group with the out-group. Whilst this mechanism is an assumption underlying our study (e.g., by means of prototypes), it is not the focus of it. Recent developments, however, might make in-group out-group comparisons highly relevant. Indeed, during the writing of this paper, several incidents have occurred in which self-identified gamers have started organizing themselves in a reaction against what they see as an attack on their gamer identity organized by academic scholars and the popular press (Hern, 2014). Research using the social identity approach has shown that threats to the in-group and more specifically to the homogeneity of the social group will make group members who are highly committed to their identity to collectively respond to these threats (Ellemers et al., 2002; Spears et al., 1997). In fact, this illustrates again how relevant a social identity approach can be in understanding what is happening today. A rather interesting question is now how the activities of these highly committed and thus prototypical gamers will renegotiate what it means to be a gamer. Indeed, a gamer identity is for a significant part dependent on how being a gamer is socially constructed in a cultural context and this social construction is now openly being subject to discussion and reconfiguration. As a consequence, this might change the reasons why people will identify as a gamer in the future. Keeping track of these developments from an academic perspective might further our understanding of how social identities are formed, maintained and changed.

“YOU AND YOUR FRIENDS ARE DEAD”

（Friday the 13th）

5 Gaming and friendship

Paper 5

Youth, friendship and gaming. A network perspective.[25]

Abstract

With digital games being part of the leisure of a multitude of young people, it is important to understand to what extent gaming-related practices such as talking about games or playing games together are associated with the quality of friendship relations with players and non-players. Based on 100 friendship networks, this study explored to what extent those practices permeated the everyday life of youngsters and whether they could be considered as a part of doing friendship. Results indicated that gaming as a conversational topic was

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widespread within and between networks. Furthermore, regardless of gender, this was significantly associated with friendship quality in almost all of the networks. When considering playing games together, a somewhat different picture emerged. In contrast to conversational practices, playing together was less widespread. Moreover, both the occurrence and the effect of co-play and friendship quality was gendered. The findings of this study show that a focus on gaming-related practices yields a fruitful starting point when considering the role of digital games in a social context that is not limited to people playing (online) games. Furthermore, they also feed into the ongoing debate of possible effects of digital games in that it shows that the way in which games influence the lives of young people goes beyond a direct effects approach.

1. Friendship and digital games

Friendship makes up an important part of the life of young people. Among other things, it provides a space for emotional growth, social support and identity formation (Bukowski, Newcomb, & Hartup, 1998; Pahl, 2000). Indeed, numerous studies have shown that the quality of adolescent friendships is related to happiness and well-being and that it provides a buffer against negative emotions such as feelings of social anxiety and loneliness (Demir, Özen, Doğan, Bilyk, & Tyrell, 2011; Demır & Weitekamp, 2007; Gauze, Bukowski, Aquan-Assee, & Sippola, 1996; Hartup & Stevens, 1999; La Greca & Harrison, 2005; Parker & Asher, 1993; Sherman, Lansford, & Volling, 2006). Furthermore, the intimacy and social support provided by friendship ties is related to improved health and better psychological adjustment in later life (Bagwell, Newcomb, & Bukowski, 1998; Chow, Ruhl, & Buhrmester, 2012;

Chow, Roelse, Buhrmester, & Underwood, 2011; Kaplan, Cassel, & Gore, 1977). Considering the myriad of positive influences, understanding the factors that contribute to the quality of young people's friendships is important. With young people's everyday life becoming increasingly mediated, including their relationships with peers, several scholars have directed their attention to the relation between media and friendship in general and between digital games and friendship in specific (Green & Singleton, 2009; Livingstone, 2002; Mesch & Talmud, 2006; Ruddock, 2013).

Indeed, with digital games firmly rooted in youths' leisure, games provide an interesting venue for research on the topic (Cole & Griffiths, 2007; Wang & Wang, 2008). Up to now, most of the research on digital games and friendship has focused on the affordances that online games provide in building or maintaining virtual and real-life friendships. In a study of Cole and Griffiths, for instance, the difference between online and offline friendships of MMORPG (Massively Multiplayer Role Playing Games) players was considered (Cole & Griffiths, 2007). Players reported that playing an MMORPG had a positive effect on their relationships with other players whilst about one fifth reported that playing MMORPGs had a negative effect on their relationships with people outside the game. Furthermore, additional research on the topic showed that friendships are played out differently between male and female players. Indeed, male users of online games were found to be more likely to look for opposite-sex friendships to obtain emotional support than female users (Wang & Wang, 2008). In terms of game platforms, Ledbetter and Kuznekoff, discussed how the communicative affordances of the online platform Xbox LIVE were connected to friendship quality (Ledbetter & Kuznekoff, 2012). More specifically, they found that the maintenance of relations through the platform, together with offline communication frequency correlated with relational closeness. Worth noting is that the above studies conceptualize doing friendship in terms of interpersonal communication and the time spent with each other. Similarly, in studying friendship in MMORPGs,

Munn points out the importance of shared activities in the development and maintenance of friendship relations (Munn, 2012). However, these studies exclusively focus on the (communicative) affordances inherent to the medium in relation to the people using it. Although such media-centered approaches have provided significant contributions, they also imply certain limitations. First, when it comes to games or platforms with online capabilities, online and offline relationships are often represented as mutually exclusive categories. It has been pointed out, however, that this seldom reflects reality (Domahidi et al., 2012; Munn, 2012). Second, by limiting the scope of a study to game-specific affordances, other aspects surrounding games are not taken into account. When studying the role of music and friendship, for instance, research has shown that music provides opportunities for sharing that are not necessarily inherent to the medium (Cardon & Granjon, 2005). In fact, music plays a role in friendship relations by providing a topic for conversation. Third, whilst friendship and the use of games can be connected, friendship networks are, in general, not defined by them (Cardon & Granjon, 2005). In considering only the users of a medium, non-using friends are excluded or marginalized. As a consequence, this yields a limited view on how digital games contribute to 'doing friendship'.

In order to fill this gap, this study will first explore the occurrence of gaming-related practices such as playing games together or talking about games in young people's friendship networks (***RQ1***). Furthermore, since both friendship and gaming are considered to be gendered, this study will also look whether these gaming-related practices differ between male- and female-oriented networks when controlling for the ratio of players versus non-players (***RQ2***) (Bryce & Rutter, 2002; Green & Singleton, 2009; Wang & Wang, 2008). Finally, since shared activities lie at the heart of doing friendship, this study will explore if gaming-related practices are indeed associated with friendship quality (***RQ3***) and in what way these associations are gendered whilst controlling for player composition (***RQ4***). In short, we will look whether and to

what extent the quality of ties in the friendship networks of young people is connected to game-related practices embedded in these networks. This is important for at least two reasons. First, it allows for an additional understanding of how digital games permeate aspects of everyday life. Second, it feeds into the recurrent debate about possible effects of digital games and the need for insights that go beyond direct effects (Granic, Lobel, & Engels, 2013; Sublette & Mullan, 2012).

2. Method

2.1 Participants and procedure

Through the social networks of undergraduate students taking a course in social network analysis, high school students playing digital games (N = 100, M_{age} = 15.39, SD = 1.81) were recruited. About 67% of the respondents was male. For all minors in the sample, parental consent was obtained. In order to be included in the sample, participants were only required to have played any kind of game on any kind of electronic device in the past year. Hence, having played Snake on a smartphone was sufficient to be included in the study. The rationale behind this was that we aimed to obtain a sample that takes into account the diversity of ways in which people appropriate games (Kallio et al., 2011). To increase reliability, data were collected by means of structured face-to-face interviews and special care was taken to obtain independent networks (Matzat & Snijders, 2010; Scott & Carrington, 2011). Furthermore, several days before the interview took place, participants were asked to complete an online survey in which they had to provide a list of people they considered as their friends.

Interviews were built up around two blocks. A first block probed for a list of friends, albeit in a different way than in the survey. Friend names in the survey were obtained by following the approach proposed by Kirke (1996). During the interview, however, the names of friends were probed for by asking whether there were people in specific spheres of life (e.g. at school, in the neighborhood, hobby-related, …) they considered as friends. Subsequently, both lists of friends were joined together and respondents were asked to rank all friends in these lists in terms of most important friends at the moment. Next, the first ten friends on that list were used for the remainder of the interview if more than ten friends were named. The second block of the interview consisted of assessing the respondent's and friends' characteristics and their mutual relations. Similar to previous research, friendship in the survey and during the interview was repeatedly described as "people with which you have a good relationship and/or people who know more of you than mere acquaintances and/or people with which you regularly do things together and/or people with which you can have conversations about serious matters" (Bernard et al., 1990; Milardo, 1992). Digital games were described as "any game that can be played on any type of digital platform".

2.2 Measures

For all actors in each network, information on age, gender and whether they played games (0/1) was collected. Based on gender information, the gender proportion for each network was computed. More specifically, the number of female actors in a network was divided by the total number of actors in the network. Hence, a score of 1 on gender proportion means that all actors in that network are female whereas a score of .5 implies an equal gender distribution

in the network. Similarly, a measure of player proportion was computed based on the amount of people playing games compared to the total size of the network. A score of 1 on player proportion thus refers to a network in which every actor plays games. Following, Mesch and Talmud, the quality of friendship ties was assessed by taking the multiplexity of social relations into account.[17] More specifically this concerns the relations of emotional closeness (scale from 0 to 3), the frequency of shared leisure activity during the past month (0 to 5) and the frequency of contact during the past month (0 to 5). Scores for these relations were scaled and summed up to obtain the strength of the friendship ties (M_{α} = .84, *SD* =.12). In addition, two types of game-related relations were assessed: the frequency of talking about games during the past month (0 to 5) and the frequency of playing games together during the past month (0 to 5). In contrast to previous studies on the topic, we did not limit playing games together to playing online games. We allowed for the occurrence of co-play in any form. Hence, taking turns in playing a game on a smartphone was also considered as part of the practice of playing games together. For all relations, a score of 0 meant the absence of a tie.

3. Results

Descriptive network statistics showed that the average number of friends was 10 (Table 31). This is in line with previous findings (Domahidi et al., 2012). Regarding the gender orientation of networks, we see that the average network had slightly more males than females. As same-sex friendships are not uncommon for young people, it can be expected to have networks with only one gender type. Indeed, 11% of the networks was uniquely female whilst 24% of the networks was uniquely male. The average proportion of players in a

network was .79 (*SD* = .17) and in 21% of the networks, all actors played games.

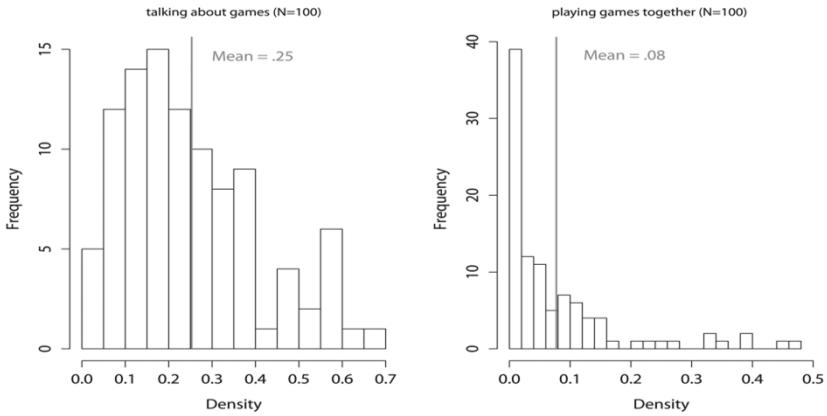
In order to look at the presence of gaming-related practices in friendship networks (RQ1), we looked at the density of talking about games and playing games together in each friendship network (*N* = 100). Density refers to the ratio of the number of ties that are present in a network over the number of possible ties that could have been present (Wasserman & Faust, 1994). Hence, a density score of one when considering the relation 'talking about games' would mean that all members in a network have been talking to each other about games in the past month whereas a score of zero would imply that nobody in the network has been talking about games to one another. Figure 9 shows the histograms of network density for both gaming-related relations in all networks.

TABLE 31 Descriptive Network Measures

	Mean	SD	Min	Max	Median
Network mean age	15.819	1.791	11.818	20.273	15.955
Gender proportion	.378	.368	0	1	.261
Player proportion	.79	.165	.3	1	.809
Network size	9.87	1.698	5	11	11
Density 'talking'	.253	.16	0	.689	.218
Density 'playing'	.077	.105	0	.467	.036
Density 'friendship quality'	.679	.184	.382	1	.64

Talking about games (M = .25, SD = .16) occurred more between actors in friendship networks than playing games together (M = .08, SD = .11). Furthermore, whilst playing games together did not happen in 31% of the networks, in most of the networks (97%), people talked about games. To explore how gender composition in the networks might relate to density differences, two regression analyses, one for each type of game relation, were performed with gender and player proportion as independent variables (RQ2). As shown in Table 32, there was a positive association between the proportion of people playing games in a friendship network and the density of their conversational relations about games (β = .49, p < .001).

FIGURE 9 Distribution of Network Densities



There was no difference, however, between male and female oriented networks (β = -.025, p = .54) when it came to talking about games. In total, 26% of the

variation in network density was explained by the number of people playing games in the network when accounting for gender composition.The story for network density and playing games together was somewhat different. Whilst a positive association was found between player proportion and density (β = .23, p < .001), a marginally significant negative association was found between gender composition and density (β = -.05, p = .055). This model explained 20% of the variation in playing games together. Residual analysis, finally, showed that the assumptions underlying both regression models (linearity, normality, homoscedasticity) were met (Kutner, Nachtsheim, Neter, & William, 2005).

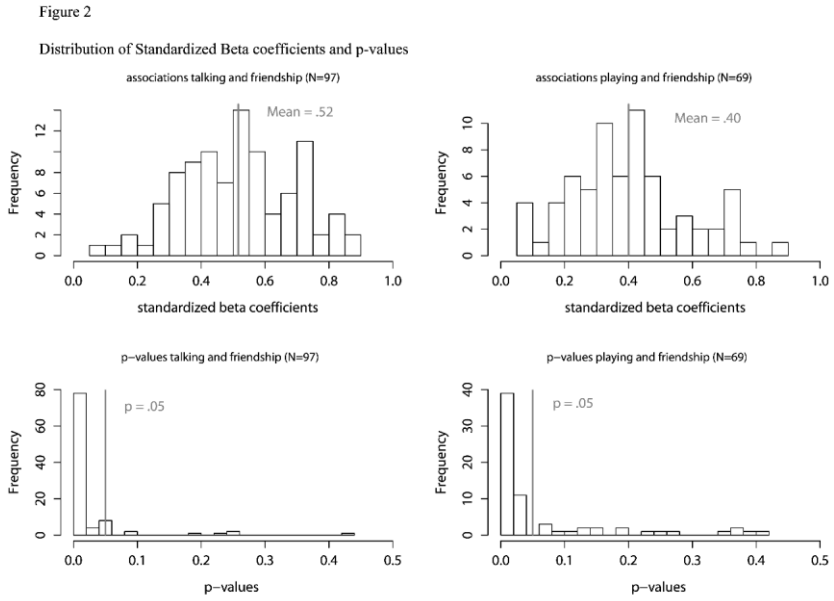
In order to explore whether and to what extent strong game-related relations coincided with strong friendship relations and vice versa, QAP correlation was performed for each separate network (RQ3). The main advantage of QAP correlation is that it yields corrected p-values by building a distribution of test statistics through repeated permutations. As a consequence, there are no a-priori distributional assumptions as is the case for normal linear regression (Pesarin, 2001). Furthermore, since network data are not independent, permutations effectively allow for taking autocorrelation into account. Figure 10 shows the distributions of the standardized regression coefficients and p-values for talking about games and playing games on the one hand and friendship quality on the other. On average, there was a relatively strong association (M_β = .52, SD = .18) between network actors talking about games and the quality of their friendships. Higher frequency in talking hence corresponded to stronger friendship ties. When looking at the distribution of the p-values, we see that there is no evidence in our data for a significant association in 13 friendship networks.

TABLE 32 Regression of Game-Related Density Measures on Gender and Player Composition

Dependent	Predictors	Beta (SE)	CI Beta	Stand. Beta	t-value	Adj. R^2
Talking	Intercept	-.123 (.08)	[-.281;.035]	0	.13	.26
(df = 97)	Gender	-.025 (.04)	[-.105;.055]	-.057	-.62	
	Player	.488 (.09)	[.308;.667]	.502	5.40***	
Playing	Intercept	-.083 (.05)	[-.408;-.093]	0	-1.525	.20
(df = 97)	Gender	-.053 (.027)	[-.108;.001]	-.188	-1.945 †	
	Player	.228 (.062)	[.106;.351]	.395	3.7***	

*** p < .001; † p < .10

FIGURE 10 Distribution of Standardized Beta coefficients and p-values



In other words, in 87% of the networks, a positive association between talking about games and friendship quality existed. A similar image emerged when it comes to playing games together and friendship quality. Of the 69 networks in which people played together, the average association was .40 (*SD* = .18). When considering the p-values, this association was significant in 72% of the networks. To test whether gender and player composition (RQ4) could explain the variation in these associations, two regression analyses were performed

(Table 33). In regressing the association between talking and friendship quality on player (β = .53, p < .001) and gender (β = -.025, p = .604) composition, only the former showed a significant relation. Hence, in networks in which the proportion of people playing games was larger, strong ties of talking about games, on average, overlapped more with strong friendship ties compared to networks in which the proportion of players was smaller. This was different for the association between playing together and friendship quality. In this case, the association became stronger when the ratio of females in the network became smaller (β = -.15, p < .05) whereas no such effect was found for player composition (β = .15, p < .01).

TABLE 33 Regression of Association Values on Gender and Player Composition

Dependent	Predictors	Beta (SE)	CI Beta	Stand. Beta	t-value	Adj. R^2
Talking and friendship (df = 94)	Intercept	.108(.09)	[-.071; .288]	0	.23	.25
	Gender	-.025 (.046)	[-.116;.066]	-.052	-.55	
	Player	.525 (.102)	[.322;.728]	.489	5.13***	
Playing and friendship (df =66)	Intercept	.33 (.125)	[.08;.58]	0	.011	.11
	Gender	-.148 (.063)	[-.275;-.022]	-.292	-2.34*	
	Player	.151 (.138)	[-.124;.427]	.136	2.63	

*** p < .001; * p < .05

4. Discussion and Conclusion

The main aim of this study was twofold. First, it set out to explore if gaming-related practices such as talking about games and playing games were embedded in friendship networks of young people (RQ1). Second, it wanted to look if these gaming-related practices were associated with the quality of the friendship relations in those networks (RQ3). In addition, this study looked to what extent the occurrence (RQ2) and the effect (RQ4) of these practices were gendered whilst controlling for the relative number of players in the network.

In regard to RQ1 and RQ2, our data suggest that people talk about games with their friends. What is more, this practice is widespread in our sample. Indeed, in 97% of the networks, friends talk about digital games with each other. This is an important finding as it shows that gaming is not an activity that stands outside the everyday life of young people. Instead, the practice of game-related talk seems to be firmly embedded within friendship networks. To a lesser extent, this is also true for playing games together. Whereas this practice is present in 69% of the networks, the mean density is remarkably smaller compared to that of talking about games (.08 versus .25). Hence, although playing with each other occurs in the majority of networks, this practice, on average, happens between a limited number of people within these networks. What is more, in contrast to the relation between gender composition and co-play, there is no evidence in our data that the network density of talking about games is gendered. In other words, the number of friends talking about games in a friendship network is not significantly associated with its proportion of females. Additionally, even when accounting for the number of people playing games in the network, a large amount of variation in both density measures remains unexplained. At this point, one can only speculate about the additional factors that might explain additional variation.

As discussed earlier, previous research has pointed out the importance of shared activities in maintaining and improving friendship ties. RQ3 and RQ4 addressed whether gaming-related practices can be considered as a part of friendship practices. Our data suggest that this was the case for talking about games and, to a lesser extent, for playing games together. In 87% of the networks, more frequently talking about games goes together with stronger friendship ties. Again, there is no evidence in our data that this association is gendered. Hence, the association does not differ in strength between male or female oriented networks. A somewhat different picture emerges for playing games together. Not only is this practice less widespread between and within networks, it is also less connected with friendship practices. This is true for the amount of networks in which this association is present, as well as for the average strength of the associations. Furthermore, in contrast to talking about games, the association is gendered. It grows weaker when the ratio of females in a friendship network increase.

In conclusion, this study sheds light on two issues. First, it shows that playing games is broader than the activity itself. It encompasses related activities that have effectively become a part of friendship practices. In this regard, game-related talk seems to be a widespread shared activity that is associated with the quality of friendship ties. This association is, moreover, equally important in female and in male-oriented networks. This is food for thought for future studies looking into the gendered aspect of digital games. Second, research on effects of digital games rightly address relevant public concerns. Effect studies, however, generally look at immediate effects after playing specific games. As this study indicates, playing digital games is a part of rather than separate to the everyday life of young people. It is also a part that significantly contributes to the quality of friendships. Hence future research aiming at evaluating the good or the bad of digital games might consider issues that go beyond direct effects.

5. Limitations and future research

Some limitations and opportunities for future research flow from the design of this study. First, it was cross-sectional. It is therefore not possible to say whether game-related practices lead to stronger friendship ties or *vice versa*. Probably, these relations are reciprocal rather than cause and effect. Second, for this study, we did not take into account the content of games that were played in the network. It would be interesting to see whether and to what extent our findings differ between different kinds of content networks. To reliably measure this, however, one would have to interview all the actors in the networks instead of only the focal actor.

“I think we can put our differences behind us for science, you monster”

（GlaDOS，Portal 2）

6 Discussion

1. Introduction

For our discussion we start by considering the main research question in relation to the results presented in this dissertation. Next, we consider whether and to what extent our research might have contributed to research on audiences in general and on digital games in specific. We then discuss our conceptual model and its relevance in capturing the structure and agency issue. To conclude we have a look into the lessons learned. In a sense, this boils down to identifying the limitations of our research and, where applicable, indicating how these limitations could be tackled in future research.

2. The relevance of digital games

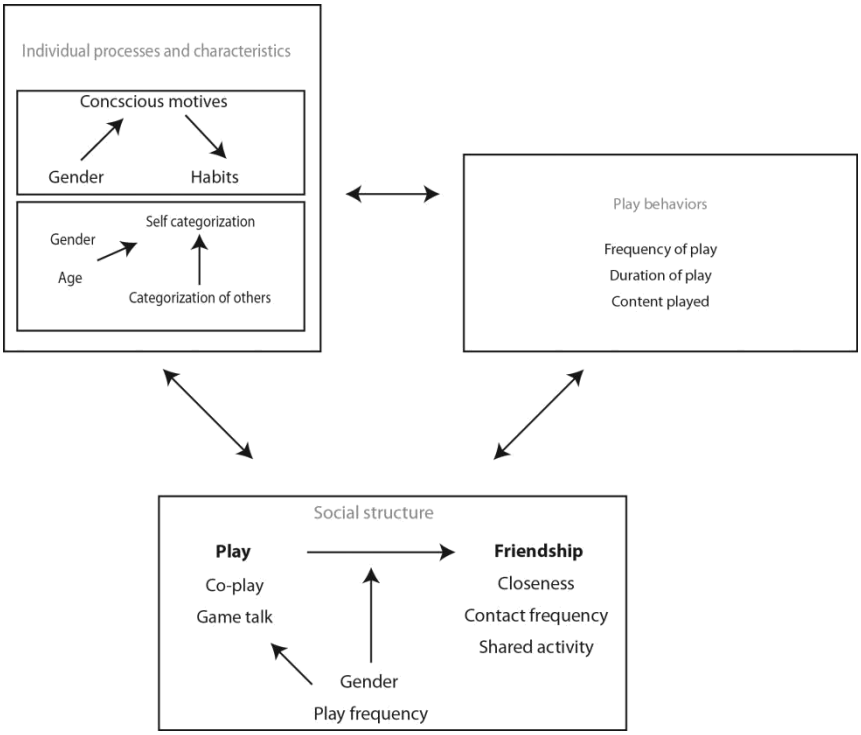
The main research question governing this dissertation was concerned with asking why and how digital games are important in the lives of young people. Remarkable in this respect is that all of our data showed that the large majority of young people are playing digital games. Combined with other data sources (ESA, 2013; ISFE, 2012), this supports the idea that digital games have grown to be more than the exclusive playground of a select number of aficionados. Indeed, for young people, playing digital games has become a mainstream practice among other media practices. As a consequence, the question is not so much why some youngsters play digital games and others do not. Rather, it asks why some people play more compared to others and why different content is consumed. In this dissertation, we have illustrated that the variation in the practice of playing digital games can be understood through one's individual expectations and through the way digital games live and resonate in the social relations with and between one's friends. In addition, these two factors contribute to habit strength which is in turn directly connected to understanding the variation in the amount of time people spend playing games. Comprehending the underlying reasons and processes for play, however, only yields a limited view on the importance that digital games can have for young people. It tells us something about *why* games are played, yet it tells relatively little about *how* play is embedded in everyday practices. In this respect, our research has shown how digital games can provide a way for young people to build a part of their identity. Again, there is more to digital games than their direct link with identity formation. Indeed, equally important is the way in which game-related practices are embedded in the social relations of these individuals. This has also shown to be relevant when focusing on the structure of those friendship networks itself. Indeed, the finding that game- and game-related practices contribute to doing friendship might be the most

straightforward illustration of how digital games are important for young people today. Yet, the inverse is also true. Friendship networks and the distribution of game-related practices therein contribute to the kind of games people play and to the degree to which they categorize themselves and others as gamers.

It is also important to note that our different themes are interwoven rather than disconnected. Figure 5 illustrates how our previous models can be combined. It shows that people play digital games because of game-related motives, habits and social game-related practices. These game behaviors are in turn important to understand self-identification as a gamer whilst distribution of game-related practices in the friendship environment allows us to understand why a gamer identity is attributed to friends. In addition, the distribution of these game-related practices and characteristics among friends coincides clearly with the way these friendships are structured.

In short, combining the insights of our different studies shows that the whole is greater than the sum of its parts. Indeed, in combining these insights, a complex picture is drawn of how different aspects interact with each other to make games important in the lives of young people. Digital games are a part of young people's lives because they provide several ways in which players can enjoy their free time. In addition, the way they spend their free time also allows them to share in that games provide a means for young people to find a place where they belong and through their shared, game-related practices, games allow for friendship relations to be maintained or strengthened.

FIGURE 11 Combined model



It is only by accounting for the fact all these factors are connected that one can begin to understand in a more general way the importance of digital games. Playing games is therefore about more than direct effects. In asking about the effects of a game text, digital games become decontextualized; they are treated as an entity that exists and operates outside the realm of the everyday. With the research presented in this dissertation, we hope to have contributed to a view in

which digital games show to be an integral part of our culture and society through the way they find their way in different yet interconnected aspects of everyday life.

3. Contributions to the scientific community

With the research presented in this dissertation, we also hope to have contributed to the field of audience research. In the first place, this concerns a contribution in relation to insights regarding the medium itself. Additionally, however, we also believe that the insights gained by looking into digital games can be useful for the broader field of audience research. More specifically through its conversation with the idea of media practices and through the way in which the research presented in this dissertation might be useful for research on other media.

In terms of research on digital games, we hope to have added to insights on our three main topics. Whilst the question regarding game choice was not a new one, we have tried to contribute on different levels. In the first place by developing a theoretical and conceptual framework that strikes a balance between the generality of human behavior and the specificity of digital games. In doing so, we have tried to provide a means to situate and contextualize play behavior. Second, the rigorousness we have adhered to in the construction of our measurement instrument is, to our knowledge, exceptional when it comes to assessing motives for playing digital games. As such, it delivers a solid basis for research that aims to validly and reliably measure motives for play. Third, as we will discuss in more detail in the next section, we also opened the way

for research that goes beyond the focus on individual motives for play. Indeed, in combining individual measures with social structural ones, we took a relevant step in accounting for social context when approaching motivations from an objectivist epistemology.

When it comes to our research on gamer identity, it contributes first and foremost in that it has shed light on a topic that is under-researched. As indicated in Chapter 4, to our knowledge, research that explicitly addresses the question of gamer identity and how it is constructed is mainly to be found in the work of Shaw (2010, 2012). As her work is rooted in a critical tradition that draws on an interpretative epistemology, our work can be considered to be highly complementary in that it identifies the relative importance of key determinants. Considering the heated debate that recently emerged on what it means to be a gamer (i.e., gamergate), several interesting questions can arise, in the first place on the topic of gamer identity itself. Indeed, how can we understand what is happening from a social identity perspective? And how will a gamer identity be renegotiated? And will it become a more inclusive category or will it become a category that will only be embraced by the 'truly hardcore' players? Put differently: will the determinants that were identified in our study change and in what direction? Another question is concerned with our own identities and its ensuing axiological position: that of a researcher and that of a gamer. Whilst both identities coincide well when asking how digital games can be important in the everyday life, they seem to conflict in the current debate in that scholars who study digital games are being considered as anti-gamers. Scholars who embrace a critical approach in relation to the study of digital games have indeed argued that games in general and a gamer identity in specific should become more inclusive in terms of gender and race (e.g., Shaw, 2012, 2013). This lack of inclusiveness is in turn being contested by those who can be labeled as pro-gamergaters. Our results could bring some nuance in this debate. They show how gender is indeed relevant in relation to a gamer identity. They also show, however, how other factors are at least equally

important. Whilst we believe that equality between humans is a higher good, we think a more nuanced approach might have resulted in a more constructive debate. Indeed, from a social identity point of view, threats to the in-group will lead those who identify strongly with that in-group to take collective action in order to protect their valued identity (Spears et al., 1997). This runs the danger of making a gamer identity more exclusive than it was before. This would be the inverse result of what critical scholars have been aiming to do. Indeed, making gender and race the prime determinants of a gamer identity might as well make other determinants less influential. A better strategy might have been to positively reinforce other determinants over and above gender and race in order to weaken their relation to a gamer identity in the long run.

On account of games and friendship most research has addressed the question of friendship from within game worlds. However, we consider digital games to be part of people's everyday lives rather than the other way around. From this perspective, we were first interested in the friendships people had and second in how digital games were embedded in these friendships. In doing so, we hope to have avoided an overly game-centric approach which is, in our opinion, something research on digital games should increasingly embrace. As indicated in the previous section, through the combination of these insights a more complete picture emerges than by considering each study separately. It shows how behaviors, individual processes and characteristics and the social environment of players are all interwoven and influence each other.

In considering how our research might fit the larger picture of audience research, we look back at how we approached the idea of media practices. While we think that the call for a focus on what people are doing with media is a fruitful starting point (Couldry 2004; 2012), we also believe that an inclusive approach allows for fitting different pieces of the puzzle. Digital games, and by extension media in general, are important to people as a means *and* as an end. With our research, we hope to have illustrated that both are complementary

rather than opposite and that understanding media can only gain from looking at both aspects. Research on media it is not about choosing between use and other aspects than use since both are interconnected. As we have shown, use, or more correctly, different aspects of use are associated with other practices and vice versa. In a similar vein, we are convinced that the dichotomy between individual and social is a false one. Individuals are embedded in a variety of social contexts. We should look for ways in which to understand the interplay between both rather than privilege the one over the other. In addition, and related to the previous, we do not agree with the call of some scholars for a radical contextualism in order to understand our contemporary media environment (Livingstone, 2009). Instead, together with many other researchers in the field, we believe there is enough place in our toolbox for subjective as well as objective tools. Furthermore, in combining the results that were obtained through an objective approach we were able to draw a complex picture of the way games are embedded in the everyday lives of people.

When it comes to research on a specific medium other than games, we believe our approach can be easily replicated. Although the use of social network analysis is not without its problems (see next section), accounting for the social structure in which individuals are embedded is still to be preferred above ignoring it altogether. Furthermore, other types of media also offer new opportunities in which to deal with a social network approach. The first thing that comes to mind are social networking platforms. Such platforms allow for collecting network data in a relatively easy way. A possible venue for research could lie in comparing friendship networks as constructed by respondents themselves and how they are constructed by the structure of a social networking platform. In addition, one could look at how friendship is constructed in relation to those kinds of networks and so on. Possibilities are not limited to social networking platforms. With technology allowing devices to become increasingly mobile, it is possible to construct networks that look at communication flows and structures. Such information could then be coupled

with content, locations, other kinds of networks (e.g., relation strength) and usage thereby drawing a complex map of how communication contributes to social relations. Furthermore, a network approach does not need to stay at the level of individual media. Indeed, when considering recent work on mediatization, it might be interesting to consider how to integrate networks of media use with networks of social relations. This would allow us to consider who is using which medium for which purpose. Put differently, such an approach could provide a basis for understanding how the media multitude interacts with our everyday social reality. We also believe that an objectivist viewpoint could significantly contribute to this kind of knowledge. As we noted in our introduction, contemporary audience research has been moving away from quantitative methodologies. It is in this mindset that one needs to read the call by Couldry (2012) to explore the media multitude using actor-network theory. This is a less formal kind of network logic as compared to social network analysis. Evidently, this method fits a qualitative approach to media research. In that respect, using social network analysis to map media practices onto social ones could further enrich the toolbox that is being used in understanding the audiences of today.

4. Agency and structure revisited

A central theme underlying our different studies was concerned with how we could understand the relation between behaviors, individuals and the environment in which they are embedded. This goal was first and foremost inspired by the aim to overcome a criticism that is often heard when embracing a post-positivist framework, namely that it relies on an overly individualistic

and thus decontextualized approach of social phenomena. Although the relation between agency and structure has been subject to serious debate for several decades, we have taken a pragmatic approach by conceptualizing structure as the social relations between individuals. This was further narrowed down by looking at friendship relations. In general, our studies have convincingly shown the usefulness of capturing those relations through a social network approach and subsequently relating them to individual behaviors and processes. Indeed, the friends we have and the way in which digital games are interwoven in our relations are influential, whether it concerns the kind of games we play, the groups we feel we belong to or the strength of friendship bonds themselves. However, two concerns can be raised. First, as we have previously noted, our model with three reciprocal components works well when individual issues are in focus, be they characteristics, processes or behaviors. The moment social structure itself becomes our focus of attention, however, things become less clear. Considering that our aim was to overcome an overly individualistic approach towards social phenomena, the question can be raised whether the step we have taken has been big enough. In a way, it still feels that our model performs suboptimal once we let structural questions gain the upper hand. Yet, at this point, it is not easy to see an alternative. One might consider replacing individual measures with collective ones but as a consequence it would become difficult to answer questions related to individual behaviors. This indicates how hard it is to strike a balance between an individual, psychological-oriented approach and a collective, sociological one. A possible way to get closer to social structure would be to replace an ego-network approach with a full network approach. As such, the focus would be more on the social group without losing the opportunity to look into individual nodes. A full network approach, however, raises other difficulties in that it needs a well-defined and demarcated group to obtain valid results. This stands in contrast to the complex dynamic and often chaotic social reality most people live in. A well-defined group would, for instance, be a class or a school. Yet the lives and behaviors of

people do not stop at the school gates. Furthermore, a full network analysis demands that all of the nodes in the network are surveyed or interviewed. Therefore, the amount of missing data that is considered to be acceptable is far less compared to the typical fall-out in social science research. As a consequence, when interested in everyday practices, a full network analysis is even less manageable than one that focusses on ego networks.

A second concern regarding our conceptual model is that it mostly ignores broader contextual or environmental forces. It goes without saying that the addition of a meso- and macro-structural layer would have been enriching. A case in point is our research on gamer identity. The concept of gamer is, amongst others, embedded in historical, cultural and institutional contexts. Indeed, over the years, digital games have been subject to several moral panics thereby at least partly shaping the collective understanding of what a gamer is. As we noted previously, even today, the public discourse on games is first and foremost concerned with its possible effects. In addition, it has been pointed out that the game industry plays its part in the construction of what it means to be a gamer too. This is for instance done by addressing players and the market in terms of hardcore gamers and casual gamers. But also the broader culture in which people live can be related to a gamer identity. Indeed, in Western societies it is hard to imagine not having individual access to digital games and a variety of devices to play them on. It would be a mistake to assume that this is the same everywhere. In Mexico, for instance, ownership of a gaming device and (legal) digital games is a privilege for those who are well-off whilst less fortunate people typically play in arcade halls or similar setups (Corona, 2013). The question is then if the construct of a gamer is even relevant in this context, and if it is, to what extent it is imbued with the logic of class differences. So, on the one hand, the absence of an extra layer in our model clearly leaves out the possibility for an even more contextualized understanding of the phenomena under scrutiny. On the other hand, it could be argued that aspects of meso or macro structures seep through to the micro level. Hence, ultimately, the way in

which a gamer identity is constructed by meso and macro forces needs to go through the micro and individual layers. The idea of a prototypical gamer, for instance, reflects how a gamer identity is socially constructed by forces on the meso and macro level. Consequentially, micro and individual aspects will, in a way, reflect those higher-up layers.

5. Lessons learned

As with most research, the studies here presented are susceptible to improvement. In this part, we consider some of the issues we encountered on a conceptual and methodological level and we suggest possible solutions. A first question to be answered concerns our work on motivations. Individual motives for play were conceptualized by means of outcome expectations and habit. The main goal, conceptually, was to find a middle ground between a theory on human behavior and the behavior of playing digital games. This led to a number of outcome expectations that should be able to explain the conscious decisions for playing. In identifying relevant outcome expectations, we were guided by the outcome categories proposed by Bandura (1986). As we wanted to account for the specificity of digital games, an important question was to what extent we had to adhere to those pre-defined outcome categories. Rigorously adhering to those categories would result in a failure to account for the specificity of digital games whereas approaching them too loosely would lead to an overgrowth of categories; a problem similar to that of the Uses and Gratifications approach. In other words: will new studies on motivations for playing digital games lead to new categories and if they do, to what extent is this problematic? There is no easy answer to this question. Although our

outcome expectations probably cover the most fundamental components that are related to playing digital games, technological or other developments can change the nature of digital games and hence the expectations people hold.[26] In a way, through adding an extra layer by means of kinds of outcomes (i.e., game-internal, game-external, self-reactive), a certain buffer has been created in that it allows us to approach those types of outcome expectations as second order construct (as we have illustrated in our third study on motivations). By doing so, the importance of a single motivation category is downplayed in favor of the whole. In treating single motivations as reflective indicators of a second order construct, we effectively leave room for additional motives to be added to the model without changing the overall picture. In a sense, this is an elegant solution to a real-world situation in which new motivations can emerge or existing ones can fade out.

Our research on identity also raises some conceptual and methodological questions. Whilst the social identification approach offers an almost natural fit between the saliency of an identity emerging through one's social contacts on the one hand and social network analysis on the other, it also runs the risks of obscuring other relevant factors. Indeed, our study considered individual characteristics and behavior together with network-related variables. However, behavior was, in this case, rather shallowly defined. It is not unreasonable to assume that people identifying as gamers exhibit a more complex and rich range of behaviors than the ones accounted for in our study. Such behaviors might include being active on gaming fora, buying or reading gaming magazines, watching let's play videos, watching people play live on platforms such as Twitch and so on. This is all the more relevant when considering that game-related behaviors played an important role in understanding self-categorization as a gamer. Hence, future research should think about how the

[26] Consider in this respect the importance of the social aspect of digital games through the advent of the internet.

idea of cultural capital can be further conceptualized and operationalized. A downside of adding more variables, however, is found in a more practical problem that comes with social network analysis. Whereas measuring individual behavior, in terms of time, is a relatively straightforward undertaking, doing so for network behavior is not. Obtaining additional information from people in one's friendship network would lead to an exponential increase in how much time is needed to obtain that information. Considering that our interviews easily took 2 to 3 hours, there would have been very little room left for additional questions. There are similar issues with our study on friendship and games. As we only measured game-related behaviors, it is hard to say what would have happened if other behaviors such as shared leisure activities or media-related behaviors had been added. It stands to reason to assume that, for most people, shared gaming-related practices are not the only or most important ways in which friendships are being maintained. Painting this larger picture would have been interesting in that it would have shown how digital games relate to other activities and media. It would also have led to an approach that is less game-centric than what we have tried by focusing first on friendship and second on games. The question remains, however, how this would have been possible with the current methodological approach. An additional issue with social network analysis is that not only the number of relations that can be measured is limited, also the number of people one can include in a network is. This is not a big problem when focusing on close friendships since the number of close friends one has is in general relatively small. It is a different story when one wants to look at relations between other types of people. An interesting approach could be to add other peers, other players and family members. This, however, would lead to such a large number of people to include that it would become impossible to manage, even on a moderate scale. Hence, whereas we consider social network analysis to be a powerful tool if one wants to supersede a mere individualistic approach, it also limits the kind of social relations that can be taken into account. A

solution to this problem is not evident. One could opt to look for a way in which an abstraction is made of the network structure. Whilst doing so would make the task more manageable, it would also mean that network information is lost. It goes without saying that this tradeoff is something that should be kept in mind and would need to be justified.

“Finish him!!”

（Mortal Kombat）

7 Conclusion

We have come at the end of our journey. It was my ambition to contribute knowledge in different ways, in the first place by adding to insights regarding digital games. Based on my own background, I was first and foremost curious about how and why digital games are important in the lives of young people. I have explored what makes them an enjoyable activity but also how they are being used in everyday social practices such as identity construction and maintaining friendships. I hope these contributions can also be part of the public debate surrounding digital games. Indeed, in my opinion, digital games offer a range of possibilities that can be considered as positive rather than negative.

However, my curiosity was not limited to digital games in and by themselves. Working as a communication scholar, I also aimed to contribute to the field of audience research. I have tried to do so by considering how I could combine individual behavior with social structure in an empirical post-positivist way. In my opinion, the absence of context in most post-positivist research is an important shortcoming that should be tackled. I believe social network analysis provides promising results in this endeavor. It seems that the end of our journey is only the beginning of a new one. Indeed, it will be a challenge to find ways in which the combination of individual measures together with social network analysis can be maximally effective. In other words: interesting times lie ahead.

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YOUTH

The central question guiding this dissertation asks how and why digital games are important in the everyday lives of young people. More specifically, an exploration into three key themes is presented: game choice, gamer identity and games and friendship. These themes are studied through a lens in which agency and social structure are accounted for. Throughout this dissertation it is illustrated how digital games and game-related practices have become strongly intertwined with everyday practices thereby drawing a complex picture of how digital games have become relevant for individuals and the friendship networks they live in.

FRIENDSHIP

PLAY