People, Places, and Play: A research framework for digital game experience in a socio-spatial context

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ABSTRACT

Electronic 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. We present a framework describing social processes underlying situated social play experience and how these are shaped by the game's socio-spatial context. The core of this framework describes various 'sociality characteristics', and discusses these both in terms of co-located and mediated social game settings.

Author Keywords

game experience, social context effects, situated play, theory

INTRODUCTION

Digital gaming brings many opportunities for social interaction. The importance of such interactions for shaping the gaming 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 et al. [14] report stumbling upon unexpected instances of cooperative play, as friends were actively involved in the game, even though only one was actually playing. Several studies report of electronic games' opportunities for social interaction and the enjoyment that results both from playing together or watching others play, enjoying the spectacle and sharing comments, and the enhancement of emotional experience that comes from a crowd (e.g., [31,35,40,54]). Some even argue that it is the social interaction and participation that, to a large extent, explain game enjoyment [13,14]. These effects are reported for settings ranging from public (arcade games, LAN events) to private (living room at home), and extend the findings from earlier studies on family life and television viewing, which demonstrated that viewing with the family is a more positive experience (more challenging, cheerful and sociable) than viewing alone (e.g., [38]).

The social embedding and effects of digital gaming exist on multiple levels of interpersonal relations. For instance, Kubey and Larson [39] note that children often play electronic games together with companions. Most gamers were introduced to gaming while playing with others or watching others play [25]. In the past, video game arcades were reported to represent important social environments for young people, as places to build friendships and meet with one's peers [52]. Further research demonstrated that kids who played video games on a regular basis had equal amounts of friends to those who did not [47,50], that video game playing actually increased social contact [11], and that heavy gamers met each other more frequently after school than children who were not gaming frequently [17].

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 [13], 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 [15,26]. Carr et al. [14] report that, in the same way that traditional games foster and incorporate social interaction, 'interactivity experienced with personal console systems transformed a one-player game into an effective and highly structured social hybrid of gameplay' (p.26). 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. Games present condensed forms of interaction, entertainment and liveliness, triggering interactions, not only between players, but between spectators and passers-by as well, enriching the social life of parks, urban spaces, cafes and bars (e.g., [44,57]).

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 theoretical deliberations of game experience and game enjoyment. In most models a marginal role, at best, is reserved for social influence (e.g. see, [22,37,41,54]. The relevance of social factors in gaming is generally acknowledged by most of these scholars, yet 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, phenomena which are generally acknowledged as central to game experience and 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'. From this perspective, social interactions and experiences of flow and immersion represent potentially conflicting mechanisms of game enjoyment. This is also noted by Sweetser & Wyeth [54] 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).

As a first step towards understanding the interplay of social and the more 'intra-individual' experiences of digital gaming, 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 experience (i.e., arousal and emotion) 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 gamer's socio-spatial context. In particular we discuss socio-spatial contingencies between player, co-player(s) and audience. The core of this framework describes the 'sociality characteristics' of game settings and discusses these both in terms of co-located and mediated others.

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 [29,45,56]. Comparisons of solo, parallel and integrated play configurations indicate that children playing together have better performances than those playing alone and that motivation is highest in integrated play configurations (i.e., playing together on one computer) [32]. 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 [31].

The literature above mainly concerned children involved in digital game play, but recent research with adolescents and adults has also demonstrated that playing games with others adds to game experience. Recent studies by Mandryk, Inkpen, and Calvert [43] and by Ravaja and colleagues [49] employed subjective measures and psychophysiological indicators to demonstrate that playing against a co-present friend elicits higher engagement, arousal and more positive emotions (fun) than playing against a computer. Playing against a stranger is also more arousing than against a computer, though not quite as much as competing with one's friend [49].

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. [43] however, demonstrated higher arousal levels for playing against a friend, irrespective of perceived challenge, which seems to rule out perceived challenge as the 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 proposed that the physical presence of others creates a state of increased arousal (drive) facilitating dominant (i.e., well-learned, habituated) responses [58,59]. This effect explains heightened 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., [18,19,30]) is an expectancy-based mechanism, i.e., it occurs as a result of the anticipation of positive or negative outcomes of others perceptions of one's performance. For instance, Kimble and Rezabek have found choking as a result of playing video games in front of an audience [36]. In case of positive or supportive evaluation expectancies, levels of arousal decrease, which may explain performance enhancement effects in cooperative configurations such as those reported in educational settings. Others propose self-awareness and self-evaluation to understand the facilitation and inhibitory effects of the presence of others [16,21]. They argue that if favourable assessment of one's ability to attain a goal is made, then one continues to pursue the goal and facilitation is exhibited.

In Blascovich et al.'s biopsychosocial model [10], challenge and threat represent motivational states that influence both affective and cognitive processes, involving attention and appraisal. The model accounts for many of the processes described above and holds that the presence of others increases the goal relevance of performance, which heightens arousal. The subsequent effects of increased arousal under audience conditions differs as a function of challenge and threat phenomenology. Focusing on the social influence of audience, Borden [12] also proposed a combinatory model. He predicts that for performances of low relevance, drive-like effects will occur, whereas performances of high relevance will be affected according to the expectancy-based psychological mechanisms. Social context effects on performance are moderated by whether performance can be monitored by others, their role (co-actor vs. spectator), relationship and expertise, performance requirements and personal differences. Notably, the social facilitation framework was successfully extended to mediated presence [1].

Ravaja et al.'s [49] results demonstrated that in addition to higher levels of arousal, players also experience more positive emotions when playing against a real person. The individual's need for achievement was suggested, but is an insufficient explanation here, since – in contrast to playing against a computer – game outcome does not seem to influence game enjoyment in person-to-person game configurations [43]. Ravaja and colleagues argue that perhaps the findings can be partially attributed to basic human motivation for social interaction, affiliation and our need to belong [1,6].

Beneficial influences on emotion of co-present others outside the gaming domain have been reported by Jakobs and colleagues [33,34]. Their results indicate that co-experiencing positive events enhances positive feelings, whereas co-experiencing negative events could either enhance or diminish negative feelings, depending on the specific emotion and social context. Naturally, social settings not only allow for experiences of pride and sociability, but also for their negatively toned counterparts – shame, crowding, social pressure. Interestingly, 'Schadefreude', an emotion with a clearly negative connotation in normal life, is often reported as one of the positive elements in social gaming settings.

Jakobs and colleagues [33,34] argue that the 'mere' presence (see also [59]) of other people may not be a sufficient explanation for these social context effects to occur. As was argued for effects on arousal and performance, social context effects on emotion are largely determined by 'sociality' characteristics of a situation, i.e., the physical presence of others, their possibilities of communication, opportunities for monitoring performance, the role of the others, and their relationship. For instance, the role of participation in the shared experience is a key element [34].

SOCIALITY CHARACTERISTICS OF CO-LOCATED AND MEDIATED GAME SETTINGS

We have advocated that the social context of game settings influences the player's experience and engagement. Moreover, not just the presence of others, but (the player's awareness of) their ability to monitor the player's actions, performance and emotions, their role in this setting – acting or observing, competing, co-operating, or co-acting – their relationship and their opportunities for verbal and non-verbal communication shape the interpersonal dynamics and social mechanisms at play. These 'sociality characteristics' of game locations are, in turn, largely determined by socio-spatial characteristics of the co-located game setting, or, for online play, by media characteristics.

The presence of others

Venkatesh and Mukherjee [55] argue: 'Physical proximity offers multi-sensory immersion and provides users with

avenues for spontaneously interacting with friends. In contrast, playing online games with the same user group of friends does not offer this rich multi-sensory engagement'. This reflects the experiences reported by gamers, but presents a rather one-sided and oversimplified view of co-located vs. mediated settings. For one, several researchers report on the socially isolated character of computer games, even in co-located settings, as players are sitting beside each other and interact primarily with the screen and gamepad or keyboard (e.g., [42]). Secondly, developments in internet connectivity and computer games have opened a much wider range of potential channels for behaviour interaction [8]: 'The mediated other is not simply "here or not-here," but is present to a lesser or greater degree along some definable continuum.' Even in unmediated interactions, assuming a dichotomy of persons being either there or not-there doesn't do justice to the subtlety with which individuals engage in, or withdraw from, interpersonal communication [8]. In the theoretical and empirical analysis of 'networked minds', by Biocca, Harms, and Burgoon, sensory awareness of bodily representations, psychological involvement with another intelligence and behavioural engagement through interaction and synchronisation are dimensions that characterise the social presence of a person in mediated settings [7].

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., [3,23,27,45]). Concepts such as involvement and immediacy - the directness and intensity of interaction between two people [44] - are most often used in contexts where the primary activity is face to face communication. However, they appear 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.

In co-located game settings, the opportunities for and properties of immediacy behaviours are structured by game characteristics, the social affordances of the game interface (e.g., size and orientation of the screen, number of screens, type of control device), as well as spatial characteristics of the players' physical environment such as available space and configuration of furniture layout (e.g., distance, orientation). Co-location does not, by itself, guarantee behavioural engagement, as is testified by Magerkurth and colleagues' [42] observations on the 'socially isolated' character of gamers in multiplayer settings. In essence, most co-located digital gaming takes place in socio-fugal type seating and viewing arrangements [53], which counteract mechanisms such as mutual eye contact, natural reciprocation of approach or avoidance cues and mirroring,

or 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 settings, communication between players is filtered by the media technology. Research in this area has shown that the level of social presence and/or communicative realism is strongly dependent 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., [4,5,24]). 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. Biocca et al.'s conception of social presence [7,8,9], 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 both directly, as a consequence of the human motivation for social interaction, affiliation and our need to belong [1,6], as well as indirectly, via processes of social facilitation [59].

Opportunities for monitoring performance and actions

In Section 3 we discussed how evaluation apprehension is triggered not by the 'mere' presence of others, but by their ability to monitor the individual's actions and performance. Starting from the perspective of the 'traditional' video game setting, performance can usually be monitored by others when they have a view of the player's screen. Factors 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. But in general, there is little use in watching the player manipulate the joystick, keyboard, or gamepad. This contrasts with sports, where the audience obviously enjoys watching players manipulate the ball, bat or racket, and prefers this over meticulously following the path and effect of the ball alone. The players' actions and manipulations offer unique information on their intentions, their skill, or 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 [20,28]. But, while changing game experience for the player, they also radically impact socially situated play. As argued above, 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 interface and game setting characteristics, both local and mediated, which influence the visibility (or audibility) of players actions and performance.

Role and relationship

We reported earlier on the work performed by Jakobs and colleagues [33,34] who found that co-experiencing positive events enhances positive feelings, whereas co-experiencing negative events could either enhance or diminish negative feelings, depending on whether or not the other person participated in the shared experience. From this perspective, the role and influence of spectators clearly differs from that of co-actors, and the co-players' influence depends on whether the setting is competitive, collaborative, or independent. Also, social context effects such as imitation – which requires co-actors – and competition – which requires co-actors as opponents – depend on the specific role of the others as perceived by the gamer, whether co-located or mediated.

Following up on the range of types of presence proposed earlier (co-located, mediated, simulated, or absent) – presenting partially overlapping zones on the scale of social presence rather than discrete points – we can now consider how in specific game settings both spectators and co-actors can, independently of each other, be placed on this range. Imagine a matrix built up along these two axes, that is, social presence of co-actors and social presence of audience. A surprisingly large proportion of cells in this matrix can actually be filled with examples of currently occurring game settings (space does not allow to present this matrix here, but we will be happy to present the resulting design space at the conference). We hypothesise that the effect of the others' role will be larger as their social presence increases, e.g., whether the others are co-acting or observing matters more as their presence is more directly experienced.

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, and increased intimacy, immediacy, and common ground with like-minded others. But apart from this, the relationship

with the others present influences game experience via psychological processes such as expectancy-based facilitation or inhibition of performance and the relevance of favourable self-presentation. Again, the impact of these variables will likely be bigger as the social presence of the other increases.

Interpersonal differences

Several context-related gender and age differences in gaming have been reported in literature. For instance, several studies report that girls' game play is conducted less publicly than that of boys (e.g., boys were more likely to play at games events and public locations, girls play at home over and above other contexts – [13,35,51]). Different age groups also appear to choose different settings for gaming; for example, young adolescents prefer private areas such as their bedroom or a friend's place, whereas both younger and older aged players use common areas more frequently [48]. These findings probably reflect differences in access rights and control, but may also indicate different preferences concerning context characteristics, such as opportunities for peer interactions, evaluation apprehension, and escape from parental control.

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. 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. However, the social presence dimension, although necessary, does not by itself provide a sufficient explanation for many of the social context effects that can be observed in digital gaming. For example, the process of evaluation apprehension relies heavily on both the relevance of the other to the gamer, as well as on their ability to monitor the player's performance (e.g., [36]). In addition, there are significant individual differences between gamers, for example between males and females, that need to be taken into account in order to better understand the impact of social contextual factors on individual game experience.

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 environment that affords social interactions in varying degrees. When 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, this 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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