

People, Places, and Play: Player Experience in a Socio-Spatial Context

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Digital games frequently give rise to engaging and meaningful social interactions, both over the internet and in the real and tangible world of the gamer. This is the focus of the present paper, which explores digital gaming as a situated experience, shaped by socio-spatial contingencies. In particular we discuss how co-players, audience, and their spatial organization shape play and player experience and review supporting evidence for this. We present a framework describing social processes underlying situated social play experience and how these are shaped by the player the game's socio-spatial and media context. The core of this framework describes various 'sociality characteristics', and discusses these both in terms of co-located and mediated social game settings.

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1. INTRODUCTION

Digital gaming brings many opportunities for social interaction. The importance of such interactions for shaping the player experience is testified by the overwhelming participation in virtual communities and massively multiplayer online games (MMOGs), and the personal relevance of these communities to those intensely involved in such games. But electronic games also give rise to frequent and meaningful social interactions in the real and tangible world of the gamer. Naturalistic observations in home environments have rendered interesting findings concerning the 'social act' of gaming. In a study which was originally intended to study solitary game play, Carr and colleagues (Carr, Schott, Burn, & Buckingham, 2004) report stumbling upon unexpected instances of cooperative play. Groups of friends were actively involved in the game, even though only one was actually playing. Several studies report of electronic games' opportunities

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for social interaction (e.g., Holmes & Pellegrini, 2005; Lazzaro, 2007). And many are said to enjoy playing together or watching others play, sharing comments and enjoying the spectacle and the enhancement of emotional experience that comes from a crowd (e.g., Jansz & Martens, 2005). Some even argue that it is the social interaction and participation that, to a large extent, explain game enjoyment (Bryce & Rutter, 2003; Carr et al., 2004). These effects are reported for settings ranging from public (arcades), to semi-public (LAN events), to private (living room at home). A recent research report details that two-thirds of the gamers they sampled (N=2000) play video games with other people for at least an hour a week. Moreover, when probed for their motivations to play digital games, the number one motivation, supported by 60% of the gamers, is the social component, i.e., 'being able to play with friends' (Nielsen, 2005, p.3).

These findings are in stark contrast to the image of social isolation digital gaming has for many people. In spite of concerns and criticisms raised against electronic gaming by teachers, parents, researchers and policymakers (Bryce & Rutter, 2003), the literature does not provide convincing evidence to this effect. On the contrary, there are a number of studies demonstrating that games often elicit beneficial effects on cognitive skills, but also in affective and social terms (Calvert, 2005; Gunter, 2005). Recent focus group research from our own laboratory also lends support to the notion that digital game play is suffused with social motivations, interactions, and effects (Poels, de Kort, & IJsselsteijn, 2007). In many respects, electronic games are not all that different from traditional games (e.g., card games, board games), which have often been viewed as desirable materializations of family and peer interaction and involvement, and as sources for entertainment and liveliness in the public arena.

2. MODELLING SOCIAL SITUATED PLAY

Our work is strongly inspired by the realisation that gaming is often as much about social interaction, as it is about interaction with the game content. Thus, the rich interactive experiences associated with gaming can only be fully understood when the game is conceptualised as more than the software and hardware one is interacting with locally, but includes a larger situational perspective, tapping in on the social-contextual contingencies that powerfully influence game interactions and associated experiences.

Given the growing anecdotal and empirical support for the social richness of digital gaming, it is increasingly surprising that social processes and interpersonal dynamics are underrepresented in conceptualisations and theories of game experience and enjoyment. In most models a marginal role, at best, is reserved for social influence (e.g., Ermi & Mayra, 2005; Klimmt, 2003; Lindley & Sennersten, 2006, Sweetser & Wyeth, 2005). Although the relevance of social factors in gaming is generally acknowledged by most of these scholars, it does not translate into the explicit incorporation of social processes into the models.

The accounts of social interaction and social context effects do not lend themselves easily for combination with conceptualisations of flow and immersion. These phenomena, which are generally acknowledged as central to game experience, are thought to be highly sensitive to external distractions such as, for instance, the presence of other people. Explanations of flow and immersion experiences often consist of descriptions of mental absorption, a trance-like state, focus, or the loss of awareness of others (e.g., see Holt & Mitterer, 2000). From this perspective, social interactions and experiences of flow and immersion represent potentially conflicting mechanisms of game enjoyment. This is also noted by Sweetser and Wyeth (2005) who state: 'social

interaction is not an element of flow, and can often interrupt immersion in games [...] However, it is clearly a strong element of enjoyment in games' (p.10).

The present paper focuses on the psychological experience of social context effects while playing. Borrowing mainly from social psychology, we introduce the most relevant social context effects on performance and player experience and discuss the first empirical studies that indicate the existence of these mechanisms in digital gaming. We then return to gaming as a situated experience and illustrate how these mechanisms are shaped by the social affordances of the gamer's context. In particular we discuss contingencies between player, co-player(s) and audience and how these are shaped by the physical and media context in which they reside. Contextual 'sociality characteristics' of game settings are discussed in terms of co-located, mediated, and even virtual others.

3. SOCIAL CONTEXT EFFECTS AND GAME EXPERIENCE

Research into the social interactions during game play has focused mainly on the influence of play configuration on the use and experience of educational games. Positive effects are reported on performance, social interaction, and motivation for small group interactions around computers in classrooms (e.g., Hawkins, Sheingold, Gearhart, & Berger, 1982; Watson, 1990). Comparisons of solo, parallel and integrated play configurations indicate that children playing together have better performance than those playing alone and that motivation is highest when they collaborate on one computer (Inkpen, Booth, Klawe, & Uptis, 1995). Outside the arena of 'serious gaming', investigations of social interactions and the prevalence of aggressive behaviour during gaming episodes suggests that children's behaviour can generally be characterized as positive towards each other, regardless of game theme (Holmes & Pellegrini, 2005).

The literature above mainly concerned children involved in digital game play, but research with adolescents and adults has also demonstrated that playing games with others adds to game experience. Recent studies by Mandryk, Inkpen, and Calvert (2006) and by Ravaja and colleagues (2006) who employed subjective measures and psychophysiological indicators of player experience, demonstrate that playing against a co-present friend elicits higher engagement, arousal and more positive emotions (fun) than playing against a computer. Interestingly, playing against a stranger is also more arousing than against a computer, though not quite as much as competing with one's friend (Ravaja et al., 2006).

3.1 Arousal

Accounts of the psychological processes behind these findings are still speculative. In Ravaja's study, playing against a human generally elicited higher anticipated threat, and post-game challenge ratings tended to exceed those in person-computer competitions. Mandryk et al. (2006) however, demonstrated higher arousal levels for playing against a friend, irrespective of perceived challenge, which seems to rule out perceived challenge as the only cause for higher arousal levels.

Heightened arousal caused by the presence of others has received much attention in social psychological research. Arousal is suggested as one of the important mechanisms behind social context effects on performance. Zajonc (1980) proposed that the physical presence of others creates a state of increased arousal (drive) facilitating dominant (i.e., well-learned, habituated) responses, the so-called social facilitation effect. This effect explains better performance on familiar and simple tasks in the presence of others, while performance on novel or difficult tasks is hindered. Importantly, Zajonc argues that this social facilitation effect occurs and is distinct from other social context effects such as imitation, competition, and evaluation apprehension.

Evaluation apprehension (e.g., Cottrell, 1972) is an expectancy-based mechanism, i.e., it occurs as a result of anticipating whether others' perceptions of one's performance will be positive or negative. For instance, Kimble and Rezabek (1992) have found 'choking' as a result of playing video games in front of an audience. In case of positive or supportive evaluation expectancies, levels of arousal decrease.

Others propose that instead, self-awareness and self-evaluation increase in the presence of others (e.g., Carver & Scheier, 1981, Duval & Wicklund, 1972). Subsequent favourable assessments of one's ability to attain a goal result in continued pursuit of the goal, whereas negative self-assessments result in social inhibition.

As a last example, the biopsychosocial model (Blascovich, Mendes, Hunter, & Salomon, 1999) suggests that the presence of others increases the goal relevance of performance, which in turn heightens arousal. The effects of increased arousal then differ as a function of whether individuals perceive the situation as challenging or threatening. This influences both affective and cognitive processes.

We do not attempt to provide a comprehensive review of the literature on social facilitation and related processes. What is important to learn from this social psychological literature, however, is that social context effects on performance are real, and that they are moderated by whether performance can be monitored by others, by the other person's role (co-actor vs. spectator), relationship and expertise, by performance requirements, and by personal differences. Notably, the social facilitation framework was successfully extended to mediated presence (Aiello & Svec, 1993). This implies that even distant others (e.g. online co-players) are part of a person's social context, and as such potentially exert an influence on player experience and performance.

3.2 Emotion

Ravaja et al.'s (2006) results demonstrated that in addition to higher levels of arousal, players also experience more positive emotions when playing against a real person. They suggested the individual's need for achievement as a potential explanation, implying that people enjoy winning more in front of others, out of pride. But this is an insufficient explanation, since – in contrast to playing against a computer – game outcome does not seem to influence game enjoyment in person-to-person game configurations (Mandryk et al., 2006). Ravaja and colleagues also propose that perhaps the findings can be partially attributed to basic human motivation for social interaction, affiliation and our need to belong (see also Aitken & Trevarthen, 1997; Baumeister & Leary, 1995).

When people are playing together, their need to belong is nourished in multiple ways. First, through involvement in a common activity they interact socially, and both the number and quality of social interactions contribute to a person's sense of belonging (Baumeister & Leary, 1995), resulting in a positive affective state. Second, spending time together makes people aware of their being part of each other's social network or group, which generally also brings about positive emotions. Moreover, (unconscious) processes of empathy and mimicry result in a phenomenon called 'emotional contagion', where one person's affective state spreads to that of a second person who is able to perceive his/her facial expressions (Ramanathan & McGill, 2008). Hence, when one player is visibly enjoying a game, this emotion potentially crosses over to the other. Lastly, the subsequent congruence of feelings engenders an even stronger sense of belonging, through reinforcement and confirmation (Raghunathan & Corfman, 2006).

Naturally, social settings not only allow for experiences of pride and sociability, but also for their negatively toned counterparts – shame, crowding, social pressure. Interestingly, 'Schadenfreude', an emotion with a clearly negative connotation in normal

life, is often reported as one of the positive elements in social gaming settings (e.g., Lazzaro, 2007).

Jakobs and colleagues (1996, 1997) argue that the ‘mere’ presence (see also Zajonc, 1980) of other people is not sufficient for most social context effects. Similar to effects on arousal and performance described above, social context effects on emotion are also largely determined by the social affordances of a situation. They introduce the term ‘sociality characteristics’ to denote the characteristics of a social setting that shape these affordances. They allow for social interaction processes such as awareness, monitoring, mimicry, reinforcement, verbal communication and nonverbal immediacy behaviors (i.e., approach behaviors that reduce psychological distance (Mehrabian, 1981).

4. SOCIALITY CHARACTERISTICS OF CO-LOCATED AND MEDIATED GAME SETTINGS

We have advocated that the social context of game settings influences player experience and engagement. This social context cannot be described by the presence of others alone. It also encompasses the player’s ability to monitor other players’ actions, performance and emotions. It includes the other’s role in this setting – acting or observing, competing, co-operating, or co-acting. And it comprises their opportunities for verbal and non-verbal communication. Together, the social affordances and the objective characteristics of the game and play context that contain them define the ‘sociality’ of the play setting. The sociality characteristics of the setting shape the interpersonal dynamics and social mechanisms at play. For co-located game settings this includes the socio-spatial characteristics, for on-line play it includes the media characteristics, and for single player settings it includes the AI characteristics of the agents as virtual co-players (see Figure 1).

For virtual co-play, the social richness of avatars is of course largely determined in the game itself, i.e., in the software. Sometimes their representations are void of any social information in terms of emotions or communications. Yet in other games (e.g. soccer), virtual co-players appear to have a character of their own, expressing frustration when receiving an unjust reprimand from the referee, or exhilaration upon scoring a point on their human competitors. Additional features, such as the presence of a voice-over

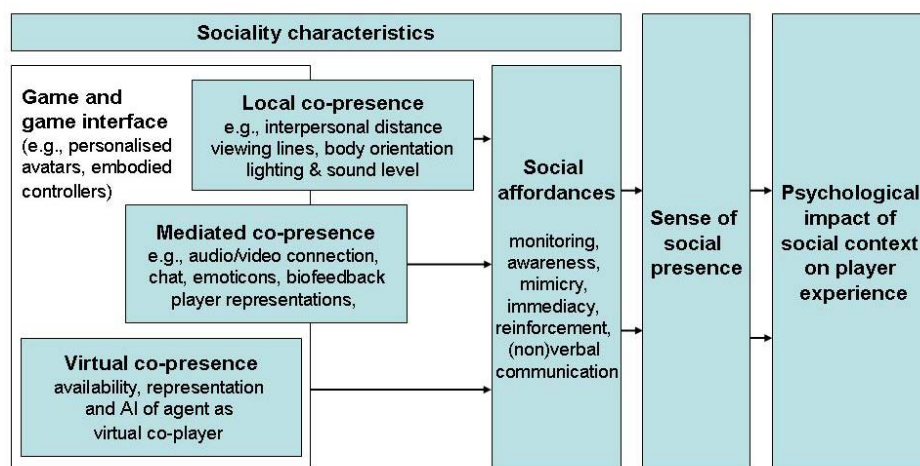


Figure 1: Framework for game settings’ sociality characteristics for player experience

commentary (see e.g., FIFA 2008, EA Sports), suggests that people are watching and assessing the game. Logically, the contribution of contextual factors outside the direct realm of the game and game interface is larger for play with mediated and co-located human players than for play with only virtual players. Here part of the social affordances are shaped for instance by available communication channels in online play, and by sociality characteristics of the physical play environment in co-located play. This is visualised in Figure 1 and discussed further below.

Some argue that in contrast to co-located settings, which offer multi-sensory immersion and provide users with avenues for spontaneously interacting with friends, ‘playing online games with the same user group of friends does not offer this rich multi-sensory engagement’ (p.4, Venkatesh & Mukherjee, 2006). This however presents a perhaps oversimplified view of co-located vs. mediated settings. For one, co-located settings are not always promoting social interaction. Several researchers report on the socially isolated character of co-located game events, where players often sit beside each other, but interact primarily with and via the screen and game controller (e.g., Magerkurth, Engelke, & Memisoglu, 2004). Alternatively, mediated settings sometimes do actively facilitate spontaneous informal interaction beyond what is provided in the game interface itself. Developments in internet connectivity and computer games have opened a much wider array of potential channels for interaction including, among others, chat options, audio connections and webcams. As a result, online gaming’s potential for spontaneous and (mediated) multi-sensory interactions with friends has grown substantially.

Assuming a dichotomy of persons being either there or not-there does not do justice to the subtlety with which individuals engage in, or withdraw from, interpersonal communication (Biocca et al., 2001), either in mediated or unmediated settings. This is reflected in the notion of social presence. Originally described by Short, Williams, and Christie (1976) as ‘the degree of salience of the other person in the interaction ..’, it was later defined by Biocca, Harms, and Burgoon (2003) as ‘the sense of being with another’. Biocca and colleagues argue that social presence is characterised by sensory awareness of bodily representations, psychological involvement with another intelligence and behavioural engagement through interaction and synchronisation. The sense of presence in our framework denotes the extent to which the social affordances of the game setting are effective in eliciting awareness of another social entity.

Social awareness, involvement and engagement are the result of a complex interplay of compensatory and reciprocal behaviours involving verbal communication as well as interpersonal distance, body orientation, gestures, and gaze direction (e.g., Argyle & Dean, 1965; Goffman, 1956). Although these interpersonal communication processes are generally discussed in contexts where the primary activity is face to face communication, they are also appropriate to describe a person’s involvement with his/her social context during play, even though in these situations attention is distributed between the game, the controller, and co-actors or spectators.

4.1 Communication

In co-located game settings, opportunities for communication and immediacy behaviours are structured by game characteristics, social affordances of the game interface, and characteristics of the players’ physical environment. Game characteristics such as, the level of induced mental load and turn-taking vs. real-time competition formats influence whether players get a chance to interact at all during a game. Other game functionalities such as replays not only offer time slots for interaction, but also interesting and engaging

content for discussions between players. Game interface characteristics such as the size and orientation of the screen, the number of available screens, and the type of control device offer possibilities for others to watch the game and the player (s). They also influence how close others can get, and whether they can look at each other while playing. As just one example, the recently developed Philips Entertaible² basically offers a horizontal digital display, integrated in a table, such that players sit around it, facing the screen but also each other as if they were playing a traditional board game. Similar effects result from characteristics of the players' physical environment, such as, the available space, and the configuration of furniture in terms of interpersonal distance and orientation.

Co-location does not, by itself, guarantee behavioural engagement in multiplayer settings. In fact, most co-located digital gaming currently takes place in seating and viewing arrangements where players are oriented away from each other (so-called socio-fugal settings, Sommer, 1967). This counteracts mechanisms such as mutual eye contact, natural reciprocation of approach or avoidance cues and mirroring, and other emotionally relevant communication signals. Therefore, although physical proximity does allow for a more intense and multi-sensory awareness and interactions than most mediated technologies presently do, in co-located settings we can also experience varying degrees of awareness, involvement and engagement, i.e., social presence.

In mediated game settings, communication between players is additionally filtered by (communication) media. Research in this area has shown that the perceived level of social presence and/or communicative realism depends on properties of the media interface, allowing, for instance, for verbal and/or non-verbal communication, and supporting varying levels of naturalistic representations in terms of appearance and behaviour (e.g., Bailenson, Beall, Loomis, Blascovich, & Turk, 2004, Bailenson & Yee, 2006; de Greef, & IJsselsteijn, 2001).

The case of co-located play vs. mediated play can also be extended to playing against virtual others, i.e., simulated social actors rather than avatars. Depending on the agents' representation and interactivity, here too we can map experience along a social presence continuum. At the lowest end of this dimension – no social presence – the player is playing a game on her own, off line, without (virtual) opponents and without (virtual) spectators, who can monitor her performance. Taken to the extreme, this even implicates the absence of a list of high scores. At the higher end of the dimension, the AI of a game could be so powerful and rich that it suggests the presence of some socially intelligent and relevant other.

Biocca et al.'s conception of social presence (Biocca, Burgoon, Harms, & Stoner, 2001; Biocca, Harms, & Gregg, 2001; Biocca, Harms, & Burgoon, 2003) as the experience of being with an other person or group, appears to fit both mediated and co-located interaction settings and serves as an interesting measure in the study of socially situated gaming. It may contribute to game experience and enjoyment directly, as a consequence of the human motivation for social interaction, affiliation and our need to belong (Aitken & Trevarthen, 1997; Baumeister & Leary, 1995). In addition it may qualify the influence of others indirectly, via processes of social facilitation, contagion, reinforcement, and congruence.

² See <http://www.research.philips.com/initiatives/entertaible/>

4.2 Opportunities for Monitoring Performance and Actions

In Section 3 we indicated that processes such as social facilitation and evaluation apprehension are triggered not by the ‘mere’ presence of others, but by their ability to monitor the individual’s actions and performance. This too is determined by characteristics of the game, the interface, and the setting. Game characteristics such as real-time score keeping and other indicators of progress, or the richness of the player’s representation, her actions and their effects can add to the entertainment value of video games for spectators and make it more (or less) likely that they meticulously track the player’s performance. The case of embodied controllers clearly illustrates the potential impact of interface and setting characteristics. In ‘traditional’ video gaming, performance is usually monitored best on the player’s screen. In general, there is little use in watching the players themselves, manipulating the joystick, keyboard, or gamepad. When players are highly concentrated on the game, even their faces may give little indication of what he or she is going through. This contrasts with sports, where the audience obviously enjoys watching players manipulate the ball, bat or racket, and prefers this over meticulously following the scoreboard and path and effect of the ball alone. The players’ actions and manipulations offer unique information on their emotions, intentions, their skill, and the amount of effort they are investing.

With the introduction of embodied interaction devices in games, suddenly in-game actions become directly visible and transparent to the public. As yet, little empirical research has been performed on these new game controllers. Positive effects of embodied play may be hypothesised, for instance since humans have an intrinsic need to experience their physical and social environments kinaesthetically (Dourish, 2001, Hall, 1966). But, while changing game experience for the player, they also radically impact socially situated play. We expect that they may enhance audience enjoyment, but also impact players’ self-presentation behaviours and increase their evaluation apprehension. Similar effects are expected for other interfaces and game setting characteristics which increase the visibility (or audibility) of players’ actions and performance.

4.3 Role and Relationship

Naturally, with whom you play also matters for game enjoyment and experience. There is a better chance of having warm and engaging interactions with friends; intimacy, immediacy, and common ground are more likely with like-minded others. The relationship with the others influences game experience via psychological processes such as expectancy-based facilitation or inhibition of performance and the relevance of favourable self-presentation. The role and influence of spectators differs from that of co-actors. Also, the influence of co-players depends on whether the setting is competitive or collaborative. But again, the impact of these variables will be more pronounced as the social presence of the other, co-player or spectator, friend or foe, increases.

5. CONCLUSION

The rich interactive experiences associated with digital gameplay can only be fully understood when the ‘system’ is conceptualised as more than the software and hardware one is interacting with locally, but includes a larger situational perspective. Socially situated play is as much a function of the game as it is of where and with whom we play. Game interface characteristics, media richness, social context, and spatial layout have been discussed as properties that powerfully impact game interactions and associated experiences. Based on the significant body of literature around social context effects, we have highlighted the importance of social-contextual contingencies in digital gaming,

which can be explained, at least in part, through the concept of ‘sociality characteristics’ of game settings.

From our analysis, a number of dimensions have emerged that each play a significant role in structuring the game experience within a socio-spatial context. Sociality characteristics of situated play are embedded in the game, the game interface, and the setting. The role of the latter naturally increases from play settings with only virtual others, to those with mediated others and co-located others. Together they determine for a large part the social affordances of the situated play setting for processes such as awareness, immediacy, mimicry, contagion, reinforcement. The availability of these processes in turn shapes the players’ awareness of others and the impact they have on their affective state and actions, in other words, their sensory awareness, psychological involvement, and behavioural engagement, i.e., their experienced social presence.

The presence of others, or social presence, is seen here as a continuous dimension (as opposed to a dichotomous one) that varies based on the level of perceptual access to the real or virtual others, their communicative realism, and a shared behavioural engagement. Although intuitively one would assume physically co-located others to define the high end of this dimension, this will also strongly depend on the social affordances of the game content, the gaming interface, and the physical environment in which the game is played. Higher levels of social presence may be attained between remote players that are continuously and mutually engaged in a collaborative game, than between co-located players that each are concentrated on attaining their own solitary goals without any great need to interact or share.

Social presence does not by itself provide a sufficient explanation for all of the social context effects that can be observed in digital gaming. For example, the process of evaluation apprehension relies heavily on the player’s relationship with the others. In addition, there might be individual differences between gamers that need to be taken into account in order to better understand the impact of social contextual factors on individual game experience. However, we have tried to make plausible how the social presence concept can help reduce to a common denominator the many different ways in which distant or co-located co-players are represented and interact with a player. Also, we have illustrated how the sociality characteristics of the game, the game interface, and the game context shape a player’s experienced social presence.

Essentially, we view digital gaming as an activity that is embedded within a socially meaningful context of co-players and spectators, embodied through increasingly natural gaming interfaces (e.g., the Sony EyeToy or the Nintendo Wii), and situated in a physical and/or media environment that affords social interactions in varying degrees. Positioning the digital game experience in a framework that appropriately acknowledges the role and importance of the social and physical context in which the game unfolds, powerfully extends our current theoretical understanding of game experience and design to include the complicated socio-physical dynamics that are expected to influence gameplay and game experience.

Through a substantial programme of empirical research currently underway in our labs, we aim to test the assumptions and implications of this approach, thereby integrating a single player’s digital game experiences into an embedded, embodied and situated perspective.

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