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Immersion Revisited:
On the Value of a Contested Concept

I n the last few years, academic interest in computer games has been rapidly increasing, leading to what Juul describes as "a state of productive chaos" (Juul, 2006, n.p.). On the one hand, the fact that computer games are researched from a wide variety of different perspectives within various disciplines leads to a somewhat 'chaotic' situation with sometimes downright polemic discussions of methodological and epistemological questions. On the other hand, the chaos is productive, as not only the fact that computer game studies have become "an area with its own set of conferences, associations and journals" (Juul, 2006, n.p.), but also the relatively large number of recently published essay collections and handbooks contributing to the academic study of computer games illustrate (e.g., Neitzel, Bopp, & Nohr, 2004; Raessens & Goldstein, 2005; Vorderer & Bryant, 2006; Wardrip-Fruin & Harrigan, 2004; Wolf & Perron, 2003). One of the main reasons for this increasing academic interest in computer games is their commercial success and their sociocultural influence. Although still a relatively new phenomenon, they have become a central part of contemporary popular culture (e.g., Herz, 1997; Poole, 2004). Computer games obviously have a fascinating effect on a large number of players (and an increasing number of researchers) worldwide.

In fact, research on computer games is focusing more and more on the player's experience and there are various different terms and theories that attempt an explanation. One possibility of describing and maybe even explaining significant parts of the experience of playing a computer game is offered by the concept of immersion, which has been applied to computer games (as well as other media) by scholars such as Murray (1997), Ryan (2001), McMahan (2003) or Ermi and Mäyrä (2005) and is also commonly used in computer game design theory (e.g., Rollings & Adams, 2003; Rouse, 2005). However, the concept is not uncontested and the questions of what immersion is and if it is at all sensible to talk of immersion with regard to computer games are not answered uniformly in the emerging field of computer game studies. Immersion has indeed "become an excessively vague, all-inclusive concept" (McMahan, 2003, p. 67), which needs careful re-examination in order to be useful for the analysis of games, players and the playing experience. Building on previous conceptions of immersion as well as on works from cognitive science and computer game studies, the present chapter attempts to develop a

model of immersion that is appropriate for such a purpose. Finally, it has to be emphasized that the approach of this chapter is theoretical rather than empirical, although we borrow terms and concepts from cognitive psychology.

PREVIOUS RESEARCH ON IMMERSION

Murray describes immersion as the pleasurable "experience of being transported to an elaborately simulated place" which results from the "sensation of being surrounded by a completely other reality, as different as water is from air, that takes over all of our attention, our whole perceptual apparatus" (Murray, 1997, p. 98). However, the reader of a novel or the player of a computer game is not literally transported to another place while reading or playing. Hence, it is problematic to rely on the metaphor of transportation for an appropriate description of the experience of immersion (e.g., Ermi & Mäyrä, 2005; McMahan, 2003, p. 76f; Ryan, 2001, p. 93ff; for a critique of the 'immersive fallacy' see Salen & Zimmerman, 2004, pp. 450-455). Nevertheless, the notion that immersion can be described in terms of a shift of attention seems to be central, although we will have to discuss in more detail what exactly is meant by a 'shift of attention' in the context of playing a computer game.

Building on the theory of fictional worlds mainly developed within narratology (e.g., Doležel, 1998; Pavel, 1986), Ryan describes immersion as a process of "recentering" by which "consciousness relocates itself to another world" (Ryan, 2001, p. 103). While her discussion of immersion as a transmedial phenomenon touches on a variety of interesting points, it is especially noteworthy that her conception of immersion entails not only the shift of attention toward a fictional world, but also the construction of a mental representation of that world (Ryan, 2001, p. 110ff). The latter is doubtlessly as important as the former, but Ryan does not go into too much detail on what role these processes play with regard to the computer game player's experience of immersion. Hence, we will also have to discuss in more detail what is meant by the 'construction of a mental representation' in the context of playing a computer game.

While Murray as well as Ryan conceptualise immersion primarily as a shift of attention to narrative fictional worlds, McMahan (2003, p. 68) claims that the player of a computer game can also become immersed in the process of playing itself. Furthermore, she argues that a consistent world that matches the user's expectations and allows him or her to interact with it in a non-trivial way is more relevant for the experience of immersion than big screens and impressive surround-sound (McMahan, 2003, p. 68f). This entails two notions which are of central importance for the purpose of this chapter: Firstly, immersion entails more than a shift of attention to the three-dimensional space or the unfolding story of a computer game. Secondly, what is presented is more important than how it is presented with regard to a computer game's ability of letting its players experience immersion.

Furthermore, it has to be noted that McMahan is not exclusively concerned with immersion. Instead, she introduces the concept of presence "as the basis

for developing of a set of aesthetic criteria for analyzing 3-D video game design" (McMahan, 2003, p. 68). According to IJsselsteijn and Riva, presence can be defined as "the feeling of 'being there'" (IJsselsteijn & Riva, 2003, p. 5), i.e. the experience of being present in the three-dimensional environment that is created by a virtual reality application or a computer game. The similarity to Murray's description of immersion is obvious (including the problematic use of the metaphor of transportation), and McMahan is not alone in claiming that the two concepts are often used interchangeably (e.g., Ermi & Mäyrä, 2005; McMahan, 2003, p. 70). Nevertheless, it has to be stressed that within the context of presence research, the term 'immersion' mainly refers to "the degree to which a virtual environment submerges the perceptual system of the user" (Biocca & Delaney, 1995, p. 57).

The concept of presence is now commonly applied to computer games (Tamborini & Skalski, 2006), and it would be possible to use the term 'presence' when referring to the player experience and the term 'immersion' when referring to the question to what extent the presentation "takes over [...] our whole perceptual apparatus" (Murray, 1997, p. 98). However, since the purpose of this chapter is the re-examination and more precise definition of the concept of immersion as it is used within computer game studies (as opposed to how it is used within presence research), we will instead distinguish between perceptual and psychological immersion (Lombard & Ditton, 1997; McMahan, 2003, p. 77f). According to McMahan, perceptual immersion "is accomplished by blocking as many of the senses as possible to the outside world" (2003, p. 77). In contrast, it has become clear from the above that psychological immersion in computer games is largely independent from perceptual immersion (although it is obviously not independent from perception) and can be described in terms of a shift of attention from the real environment to certain parts of the game and the construction of a mental representation of the latter.

IMMERSION, ATTENTION, AND SITUATION MODELS

Not unlike immersion, both the notion of a shift of attention to and that of the construction of a mental representation of the media content are often used in a rather vague way in the literature on immersion. Hence, they also need to be carefully examined in order to be helpful for the development of an appropriate model of immersion. Fortunately, there is a large body of research within cognitive psychology that is concerned with these processes. While the present chapter cannot hope to discuss exhaustively the research in question, it seems necessary to review at least some of its findings in order to develop an appropriate concept of psychological immersion without having to rely on the metaphor of transportation. However, our aim is not a general discussion of these processes, but rather an examination of the role they play in the computer game player's experience of immersion.

While a "formal definition of the term 'attention' is not presently available" (Pashler & Johnston, 1998, p. 156), it is normally used to refer to proc-

esses of selection with regard to perception and/or cognitive processing of perceived stimuli. According to Yantis, "[a] major distinction that has guided research in this area [...] is whether attention is goal-driven, controlled in a 'top-down' fashion, or stimulus-driven, controlled in a 'bottom-up' fashion" (1998, p. 223). Similarly, Posner distinguishes between "exogenous (reflexive) and endogenous (central) control of orienting" (1980, p. 19). It seems that a shift of attention is often a voluntary decision (i.e. computer game players decide to shift their attention to the game or certain parts of the game when playing), but certain stimuli can also 'involuntarily' draw attention to them (i.e. certain parts of the game or its presentation may 'capture' the player's attention). While we are mainly concerned with psychological immersion, it may be noted that a high degree of perceptual immersion (though not necessarily leading to psychological immersion) would block stimuli from the real environment, thereby preventing an exogenous shift of attention away from the computer game.

We have seen that attention shifts can be goal-driven (i.e. endogenous shifts of attention) or stimulus-driven (i.e. exogenous shifts of attention), but it is still not clear what parts of the game the player shifts his or her attention to. At first glance, it seems that attention is shifted to the audiovisual presentation of the game. However, Allport suggests that our perceptual experience is "predominantly structured in terms of objects and the actions and events in which they take part" (Allport, 1987, p. 412). Furthermore, it may be noted that attention plays a role not only in perception, but also in the control of action (e.g., Allport, 1987; Norman & Shallice, 1986). Hence, a more accurate conceptualisation would be that the player of a computer game shifts his or her attention not only to the audiovisual presentation of the game, but also (and more importantly) to the presented objects themselves, as well as the events and actions (including the player's interaction with the game) that are connected to these objects. Furthermore, it can be assumed that the main function of attention is the selection of those objects, events and actions that are relevant for the player's "immediate and future action" (Allport, 1987, p. 412). This also includes "internal actions" (Norman & Shallice, 1986, p. 1) such as the player's 'construction of a mental representation' in the process of playing.

Hogan claims that "[w]henever we try to deal with any aspect of the world in any way, we necessarily form a model of that aspect of the world" (Hogan, 2003, p. 40). Hence, it is possible to describe the 'construction of a mental representation' as a process of model construction. There are some interesting attempts within presence research to describe the experience of (spatial) presence in terms of both a shift of attention and the construction of models. Schubert and Regenbrecht claim that,

> [i]n the process of developing presence, a mental model of the virtual three-dimensional space is constructed, consisting of the possible actions in this space (Schubert & Regenbrecht, 2001, p. 4).

This seems to be fairly consistent with our conception of (psychological) immersion, but the term 'mental model' (e.g., Garnham, 1997; Johnson-Laird, 1983) is slightly too general for our purpose. Wirth and his colleagues (2006) describe basically the same process as the construction of a (spatial) situation model. It seems that the latter term is more appropriate for the purpose of the present chapter, since a situation model "concerns the environment in which we are acting" (Hogan, 2003, p. 40) and is constructed while we are acting within that environment.

We propose to conceptualise the computer game player's experience of psychological immersion as resulting from a shift of attention to and the construction of situation models of certain parts of the game. The shift of attention is mainly goal-directed (i.e. endogenous), but certain properties of a computer game, such as objects that move suddenly, may also lead to a shift of attention that is at least partly stimulus-directed (i.e. exogenous). Furthermore, it has become clear from our review of previous conceptions of immersion as well as from our discussion of the function of attention as selection for action that the situation model a player constructs in the process of playing would have to include more than just the three-dimensional space presented by the game, namely the objects, events and (possible or actual) actions that are relevant for the successful interaction with the game. Furthermore, we will propose that the computer game player constructs additional situation models representing parts of the game that are not directly connected to his or her interaction with it.

TOWARD A MULTIDIMENSIONAL MODEL OF IMMERSION

Immersion as a Multidimensional Experience

This leads us to the question of what the relationship between the specific structure of computer games and the player's experience of immersion is. While Gorfinkel rightly emphasizes that "[i]mmersion is not a property of a game or media text but is an effect that a text produces" (quoted in Salen & Zimmerman, 2004, p. 453), it has become clear that the structural properties of a game are not entirely irrelevant for the player's experience of immersion either. Hence, we are not only interested in how immersion can be described in terms of the shift of attention and the construction of situation models in the process of playing, but also in the different levels of computer game structure that players shift their attention to and construct situation models of, and how these different kinds of structural properties lead to different kinds of experience. In other words, we are interested in the question of what elements of computer games lead to which kinds of immersion.

Both Murray (1997, p. 109) and Ryan (2001, p. 120ff) distinguish between immersion in the presented space and immersion in the unfolding story and it has already been mentioned that McMahan (2003, p. 68) distinguishes between immersion in the narrative world and immersion in the game. Another, more recent model of immersion as a multi-dimensional phenomenon

is proposed by Ermi and Mäyrä (2005), who distinguish between sensory immersion, challenge-based immersion and imaginative immersion. The concept of sensory immersion is similar to that of perceptual immersion and entails the assumption that

> [l]arge screens close to the player's face and powerful sounds easily overpower the sensory information coming from the real world, and the player becomes entirely focused on the game world and its stimuli (Ermi & Mäyrä, 2005, n.p.).

The other two kinds of immersion seem to be largely similar to McMahan's immersion in the narrative world and immersion in the game.

Challenge-based immersion refers to the shift of the player's attention "to sensomotor abilities such as using the controls and reacting fast, and […] to the cognitive challenges" (Ermi & Mäyrä, 2005, n.p.) posed by contemporary computer games. The experience of challenge-based immersion is claimed to be at its strongest, when a "satisfying balance of challenges and abilities" (Ermi & Mäyrä, 2005, n.p.) is achieved. Imaginative immersion refers to the "dimension of game experience in which one becomes absorbed with the stories and the world, or begins to feel for or identify with a game character" (Ermi & Mäyrä, 2005, n.p.). Here, the immersion in the presented space and the immersion in the unfolding story distinguished by both Murray and Ryan are combined. Ermi and Mäyrä acknowledge that "the audiovisual, functional and structural playability" (Ermi & Mäyrä, 2005, n.p.) of a computer game is a prerequisite for immersion, but they do not go into too much detail with regard to what properties of a computer game lead to what kinds of immersion.

Based on a general model of computer game structure developed elsewhere (Thon, 2006; Thon, 2007), we propose a slightly different model of immersion as a multidimensional experience (Thon, 2006a). The model of computer game structure has mainly been developed with regard to avatar-based games presenting three-dimensional spaces and our discussion of immersion also primarily aims at these kinds of games. We distinguish between four levels of computer game structure, namely the levels of spatial, ludic, narrative and social structure. The level of spatial structure refers to the game space and the objects therein. The level of ludic structure refers to the rules of the game as well as their effects. The level of narrative structure refers to the stories many contemporary games present using a variety of narrative techniques. The level of social structure refers to the communicative devices that allow for communication and social interaction between the players and the social space that is thereby constituted. These different levels of computer game structure are closely connected to the experience of spatial, ludic, narrative and social immersion.

While concepts similar to these kinds of immersion can be found in most of the works discussed above, and the notions of spatial and social presence play a central role within presence research, it seems that no other model of

immersion in computer games exists that entails all four of them. In the following, we will briefly discuss how the different kinds of immersion can be understood in terms of the computer game player's shift of attention to the different levels of computer game structure and the construction of different kinds of situation models that represent certain parts of this structure. While we are using concepts from cognitive psychology, our approach is still mainly theoretical (i.e. the aim of this chapter is to propose a model that allows for a description of different kinds of immersion and not to empirically verify the proposed model). Furthermore, it has to be emphasized that the fascinating experience of playing a computer game results from the combination of the four kinds of immersion that are examined separately in this chapter. Therefore, the relationship between them will have to be at least touched upon.

Spatial Immersion

Many contemporary computer games are set in complex fictional worlds (e.g., Juul, 2005; Thon, 2007). With regard to the spatial structure of these games, one can distinguish between the whole space of the fictional world and those spaces that the player can interact with through his or her avatar (or through the interface in games not using an avatar). Juul draws a similar distinction between "world space" and "game space" (Juul, 2005, pp. 164-167), which we will use in the following. With regard to computer games, spatial immersion can be described in terms of the player's shift of attention from his or her real environment to the game spaces (not including these parts of the world space that are presented narratively). Furthermore, it refers to the construction of a model of the "gaming situation" (Eskelinen, 2001) in the process of playing, which will entail at least those parts of the game space that are relevant for the player's actions (see also the large body of research on spatial presence, e.g., Schubert & Regenbrecht, 2001; Tamborini & Skalski, 2006; Wirth *et al.*, 2006).

In many contemporary computer games, game spaces are three-dimensional environments in which the player can more or less freely move the avatar as well as the point from which the space is presented. Such game spaces can, for example, be found in first-person shooter games such as *Halo* (2003), in which they are presented from the position of the avatar. Rouse (1999) is not alone in claiming that such a presentation of the game space leads to the player being "drawn into the game" (Rouse, 1999, n.p.). Apart from the problematic use of the metaphor of transportation, it may be noted that games such as *World of Warcraft* (2004) present the game space from a position above and behind the avatar without thereby preventing the player from experiencing spatial immersion. In fact, *World of Warcraft* allows the player to change the default perspective so that the position from which the game space is presented coincides with the avatar's position once more. Although most players of *World of Warcraft* still use the default perspective (or zoom out even more), the tendency of contemporary computer games to allow their players to change the perspective seems to further confirm the assumption

that spatial immersion can be experienced independent of the point of view from which the game space is presented (Thon 2006b).

However, a certain consistency in the presentation of the game space is necessary for spatial immersion to occur (McMahan, 2003). Wolf (2001) notes that the game spaces of contemporary computer games are often presented according to the conventions of space representation in classic Hollywood film. The resulting impression of "spatial consistency" (Wolf, 2001, p. 66) is important for the experience of spatial immersion, since it allows the player to construct a consistent model of the game space. While those parts of the game space that are relevant for successful action will form especially salient parts of the situation model, spatial immersion does not primarily refer to a shift of attention to the interaction with the game space. The possibility for interaction increases the spatial immersion of a player, but interaction here mainly refers to the exploration of the game spaces (Aarseth, 1997, p. 64). This leaves open the question of how the other parts of the player's interaction with the game can be described and to what kind(s) of immersion they lead.

Ludic Immersion

The situation model that the player constructs in the process of playing will contain not only information about the dimensions of the game space and the positions of the various objects within it, but also information about the possibilities for interaction. The freedom of action that computer games often suggest is restricted not only by the spatial borders of the game space but also by the rules of the game that form its ludic structure (Thon, 2006; Thon, 2007). It is equally true for single- as well as for multiplayer first-person shooter games that the possible movements of the avatar are determined by the game rules. Running, jumping, and crouching as well as picking up and using a wide variety of weapons are essential abilities of the avatar in a first-person shooter like *Halo*. Similarly, the avatar in a MMORPG like *World of Warcraft* may have certain abilities that go beyond the basic movements, including fighting skills with melee as well as ranged weapons and a variety of magic skills, ranging from deadly fireballs to powerful healing. Although 'interaction' is yet another vague and all-inclusive term (e.g. Manninen, 2001), we use it in the following mainly to refer to the player's actions that result in actions of the avatar and/or a change of state of the various objects in the game space.

Ludic immersion can be described in terms of a shift of the player's attention to the interaction with the game and the construction of a situation model that contains not only the relevant elements of the game space, but also the possibilities for action within it. While both the spatial and ludic structure of a computer game will be at least partly represented in the model of the gaming situation that the player constructs in the process of playing, spatial and ludic immersion differ significantly with regard to which parts of the game attention is shifted to. However, it has to be emphasized that spatial and ludic immersion are closely connected and will often occur at the same time. Spatial

immersion is the experience of the game as presenting spaces, the attention is shifted to the game spaces that the game presents. Ludic immersion, on the other hand, is mainly experienced through the various kinds of challenges that computer games confront their players with and which form an essential part of the playing experience (Rollings & Adams, 2003; Ermi & Mäyrä, 2005). The attention is shifted to the player's interaction with the game (i.e. to the control of the avatar in the avatar-based games discussed above).

Various researchers have used the concept of flow developed by Csikszent-mihalyi (1990) to describe this part of the playing experience (e.g. Ermi & Mäyrä, 2005; Järvinen, Heliö, & Mäyrä, 2002; Sweetser & Wyeth, 2005). Flow is experienced when the difficulty of an activity matches a person's abilities. Csikszentmihalyi notes that

> [w]hen all a person's relevant skills are needed to cope with the challenges of a situation, that person's attention is completely absorbed by the activity (Csikszentmihalyi, 1990, p. 53).

This is precisely what happens when the player of a computer game experiences ludic immersion. Attention is shifted mainly to those elements (i.e. objects, events, and actions) in the game spaces that are relevant with regard to the challenging activity of playing the game as well as to the activity itself. While the kind of immersion that a player experiences will vary depending on the player, the game, and the specific part of the game, it can still be assumed that most players will experience both spatial and ludic immersion while playing. However, these are not the only kinds of immersion that player's may experience.

Narrative Immersion

Many contemporary computer games use a variety of narrative techniques such as cut-scenes or predetermined sequences of events within the game spaces to convey stories that are relatively complex at least compared to earlier games. While the present chapter cannot discuss the complicated question of narrativity in computer games in any detail (e.g. Eskelinen, 2004; Jenkins, 2004; Neitzel, 2005; Ryan, 2006; Thon, 2007), it may at least be noted that one can distinguish between two kinds of events in computer games, namely narrative and ludic events. Narrative events are determined before the game is played and are presented using the various narrative techniques already mentioned. Ludic events are presentations of events that are determined at the moment of their presentation. The mode in which the latter are presented is that of simulation, not that of narration (e.g., Aarseth, 2004; Frasca, 2003; Ryan, 2006, pp. 181-203; Thon, 2006b; Thon, 2007).

What we propose to call narrative immersion refers to the player's shift of attention to the unfolding of the story of the game and the characters therein as well as to the construction of a situation model representing not only the various characters and narrative events, but also the fictional game world as a

whole (e.g., Ermi & Mäyrä, 2005; Juul, 2005; Ryan, 2001). Its construction will probably not differ too much from the construction of a situation model by the spectator of a narrative film, since spectators and players alike are trying to "reconstruct the story from the discourse" (Hogan, 2003, p. 116). However, it has to be emphasized that the narrative situation model entails not only narrative events, but also certain ludic events (as far as they are relevant for the game's story) and a representation of certain parts of the various game spaces. Nevertheless, it can be assumed that in many games the narrative situation model is constructed relatively independently from the model of the gaming situation. As Ryan has rightly observed, there are large passages of time in most contemporary games where "the narrative design is not the focus of the player's attention" (Ryan, 2006, p. 196).

However, when players shift their attention to the narrative structure of the game, they will experience narrative immersion. Ryan (2001, p. 140ff) distinguishes between temporal and emotional immersion. Temporal immersion refers to the experience of suspense, i.e. the shift of attention to the unfolding of the story. Emotional immersion refers to the experience of empathy, i.e. the shift of attention to the fate of certain characters in a story. While the story of *Halo* is not exactly a masterpiece of contemporary storytelling, there may well be more than one player who has played through the singleplayer mode mainly to find out about its ending. This "desire for the knowledge that awaits her at the end of narrative time" (Ryan, 2001, p. 140) plays a central role in the player's experience of narrative immersion. Genuine empathy with computer game characters is less common (e.g., Neitzel, 2004; Schirra & Carl-McGrath, 2002), but it can contribute to the experience of narrative immersion as well. It may also be noted that the perception of characters in computer games is sometimes connected to what we propose to call social immersion.

Social Immersion

In the multiplayer modes of first-person shooter games, there is no narrative framework that guides the player's actions. Instead,

> a social environment [is] formed at the intersection of the text of the game, the specific rules of whichever game modification the server may be running and the presence of other human participants, who may communicate with each other during the game by typing (Morris, 2002, p. 84).

The game spaces function as arenas, in which the players let their respective avatars fight against each other in a variety of different game modes. Narrative elements are substituted by communication and social interaction of the players with each other. In MMORPGs such as *World of Warcraft*, communication and social interaction of the players with each other take place in a rich fictional world and are combined with a non-linear narrative structure. In these games, communication and social interaction may additionally intensify players' experience of narrative immersion.

While it is beyond the scope of this chapter to discuss the complex social structure and social context of first-person shooter games and MMORPGs in detail (e.g., Axelsson & Regan, 2006; Morris, 2004; Smith & Sicart, 2004; Thon, 2006), it can nevertheless be assumed that both genres allow their players to experience social immersion, which can (once more) be described in terms of a shift of attention to the other players as social actors and the relationship between them, and the construction of a situation model of the social space that is constituted through the communication and social interaction between the players. It also has to be noted that a very similar concept, namely that of social presence, has been developed within presence research (e.g. Biocca, Harms, & Burgoon, 2003; Tamborini & Skalski, 2006). This research also extensively discusses the relation between the structural properties of media and the social presence that they lead to, i.e. "how changes in properties of media interfaces affect social presence" (Tamborini & Skalski, 2006, p. 231).

While it seems likely that a model of the social situation is, again, constructed relatively independently from the gaming situation model and the narrative situation model, it is also obvious that these models are partly connected to each other just as the kinds of immersion distinguished in this chapter tend to converge in the actual playing experience. It has already been mentioned that the player-controlled avatars can, to a certain extent, be perceived not only as social actors but also as narrative agents. Here, a strong sense of social immersion may lead to a more intense experience of narrative immersion (and *vice versa,* as the phenomenon of parasocial interaction suggests (Hartmann, Klimmt, & Vorderer 2001)). Furthermore, communication and interaction play a central role with regard to the ludic structure of multiplayer games in that they make cooperative action possible (Thon, 2006), and a strong sense of social immersion may lead to a more intense experience of ludic immersion through the introduction of social competition (Vorderer, Hartman, & Klimmt, 2006). While this chapter cannot discuss the influence that the different kinds of immersion have on each other in more detail, it hopefully has become clear that this question is of central importance and should be further addressed by future research.

CONCLUSION

The conceptualisation of immersion as a multidimensional experience proposed in this chapter means that the term entails far more than perceptual immersion. While an understanding of the concept as referring to various forms of psychological immersion is relatively common within computer game studies, it makes a clear distinction between the different kinds of immersion necessary if one wants to avoid ending up with "an excessively vague, all-inclusive concept" (McMahan, 2003, p. 67). We have proposed to distinguish between spatial, ludic, narrative and social immersion in this chapter, briefly describing each kind of immersion in terms of the player's shift of attention and construction of situation models. However, it has also become clear that there are various other ways in which these kinds of experience could be described.

Spatial immersion, i.e. the shift of the player's attention to and his or her construction of a situation model of the game spaces, is very similar to the concept of spatial presence. Ludic immersion as the shift of the player's attention to the interaction with the game occurs when the abilities of the player and the level of challenge of the game are balanced and could also be described using the concept of flow. Narrative immersion as the shift of the player's attention to the future development of the story and the characters in it could also be described using terms such as 'suspense' and 'empathy'. Finally, social immersion as the shift of the player's attention to and his or her construction of a situation model of the social space is very similar to the concept of social presence. It would clearly be possible to reserve the term 'immersion' for perceptual immersion and describe what we have discussed as dimensions of psychological immersion using different terminology.

However, it has again to be emphasized that in computer game studies, the term 'immersion' is often used in a way that includes more than just perceptual immersion. In this situation, a distinction of different kinds of immersion seems necessary for reasons of terminological clarity, if nothing else. Another advantage of our approach is that it highlights the similarities and connections between phenomena that otherwise would be (and indeed often are) treated separately. The proposed model certainly lacks empirical proof and there is also much left to do both with regard to the relationship between computer game structure and the experience of different kinds of immersion as well as with regard to the various interrelations between the latter. Nonetheless, it seems that the distinction between its spatial, ludic, narrative and social dimensions allows for an appropriate description of the player experience that builds on the much-contested concept of immersion.

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REFERENCES

Aarseth, E. (1997). Cybertext. Perspectives on Ergodic Literature. Baltimore, MD: Johns Hopkins.

Aarseth, E. (2004). Genre Trouble: Narrativism and the Art of Simulation. In N. Wardrip-Fruin & P. Harrigan (Eds.): FirstPerson. New Media as Story, Performance, and Game, 45-55. Cambridge, MA: MIT Press.

Allport, A. (1986). Selection for Action: Some Behaviorial and Neurophysiological Considerations of Attention and Action. In H. Heuer & A. F. Sanders (Eds.): Perspectives on Perception and Action, 395-419. Hillsdale, NJ: Erlbaum.

Axelsson, A.-S. & Regan, T. (2006). Playing Online. In P. Vorderer & J. Bryant (Eds.): Playing Video Games. Motives, Responses, and Consequences, 291-306. Mahwah, NJ: Erlbaum.

Biocca, F., & Delaney, B. (1995). Immersive Virtual Reality Technology. In F. Biocca & M. R. Levy (Eds.): Communication in the Age of Virtual Reality, 57-124. Hillsdale, NJ: Erlbaum.

Biocca, F., Harms, C. & Burgoon, J. K. (2003). Toward a More Robust Theory and Measure of Social Presence: Review and Suggested Criteria. Presence, 12(5), 456-480.

Csikszentmihalyi, M. (1990). Flow. The Psychology of Optimal Experience. New York, NY: Harper & Row.

Doležel, L. (1998). Heterocosmica. Fiction and Possible Worlds. Baltimore, MD: Johns Hopkins.

Ermi, L. & Mäyrä, F. (2005). Fundamental Components of the Gameplay Experience: Analysing Immersion. In Proceedings of Digra 2005: Changing Views – Worlds in Play. Retrieved September 1, 2006 from http://www.gamesconference.org/digra2005/viewpaper.php?id=267&print=1.

Eskelinen, M. (2001). The Gaming Situation. Game Studies, 1(1), Retrieved September 1, 2006, from http://www.gamestudies.org/0101/eskelinen.

Eskelinen, M. (2004). Towards Computer Game Studies. In N. Wardrip-Fruin & P. Harrigan (Eds.): FirstPerson. New Media as Story, Performance, and Game, 36-44. Cambridge, MA: MIT Press.

Frasca, G. (2003). Simulation versus Narrative. Introduction to Ludology. In M. J. P. Wolf & B. Perron (Eds.): The Video Game Theory Reader, 221-235. New York, NY: Routledge.

Garnham, A. (1997). Representing Information in Mental Models. In M. A. Conway (Ed.): Cognitive Models of Memory, 149-172. Cambridge, MA: MIT Press.

Hartmann, T., Klimmt, C. & Vorderer, P. (2001). Avatare. Parasoziale Beziehungen zu virtuellen Akteuren. (Avatars. Parasocial Relationships with Virtual Agents.) Medien- und Kommunikationswissenschaft (Media and Communication Studies), 49(4), 480-497.

Herz, J. C. (1997). Joystick Nation. How Videogames Ate Our Quarters, Won Our Hearts, and Rewired Our Minds. Boston, MA: Little, Brown & Company.

Hogan, P. C. (2003). Cognitive Science, Literature, and the Arts. New York, NY: Routledge.

Ijsselsteijn, W. & Riva, G. (2003). Being There: The Experience of Presence in Mediated Environments. In G. Riva, F. Davide, & W. Ijsselsteijn (Eds.): Being There. Concepts, Effects and Measurements of Presence in Synthetic Environments, 3-16. Amsterdam: IOS Press.

Järvinen, A., Heliö, S., & Mäyrä, F. (2002). Communication and Community in Digital Entertainment Services. Prestudy Research Report. Tampere: University of Tampere. Retrieved September 1, 2006 from http://tampub.uta.fi/tup/951-44-5432-4.pdf.

Jenkins, H. (2004). Game Design as Narrative Architecture. In N. Wardrip-Fruin & P. Harrigan (Eds.): FirstPerson. New Media as Story, Performance, and Game, 118-130. Cambridge, MA: MIT Press.

Johnson-Laird, P. N. (1983). Mental Models. Towards a Cognitive Science of Language, Inference, and Consciousness. Cambridge: Cambridge UP.

Juul, J. (2005). Half-Real: Video Games Between Real Rules and Fictional Worlds. Cambridge, MA: MIT Press.

Juul, J. (2006). Where the Action Is. Game Studies, 5(1), Retrieved September 1, 2006 from http://www.gamestudies.org/0501/editorial/.

Lombard, M. & Ditton, T. (1997). At the Heart of It All: The Concept of Presence. JCMC, 3(2). Retrieved September 1, 2006 from http://jcmc.indiana.edu/vol3/issue2/lombard.html.

Manninen, T. (2001). Rich Interaction in the Context of Networked Virtual Environments: Experiences Gained from the Multi-Player Games Domain. In A. Blanford, J. Vanderdonckt, & P. Gray (Eds.): People and Computers XV: Interaction without Frontiers: Joint Proceedings of HCI 2001 and IHM 2001, 383-398. London: Springer-Verlag.

McMahan, A. (2003). Immersion, Engagement, and Presence. A Method for Analyzing 3-D Video Games. In M. J. P. Wolf & B. Perron (Eds.): The Video Game Theory Reader, 67-86. New York, NY: Routledge.

Morris, S. (2002). First-Person Shooters. A Game Apparatus. In G. King & T. Krzywinska (Eds.): ScreenPlay: Cinema/Videogames/Interfaces, 81-97. London: Wallflower Press.

Morris, S. (2004). Shoot First, Ask Questions Later: Ethnographic Research in an Online Computer Gaming Community. Media International Australia, (110), 31-41.

Murray, J. (1997). Hamlet on the Holodeck. The Future of Narrative in Cyberspace. New York, NY: The Free Press.

Neitzel, B. (2004). Wer bin ich? Thesen zur Avatar-Spieler Bindung. (Who am I? Theses on the Relation between Avatar and Player.) In B. Neitzel, M. Bopp, & R. F. Nohr (Eds.): "See? I'm Real..." Multidiszi-plinäre Zugänge zum Computerspiel am Beispiel von 'Silent Hill' ("See? I'm Real..." Multi-Disciplinary Approaches to the Computer Game Using the Example of 'Silent Hill'), 193-212. Münster: LIT.

Neitzel, B. (2005). Narrativity in Computer Games. In J. Raessens & J. Goldstein (Eds.): Handbook of Computer Game Studies, 227-245. Cambridge, MA: MIT Press.

Neitzel, B., Bopp, M. & Nohr, R. F. (Eds.) (2004). "See? I'm Real..." Multidisziplinäre Zugänge zum Computerspiel am Beispiel von 'Silent Hill'. ("See? I'm Real..." Multi-Disciplinary Approaches to the Computer Game Using the Example of , 'Silent Hill'.) Münster: LIT.

Norman, D. A. & Shallice, T. (1986). Attention to Action. Willed and Automatic Control of Behaviour. In R. Davidson, G. Schwartz, & D. Shapiro (Eds.): Consciousness and Self Regulation. Advances in Research and Theory, 1-18. New York, NY: Plenum Press.

Pashler, H. & Johnston, J. C. (1998). Attentional Limitations in Dual-Task Performance. In H. Pashler (Ed.): Attention, 155-190. Hove: Psychology Press.

Pavel, T. (1986). Fictional Worlds. Cambridge, MA: Harvard University Press.

Poole, S. (2004). Trigger Happy. New York, NY: Arcade Publishing.

Posner, M. I. (1980). Orienting of Attention. Quarterly Journal of Experimental Psychology, 32, 3-25.

Raessens, J. & Goldstein, J. (Eds.) (2005). Handbook of Computer Game Studies. Cambridge, MA: MIT Press.

Rollings, A. & Adams, E. (2003). Andrew Rollings and Ernest Adams on Game Design. Berkeley, CA: New Riders.

Rouse, R. (1999). What's Your Perspective? Computer Graphics, 33(3). Retrieved September 1, 2006 from http://www.paranoidproductions.com/gamingandgraphics/fifth.html.

Rouse, R. (2005). Game Design. Theory & Practice. Plano: Wordware.

Ryan, M.-L. (2001). Narrative as Virtual Reality. Immersion and Interactivity in Literature and Electronic Media. Baltimore, MD: Johns Hopkins.

Ryan, M.-L. (2006). Avatars of Story. Minneapolis, MN: University of Minnesota Press.

Salen, K., & Zimmerman, E. (2004). Rules of Play. Game Design Fundamentals. Cambridge, MA: MIT Press.

Schirra, J. R. J. & Carl-McGrath, S. (2002). Identifikationsformen in Computerspiel und Spielfilm. (Forms of Identification in Computer Games and Film.) In M. Strübel (Ed.): Film und Krieg. Die Inszenierung von Politik zwischen Apologetik und Apokalypse (Film and War. The Staging of Politics between Apologetic and Apocalypse), 149-163. Opladen: Leske+Budrich.

Schubert, T. & Regenbrecht, H. (2001). Embodied Presence in Virtual Environments. Presence: Teleoperators and Virtual Environments, (10), 266-281.

Smith, J. H. & Sicart, M. (Eds.) (2004). Proceedings of the Other Players Conference, IT University of Copenhangen, December 6-8 2004. Copenhagen: IT University of Copenhagen.

Sweetser, P. & Wyeth, P. (2005). GameFlow. A Model for Evaluating Player Enjoyment in Games. ACM Computers in Entertainment, 3(3). Retrieved September 1, 2006 from http://www.itee.uq.edu.au/~penny/_papers/Sweetser-CIE.pdf.

Tamborini, R., & Skalski, P. (2006). The Role of Presence in the Experience of Electronic Games. In P. Vorderer & J. Bryant (Eds.): Playing Video Games. Motives, Responses, and Consequences, 225-240. Mahwah, NJ: Erlbaum.

Thon, J.-N. (2006). Communication and Interaction in Multiplayer First-Person-Shooter Games. In G. Riva, M. T. Anguera, B. K. Wiederhold, & F. Mantovani (Eds.): From Communication to Presence. Cognition, Emotions and Culture towards the Ultimate Communicative Experience. Festschrift in honor of Luigi Anolli, 239-261. Amsterdam: IOS Press.

Thon, J.-N. (2006a). Immersion revisited. Varianten von Immersion im Computerspiel des 21. Jahrhunderts. (Immersion Revisited. Variations of Immersion in the Computer Game of the 21th Century.) In C. Hißnauer & A. Jahn-Sudmann (Eds.): medien – zeit – zeichen. Beiträge des 19. Film- und Fernsehwissenschaftlichen Kolloquiums (Media – Time – Signs. Contributions to the 19th Colloquium on Film and Television Studies), 125-132. Marburg: Schüren.

Thon, J.-N. (2006b). Toward a Model of Perspective in Contemporary Computer Games. Retrieved September 1, 2006 from http://www.icn.uni-hamburg.de/images/stories/NarrPort/Point/beitrag_thon_bfs.pdf.

Thon, J.-N. (2007). Schauplätze und Ereignisse. Über Erzähltechniken im Computerspiel des 21. Jahrhunderts. (Game Spaces and Events. On Narrative Techniques in the Computer Game of the 21th Century.) In: C. Müller & I. Scheidgen (Eds.): Mediale Ordnungen. Erzählen, Archivieren, Beschreiben. (Medial Arrangements. Narrating, Archiving, Describing.), 40-55. Marburg: Schüren.

Vorderer, P., & Bryant, J. (Eds.) (2006). Playing Video Games. Motives, Responses, and Consequences. Mahwah, NJ: Erlbaum.

Vorderer, P., Hartmann, T., & Klimmt, C. (2006). Explaining the Enjoyment of Playing Video Games. The Role of Competition. In D. Marinelli (Ed.): ICEC Conference Proceedings 2003. Essays on the Future of Interactive Entertainment, 107-120. Pittsburgh, PA: Carnegie Mellon University Press.

Wardrip-Fruin, N., & Harrigan, P. (Eds.) (2004). FirstPerson. New Media as Story, Performance, and Game. Cambridge, MA: MIT Press.

Wirth, W., Hartmann, T., Böcking, S., Vorderer, P., Klimmt, C., Schramm, H., Saari, T., Laarni, J., Ravaja, N., Gouveia, F. R., Biocca, F., Sacau, A., Jäncke, L., Baumgartner T. & Jäncke, P. (2006). A Process Model of the Formation of Spatial Presence Experience. To appear in: Media Psychology, 9(3). (In preparation.)

Wolf, M. J. P. (2001). Space in the Video Game. In M. J. P. Wolf (Ed.): The Medium of the Video Game, 51-76. Austin, TX: University of Texas Press.

Wolf, M. J. P. & Perron, B. (Eds.) (2003). The Video Game Theory Reader. New York, NY: Routledge.

Yantis, S. (1998). Control of Visual Attention. In H. Pashler (Ed.): Attention, 223-256. Hove: Psychology Press.

GAMES

Bungie (2003) Halo: Combat Evolved. Microsoft. (PC)
Blizzard Entertainment (2004) World of Warcraft. Vivendi Universal. (PC)

Empfohlene Zitierweise
"Immersion Revisited. On the Value of a Contested Concept." In: Amyris
Fernandez/Olli Leino/Hanna Wirman (Hg.): *Extending Experiences. Structure,
Analysis and Design of Computer Game Player Experience.* Rovaniemi: Lapland
University Press 2008. S. 29-43.