1. Enabling Social Play: A Framework for Design and Evaluation

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Abstract

This chapter focuses on evaluation and design for successful social play in digital games. It includes an overview of published work in this area and best practices gleaned from professional discussions and descriptions, and presents a framework for thinking about an effective evaluation and iteration process. The framework includes issues such as identifying play sub-groups and how they differ, interpersonal dynamics that can and should be leveraged and looked for in multi-player play, hardware factors in supporting social play, and issues of external validity in evaluation of social play. It includes key challenges and work that remains to be done in this area.

1.1 Introduction

There is very little written about testing multi-player social engagement and enjoyment of games per se, and how this can feed back into the design process, even though 59% of gamers surveyed report playing games with others (Entertainment Software Association 2008). Much of existing practice is based on intuition and on word-of-mouth best practices that spread among industry practitioners. This chapter brings together what has been published about existing practices, and theory and useful practice from re-

lated fields, to provide a framework for both practitioners and researchers that can help to further define this important evaluation area.

1.2 Brief overview of related work

While there is published material on playtesting in general (Fullerton Swain and Hoffman 2004, Collins 1997), there has been until very recently little written discussion of playtesting of groups to evaluate the success or failure of social play. There is a discussion of methods used by the Microsoft Games User Research group for studying group games in a recent edited book (Amaya et al. 2008). There is also a brief discussion of group dynamics in a piece concerning role-playing games (Tychsen et al. 2008).

There have been arguments made about the importance of social play to games (Lazzaro 2008, Isbister 2008, Colwell Grady and Rhaiti 1995, Neimeyer et al. 2005), and research has been conducted showing that there are differences between solo and social play, such as 'more positive affect less tension, and more competence' self-reported in social play situations (p. 3103, Gajadhar de Kort and IJsselsteijn 2008), as well as less frustration in social play versus solo play as measured by physiological indices (Mandryk Atkins and Inkpen 2006).

Designers in the pervasive and mobile gaming spaces have, by necessity, innovated effective ways to test their games with groups of players (Koivisto and Sumela 2007, McGonigal 2005, Sanneblad and Holmquist 2004, Szentgyorgyi Terry and Lank 2008). Most of the time, though, these designers and evaluators focus on balancing game play in general, rather than investigating the social components of play in particular.

One way we might approach the study of social play is through better understanding of player characteristics and motivations (e.g. Yee's work in massively multiplayer worlds (Yee 2006), Lazzaro's analysis of different types of fun inherent in play (Lazzaro 2008), also Bateman and Boon's taxonomies (Bateman and Boon 2005). It could also be interesting to examine relationships among members of a heterogeneous play group—for example between parents and children (Bryant Akerman and Drell 2008) or between grandchildren and grandparents (Khoo et al. 2007). The uses and gratifications model from traditional media research could also be valuable in this context (Vorderer and Bryant 2006).

The aim of this chapter is to bring together these interesting strands of prior work into a synthesis focused upon social game play as a value in and of itself, alongside other game design concerns.

1.3 Defining Social Play

What is meant here by social play, is active engagement with a game (through use of its controls or through observation and attention to ongoing gameplay) by more than one person at once. There is a range of formats that this can take. It may be two or more people playing in the same room, as with a fighter game such as *Guilty Gear* or party game such as *Mario Kart*, or across a network in different locations, as with a massively multi-player game such as *World of Warcraft*. The game itself may be designed to support multi-player simultaneous play, as in the previous examples, or the game may be a single-player game that players have decided to engage with using a technique like controller passing that allows for cooperative play (see (Narcisse 2008) for a detailed description of an experience with controller passing while playing *Portal* and *Assasin's Creed)*.

It is also the case that there is important social interaction taking place among co-located players, even when they are not all taking an active role in gameplay in a given play round. Observers in a co-located social group may provide coaching and critical commentary that substantially adds to the gaming experience for those who are playing, and over the course of a play session, may in turn become active players. This is a sub-area of social play that also deserves consideration in design and evaluation, and is included in this chapter.

Finally, there are some who believe that interacting with non-player characters in games is a form of social play (Isbister 2006, Lazzaro 2008). While this may indeed be a legitimate a form of social play, it is not included in the analysis in this chapter.

1.4 Why Focus on Social Play

There are several reasons social play is an important place to focus our efforts in understanding the game play experience.

A primary reason is that games, even single-player games, are often played in social contexts. As mentioned above, the ESA reports that 59% of their survey respondents played games with others. If we want to understand the user experience of games thoroughly, we must include consideration of the social nature of the experience.

Another reason to turn our attention toward social play is that adding people to the play session creates a fundamentally different end experience. It isn't as if two players are both having the same experience as a single person would on his or her own. There are many social phenomena that contribute to this. For example, the presence of others in a play session has an impact on each player's learning curve, and mastery of a game. People model gameplay behavior that others learn from, and those who have already figured out new mechanics or challenges may offer coaching to those who have not yet arrived at these insights. Spectators and co-players can create priming and framing effects for players with the comments they make about what is happening—drawing attention to some things and not others, creating extra-game competitions or other narratives that players take part in, reminiscing about past play sessions and framing the goals for the present session in ways that may transcend or run counter to explicit game goals, and the like. And it seems to be the case (as mentioned in Section 1.2) that playing with others can affect each player's moment-to-moment experience of gameplay (e.g. raising positive affect, lowering frustration).

Social play sessions also end up serving as a forum for ongoing evolution of relationships among players, and play activities are thus contextualized within the larger framework of strengthening ties, building trust, forging alliances, flirting, and the like, among a community of players.

From a designer's point of view, there are compelling reasons to focus on social play explicitly. In terms of designing multi-player games, it is essential to approach evaluation and iteration from the perspective of supporting social play. Even with single-player games, the 'over-the-shoulder' appeal of a game becomes an important factor in adoption and sales of the game.

For all these reasons, social play is an important aspect of the player's experience for the user experience (UX) research and practice community to address.

1.5 A Framework for Understanding Social Play

In order to grasp how social play will affect the UX of gaming, and to come up with appropriate design and evaluation tactics, it's important to have a nuanced understanding of the many factors that shape the nature of social play. This section covers some key factors, presenting a preliminary framework for understanding and analyzing social play.

It may be helpful to hold in mind several very different examples of social play, as a backdrop against which to apply these factors:

- A Nintendo DS play session among colleagues taking a break from work, which takes place in a stairwell of their office complex (a play pattern reported in (Szentgyorgyi Terry and Lank 2008)).
- Members of a World of Warcraft guild, having met in person for the very first time at a convention, playing together online once they all travel back home (taken from experiences described by (Taylor 2006)).
- Contestants going head-to-head in an all-day competition in Dance Dance Revolution, sponsored by a campus DDR club (personally observed by author).
- A child, grandparent, and mother, trying out an RFID-enabled physical game developed by researchers interested in supporting cross generational play (experience created by Age Invaders research team, reported in (Khoo et al. 2007)).

There are many differences among these situations that help to illustrate some of the key dimensions of social play.

1.5.1 Contextual Factors

It is helpful when analyzing social play to take a look at contextual factors that frame the play: e.g. the form factors of the gaming platform upon which the game is played, and the physical context of play. Often these are intertwined—that is to say certain platform characteristics lend themselves to certain settings.

Consider the platforms mentioned in the examples above. The Nintendo DS, with its wireless access and portable format, allows players to cluster almost anywhere and play a game together. There is no need to travel to a place that houses the game equipment. The small personal screens take away one component of most co-located social play sessions—viewing of a large shared screen with shared audio as well. Each person has his/her own inputs, and this also affects how many people can play (depending upon choices the designers have made). It also profoundly affects some of the possibilities for social play. For example, it's very difficult to engage in observational learning or do active mentoring when using the Nintendo DS, because there isn't a readily available shared visual reference. It can become unclear who is who onscreen, in a multi-player game, a confusion that players can learn to exploit in ways that enhance everyone's experience. Gaming sessions can start and stop very quickly and informally, allowing players to form fluid play sessions that come together in spare moments in a day.

The DDR competition example involves shared access to arcade quality game machines for a contest among players who typically play together using home equipment in a campus recreation room. The arcade machine gives the contest a 'professional' feel for the players, and seems to 'up the ante' for them in their interactions. It marks a formal competition from the usual weekly match-ups.

Using custom equipment, like Age Invaders' RFID-tags in player shoes, which are tracked as players move around on a custom LED-block play grid, while aiming Bluetooth-enabled toy guns, brings its own challenges to social play. Players must get familiar with how the equipment works and how to manage it to engage in gameplay. Glitches in performance of the custom and still research-grade hardware can profoundly impact the play experience and muddy any results in examining social interactions around the play. Being in a lab setting may make participants self conscious or uncomfortable in ways that affect their social interactions, as well.

Finally, even the typical person-sitting-at-PC platform social play scenario can be shaped by context… in the case of the MMO player returning home, memories of interacting in person are still fresh and make her notice the ways in which she interacts with the others. She can hold in her mind images of how these people look in person, and how they interact 'live', and this impacts how she perceives the interface she has to them through the game avatars and controls. The platform constraints and typical physi-

cal context of MMO play (each person sitting at his/her own PC alone at home) become newly relevant and visible.

To summarize, in order to fully understand the user experience of social play, we need to make visible to ourselves as designers and researchers, the contextual factors that will influence the shape that social play takes. Screen size and control schemes, portability, network access, novelty of equipment, and typical versus atypical or special contexts, all have an impact on how social play will unfold.

1.5.2 Motivational Factors

Social play experiences are also highly determined by the composition of the group that is playing. Who are the players? Why did they choose to play with one another? What are their prior relationships and how does play serve to enhance these?

A group of officemates playing DS games as a break from work may be solidifying their ties as co-workers as well as building extra-office friendships. They may be making a statement to one another about how they feel about work, by choosing to play during work hours.

A formal competition among clubmates is part of the official 'work' of the club, and also sets the pecking order among club members in terms of skill and performance under pressure. Players may behave differently in head-to-head matches if they are trying to support and sustain ongoing relationships (e.g. a couple playing against one another).

MMO players who've newly strengthened ties with an in-person convention meeting may end up playing differently as they work to accomplish goals together, forming new alliances within their party and chatting about extra-game interactions they've had.

A family playing a research game like Age Invaders that is supposed to support intergenerational ties brings dynamics from other family interactions to the play space. Choosing to volunteer for research probably adds a layer of complexity of motivation to the social interactions going on during play—some of the family members may want to show off their relations in the best possible light, and so forth.

All of these examples point to the complexity of understanding what is going on in a social play session, in terms of how it supports larger social goals and relationships among the players[1].

Researchers have developed some strategies for weaving complex individual motivations into patterns that can be understood and designed for—creating taxonomies of player motivations (Yee 2006, Bateman and Boon 2005, Lazzaro 2008), that revolve around in-game aims such as Yee's achievement, social, and immersion factors, or Lazarro's serious fun, easy fun, people fun, and hard fun categories. These kinds of taxonomies share similarities in approach to the uses and gratifications strategies for understanding media that come from the Communication literature (e.g. (Vorderer and Bryant 2006). Such taxonomies may be valuable in future, but as of yet, there is not yet much specific information in current taxonomies that focuses on social play in enough detail to truly guide design and evaluation.

1.5.3 Conceptual and Theoretical Grounding

Game designers (e.g. Schell 2008, Koster 2004) have done considerable thinking and writing about what makes play fun, including social play. In such cases, the designer shares intuitions based upon practice and observation with his/her target users, working in particular genres that s/he is familiar with. This is very helpful information, but doesn't always lead to reliable and replicable approaches to a broader array of social play situations.

Some have begun to bring a broader conceptual framework about human interaction to their work in analyzing social play—for example, Lazzaro (Lazzaro 2008) grounds her analysis of social play (which she calls 'people fun') in an examination of the particular emotions that arise when engaging with others in play, such as love, gratitude, generosity, embarrass-

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[1] Another factor that has not been addressed in this chapter is the large and complex literature on intrinsic motivational factors (such as personality and baseline arousal preferences) that would of course also come into play in social gaming situations. Readers are encouraged to explore this literature as well.

ment, and several others. She links these emotions to particular choices in game play mechanics. Some of these include offering chances for players to mentor others, allowing players to personalize their avatars and create profiles that enhance their self-expression, and providing time and mental space during gameplay for relationship formation to take place.

User experience researchers and designers can benefit from this kind of more broadly-based approach, because it can transcend specific design cases and be applicable to emerging platforms and genres as well. Ideally, when possible, this would also draw upon the rich body of knowledge that social scientists such as Social Psychologists, Anthropologists, Communication scholars, and Sociologists have collected through their empirical work on human interaction and media use.

For example, here are three useful concepts drawn from Social Psychological literature, which can be valuable in understanding and evaluating what is happening during social play (there is more detail about these findings and how they can inform design in (Isbister 2006) and (Isbister 2008)).

1.5.3.1 Social Learning

Social Psychologists have demonstrated that we gain much of our knowledge of how the world works through observation of others moving through the world and acting (e.g. Bandura 1977). One way designers of social games can make social play work well is to think ahead about how their game will support social learning. Is it possible to follow along over-the-shoulder and understand what someone is doing, or is it difficult? Keeping the connection between a player's actions and game progress trackable by observers will make learning happen much faster, and may help hesitant players get drawn into play more quickly. Evaluators can confirm whether the design is truly supporting over-the-shoulder learning in play sessions, and make suggestions for improvements.

1.5.3.2 Emotional Contagion

Both social scientists (Hatfield Cacioppo and Rapson 1994) and neuroscientists (Iacoboni et al. 1999) have gathered evidence that people are very

susceptible to one another's moods—emotions are very 'contagious'. Simply by observing another feeling a certain way, we start to take on that emotion. In social play situations, this means that if the designer can get some players feeling happy, that others are more likely to follow along and feel that same way, creating a sort of snowball effect among the group. It helps to explain why party games can be so fun. Having to take actions very quickly, and do goofy things that may make you laugh, can put the player into a high energy, positive mood, that gets 'caught' by those watching, creating a positive feedback loop among the group, leading to mood elevation for everyone. Conversely, something annoying to one player can have a ripple effect among the others and 'break the mood'.

1.5.3.3 Physical Feedback Loop

Social Psychologists have conducted experiments (e.g. Strack Martin and Stepper 1988) that show that part of how people figure out how they are feeling, is by tuning into bodily signals of emotion, and then self-labeling about feeling. So if the player feels her body acting as if it were happy and high energy (jumping around excitedly), she will conclude that she must be in a positive mood, and will end up feeling more upbeat. With the emergence of physical controller-based games like those for the Nintendo Wii, its possible to use this physical feedback loop to help induce player emotions that can then spread through the group through emotional contagion.

1.6 Evaluation tactics

Given the many factors and nuances involved in the social play experience, evaluation of effectiveness of design choices toward a strong end user experience must vary accordingly, and a full discussion of the permutations involved is beyond the scope of this chapter. However there are some general recommendations that can be made about evaluating the success of a given social play experience, which build upon the various aspects discussed in the prior sections.

The first recommendation is a strong focus on ecological validity in testing. The design team must be clear about the expected parameters of use—

setting, relational groups and their qualities, known social phenomena (such as emotional contagion or social learning) that should be supported—and should craft a test plan that allows a fair examination of these groups engaging in these activities in these settings. For example it is helpful to test out mobile or handheld platforms in a setting in which players might engage in game play embedded in their daily lives, rather than in a laboratory setting. It is crucial to test a game directed at preschoolers and their parents with members of the appropriate demographic groups (e.g. [8]). When one is testing a social/party game, it is best to bring in a cohort of players who already are familiar with one another, perhaps recruited through one core player who meets all the target requirements (e.g. (Amaya et al. 2008)). This can sometimes make testing more costly and complex, but may save a development team from essential errors in design that do not take these important environmental and contextual variables into account. Of course these recommendations are easier to follow when a prototype is fairly mature, but even early-stage prototyping may benefit from in situ testing, to capture requirements that are otherwise invisible to developers in supporting engaging social play.

In some cases, a company may be able to generate early insights about social play without relying on external testers, by conducting internal tests that mimic the end social experience. For example, Harmonix, when developing *Rock Band*, had every employee join a 'band', play weekly builds of the game, and provide feedback to the design team (Kohler 2007).

Designers may also want to do some exploratory studies of play patterns with other similar games for the target platform, like those conducted in the Nintendo DS project (Szentgyorgyi Terry and Lank 2008), to help generate design specifications for social play before a project even begins.

Another general recommendation is to craft questions that are asked of players with the target social experience in mind. That is to say, if the design team hopes to provide a great over-the-shoulder viewing experience, opportunities for creating emotional contagion, encouragement of performance, and the like, it is important to actually ask testers whether these effects were achieved. There are not yet standard questionnaires about these issues available to user experience evaluators, and this is an important area for further research and refinement, and for the pooling of resources among both commercial developers and user experience researchers.

Figure 1. Video recording with multiple cameras and screen capture allows for rich analysis of play.

In addition to attitudinal measures such as questionnaires, it's ideal to look for behavioral evidence of effects as well, and recording tactics should support this process. For example, if a user researcher is conducting test sessions that include a larger play group, and is video recording gameplay, it is vital to include those who are watching as well as those who are playing in the recording. It's not too difficult to rig multiple camera composited video records of play (see for example Figure 1) and these will vastly improve analysis of the social effects of the game after the sessions are over.

In terms of general procedure for studies with groups of gamers, the Microsoft group reports that groups of people who already know each other tend to talk about the experience much more readily as they play than solo players, giving high quality comments about the design, thus making think-aloud much more viable and straightforward (Amaya et al. 2008). They also report that one should rethink task lists for a group study—instead of highly specific task lists, a general list that emphasizes certain game elements that the experimenters want the group to cover seems much more effective. The group also mentions that they hold off on asking specific questions of play groups until the end, in order to allow playful banter and discussion to develop that they feel gives them valuable information

about the game design issues they are testing. Instead they make note of any issues that seem to arise and include them in a post-play discussion with the play group.

These are some preliminary recommendations for how to conduct evaluation of social play. This still an emerging practice, and it will be important for developers and researchers to work together to evolved best practices for social play user experience evaluation.

1.7 Challenges and future directions

User experience researchers and industry practitioners can certainly do a better job of sharing experiences and converging upon common practices and measures for evaluating and understanding social play. Amaya et al.'s chapter (2008) is an excellent beginning (as described in section 1.6). We may all benefit from grounding our intuitions and observations in an understanding of the social phenomena that underpin social interaction in the context of play, such as those mentioned in this chapter in section 1.5.3. A recent paper in *Computers in Entertainment* (de Kort and IJsselsteijn 2008) provides a 'framework describing social processes underlying situated social play' that may be of practical value for creating a more systematic and nuanced understanding of the mechanics at work in social play. Work in supporting social play among diverse groups (such as multi-generational games) is only just beginning and will require sophisticated design and evaluation strategies.

Developing for novel interaction styles such as the accelerometer-based physical play possible with the Nintendo Wii system, iPhone, and other mobile platforms, or the camera-enabled play made possible by the Sony eyeToy, should also lead us to new insights about what elicits fun and engagement in social play, and how to measure it.

Some believe that games are innovating modes of social interaction and enabling social engagement in new ways (Dyck et al. 2003, Jørgensen 2004), and so work in design and evaluation for social play may turn out to be an important driver in the field of social user experience with technology more broadly.

I hope that this chapter will initiate further discussion of tactics for social play design and evaluation, helping us all to solidify our practice and innovate.

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