Considering Co-Players:
Implications for research and design

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ABSTRACT
This empirical study explores the role of co-players in players' motivations and experiences of gaming through relational sociological analyses of interview and survey data. The aim is to bring attention to the importance of divergent gaming partners, and to offer some implications for considering co-players in game research and design. Results explore three gaming situations: playing with family members, playing with friends and playing with strangers, and shows how differently these co-players impact on players' experiences and motivations. Games as designed platforms have certain affordances for social behaviour that will vary for different constellations of individuals playing together. Moreover, the study shows how strong game structures facilitate and encourage play with strangers but simultaneously dissuade player agency and social incentive in play with friends and relations. From analysis of the data three design hypotheses concerning co-players and their impact on gaming are posed.

Keywords
Game companions, social gaming, video game, computer game, collaboration, competition

1. INTRODUCTION
Through the years, playing digital games together—social gaming—has garnered attention in games studies from a number of perspectives. Researchers have looked at massive multiplayer online games (MMOs) as places for community building [1; 2], at how people make friends online [3; 4], how norms are created in online communities [5; 6], and how to design for interaction among strangers in online games [7; 1]. Researchers have also shown that what happens around games is of equal importance for understanding gaming. Stenros et al. [8] argue that social, enjoyable talk and interaction, known as sociability, are as important as the game play itself for understanding digital gaming; players not only play games together, they also engage in social activities *in* and *around* games. Integral to social gaming is that we have other players to game with or against, here called co-players. Even though it is clear that co-players have a tremendous impact on social gaming and can be the main motivation for play

[9: 3], the role of different game partners has received little attention in game studies. As de Kort and Ijsselsteijn [10] point out, social play is "as much a function of the game as it is of where and with whom we play." [10: 8]. Yet scant research has focused on the nature of co-player functions for gaming. A recent review of research on the social dynamics of online gaming [11] shows that while many topics have been in focus for research, co-players is not one of them.

This article addresses the issue by exploring the roles of co-players, distinguishing between three groups of social gaming partners chosen empirically from preliminary studies: family members, friends, and strangers. Through analyses grounded in relational sociology [12] of both quantitative and qualitative data, the roles of different co-players are investigated. The aim is to bring attention to the effect of different game partners on players' motivations and experiences of gaming, and to show the implications for considering the variety of co-players in both research and design.

The study shows that gaming comes to mean different things and be acted out accordingly depending on the nature of the relationship with the co-player(s). Playing with family has different objectives, structures, and difficulties from playing with strangers, which leads to different experiences. Applying a relational perspective can reveal how gaming is essentially transformed through the interaction process, and how this process is dependent upon existing game structures. The article ends by posing three design hypotheses making the results of the empirical data and theoretical analysis actionable for design.

2. A RELATIONAL UNDERSTANDING OF SOCIAL GAMING
This study focuses on the relationships between individuals gaming together as well as their relationship with the game itself and is grounded in relational sociology. Relational sociology can be traced back to Simmel's [13] division of social forms and the argument that modern society increasingly consists of loosely intersecting social circles where individuals interact with each other. In relational sociology focus is on understanding this dynamic ebb and flow of social relationships between actors. Emirbayer [12] shows us that a focus on relationships—as dynamic unfolding processes between actors—offers a vibrant perspective where researchers can see how the social world unfolds, here through understanding gaming as a process. Only

focusing on substance, on static 'things', such as institutions or individuals, hides the fluid nature of modern life [12]. In interaction something more than actors and artefacts is present. For games this perspective is particularly useful; many researchers have pointed out how games only take form as they are interacted with (see [14], [15] and [16]).

Yet, even Emirbayer [12] acknowledges the difficulties of adopting a purely process based approach. A more moderate perspective reasons that pre-existing structures often create the base for whatever subsequent process takes place [17]. As an example, Elias [18: 130] contends that from a relational perspective games—even a game of cards—receive their specific character from the persons engaged in the game. Who plays the game will shape the process of the game and make each game session different [18]. Cards, however, are a material necessity [17] that allows only certain ways of playing, laid down in a set of constitutive rules. A deck of cards affords many different card games but not, say, a game of football. Engaging in a game thus depends on both substance and process and I argue that the same goes for digital games.

An affordance is here understood as an opportunity in the environment that can be relative to each individual. As Linderoth [19] explains it, an environment offers certain ways of acting that individuals with the capability to perceive them are able to use; for example a chair affords sitting for an adult but not for an infant. Thus a deck of cards only affords play for an individual with enough dexterity to handle the cards. It also implies that not everyone will play the same digital game in the same way. Capabilities and knowledge from previous gaming also matter.

Simultaneously we have a different set of rules than those posed by our deck of cards. Connected to our example, some families or other social groups might have different local rules for the same card game, so-called 'house rules' that are not of the same nature as constitutive game rules. For most games, digital or otherwise, game rules determine how the game can be played; but we should not forget that rules are constantly being renegotiated and changed, especially in the digital world where we have the added complexity of updates and patches which regularly adjust and change the rules. In addition, players appropriate and invent new rules, employ house rules, and interpret rules according to social and cultural context. As Consalvo [15: 416] expresses it: "Of course [game rules] apply, but in addition to, in competition with, other rules and in relation to multiple contexts, across varying cultures, and into different groups, legal situations, and homes." We can thus understand games as processes grounded in game structures consisting of more or less fluid sets of rules.

The terms constitutive and regulative rules come from Searle [20] who describes constitutive rules as those that not only regulate, but create the very possibility of engaging in a game. Constitutive rules create meaning. By stipulating certain things they create institutional facts, in this case the mathematical rules of a game's code; for example, allowing a character to jump or how casting the spell 'heal' has the effect in many games of restoring the target's hit points (HP). Regulative rules, on the other hand, govern predefined activities by stating what is allowed or not [20: 33-41]. These can often be found in the user agreement that many games make players sign, but also in the norms and rules that players themselves create to manage their social play, for example, 'cheating is wrong'. Salen and Zimmerman [21: 140-

150] use a somewhat similar definition of constitutive rules as core rules of a game, in contrast to implicit 'unwritten' rules.

The exploration presented here allows us to use a relational perspective to understand both the fundaments of a game, the game rules and the interaction processes taking place between player, game and co-players. This perspective allows us to bridge between a social constructivist approach, seeing games as pure process, and a formalist approach, seeing games as pure rule based structures. Social gaming encounters are made possible by constitutive rules, those programmed fundaments of each game. So while these are subject to interpretation and change, as with a deck of cards, they do not afford unlimited possibilities. Regulative rules on the other hand are the norms and rules of conduct. Regulative rules are created, enforced, and broken as players engage in games together. A focus on rules in this sense allows the study of games as both substance and process. The game, as a whole, comes to be as it is interacted with, in the relationships between player(s), constitutive rules and regulative rules. This study sees games as relational processes grounded in and/or supported by constitutive and relational rules.

3. PREVIOUS RESEARCH

To stimulate social interaction game developers use features such as player interdependency, where player controlled characters are dependent on each other and thus force players to collaborate. Player created semi-permanent groups such as guilds and clans are sometimes supported in games. The ability to group with other players, and the necessity for it, is another engineering feature that developers employ to foster social engagement within games and support player interaction. Trade is yet another social function in many multiplayer games. [7; 22; 23]

However, these features create only possibilities for social interaction, it is up to players to use them and not all players will have the knowledge or capabilities to use these affordances in the same way; thus, the outcomes will vary [19]. The affordances for social actions in a game are dependent on constitutive rules as well as regulative rules. Regulative rules add another layer of complexity where opportunities for sociality are supported and regulated. Guilds and clans are structures sometimes created and supported outside or even bridging over different games, and often have extensive rules for player behavior [6], systems for fairness [5], and as Chen [24] shows, trust built on regulative rules is a necessity for functioning collaboration in online games. Moreover, as mentioned previously, house rules will shape meaning and practice of digital gaming in different homes and social groups [25]. Regulative rules thus allow certain social actions and are as important for understanding social game play as constitutive rules.

Research is scarce on the impact of social companions on gaming experiences and practices within the game structures and features described above. However, studies have shown how relative strangers can connect via online game-spaces to play together across the globe [e.g. 2; 26]. At the same time, gaming is for many an activity performed with family in the home [27]. Studies have shown that participating in digital gaming can lead to new social relationships [26] at the same time as individuals play with family or friends whom they know from outside the game [28; 29]. Research also shows that younger gamers are more likely to game with others [30] whereas older gamers tend to game alone [31].

A few studies do exist that have looked at the impact of co-players directly, one of which showed that players perform better with an audience [32], while another comparing player reactions to playing against a friend, a stranger or a computer found significant differences [33]. Playing against a friend engaged players more than playing against strangers and playing against a computer least so [33]. Playing with strangers is perhaps most well researched, with other relationships barely so or not at all [34]. Waddell and Peng [34] compared playing with friends or strangers and effects in terms of aggressive or collaborative behaviour after game sessions and found small differences; but their face-to-face setup is not the typical one where strangers online are anonymous to each other.

So that while research has shown that gamers play digital games with strangers, parents, children, friends and so on, we still do not know how these different co-players impact on gaming. It is likely that regulative rules will have different affordances if those we play with are family or friends or if they are people we have just met. So, what does this mean for the interpretation and usage of constitutive rules? In short, what is the impact of different game partners on social game play? This is the question to which we now turn.

4. METHOD

The discussion on co-players presented in this study is a synthesis of results from a large-scale mixed methods study of social gaming, primarily interview and survey data gathered between 2008 and 2013 in Sweden. More information and a detailed methodical discussion can be found in [35]. The advantage of a mixed methods approach is that the varying methods can complement each other, providing different insights into various aspects of our study focus [36]. The interview data allow examination of the micro dynamics of gaming while the simple random survey data allow for broader generalizations of the results through statistical tests. The combination of data and analysis offers a broad and unique perspective.

Interviews were conducted with 33 adult and upper teenage game players, 16 women and 17 men aged 17 to 49, in both individual and group interviews. The data consist of focus group interviews, pair interviews and individual interviews carried out in Sweden. A comparative sampling technique was used, since interviewing several groups (men, women, older/young adults, couples, parents and adult children) offers more detailed insight. Both group interviews and individual interviews were conducted, as focus group data sometimes can obscure individual opinions in favour of strong group members, which, however, was not experienced in this study (see [35]). All interviews followed the same set-up of semi-structured questions. While the sample aimed at capturing a broad selection of gamers, the purpose was not to generalize the results but to gain insight into social gaming patterns.

The problem with all interview studies is the difficulty of generalizing to a larger group than the individuals who have been interviewed. To address this and explore the question of co-players and other social aspects of gaming a national survey was conducted in Sweden. From the initial results of the interviews, a batch of survey questions was constructed and included in the 2011 survey; "Swedes and the Internet" [37], the Swedish yearly contribution to the World Internet Project. The survey utilizes a simple random sampling technique, and was thus distributed to a nationally representative sample of Swedes; 2611 respondents answered the survey. The simple random sample is representative,

based on age (from 12 and up, the oldest respondent 100 years old), gender and residence. While there is no information on response rates, approximately 700 individuals are replaced each year due to dropouts [38]. In this sample that gives a hypothetical external dropout rate of 26%.

The data were gathered in Sweden—one of the leading countries in the digitalization process affecting societies worldwide [39]—where Internet use is almost universal except among the very young and the very old (almost 100% among 12-55 year olds [40]), and digital gaming is widespread [37].

4.1 Analyses

The study at hand utilizes results from both the interviews and the survey to distinguish and investigate differences between three groups of co-players, friends, family members, and strangers. The interviews were extensively coded and organized with the help of software. First an inductive analysis was conducted on the data, exploring them for general themes and insights. In a second step, and in conjunction with the survey data analysis, a more structured thematic qualitative analysis (TQA [41]) was performed on the data focusing on gaming with family, friends, and strangers. The secondary TQA focused on what, in gamers' experiences and practices, differentiates these groups. While there is overlap, since gamers sometimes play with both family and strangers in the same game, the analytical categories are kept apart to highlight differences.

The survey data were analysed using Spearman's rank correlations and coefficients are presented in the text. Significance is reported on accordingly: p-value $\leq 0.001 =$ ***, p-value ≤ 0.01 **. Spearman's rank (SR) range from 1 to -1, where 1 is a perfect positive correlation and -1 a perfect negative correlation. Values between -0.2 and 0.2 are considered too small to represent a relationship. More advanced analyses can be found in [35].

5. RESULTS

In the survey, 43% reported playing digital games; of these 24% can be thought of as dedicated gamers, here defined as engaging in several types of game genres. The term gamer will henceforth be reserved for dedicated gamers and players be used as a general term for everyone engaging in digital games. The average age of players is 38 (SD18); 41% are women. Results are organized according to popularity of co-players by the 53% of players in the survey who played with others. First comes friends, then family, closely followed by strangers, but note that the categories are not mutually exclusive. Dedicated gamers were more likely to play with others than casual players (Spearman's Rank, SR: 0.35***).

From the stories of the informants several qualitatively different social gaming situations can be identified; i) co-locative gaming in the home with family (siblings, partners and parents); ii) co-locative gaming at game cafés with friends; iii) gaming online with family members; iv) gaming online with friends; v) gaming online with strangers; vi) gaming with an audience (gaming side by side, taking turns at the same game or watching someone play); vii) gaming as audience (watching professional gaming together), these different social contexts by no means intend to be exhaustive, but illustrate how different mediations (e.g. online or offline) as well as relationship status (e.g. friends or strangers) affect how players define social gaming situations. The central traits of gaming with friends, family, and strangers are explored below.

5.1 Gaming with friends and online 'friends'

Friends are the most common co-players in the survey, 85% of social gamers play with friends. For most informants in the interviews this means persons known from different offline social contexts, out-of-game friends. Playing with friends is described as spending time on an everyday basis, and particularly younger informants point out how online gaming facilitates spending time with friends. In the survey data gaming with friends is indeed more common among young players and decreases with age (SR: -0.40***). Spending time with friends is in general more common among the young, so it is not surprising that the same is true for gaming with friends. While friendships are important for well-being at all ages this is especially true for youth [42]. Gaming with friends also decreases with family formation (SR:-0.20***), time being at a premium players with children are less likely to play with friends (or others), even though the Internet allows ease of organization. While gaming with friends did not predict more time invested in gaming, dedicated gamers were more likely than players to play with friends (SR: 0.35***).

In the survey data, gaming with friends is linked to considering gaming a social activity (SR: 0.24***), highlighting the social value of this gaming situation. A two-fold preference for out-of-game friends is clear in the data. First, spending time with friends is enjoyable and fun, i.e., sociability is supported; secondly, there are practical benefits to gaming with people sharing an offline space or a longstanding relationship.

Man (17): Friends you only know via the Internet you don't have to be as considerate with. I mean it might sound mean but you don't care if you have to go to bed because you are tired and don't want to play anymore. You just, "have to go, bye." But you can't really do that with [offline] friends, you have to think about them and finish playing even if it means another half hour or so.

As seen in this quote, friends more readily help each other and communicating about game goals is facilitated due to previously shared experiences and a higher investment in the social relationship. While preference for friends is partly about sociability, simply talking and having fun together, it is also about maximizing game play gain. Players have more obligations to out-of-game friends and regulative rules and norms about helping have a greater effect as the out-of-game relationships are grounded in offline situations and contexts. As in the quote, most informants made this distinction between true friends and online acquaintances.

The importance and difficulty of managing online gaming is a prominent theme in the data, corresponding to previous research results [3; 4; 5; 6]. However, the data also show how players group together online with co-players that are similar to themselves in that they share certain offline characteristics. In the quote below, the fact that all guild members are in the same life stage and of roughly the same age is seen as integral to sociability.

Man (26): A lot of people in the guild are also at the end stage of university so most are looking for jobs–[Man (22): they have lots to do]—so it's many people of the same age which makes it easier to find common interests.

Friendships offline have been shown to be built upon similarity between individuals [43], a process known as homophily. The same appears true of online relations, even though one of the basic affordances of the Internet is the ability to connect individuals across cultural and social lines. All of the informants involved in online gaming express these preferences and tell stories of how they ended up in guilds with people sharing a variety of similar characteristics, such as age, occupational status, being a parent, or a language or a culture. Yet this was not a conscious process or something gamers did on purpose. Rather, the reason is that similarity supports sociability, people are easier to talk to, which in turn supports game play. For example, people in the same time zone or people who are at school often have the same hours of the day available for play. If everyone playing has small children sudden child related breaks are readily forgiven. In other words, successful gaming needs to work on both a social and a practical level. Grounding game relationships offline, either in out-of-game relationships or in offline group memberships and similarities supports both the establishing of and adherence to regulative rules, allowing players to play the game in the same way, affording similar play styles. Even when interacting with individuals who do not share an offline space, offline characteristics of participants are still important.

Friends also feel obliged to keep playing together and so follow each other between games, as in this example with *World of Warcraft* [WoW, 44].

Man (34): We were all playing Lineage II [57]. [name], [name], [name], everyone, and then came WoW. Then I thought that we should try that because Lineage had started to become boring. It was like same, same all the time. So we tried a little and we noticed that it was much more fun, so then we all simply switched [to WoW].

Even though these friends share a voice chat server and thus can still engage in sociability despite playing different games, playing the same game is important to them as it keeps everyone within the same frame of reference. The change of game happened as some of the friends had tired of the game they were currently engaged in and the man in the quote, after some convincing, managed to get the entire friend group to instead try a new game, even though a few initially were reluctant to make the change.

Gaming with friends is both a valuable, fun social pastime and facilitates achieving game goals. However, friends also experience obligations towards each other based on these relational ties and more strongly felt regulative rules. To sum up, for playing with friends both the game and the relationships to co-players mattered for the (social) experience of playing the game. Players pull friends into games they play and friends also switch games to keep playing together, yet this was only true if the new game was perceived as worth it.

5.2 Gaming with family members

Sixty point one percent of gamers in the survey reported playing with family members. The home is the prime location for digital gaming and siblings, partners and parents are common co-players. Several informants explain that digital gaming is an integral part of their family's social life. By gaming together they share an interest offering them something to do together; strengthening bonds between family members. As one gaming family explains:

Woman (36): It's what we have in common
Man (34): Others come home from work, eat, do what they have to do and then sit down in front of the TV. But people like us, we fix everything and then we sit down to play.

Here gaming is presented as an everyday activity performed together; inherently social in a family context. This family adapted their gaming habits to fit each member and tried different games until they found one that all could play together, in this case World of Warcraft [44], so they all switched to WoW, the parents putting their old games and genre preferences on the shelf for a game that worked both for them and for their son.

In the survey data family gaming increases with family formation (SR: 0,22***). As players have children of their own less time is spent playing with friends and strangers and more on playing with family. Yet, family gaming neither decreases nor increases with age, showing that which family members one plays with merely varies with life stage, from siblings and parents when growing up to spouses/partners and children, and later in life to grown children and grandchildren. Family gaming is neither related to game dedication nor to time spent on games, showing that all types of players and gamers play with family.

Gaming equipment for players engaged in co-locative gaming at home is often placed in the same room and generally side by side to allow for looking at each other's screens and commenting on game play. This increases the social rewards of playing, a necessary feature of family gaming. That gaming takes place with family members provide legitimacy to this activity in the home, a place for family life, where leisure is expected to be shared.

Brother1 (17): Yes [we game together] but then the X-box broke ... so we used to game together a lot.
Brother2 (17): Yeah exactly, but then we also play the same game at the same time.
Brother1 (17): Yes but on different computers.

These siblings game together in different mediated forms; when their gaming console broke they put more emphasis on gaming on other platforms and adapted single player games to become social game play experiences. Common for many siblings and partners who have played a lot together is a shared set of gaming experiences. Over time, as well as game strategies players learn the play styles, strengths and weaknesses of their gaming companions. Gamers tell of how a single word can explain an entire strategy to their co-players, as in the quote below.

Man (22): It's easier to compensate [for different game goals] because we are brothers. With a friend then they could stop playing or something…. Plus, if we meet something then we can just name a tactic and both know how it works because we have played so much together.

In connection to the above quote, the brothers discuss how one of them would occasionally not prefer a particular game or find that they are not good at it, but often keep playing for the other's sake. A friend on the other hand is less likely to stick around or might try to change games.

Particular for the social context of playing with family is that which particular game is played is often of less importance than playing together with a family member so players tend to compromise over what games to play. Expressed in a different way, relational obligations come in the way and take precedence over play. Games are also modified to suit a family situation; for example playing single player games side by side or simultaneously on different machines. Another practical example is playing with children where games need to work for the young, or playing, say, online Backgammon with parents who refuse to play anything else. Family relationships are mostly highly valued

and often enjoyed and these results show that, for players, what games are engaged in sometimes takes second place in favour of finding games that allow the family to keep playing together.

5.3 Gaming with strangers

When gaming online—whether casual, MMOs, or strategy games—players connect with others whom they do not know, and 59.6% in the survey reported playing with strangers. In general, gaming with strangers is something seen as casual, relaxed gaming not requiring planning in advance.

Man (17): Well, this [gaming] with people I don't know, that's more relaxation and more 'what should I do now? Ok I'll play a bit' and then you just turn [the computer] on and you game with strangers, because it is not so fun to play alone.

Gaming with others increases the enjoyment of the activity and is preferable to gaming alone. Yet the informants seldom classify this interaction as chiefly social. In the survey data gaming with strangers is not related to thinking about gaming as a social activity but rather to perceiving gaming as a fun and relaxing hobby (SR: 0.21***), further supporting these results. While online gaming, if performed regularly enough with the same people supposedly leads to stronger bonds between players, for most informants, online acquaintances are not considered true friends. More common is the view that online relationships are difficult to manage and often end when one stops playing a particular game, as in the discussion on online friendships below.

Woman (29): It is very shallow and feels fragile, like you can start to talk with whoever and you have no idea who they are (...). You don't really know each other; it's only the game that binds you together.

What both of the above quotes further point out are how cultural values of what are 'better' and more valuable ways of spending time affect interpretations of gaming. In this study informants often expressed feelings of guilt if they played too much alone, playing with others, however, had no such feelings associated with it.

Informants preferred to play with out-of-game friends and acquaintances, as this was perceived as more enjoyable and facilitated achieving game goals. When playing with strangers, on the other hand, the difficulty of upholding norms for proper behaviour was acutely felt. Of course, strangers could sometimes become friends, but this was rare in the interview data.

Man (25): You can't, like, sanction people who break the understandings that exist; you can't punish people.

This quote points out the difficulty of managing norms in online spaces. When there are no solid links between people and due to the prevailing anonymity the possibilities of sanctioning those who break the agreed upon rules of behaviour are rather limited. Strangers do not invest in the activity in the same way, often leaving when things get difficult. In the quote below a man joined the guild of some out-of-game friends that included a sibling. While he previously had a history of leaving guilds at the first sign of trouble he found himself staying in this guild as the social obligations to guild members extended outside of the game and were therefore felt more acutely.

Man (22): We hadn't played together in a long time and we thought it would be fun to play together and so I joined their gang and it worked well there. But then there were problems like in any

other guild, it happens. But then you stay instead of being bitchy and leaving.

Known co-players can be trusted to invest in the gaming encounter and this, according to the informants, ensures the success of the activity. The other side, of course, is that this gamer was no longer free to change guilds as he wanted; relational obligations now tied him to one guild, a situation which he at the same time took pleasure in as the emotional gain from playing with family and friends seemed worth sacrificing his previous freedom for.

From the interview results it became apparent how strangers are commonly interacted with in competitive gaming, and that gaming with strangers is positively correlated with, e.g., real time strategy (RTS) games (SR: 0.26***). In competitive games, interaction is less dependent on social norms—relational rules—and more dependent on structural ordering through design, that is, by game structure—constitutive rules, creating limits, both spatial and temporal, to matches and bouts. Points are counted automatically, rankings and winners/losers declared and listed by the game, high scores automatically updated and so on. This is quite unique for digital games. In most analogue sports, players or judges manually keep track of rules and points, pick teams and decide times and places for games. This puts greater demands on social governing to organise events and agree on standards. In the early days of gaming the same was true, leagues and matches were manually organised and points counted by players and reported on. Now this is rare and there are thus few competitive games that require heavy interaction with one's opponents; as the game takes over the organising needs it also removes the need for interaction between players. In real time strategy games and action real time strategy games (also known as MOBA), competition relies more on constitutive rules than on regulative rules. For example, in the BETA to *Heroes of the Storm* [45] players do not have the opportunity of writing messages to opponents, only brief emotes are possible. This feature is of course an attempt at reducing verbal harassment so common in these games. On the other hand, E-sports have rules of conduct and game companies attempt to regulate social behaviour in competitive games, but often with limited success. We should not take this as evidence that E-sports differ completely from other sports, however. Today technology plays a more prominent part in analogue competitions, with goal cameras and video replays. While competition is strongly regulated and thus better supports stranger play, it is at the cost of sociability. Yet, whether stronger rules were deemed necessary due to people playing with strangers or if the strongly governed play supported playing against strangers is outside the scope of this study.

Lastly, gaming with strangers online is predicted by both dedication (SR: 0.27***) and increased gaming time (SR: 0.46***). That time spent on games increases the likelihood of gaming with strangers could be a consequence of the types of games engaged in online; MMO's often demand a heavy time investment. Also, spending more time on gaming would require seeking game partners online when friends and family are not available. This is strengthened by the fact that gaming with family or friends is not related to increased time spent on games. The difference in attitudes to gaming with friends and with strangers suggests that these social contexts are perceived as distinct; seeing gaming as a social activity is related to gaming with friends, but not so for gaming with strangers, where the game takes precedence over relations. Often gaming with strangers occurs

when a player does not have the time or wish to gather friends to play with, but wants to play a particular game, in short, when the game is prioritised over sociability. In other words, playing with strangers affords different play strategies and players are also free to choose which game they want; the downside is that such play is often experienced as difficult to manage due to the lack of social norms.

6. DISCUSSION

This study asked how different co-players impact on social game play experiences and motivations. Results showed that there are several major differences in playing with family, friends, or strangers. First, the relative importance of and reliance on particular games vary. There is an inverse relationship between relational strength and importance of a particular game. What this implies is that gamers in this study who wanted to play a particular game would more often play with strangers, while when playing with family, relations took precedence over which game to play, making compromises common. Among friends, practices diverged and often ended up somewhere in between. While to be expected and even perhaps desired, this also means that different co-players have an impact not only on how games are played and experienced, but also on which games are played. Different types of social play styles are afforded through play with different co-players.

As players grow older and work and family demands reduce available free time, they increasingly avoid playing with strangers in favour of friends and even more so, family members. Less patience was expressed towards the behaviour of strangers. Thus games relying on large groups of people and that demand a lot of time and engagement such as MMOs, largely played with strangers, would be difficult for many adult players.

The matter is of how the relation to co-players limits or enhances different facets of play. What characterizes play with family is the strong relational focus, high emotional investment in the relationship, implicit trust and often intimate knowledge of strengths and weaknesses. In playing with friends focus is on sociability, enjoyable leisure, and less obligations to the relationships than when playing with family, so in one sense is freer due to less relational pressure. Lastly, for playing with strangers we see the most freely flowing play; no or little relational demands and fewer relational rules allow players to choose and play what and how they want. At the same time, the said freedom also leads to frequent breakdowns in social play and an abundancy of negative experiences, making some players avoid this play form. Play, as a theoretical concept, is often characterized by freedom of choice yet only among strangers are players free from relational ties. Of course these ties, according to informants, give more than they take away, but that is not the point here. What these results show is how different co-players change the notion of play and so the social affordances of digital games.

The structure of collaboration in many digital games, i.e., the need for functioning regulative rules, is why out-of-game co-players are preferred for much collaborative play. When a relationship is embedded in multiple settings it is more subjected to social pressure and this increases the evolution of social norms to govern that particular situation [46]. Out-of-game relationships are embedded in both the game and out-of-game contexts and family and friends have obligations towards each other based on relationship status. Thus in these situations stronger norms can

evolve. To mediate this problem when interacting with strangers, gamers here gravitate towards guilds or clans composed of individuals similar to themselves. Stronger obligations are felt when co-players are easier to identify with, a so-called in-group effect. These similarities can embed relationships in stronger social contexts, supporting regulative rules. How regulative rules are embedded in either offline relations or in online communities will affect the perceived success of game encounters and the pleasure of interaction in both collaboration and competition. Playing with out-of-game co-players puts less stress on functioning constitutive rules to govern and manage game play. Strong regulative rules can pick up the slack, so to speak. This is of course why strong communities are so advantageous in online gaming, as Chen shows in his exploration of a player guild [24]. Reducing anonymity, making players known to each other and thus more likely to trust each other better supports the growth of regulative rules, affording more social play. Informants experience better playing experiences when gaming with people they know or people who are similar to themselves because game play is supported. Beating games faster and/or more efficiently can lead to a greater sense of achievement. Furthermore, winning over a friend or family member lasts longer as the opponent is repeatedly encountered and thus can serve as a reminder of winning [see 47]. Avoiding strangers is also a strategy for avoiding online grief in the form of harassment and other dark play; something online game worlds are infamous for [48].

Previous research has shown how important support in the design for social actions is for successful online social gaming [e.g. 1; 7]; and the same is of course true for offline gaming. That players can achieve game tasks together and are rewarded for it is integral to collaboration. At the same time, players must be able to rely on adherence to the regulative rules. Debating house rules can be difficult enough in one's own home, but near impossible in an anonymous online setting. Collaboration with strangers thus relies on constitutive rules allowing players to group and assist each other, and regulative rules to structure the way the game is played. Many different types of regulative rules have been documented in research, for example dragon kill points, awarded to make sure that items found in collaborative play are divided up fairly [5]. Rules of conduct for player organised groups such as clans are also common [6], as well as norms against cheating [49]. At the same time, as this study shows, the nature of the relationship to co-players impact on the interpretation and usage of both regulative and constitutive rules, showing that for research, it matters who the co-players are.

7. DESIGN HYPOTHESES

I use the term design hypothesis from Hekler et al. [50] to refer to the following section as a way of making theory and empirical findings actionable for design. These guidelines are constructed from theoretical analysis of empirical findings and should thus not be thought of as 'requirements' but hypotheses ready to be practically tested [50]. Each point below can be traced back to the empirical data but are here abstracted. While who people play with is beyond the scope of any designer's power to predict, the following argument is that different co-players have different requirements for support from the underlying structure (the game). These can be considered, so that different types of social relationships are afforded. If indeed it sometimes matters less how 'fun' a particular game is in itself than how well it supports social play, then this means that the social affordances designed into the game should be given as much focus and attention as other game mechanisms.

1. Stronger relational ties place more importance on social affordances
The more highly valued the relationship to our co-players the lower is the importance of a specific game. In other words, there is an inverse relation between relationship strength and the importance of particular games and game play experiences. Consequently, social allowances built into the constitutive rules of games will be more important than other design features as relational strength increases. How players can interact and play together becomes the premiered feature. Furthermore, due to the nature of the relations, different design features will be afforded. Concretely, a competitive game aimed at families could allow for house rules and adaptation while one aimed to be played online with strangers can apply stricter control via constitutive rules to mediate the difficulty of managing online life between strangers. In the latter example communication opportunities such as chat will be less important than in the first. Design can pay attention to the fact that as users interact, regulative rules are realised and actualised differently depending on the nature of the relationship with co-players. For collaboration lack of sanctioning opportunities will have a detrimental effect on collaboration [see 54]. It is well known how difficult it is to uphold rules and norms in anonymous game worlds [5; 6; 48]. The challenge is how to support the fun and freedom of playing and interacting with strangers while managing the detrimental aspects of anonymous play. In cases with only online embedded norms, how design supports them through constitutive rules is important for peoples' opportunities of creating strong online communities.

2. Similarities promote pro-social behaviour
Due to tendencies towards homophily even in anonymous social groupings online players seek to play with others whom they perceive to be similar to themselves. This tendency operates on two levels, firstly due to sociability needs and, secondly, more goal oriented game play needs. Similarities are flexible; for example language or occupational similarities. Language specific servers are already something many large-scale online games employ, but one could further imagine family friendly servers, or as gaming continues to spread among older groups, senior citizen tournaments or servers. However, a balance between affirming similarities should be kept so as not to create unintended strife between different player groups. When players feel little empathy towards each other de-individuation may be encouraged [51]. De-individuation is when anonymity makes it possible for individuals to behave anti-socially towards others without suffering consequences. However, artificial similarities can be created in a game context to support collaboration and empathy (see also Christou et al. [7] design criteria Empathy, which deals with in-groups/out-groups in MMOs). Turning this on its head, differences can also be enhanced to promote anti-social behaviour and rivalry between players if that is what is desired; for example, giving players different and conflicting goals instead of similar ones. We see such features in board games like *Battlestar Galactica: The Board Game* [52] where players (without other players' knowledge) have different goals whilst on the surface level collaborating towards a shared goal.

3. Strong game structure = low social incentive

Constitutive rules and regulative rules have a tendency to compete. In the case of strong game structure (elaborated constitutive rules) we see less player agency and need/opportunity for regulative rules, whereas in the absence of strong game rules players will tend to create their own. Thus, high game structure = low social incentive while high player agency = high player incentive [see 53]. There is a risk in catering to players too much; we can use here the allegory of the spoilt child, who having everything done for it will keep demanding more, yet never learn how to do something on its own. Too little support, on the other hand, might make the child abandon the activity as being too hard. A balance between player agency and support through design, and awareness that needs and opportunities for social organization by players differ depending on who you play with will increase player enjoyment. Yet, as game companies strive to improve gaming climate they increasingly strengthen game structures through constitutive rules, thereby limiting player agency and motivations for self-regulation, and thus reduce the opportunities for players to create strong online communities and engage in sociability, some of the main attractions of online gaming.

8. CONCLUSIONS

This study analysed the role of co-players in players' experiences and understandings of digital gaming. It did so in a relational perspective focusing on how gaming is transformed through the interaction process, and how this process is dependent upon game structure; thus reconciling social constructivism—(social) gaming as created in relations between players—with a formalist approach—games as rule based structures.

There are always some limitations to a study of this nature. Ideally one can imagine comparing different national contexts instead of focusing on a single country. On the other hand, this might be considered a strength of the study as the sample population is relatively homogenous, which allows us to explore results from the interviews in the survey data. We know that play differs in values and practices among children in different cultures [55; 56], but we know less about such practices in adult play, where we would expect to see local elements in gaming practices and interpretations across the world.

Another limitation is that the study only focuses on three types of relationships and perhaps is generalizing within those groups. One can imagine differences in playing with a spouse/partner or playing with one's children, and so on. There are also new conundrums when dealing with friendships today in view of relationships established online, making the friend category perhaps overly broad. Further, future studies should look as well at the differences between collaboration and competitive game play situations, further teasing out how relationships impact on different gaming situations.

Who people play digital games with—be they family, friends, or strangers—clearly affects how players engage in games, how they understand that engagement as well as which games are played. The study shows how different mediations (e.g. online or offline) as well as relationship status (e.g. friends or strangers) affect how players define social gaming situations. The study also shows how strong game structures facilitate and thus encourage play with strangers where difficulties in upholding regulative rules are common, but simultaneously dissuade player agency and social incentive in play with friends and relations. The relational ties players share with family and friends facilitate collaboration by grounding social norms in out-of-game contexts, but also limit choices in play. Games as designed platforms have certain affordances for social behaviour which will vary for different individuals playing together, where different co-players will shape affordances of both constitutive and regulative rules. By considering the sometimes conflicting nature of regulative and constitutive rules and the different effects of co-players on game play this study shows that we need to increase efforts to support playing over the Internet with people whom we do not know, while we must be careful not to allow constitutive rules to overpower regulative rules, thereby weakening player communities.

The article concludes with posing three hypotheses making the results of the empirical data and theoretical analysis actionable for design: 1) that different co-players lead to different game experiences and that, for some social relations, social affordances are more important than other game factors; 2) that similarities between players promote pro-social behaviour and vice versa, and 3) that strong constitutive rules discourage the evolvement of regulative rules.

9. ACKNOWLEDGMENTS

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