

# Sociable Killers: Understanding Social Relationships in an Online First-Person Shooter Game

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## ABSTRACT

Online video games can be seen as medium for the formation and maintenance of social relationships. In this paper, we explore what social relationships mean under the context of online First-Person Shooter (FPS) games, how these relationships influence game experience, and how players manage them. We combine qualitative interview and quantitative game log data, and find that despite the gap between the non-persistent game world and potentially persistent social relationships, a diversity of social relationships emerge and play a central role in the enjoyment of online FPS games. We report the forms, development, and impact of such relationships, and discuss our findings in light of design implications and comparison with other game genres.

## Author Keywords

First-Person Shooter Games, Online Games, Social relationship.

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## General Terms

Design, Human Factors.

## INTRODUCTION

First-person shooter games, in which players shoot enemies in a virtual battlefield through a first-person perspective, is a major genre in the world of video games across various gaming platforms, with numerous hit titles such as Doom, Quake, Counter-Strike, and Halo. Most of these games support online multiplayer experience, bringing millions of players together across the network for death matches in which players shoot each other with “lethal weapons” (over 1.6 million such matches happened in Halo 3 on Aug 5th, 2010 alone [1]). In contrast to the media image of aggressive and unsocial player stereotypes, prior research on online FPS games has found rich communications and social interactions between players during game sessions [19, 29]. However, beyond these ephemeral sessions of play, do FPS players form or reinforce more persistent

social bonds? How do these social relationships influence and how are they influenced by the game experience? In comparison to the well-studied MMORPGs (e.g. Ultima Online, World of Warcraft (WoW)), where players develop the character of a certain role over a long period and socialize in a persistent virtual world, the goal of online FPS games is to win fast-paced, immersive, and fierce battles that last only a few minutes each. There seems to be an apparent contradiction between the ephemeral and competitive nature of FPS games, and the existence of potentially longer-term social bonds. These issues within online FPS games remain largely unexplored.

In contrast, extensive research has been devoted to the social relationships in some other online game genres, especially MMORPGs. Researchers have studied how players form intimate relationships across virtual and real worlds [22], and how existing relationships, such as friends and strangers, are manifested in game play [20]. Inspired by such work, we sought to investigate the meaning and evolution of social relationships in the context of online FPS games, and how players manage these relationships to enjoy their game experience better.

We focus on Halo 3 as an example of a popular online FPS game to explore social relationships among players. We combine player interviews and game log analysis to adopt both qualitative and quantitative lenses. Our findings not only fill the void of a less-understood social arena, but also lead to discussion of the common and distinct social relationships found in different game genres. Such findings call for more research and design effort for supporting player relationships that may not have been foreseen within its original design, but emerge from the technical affordances, design choices and social norms of the games.

## RELATED WORK

### Online FPS Games: Social or Antisocial?

Caillois classified the enjoyment of games into four categories: competition, chance, simulation, and vertigo [2]. Online FPS games are clearly designed to maximize the enjoyment of competition - “outsmarting one's opponent” [28]. With the competitive nature and the violent theme of shooting, FPS games have often been assumed to be socially isolating for young players [17]. Surprisingly, an Internet survey on the appeal of online FPS games revealed that the desire for social interaction is the strongest

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predictor for the time spent on these games [15]. Other research has discovered that players employ a variety of creative strategies to communicate with one another [29]. On the other hand, online FPS games are not always socially positive experiences. Rude, insulting and aggressive interpersonal behavior is witnessed frequently in this genre of games [10]. What accounts for this seemingly inconsistent game experience when it comes to the social aspects of FPS games? Here we look for explanations which consider the broader culture of play, and which includes the contextual factors outside of the game itself [24]. In this paper, we focus in particular on the social relationships that constitute the context of game play. Compared to previous work, we try to understand *who* the players play with, and how this shapes and is shaped by the game experience, rather than *how* they play with others sociably.

### Social Relationship as Context of Play

Social relationships among players can provoke different game experiences, as shown in physiological data-based research. It was found that players enjoy games better and are more emotionally involved when playing with a friend than with the computer in co-located competitive games [18]. In the context of multiplayer FPS games, another study showed that men's competitive response is stronger when winning over strangers, but not friends [21]. Existing research has explored the social relationships in other game genres. For example, Hughes researched the original "Foursquare", a real-world children's street game, to understand how children elaborate rules to support existing social relations [14]. She observed that girls had to change their own "Rooie rules" (for playing nicely) when boys who play more aggressively joined. The rules are bent, borrowed, and discarded based on the needs and social contracts of the player community [4]. Social relationships may entail different actions under the context of online games as compared to the offline world. Nardi and Harris reported the spontaneous collaborative play initiated by strangers in World of Warcraft, a phenomenon that happens less frequently with offline strangers [20]. As shown in this example, real world terms (e.g. friends and strangers) may have different meanings in a new medium. Following in the same line, we first explore the meaning of relationships in online FPS games, and then investigate how these relationships may have an important impact on the way that a FPS game is played.

### Game as Medium of Social Relationship

Following email, instant messaging, social network sites, and other internet media, online games have become yet another important channel for mediating existing relationships and creating new online relationships. For example, survey-based research has found that the majority of the players of a MUD (Multi-User Dungeon) game form ongoing online relationships, most of which are between opposite sexes [23]. In MMORPGs, the 3D virtual persistent world creates online "third places", accommodating informal social interactions and

relationships [25]. Pace et al. explored how the mundane day-to-day routines in WoW incubate the transformative moment for intimate relationships [22]. How do FPS games serve similarly or differently as a medium for social relationships? How do these relationships develop from playing competitive, fast-paced games together? These are two of the questions we sought to address.

### HALO 3

Halo 3 is a prestigious FPS game created by Bungie™ for the Xbox game console. It is the third title of the Halo series, set in a future war where Master Chief (the player) and his partners fight to defend humanity from alien races. Launched in 2007, Halo 3 was the bestselling video game of the year in the US. At the time of writing, more than 600,000 players played Halo 3 over a single 24-hour period [1]. Halo 3 is a representative example of the genre of multiplayer FPS games.

Multiplayer Halo 3 games (Figure 1) can be played with remote players through Xbox Live, the online service for Xbox players. A player account ("gamertag") is required to play online. Each player gets a "skill level" between 1 and 50 based on their past Halo 3 game performance. Each player can set up a "friend list", a list of players they may want to play games with. This list is maintained across all Xbox games supported by Xbox Live. Players can add each other to their friend lists by sending and approving friend requests. There is an upper limit of 100 players in one's friend list.



Figure 1. Halo 3 multiplayer game (image source: bungie.net)

Individuals or teams of up to 8 players can join online games with a maximum of 16 players per game. Each game typically lasts 10-15 minutes. There are two ways to find online playmates: In "matchmaking" games, the system uses an algorithm (TrueSkill™ [13]) to automatically match players with similar skill levels and create a close game. If two or more players want to play in the same matchmaking game, they can use the "party up" function to player together in continuous games. In "custom" games, the player who started the game can invite those who are on their friend list. Once a player has been invited to an existing custom game, they may in turn invite players from their own friend list.

Voice chat between remote players is supported by Voice Over IP using microphone and headset. During a match, a player’s voice is broadcasted to players on the same team, as well as overheard by nearby opponents in the virtual environment. Immediately before and after each game, all players in the game can hear each other in a so-called “game lobby” stage.

In addition to playing with remote players, multiplayer games may also be played when friends are co-located by sharing the same game console or between consoles connected through a local area network (LAN).

As part of the pop culture, Halo 3 has also gone beyond merely online recreation, and even became a professional sport. Numerous third party companies, websites, online forums and local game centers support the player community outside the game.

### RESEARCH METHOD

To understand the meaning, development and impact of social relationships in online FPS games, we conducted semi-structured interviews informed by the game history log. This mixed research method was inspired by Ducheneaut et al.’s work [7]. But this study collected both qualitative and quantitative data for the same subjects.

#### Participants

We recruited 14 Halo 3 players (labeled P1-P14 hereafter) through online forums, mailing list and word of mouth. From the respondents, we chose participants to cover a variety of socio-demographic characteristics. Table 1 shows their attributes. The average age of participants was 26.3 years. Four participants were eighteen or younger, and four participants had children. As reported by [15], the FPS player population is predominantly male, however we did find one female participant (P10). The average skill level was 34.4. Twelve participants had played Halo 3 for more than one year.

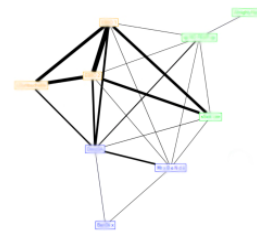
**Table 1. Participant profiles.**

ID	Age	From	Household	Skill Level
P1	16	UK	Parents’ house	42
P2	16	US	Parents’ house	46
P3	16	UK	Parents’ house	49
P4	18	UK	Parents’ house	48
P5	20	US	Rented house with roommates	29
P6	21	Canada	College housing	50
P7	23	US	Rented house with roommates	44
P8	29	US	The only occupant	20
P9	30	US	The only occupant	31
P10	31	US	Married, husband also plays Halo	25
P11	34	UK	Married, 1-year-old baby	42
P12	36	US	Married, two 3.5-year-old sons	42
P13	38	US	Married, 7 & 11-year-old sons	5
P14	41	US	Married, 10 & 13-year-old sons	9

### Game Log Analysis

The Halo 3 game website (bungie.net) provides publicly available log data for every online game ever played, including the list of players, game results, and other game settings. With consent, we collected each participant’s entire online game history before the interview (37719 games in total). By analyzing this data, we were able to extract the game preferences, playing trends, and frequent playmates of the participants. These helped us ask specific questions to help participants reflect on their own experiences.

Inspired by prior research on email networks [11], where social interaction patterns were revealed by network patterns, we plotted each participant’s egocentric network of playmates (Figure 2) based on their game history during the month immediately before the interview, except P4 and P11 who had not played much during that month. We chose to plot only the most recent month in order to focus on the current active social relationships. Each node in the graph represents a playmate that has played at least four games with the participant during the month (the number four, albeit somewhat arbitrary, appeared appropriate to capture repeated interactions yet not dismissing less frequent but meaningful interactions). The nodes are labeled with the gamertags of the players (blurred here for privacy). The thickness of each link represents the number of games shared by the pair of players. Note that the participant themselves is not shown in the diagram; and the structure of a playmate network around may change over time.



**Figure 2. Egocentric playmate network (P1).**

### Interview

The interviews were conducted in person or over the telephone, each lasting between 35-60 minutes. Before the interviews, the log data of the most recent month were used to generate the playmate network for each participant (such as in Figure 2). In addition to the general interview questions, such as asking about their most memorable social experience in Halo 3, for each participant we devised specific questions according to the structure of their playmate network. For example, if a player repeated play with a small set of playmates, we asked if the participant played with these playmates simultaneously, and if so how they coordinated the games. Such specific questions proved effective in prompting participants to vividly recall stories about specific playmates. Finally, to get a holistic review, after the interview, we sent the graph to each participant by email, and asked them to briefly describe their relationships with players that they recognized in the graph. Although we

did not directly examine each participant’s friend list, we asked them to define categories of playmates in their friend lists. All interviews were transcribed and coded. Emergent themes were extracted from the interview data, and triangulated with the log data where applicable.

## FINDINGS

With the lenses of both qualitative and quantitative analysis, we present our findings to answer three research questions in the context of online FPS games:

- What are the meanings of social relationships?
- How do different relationships influence each other?
- What is the interaction between social relationships and the game experience?

### Meanings of Social Relationships

Real world terms of “friends” and “strangers” seem to cause ambiguity when trying to understand what social relationships mean in online games. In this section, we explore the meanings of social relationships in Halo from two representations: friend lists and shared game history. The friend list is the only explicit mechanism in Halo 3 that supports persistent relationships, whereas shared game history provides an implicit way for us to identify frequent playmates based on shared playing activities.

#### Categories in Friend Lists

Although being on someone’s friend list generally implies shared interest in certain game titles, a closer examination revealed that each participant’s friend list consists of a heterogeneous set of categories that they interacted with in different ways. The relationships between the participants and these categories of people differed immensely in terms of type, closeness and origin:

*“There will be people I know in real life, then there would be people I play certain games with... So there might be friends I play Halo with, there might be friends I play Call of Duty with, and then if there are a lot of people in that group there are probably more sub categories - so who plays competitively, who plays more socially.” (P4)*

As shown in this example, players may use more than one dimension for categorizing their “friends”. Two main dimensions emerged from the interviews: the origin of the relationships and the associated game experience.

The following list shows a variety of origins of relationships related to Halo 3. The first three categories were generated through playing Halo together; the last three originated from outside Halo.

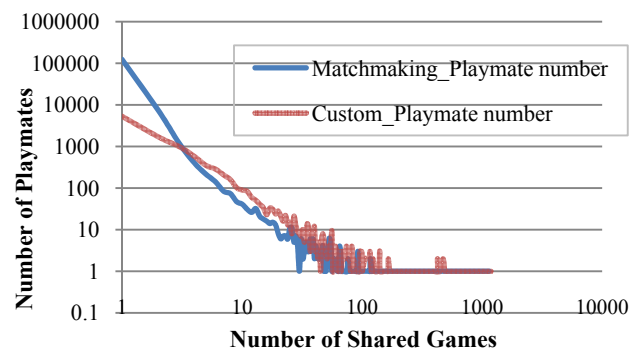
- Played together in matchmaking games
- Friends’ friend who played games together
- Local game center for Halo 3 competition
- Played other Xbox games together
- Real world relationships: family and relatives, colleagues, schoolmates, neighbors, roommates
- Online forums for game discussion

In particular, real world relationships underpinned a significant proportion of the friend list, as mentioned by all participants. This included both strong ties, such as families and roommates (P5, 7, 12, 13, 14), and weak ties, such as schoolmates and colleagues with whom the participants had limited interactions before (P1, 9, 11). The notions of strong and weak ties here are defined by the extent of social involvement in real life [12].

Another dimension which differentiated the players on the friend list was the associated game experience, including frequency of playing together (e.g. “people I play with extremely often” (P6)), motivation of playing - for fun or for winning (e.g. “I know them outside of the game so then we can do something fun outside... like we can go see a movie or something and then also come back and play some Halo for fun” (P2)), and different game titles they played together. For more dedicated players, there may even be specialized categories defined by playing certain “playlists” (types of games with specific maps and rules) as with P3, 4, 5. This dimension showed players’ awareness of the association between *who* to play with and *how* the game was played.

#### Frequency of Playing Together

The above analysis relates to the subset of playmates that players explicitly recognized through their friend lists. To put this in context, we plotted the distribution of all players our participants had ever played with in relation to the number of games they played together (Figure 3), separated by matchmaking games (playmates assigned automatically) and custom games (playmates invited manually).



**Figure 3. Distribution of playmates in relation to number of games shared with them (both axes are logarithmic). A flatter curve for the custom games indicates that they have higher ratio of repeated playmates. The tails of two curves overlap.**

Both curves exhibit classical long-tail distributions. For the majority of the playmates, our participants played very few times with them (e.g., 93% of playmates in matchmaking games were once-only, as are 39% of playmates for custom games). Conversely, a small number of playmates dominated the shared game experience. For matchmaking games, only 0.3% of the playmates played more than 10 times with our participants, yet they were present in 59% of the games the participants had ever played. Similarly, for

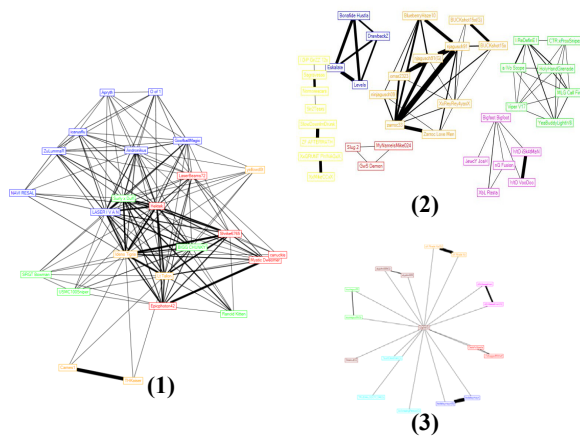
custom games, 8.9% of the playmates who played more than 10 times with the participants were present in 94% of the games.

This trend was also observed in the interviews. When asked to reflect on with whom they play Halo, the participants often recalled a small set of people, e.g. one or two roommates (P5, 7), a few family members (P9, 12, 13, 14), or four to seven Halo teammates (P2, 4, 6). This is true even for matchmaking games, where players often deliberately keep one or two close playmates in the game using the “party up” function.

This also resulted in people often preferring to only communicate with a small set of regular playmates within a game. Several participants reported their annoyance by pairs of players who broadcasted personal chit-chat during the game (P7, 9, 12), and they tried to avoid doing so themselves (P8). P14 mentioned turning off the microphone to concentrate on interacting with the co-located player(s).

#### Patterns of Playmate Networks

The above suggests that there might be a small-scale core social network around each player. For each participant, we sent them their own ego-centric playmate network as exemplified in Figure 2, and asked them to articulate the relationships with people in this network. Three distinct patterns emerged as follows, reflecting the various social needs by the participants:



**Figure 4. Patterns of ego-centric playmate networks.**

1. *Tightly knit network* (Figure 4.1) (P1, 6, 9, 10, 12): Almost everyone played with everyone in the network. For this type, players enjoyed spending extended time with their familiar group whose members all know each other. P1’s network was made of schoolmates and their friends; P6 had a local team that he played for both fun and competition; P9 and P10 were from a self-organized casual game group; P12 played with his family and his friends’ family.

2. *Disconnected sub-networks* (Figure 4.2) (P2, 3, 5): These three players were young and competitive, and had clear-cut categories of playmates for different purposes, such as for casual play only or for playing specific playlists.

3. *Star-shaped network* (Figure 4.3) (P7, 8, 13, 14): This type of network featured one or two playmates in the center sharing the same playmates as the participant. They are people who were close to the participants in real life and played together mostly in collocated situations. P7 played with two roommates who shared the same gamertag; P8, 13, 14 mostly played with their family.

#### Interplay between the Two Representations of Social Relationships

Given the complex composition found in both the friend lists (explicit) and the playing together activities (implicit), we now present how these two representations of relationships may interplay with each other as reflected in the participants’ experience. This interplay provides an effective lens to look at the evolution of in-game social relationships—initiation, development, and termination.

##### “Friending” through Playing Together

Halo 3 matchmaking games provide opportunities for players to interact with those who are at the same skill level as themselves. Although the participants played with 93% of the matchmaking playmates only once, all had the experience of initiating new relationships in matchmaking games. The following example illustrated a typical progressive process:

*“The best way to meet new players on Halo is that you will go into a (matchmaking) playlist by yourself. It will put you with three other players and if they all have microphones, you may communicate well. And if you play well together there is the partying up and the next game you all go in together. If people don’t talk you are less likely to want to party up with them, because they probably haven’t been as lively in the game and you haven’t got to know them, but when people talk you usually party up a lot more often. And then if you play well that evening you may send a friend request and play with them the next night or the next week, and if you continue to play well with each other for a while you can maybe play with each other for weeks on end.”* (P1)

Prior research found that in online casual games, a player tends to like the other player better with more successful collaborative games [2]. Similarly, all the participants mentioned “playing well together for a few games” as a prerequisite of partying up and then “friending” each other, an implicit social etiquette.

Several in-game factors for relationship formation were mentioned in the above example, including: competence, result of games, communication, and pleasantness. Factors outside the game may also promote new relationships to form within the game. The following example shows a combination of the effects of prior communications and geographical proximity:

*“I posted Halo 3 forums that I was, this was a while ago, I’d say almost a year back, I posted that I was looking for people to play Halo with and one of the guys added me, it turns out he lives a few hours away from me and he lives*

*pretty close to me, and we have a few of his friends that live directly in this area so we started playing together...” (P6)*

#### **Friends’ friend–“Triadic Closure”**

Triadic closure [16] describes the phenomenon that one person builds a new relationship with another through a third person who is connected to both, i.e., getting to know one’s “friend’s friend”. Triadic closure frequently happened in Halo 3. The existing relationships here could include playmates met online as well as real life friends/family. In addition to its natural appeal, this mechanism was further promoted by the Halo 3 game structure. Given that a game could accommodate up to 8 players on one team, there was a fair chance for a player to have multiple friends on the team, possibly from different sources. Furthermore, in custom games, a player invited to the game (through the friend list of the game creator) could in turn invite players on their own friend list. These provided many opportunities for “friends’ friends” to play together.

This triadic closure not only happened spontaneously, but some players also proactively exploited it, e.g., to build social capital with higher-level “celebrity” players who were famous on a game forum or website. P3, a 16-year-old said,

*“...he (one of the high-level players) accepted my friend request, he is a nice guy...I kind of got lucky and got into rooms (private game space where players come to chat or play by invitation), and there would be more of them in there. So I could repeat and keep on playing well with all of them and it would end up with me being on all of their lists...” (P3)*

#### **Repurposing the Friend List to Organize Play**

Although the friend list was designed mainly to support individual player relationships, some players repurposed it to support organized groups. Such notion of a self-organized “group” may have originated from “clans”, a player structure explicitly supported by Halo 2, the previous version of the game, but no longer by Halo 3. P9 and P10 were members of such a group. The group was created and maintained through a dummy “group” gamertag that the group leader created. A player may join the group simply by adding the group gamertag to their own friend list. *“And then you can get all the group members through that gamertag’s friend list, (because) you can look at friends of friend list through Xbox Live... Now we are just all on each other’s friend list pretty much” (P9)*. Therefore by affiliating themselves with the group, players were admitted to a new set of playmates who shared the same playing interest and style (in this case a friendly style).

Beyond relationships between individual members, the group had “common ties”—interest, value, bonds, commitment, history and identity [5] shared by all members, which were key for the group’s survival over time without relying on individual members’ participation:

*“We’ll have one or two people leave and then one or two come in...some people show up every once in a while, we*

*won’t see them for a few months. They’ll just come back and play with us, like they never left” (P10)*

The main activity of the group was regular game nights every Monday when group members gather online to play together. In addition there were occasional face-to-face meet-ups between a few members. The tight relationship with the group was also evidenced by P9 and P10’s tightly knit playmate networks: most of their nodes belonged to the group.

In this specific group, members played for fun, not for winning, and they were all aware of this common value. This group recruited new members solely through word of mouth instead of public forums, therefore successfully maintained this value system yet still kept its openness. This self-organized and sustainable group demonstrated how higher-level social structure may emerge from the individual player relationships based on shared games.

#### **“Defriending” and Stopping Playing Together**

Given the upper limit of 100 on the friend list, participants typically needed to “clean it up” by deleting some players from it every few months, or when it reached the limit. Those who they had not seen online for a few months, or who they did not get along with, were deleted from the list. As they did this, their gamertag also disappeared from the deleted player’s friend list. No participants felt guilty for deleting playmates met in the game, and said they were unlikely to add them back even if the deleted person sent a friend request again. Those relationships that developed within the game but did not get incorporated into the fabric of players’ daily lives tended to be more fragile. P4 described a break-up experience with his online teammates—teammates with whom he had played for long periods of time, including preparing for a game tournament:

*“We needed another player (for the team), we ended up searching for about one month. A few people come along however, I was picky about the last player for the team...All of a sudden I went on a holiday for a few days and came back to find out that I had been dropped from the team. I was angry for the main reason that we have been together for quite a long time... They regretted the decision and wanted me back. But I was like ‘If you are going to kick me out like that then I am not really interested’” (P4)*

Playmates originating from real life relationships might also stop playing together, often due to drifted interest in other games or a change in skill level that rendered them incompatible to play together, as shown in P11’s example:

*“We started about the same, but he (his gym coach in real life) got significantly better...We would have difficulty getting matched to play in the same ranked game...he eventually formed a set of online friends who were also better players, so he would tend to prefer to play with them because that would improve his skill” (P11)*

However, real world friends were less likely to be deleted from the friend list, because this action might impact real world relationships and have negative consequences.

### **Configuring Social Relationships to Enjoy the Game**

We have so far presented what the social relationships were and how they evolved in Halo 3. But why is it important to understand them? In this section and the next, we discuss how the social experience is not only contextualized by the game experience, but can also provide the context for the game experience. We present how players have reconfigured either one to suit the other.

#### *Different Playmates for Different Experiences*

Playing with different playmates is often associated with different types of game experience. As we have discussed, players were well aware of this and use the associated game experience as one way to categorize their friend list. The following example shows a player might exercise control over the different types of game experience he seeks by choosing the groups of playmates accordingly:

*“I have some friends that take the game really seriously. And if I’m playing with them then I do take it really seriously and I try hard and if I don’t do as good then I... I don’t want to say I get upset but I’m kind of like, ‘oh man, I could have done better!’ And then I have some other people that I play with that don’t take it seriously when I’m playing with them. I’m really relaxed.”* (P2).

Preference for the type of game experience could also change when life changes occurred, and this would in turn be reflected in the playmates chosen. For example, P13 had relocated his family and had a second son. When he first started to play Halo, he played with friends regularly in organized social game events that usually lasted for several hours. However after his work became busier and his family grew, he considered playing games as brief distractions—*“I play two games, 10, 15 minutes, just to give myself a break and then get offline and continue working”*. His game log revealed that his playmate patterns evolved to be dominated by co-located play with his sons.

#### *Handling Deviant Behavior*

Control over social relationships was also seen as oneway that players handle deviant behavior, a common element in online FPS game experience. All our participants mentioned being yelled at by online players who were losing a game or being shot by their own teammates. P10, as a female player, experienced even harsher treatment when her gender was discovered by her playmates.

Some parents who played the game in the home environment chose to mute the voice channel to prevent their children from hearing swearing (P12-14). However, more generally, players relied on existing social relationships to avoid encountering such deviant behaviors, i.e., preferred to play with people they knew and trusted (P6, 7, 9, 10). P9 shared with us his motivation for playing in a self-organized group as mentioned earlier instead of playing with random people through matchmaking games:

*“(In the group) we just play (custom games that the leader set up) and we talk to each other over the voice chat, we are familiar with each other, it’s all very friendly... I think a lot*

*of us do this instead of going into the matchmaking with random people from Xbox Live, just because so many people on Xbox live are so obnoxious... People take it way too seriously and will get really frustrated, and a bit out of shape, and start swearing, and all kinds of unpleasantness, if you screw up their game or something. So the nice thing about this group is that nobody takes it that seriously, we know we are there to have fun.”* (P9)

Interestingly, some seemingly annoying deviant behaviors might also be interpreted completely differently, dictated by the social context. Two participants mentioned the action of “shooting at teammates” under two different circumstances:

*“It turns out they are really not that into it and they are just messing around, like maybe there are two of them together and they start shooting each other and that. And they are going for teammates so I don’t really play after that. It’s tough to know who you are playing with, because all you see is their levels and maybe how they’ve played the previous game.”* (P7, in matchmaking games)

*“This last Monday was my first back in a few weeks, and to tell you how good friends we are, a couple of them set out to get me just to welcome me back. They felt shooting me was a great way to say, ‘we missed you!’ (Laughter) ...Every time xx and xx shoot me, they will say ‘Hi, {P10}!’...”* (P10, within the self-organized group)

P7 was annoyed by the action and decided not to interact with these online players again, while P10 was amused by her playmates from the group. With the group dynamics and trust among players, the action of shooting at a teammate was not seen as harmful but as playful.

### **Configuring Games for Social Bonding**

Just as social relationships were configured to suit the game experience, the game experience could also be exploited to facilitate the social relationships.

#### *Strengthening Weak Ties*

Because FPS games are heavily demanding on the motor, reflex, and navigational skills of the player, people who have strong ties in real life may not be skilled enough to become a playmate. For example, P12 reported that his wife was trying to play with him but did not overcome the learning curve because *“(the controlling mechanism) was a little more difficult for her”*. On the other hand, real life weak ties offer a potentially larger pool from which to find people to play FPS games with. Different from total strangers, pre-existing weak ties entailed a basic level of trust in the real world, and enabled additional channels of communication outside the game. Good experience of playing together could then project back to the real world and strengthen the existing weak ties. Participants reported that through playing they built deeper friendships with people they had known in the real world only in passing, as illustrated in the following example:

*“When I started playing video games, I found out my neighbor played Halo and he’s pretty much the same age as*

*me... we played together a lot but outside we're pretty much best friends because he lives right next to me."* (P2)

Relationships that were formed obligatorily in the real world (in-laws, schoolmates, colleagues, etc.) were also strengthened through playing games together, and in turn transformed the real-world relationships:

*"You might not hang about with them at school but because a friend has introduced you on Xbox Live, you then talk more to them at school"* (P1)

#### **Enjoying Time with Close Friends and Family**

Many participants played games with close friends or family members as a way of spending quality time together, either face-to-face or remotely. The laughter, dynamics, and chit-chat related or unrelated to the game are what make the game worthwhile [28]. "Having fun together" was such a strong motivation that winning the game might often become secondary:

*"I mean usually the reason why I play Halo now is to play with them...I went online yesterday for half an hour and no-one showed up so I just ended up going offline."* (P6)

The shared experience with close friends and families was so compelling that players were even willing to take extra effort to make it happen: The voice channel in Halo was an important facilitator for such socializing behavior, however it was not available until 2003. P12 used an additional channel to compensate for this in the time prior to that:

*"We actually do a phone conversation, long distance into long distance talking over the phone but play Halo 1...so it definitely created a stronger bond for the family"* (P12).

Co-located games also played a desirable role in this process. Twenty-six percent of the matchmaking games and 14% of custom games we collected included at least one pair of co-located players. Most of the game consoles were located in the living room at home, a space where intimate real world interactions often took place. An in-depth analysis on how co-located games shift the meaning of the physical and social space can be found in [27].

#### **Resolving the Challenge of Inequity**

Halo 3 matchmaking games ensure all playmates have equal or similar skills. However, when playing with friends or family, this equity of skills is less likely to hold and may risk compromising the enjoyment of the game. Participants employed various ways to handle this challenge of inequity.

For example, P12 enjoyed playing with his family and real life friends, but also admitted that *"I have a problem toning down, even if I am playing against someone I know can't beat me in the game"*. He was disappointed that Halo 3 removed the "handicap" function available in Halo 2, which he could use to reduce his offensive and defensive power therefore leveling the ground with less-skilled players. He had intentionally exploited this function to reconcile the conflict between competitive and social enjoyment: *"With 'handicap', I can play with kids (my nephews) and say 'Okay*

*I am going to play as hard as I can and enjoy every minute of it!' The kids will see me as playing hard, but my damage will not be that much."* (P12). This resonates with DeKoven's findings of play communities evolving game rules to increase fairness [4].

Players also tackled the inequity problem through teamwork. For example, P10 knew that she was not as good as some of the other players in the group, thus over time she and her teammates developed a consensus on her role in a battle.

*"...I'm not as strong right up front but we've got enough guys strong enough and they go in, they start knocking them down,... then I'll go in. I'll finish it up and it worked out really well. I've been doing that for a while and they just know that I'll be right behind them to help them out."* (P10)

In both examples above, players deliberately adapted the game rules or strategies to accommodate certain players, indicating a strong desire for a good social experience associated with the game.

## **DISCUSSION**

### **Designing for Diverse Social Relationships**

As we discovered, although Halo 3 only supports a simplistic "friend list", social relationships in online FPS games were much richer than merely "friends vs. strangers". A great diversity existed in the form, closeness, interaction style, and origin of these relationships. Moreover, these relationships were never static. They were constantly created, strengthened, and removed together with the experience of gaming. To further enhance the social experience of FPS games, we need to think deeper how we may design the game mechanisms to support such a diversity of social relationships. Below are merely a few examples to consider:

We found that participants shared the majority of their games with a small set of playmates, even in matchmaking games that are designed for people to play with other unknown online players. This phenomenon is consistent with interaction patterns in other media. For example, the majority of people interact with only 4-7 Facebook friends regularly [3]. The current design of Halo 3 does not support the "smaller group" within a team. For example, we reported that the voice broadcasting did not support communications to a smaller group during a match, discouraging more personal conversations. Identifying such needs, we suggest that game designers might seriously consider more flexible and selective communication mechanisms to support such behavior.

We examined the structure of egocentric network among the small set of playmates who shared games repeatedly with our participants, revealing three distinct patterns. The difference between these patterns reflected differences in the social context of play. This may help designers identify different levels of flexibility and vulnerability in the playmate networks and tailor designs accordingly. For example, for a player with a star-shaped network, if the central playmates drift away, it is probable that s/he will feel less motivated to



continue playing too. In this case, designers may want to consider ways to intelligently recommend playmates who have an existing close relationship with the player to replace the missing node.

We also found large diversity in the Halo 3 friend list. Similar to the findings with Facebook and instant messenger, a user may consider their friend list as consisting of 2-6 different and relatively independent categories [3]. Consideration of the difference between these categories could spark new design opportunities. For example, one key dimension of difference was whether the relationships originated from within the game or from the outside world. For supporting the latter, connections between the game and other media could be built to leverage existing relationships. This has happened already in Facebook games, such as Parking Wars, Farmville, and Mob Wars, which propagate through the friend network. Such links could benefit both in-game and real-world relationships between players.

### Comparison with MMORPGs

Given the rich literature on the social scene of MMORPGs, it is worthwhile to draw some comparisons between MMORPG and online FPS games with regard to the social relationships associated with them. These two game genres were developed from different traditions and targeted different types of enjoyment. MMORPGs originated from tabletop role-playing games, where the major enjoyment is role-simulation and group adventure [26], whereas online FPS games are rooted in action games, promoting excitement and competition. Despite the different design goals, social experience played a critical role in both these game genres as evidenced by our and previous research. Below we draw attention to just a few differences in the social aspects.

The first difference we discuss here is in the social role. In MMORPGs, the social role of a player is to a large extent influenced by the virtual role of the game character, which is selected when the player first joins the game and is carried through the lifetime of the character. This virtual role greatly affects the in-game social behaviors of the player. For example, the time that one spends in “grouping” mode is correlated to how sociable their roles are (e.g. “hunters” spend the least time in grouping since they are strong enough to act alone) [8]. By contrast, in most online FPS games, there are no such explicit roles—“all players are created equal”. However, social roles may emerge from playing games together repeatedly, especially within a team or clan [6]. As shown in the egocentric playmate network we plotted, different playmates hold different positions in the network, reflecting their relevance to the player at the center of the social interaction pattern. A specialized role may also emerge as a strategy of balancing the skills of the teammates after knowing each other very well, as in the case of P10. In summary, in MMORPGs social roles may predate and structure the resulting social dynamics between players, while in FPS games they are always the result of the social dynamics itself.

The second difference is in the social structure. MMORPGs have explicit support for temporary and persistent social structures such as parties, raids, and guilds [8, 9]. These structures often serve a functional goal in the game play and are therefore indispensable to the game. Comparatively, online FPS games have limited support for group structures within the game. However, as reported, we did discover how players repurposed existing mechanisms to enable self-organized group structure, motivated by the shared in-game interest and value. The group was mainly created for enjoyable social experiences, rather than to fulfill functional goals. Although more data are needed to draw any deeper comparison of such groups to social structures in MMORPGs, our work shed light on an interesting perspective of the collective social experience in such games.

A third difference is in the social expressiveness. Many actions and expressions in MMORPGs were deliberately designed to serve the purposes of socializing, such as smiling, hugging, and dancing. Comparatively, in most online FPS games, the actions of the game characters are mainly functional: running, shooting, switching weapons, jumping, turning, crouching, etc. Previous research discussed players’ ability to creatively communicate through these actions [29], but the contexts of such communications have not been discussed. We found that even simple actions like shooting teammates could be interpreted vastly differently within different social contexts. It seems that the actions of the game characters can be viewed as a symbolic system, coded and deciphered by the common understanding built on top of the specific social dynamics.

Despite the above differences, there are numerous similarities across the two game genres or indeed online games in general. To name just one, we agree with Taylor that playing games is never isolated from real life [26], regardless of the genre of the game. The interactivity between relationships in the game and in the real world is particularly relevant to both genres. Players reinforce their real life relationships both by strengthening weak ties and by sharing time with people who have strong ties through play [20, 26].

### CONCLUSION

Compared to non-digital games (e.g. board games and card games) and online role-playing games (e.g. MUD and MMORPG), the online FPS game is a genre that has sparked the most controversial discussions about its sociability. Relatively little research has looked at what social relationships are involved in such games, and how they impact the play experience. This paper has begun to address that gap by collecting and analyzing rich data from both qualitative and quantitative sources, and found that players are well aware that *who* to play with is as important as *what* to play. Intentionally or unintentionally, players create and maintain social relationships to maximize the social enjoyment of play, rather than just to win the game. In fact, these seemingly “unsocial” and virtually violent games can entail surprisingly rich and diverse social relationships, which are reported in detail here. We also have begun to

discuss what such sociability may imply for the design of game mechanisms, as well as comparing the forms and impact of social relationships across different game genres. We hope this work will inspire more cross-game cultural studies and open up design spaces for diverse social play.

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#### REFERENCES

1. Bungie. [www.bungie.net](http://www.bungie.net)
2. Dabbish, L. Jumpstarting relationships with online games: evidence from a laboratory investigation. in *Proc. CSCW 2008*, ACM Press (2008), 353-356.
3. Designing for Social Interaction: Strong, Weak, and Temporary Ties. <http://boxesandarrows.com/view/designing-for-social>
4. DeKoven, B. *The well-played game: A player's philosophy*, New York: Anchor, 1978.
5. Driskell, R. and Lyon, L. Are virtual communities true communities? Examining the environments and elements of community. *City & Community*, 1, 4 (2002), 373-390.
6. Ducheneaut, N. The chorus of the dead: roles, identity formation, and ritual processes inside a FPS multiplayer online game in Wright, T. ed. *Utopic Dreams and Apocalyptic Fantasies*, Lexington Books, 2010.
7. Ducheneaut, N. and Moore, R.J. The social side of gaming: a study of interaction patterns in a massively multiplayer online game. in *Proceedings of the 2004 ACM conference on Computer supported cooperative work*, ACM (2004).
8. Ducheneaut, N., Yee, N., Nickell, E. and Moore, R. "Alone together?": exploring the social dynamics of massively multiplayer online games. in *Proc. CHI 2006*, ACM Press (2006), 407-416.
9. Ducheneaut, N., Yee, N., Nickell, E. and Moore, R. The life and death of online gaming communities: a look at guilds in world of warcraft. in *Proc. CHI 2007*, ACM Press (2007), 839-848.
10. Ferguson, C. The good, the bad and the ugly: A meta-analytic review of positive and negative effects of violent video games. *Psychiatric Quarterly*, 78, 4 (2007), 309-316.
11. Fisher, D. Using egocentric networks to understand communication. *IEEE Internet Computing* (2005), 20-28.
12. Granovetter, M. The strength of weak ties. *ajs*, 78, 6 (1973), 1360.
13. Herbrich, R., Minka, T. and Graepel, T. TrueSkill(TM): A Bayesian Skill Rating System. *Advances in Neural Information Processing Systems*, 19 (2007), 569.
14. Hughes, L. Beyond the Rules of the Game, Why Are Rooie Rules Nice. *The Game Design Reader* (2006), 504-516.
15. Jansz, J. and Tanis, M. Appeal of playing online first person shooter games. *CyberPsychology & Behavior*, 10, 1 (2007), 133-136.
16. Kossinets, G. and Watts, D. Empirical analysis of an evolving social network. *Science*, 311, 5757 (2006), 88-90.
17. Lo, S., Wang, C. and Fang, W. Physical interpersonal relationships and social anxiety among online game players. *CyberPsychology & Behavior*, 8, 1 (2005), 15-20.
18. Mandryk, R. and Inkpen, K. Physiological indicators for the evaluation of co-located collaborative play. in *Proc. of CSCW04*, ACM Press (2004), 102-111.
19. Manninen, T. Interaction forms and communicative actions in multiplayer games. *Game studies*, 3, 1 (2003).
20. Nardi, B. and Harris, J. Strangers and friends: Collaborative play in World of Warcraft. in *Proc. CSCW 2006*, ACM Press (2006), 149-158.
21. Oxford, J., Ponzi, D. and Geary, D. Hormonal responses differ when playing violent video games against an ingroup and outgroup. *Evolution and Human Behavior*, 31, 3 (2010), 201-209.
22. Pace, T., Bardzell, S. and Bardzell, J. The rogue in the lovely black dress: intimacy in world of warcraft. in *Proc. CHI 2010*, ACM (2010), 233-242.
23. Parks, M. and Roberts, L. Making MOO'sic': The development of personal relationships on line and a comparison to their off-line counterparts. *Journal of social and personal relationships*, 15, 4 (1998), 517.
24. Salen, K. and Zimmerman, E. *Rules of play: Game design fundamentals*. MIT Press, 2004.
25. Steinkuehler, C. and Williams, D. Where everybody knows your (screen) name: Online games as "third places". *Journal of Computer-Mediated Communication*, 11, 4 (2006), 885-909.
26. Taylor, T. *Play between worlds: Exploring online game culture*. The MIT Press, 2006.
27. Voids, A. and Greenberg, S. Wii all play: the console game as a computational meeting place. in *Proc. CHI 2009*, ACM Press (2009), 1559-1568.
28. Wright, T. Killing Zombies, Terrorists, and Aliens: The pleasures and anxieties of symbolic violence. *Midwest Sociological Society* (2006).
29. Wright, T., Boria, E. and Breidenbach, P. Creative player actions in FPS online video games. *Game studies* (2000).