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12 Communication and Interaction in Multiplayer First-Person-Shooter Games

Jan-Noël THON

Abstract. Since their emergence in the 1960s, computer games have developed into a central part of popular culture. An ever-increasing number of players plays games using their computers. One of the most successful forms of computer games is the phenomenon of multiplayer games, i.e. computer games that more than one player can participate in. In these games, various interaction and communication processes take place between the players as well as between the players and the virtual game spaces that these games provide. This chapter attempts to describe multiplayer games as a form of computer-mediated communication (CMC). This mode of communication has often been described as lacking certain social cues that a face-to-face situation provides. However, to understand communication and interaction processes, one needs to understand the situation in which these processes take place. The situation in which multiplayer games take place makes a large amount of cooperation and task-oriented interaction between the players necessary. This chapter attempts to examine communication processes in multiplayer first-person-shooter (FPS) games as determined by the gaming situation in as well as the social context of these games, emphasizing that communication in these games is successful despite the constraints it has in common with other forms of CMC.

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12.1 Introduction

Computer game studies are still a new academic field. Nevertheless, computer games have been studied from the perspective of various disciplines [1-3].

In the last few years, one could observe an increasing research interest in the phenomenon of multiplayer games, focussing on massive multiplayer online role playing games (MMORPGs) in particular.

The analysis of MMORPGs has been very fruitful with regard to questions of social interaction and communication [4-6].

There are, however, other multiplayer games that enable communication and create social spaces. But the number of academic studies concerned with the communicative and social structures of, e.g., multiplayer first-person-shooter (FPS) games seems rather modest compared to the research on MMORPGs. Contributions that treat multiplayer FPS games are scarce even at conferences exclusively concerned with multiplayer games [7].

Our aim is the development of a model for the description of the social structures and processes of communication and interaction in multiplayer games based on a general model of computer game structure as well as on recent communication research. For this purpose, it is necessary to focus on one computer game genre, since it is problematic to talk about "computer games in general" due to the differences between the various genres [8]. Instead of describing the highly complex social structures of MMORPGs, we will develop a model of communication and interaction processes in FPS games. This model may later be applied to the analysis of MMORPGs or other multiplayer games.

PC-based multiplayer FPS games such as *Doom* (1993), *Quake* (1996), *Unreal Tournament* (1999), *Halo* (2003), *Counter-Strike: Source* (2004) or *SWAT 4* (2005) are either played over Local Area Network (LAN) connections between computers that are located relatively near to each other or over the Internet, in which case the locations of the players may be practically anywhere [9]. The various games and game modes all revolve around some version of the mutual shoot-out, i.e. the players - or, more precisely, their avatars - fight against each other using a huge number of different weapons, vehicles and tactics.

This relatively "straight-forward nature" [10, p. 390] of multiplayer FPS games allows us to describe their social and communicative structure in some detail. These communication processes occur in a situation that is defined by highly cooperative and goal-oriented activity, but is also part of an "online community that is vocal, influential, highly social and considers itself self-regulating and, to a certain degree, self-determining" [11, n.p.].

Among the relatively few studies of computer games concerned with the communicative and social aspects of multiplayer FPS games, these of Morris [9, 11, 12] and Manninen [10, 13-15] are probably the most useful for our purpose.

In addition to these, we will consider some of the research that has been concerned with other forms of computer-mediated communication (CMC) in the last few years.

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12.2 Previous Research on CMC

Among the most influential approaches in early research on CMC were *Social Presence Theory* [16] and *Media Richness Theory* [17]. *Social Presence Theory* is concerned with the effect that different communicative media have on the degree to which their mutual presence in the interaction is salient to the interlocutors. This social presence is seen as the quality of a given medium that is determined by the number of communication channels it supplies. Although most CMC is text-based, some forms make use of the audio channel that allows for intonation and other features of the voice to be perceived in communication. Furthermore, there are some applications that use the video channel, i.e. enable the participants to see each other and communicate non-verbally using physical appearance, gesticulation, facial expression etc. The more communication channels a user can use in a given medium, the higher will the social presence of this medium be. *Media Richness Theory* makes similar claims, in that it emphasizes the use of a large number of communication channels as a prerequisite for the processing of rich information, including a medium's ability "to interlink a variety of topics, render them less ambiguous, and enable users to learn about them in a given time-span" [18, p 10].

Many papers based on *Social Presence Theory* as well as *Media Richness Theory* describe CMC as lacking a number of cues that are necessary for the transmission of certain social, emotional and contextual types of information [19-21]. On the one hand, it is certainly true that CMC generally does not provide its users with a number of communication channels comparable to that of face-to-face conversation. Hence, part of the information that is transmitted in a face-to-face situation cannot be transmitted similarly in CMC. On the other hand, such a "cues-filtered-out" approach [22] has been criticized by many researchers. Claiming that CMC does not provide its users with as many communication channels as face-to-face-communication is not the same thing as claiming that CMC is "less friendly, emotional, or personal, and more businesslike and task-oriented" [19, p. 88]. Participants in CMC are no less part of a social context than are participants in face-to-face-communication, since "[a]ll interaction, including that which is task oriented, conveys social meaning and thus creates social context" [23, p.151].

Walther [24-26] has shown that users of CMC find ways to substitute the social (relational) and emotional cues CMC lacks with cues that can be realized in the signalling systems CMC provides. As far as text-based CMC is concerned, Walther notes that less social information is transmitted than is the case in a face-to-face situation due to the absence of nonverbal cues. The cues in CMC, however, are given more importance, since "whatever subtle social context cues or personality cues to appear in CMC take on a particularly great value" [26, p. 18]. Another point that is of relevance here is that CMC users develop new ways to convey social and emotional cues through (written) language, using emoticons and other substitutions for para- and nonverbal cues [27-29]. Building on Anolli's *Miscommunication as Chance Theory* [30], Riva [28] has characterized CMC as a form of miscommunication, emphasizing that "a strategic use of miscommunication may enhance the degrees of freedom available to the communicators during an interaction. If a user handles well the miscommunication processes typical of CMC, he/she may even achieve results difficult to obtain in face-to-face meetings" [28, p. 229].

Such general claims about the nature of CMC are, however, somewhat problematic. Even early research on CMC has emphasized that it "is not homogenous, but like any

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other communicative modality, manifests itself in different styles and genres" [31, p. 3], such as e-mails, discussion forums, Internet Relay Chat, instant messaging, MUDs or networked virtual environments such as computer games. While these various forms of CMC may share some basic characteristics, their differences make it seem difficult to speak of "CMC in general" much in the same way that it is difficult to speak of "computer games in general". Especially with regard to social presence and richness of communication, these differences matter. One can distinguish between chronologically synchronous and asynchronous CMC. Furthermore, one should distinguish between exclusively text-based, i.e. verbal CMC, these forms of CMC that use the audio channel, thereby allowing for paraverbal cues and CMC that also uses the video channel, thereby allowing for nonverbal communication. While the original Internet Relay Chat was text-based, contemporary Instant Messaging allows for the inclusion of audio or even video messages [28]. Similarly, traditional text-based MUDs have long evolved into networked virtual environments that allow their users to interact and communicate with each other using avatars, i.e. virtual representations of themselves. Multiplayer games can be understood as a form of these networked virtual environments. While they are a form of synchronous CMC, they also have certain unique structural properties that need to be taken into consideration to arrive at an understanding of the situation in which communication takes place in these games.

12.3 Towards a Model of Computer Game Structure

In order to understand the communication processes that take place in multiplayer FPS games, it is important to understand the situation in which this communication takes place. For this purpose, one can use as a basis the general model for the description of computer game structure developed by Thon [32-34]. This general model consists of four levels of computer game structure that represent different perspectives from which the structure of computer games can be described, i.e. the levels of spatial, narrative, ludic and social structure. These levels have a rather heuristic quality, and there are, of course, other perspectives from which computer games can and should be analysed. Furthermore, not every level will be of the same relevance in the analysis of every game. This is also the case with multiplayer FPS games. Hence, while such a general model is a good starting point, it has to be modified in order to arrive at an appropriate conceptualisation of the communicative situation of multiplayer FPS games.

The level of narrative structure plays an important role in singleplayer FPS games [9, 34, 35], but in multiplayer FPS games, the narrative aspects are reduced to the occasional reference to a narrative context. Instead of a narrative framework that guides the players' actions, there "is a social environment 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" [9, p. 84]. Hence, the structure of multiplayer FPS games can be described referring to only three of the four levels, i.e. the level of spatial structure, the level of ludic structure and the level of social structure (cf. Figure 1).

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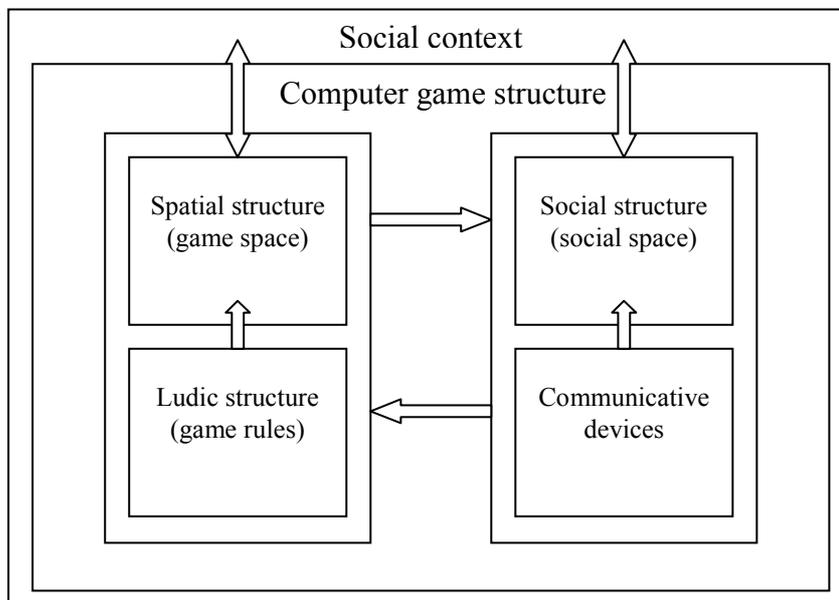


Figure 1. Model of computer game structure in multiplayer FPS games

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 that govern the interaction of players with the spatial structure (including the representations of other players). The level of social structure can further be distinguished into the parts of computer game structure that allow for social interaction between the players, i.e. the communicative devices, and the social space that is constituted by that social interaction (communication).

Finally, the social context of the game influences the spatial and ludic structure (probably most drastically through mods, player-made modifications of the game spaces or game rules [11]) as well as the social structure of the game (and *vice versa*). Although our focus is on communication processes as a part of the level of social structure, the levels of spatial and ludic structure have to be discussed in some detail since they play an important role in these communication processes.

12.3.1 Spatial Structure and Ludic Structure

With regard to the level of spatial structure it is to be noted that many contemporary computer games are set in complex fictional worlds. Here, one has to distinguish between the space of the fictional world as a whole and the spaces that the player can interact with through the interface [34]. These are the spaces in which the game actually takes place. Juul draws a similar distinction between "world space" and "game space" [36, p.164-167]. Since most of the events in computer games take place in the game space, it is mainly this part of the space of the fictional world that is of interest with regard to the spatial structure of computer games, especially when it comes to multiplayer FPS games. Since singleplayer games generally use a certain

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number of narrative techniques to refer to the non-game space of the fictional world, this space is of greater importance in singleplayer games than it is in multiplayer games [34]. In contrast to singleplayer FPS games, multiplayer FPS games generally consist exclusively of different game locations that are not connected by any sort of narrative structure.

Such game spaces or *maps* are three-dimensional virtual environments, arenas in which the players let their avatars compete with each other in different variations of the game or game modes. Wolf notes that these spaces are often presented according to the conventions of space representations in classic Hollywood film. "Spaces and the objects in them can be viewed from multiple angles and viewpoints which are all linked together in such a way as to make the diegetic world appear to have at least enough spatial consistency so as to be navigable by the player" [37, p. 66]. Of course, the spaces in classic Hollywood film are not exactly navigable by the film viewer. In fact, even the players of multiplayer FPS games do not navigate the game space personally. Rather, they take control of an avatar, a representation of themselves in the virtual game space. In FPS games, this game space is presented using a subjective point-of-view, i.e. the spatial perspective used in the presentation of the game space is that of the player's avatar. This perspective is the most common in shooter games, and it may even be assumed that the subjective point-of-view increases the immersion of the player, i.e. his or her sense of presence in the virtual environment.

The inventory of the game spaces may vary considerably in different games, but opponents and weapons are generally a part of it. Furthermore, game spaces have certain borders that take the form of obstacles such as walls, chasms or locked doors. But the freedom of interaction that computer games suggest is restricted not only by the spatial borders but also by the rules of the game that determine the often quite narrow range of actions that are actually possible. It is equally true for single- as well as for multiplayer FPS games that the possible movement of the avatar can be seen as part of the ludic structure of the game. Running, jumping, and crouching as well as picking up and using a wide variety of weapons are essential abilities of the avatar in a FPS that are governed by the rules of the game. However, in multiplayer FPS games players play not only against the artificial intelligence of computer opponents, but also against other human players. This does, of course, have a certain impact on the ludic structure of the game.

Aarseth *et al.* [38] note that "it is common to distinguish between singleplayer and multiplayer games" [38, p. 51] but that this distinction is not differentiated enough to appropriately describe the various forms of multiplayer games in existence. It does indeed seem problematic to label games as different as chess with up to two players, multiplayer FPS games with usually around ten players, and MMORPGs with often more than hundred players all as multiplayer games. Aarseth *et al.* propose distinguishing between singleplayer, twoplayer, and multiplayer as well as between singleteam, twoteam, and multiteam game modes. This distinction seems useful for describing multiplayer FPS games as well, since there are significant differences between the ludic (as well as the social) structure of a multiplayer FPS game played in a multiplayer game mode, i.e. with a number of players each of whom is playing against every other player, and the same multiplayer FPS game played in a twoteam game mode, i.e. with two teams of players playing against each other. For one, coordination and cooperation is generally far more important in team-based game modes.

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Even in rather action-oriented shooters such as *Quake*, *Unreal Tournament*, or *Halo*, one can find not only multiplayer and twoteam versions of the classic mutual shoot-out (these game modes are, for instance, called *slayer* and *teamslayer* in *Halo*), but also game modes such as the widespread *capture-the-flag* that require a greater amount of cooperation. In this twoteam-game mode the two teams each try to bring the enemy flag from the enemy base to its own base, and points can often only be scored when the flag of the scoring team is in the base. Another example of a game mode that requires a great amount of cooperation is the bombing run to be found in multiplayer shooters that emphasize tactical aspects, such as *Counter Strike: Source* or *SWAT 4*. In this game mode, the objective of one team of players is to make one or more bombs explode, while the other team tries to disarm them. The necessity of coordinated action and cooperation between several players can be seen as one of the defining elements of multiplayer FPS games, and a central part of the playing experience.

Smith [39] has noted that in team-based game modes not only the opponent team but also the allies of a player can become a problem. "Though team performance is crucial to success, each team member faces some temptation to play selfishly" [39, n.p.]. And even when players try to play as a team, this may still lead to problems because they may not share each other's strategies. In order to better understand these processes, the notion of situation models that has been developed in cognitive science may prove useful. According to Hogan [40], a mental model can be described as the result of two processes, namely the formation of multielement units (which in turn is the result of processes of selection and segmentation of perceived information) and the assignment of relations between these units. Only "[i]f the complex of hierarchically structured units concerns the environment in which we are acting, it is called a 'situation model'" [40, p. 40]. Players form situation models of the game spaces and social spaces of multiplayer FPS games much in the same way that they form situation models of their real-life environments.

In the case of multiplayer FPS games, one can assume that the levels of computer game structure sketched above play an essential role in the models that the players form of the gaming situation as well. While playing, the players will construct models of the game space in which the game takes place. These models will include the position of allies and opponents, as well as the possibilities of interaction with the game space as defined by the ludic structure of the game. Furthermore, the players will construct models referring to the other players as social actors and their mutual social relations, i.e. to the social space of the game. According to Stasser [40], CMC may be defined as a process by which a group of social actors in a given situation negotiates the meaning of the various situations which arise between them. It is indeed the case that a relevant part of teamplay consists of communication that aims at establishing shared situation models among the players in a team. It also is this necessity to communicate that at least partly determines the social structures inside as well as outside of the actual game. But before we discuss these social structures and communicative processes, we need to examine in more detail the various forms of interaction in multiplayer FPS games that are not obviously communicative in nature.

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12.3.2 Interaction Forms and Situation Models

Building on *Social Presence Theory*, Manninen [10, 13-15] treats interaction in networked virtual environments. Networked virtual environments are seen "as applications and extensions of virtual reality technologies" [10, p. 385]. Manninen follows Riva's definition of virtual reality as "a mental experience which makes the user believe that 'he is there', that he is present in the virtual world" [42, p. 87]. Riva also stresses the interactive aspect of virtual reality. "Interacting with a virtual environment, the user is no longer a mere observer of that which is happening on a screen, but he 'feels' immersed in that world and can participate in it, in spite of the fact that these worlds are spaces and objects existing only in the memory of the computer and in the user's mind" [42, p. 87]. It can indeed be assumed that a feeling of immersion is evoked not only by the spatial and narrative structure of computer games [43], but also by the ludic as well as the social forms of interaction that occur in multiplayer FPS games [44].

In order to describe rich interaction in networked virtual environments, Manninen has developed a *Rich Interaction Model* and a *Hierarchical Interaction Model*. For this purpose, he mainly refers to examples from "the area of 3D multi-player games" [10, p. 384], i.e. MMORPGs and, more often, multiplayer FPS games. The latest version of his *Rich Interaction Model* [14, 45] entails twelve classes of interaction forms, namely avatar appearance, facial expressions, oculesics, kinesics, gestures, automatic / AI-driven interaction forms, language-based communication, control and coordination, physical contact, environmental details, non-verbal audio, olfactics, and chronemics. These forms are then further divided into subclasses, for instance text-based communication, speech, pre-defined phrases, and sign language in the case of language-based communication.

Manninen's work doubtlessly contributes to our understanding of interaction and communication in multiplayer FPS games. For instance, one of the points made clear by his observations is that spatial interaction, i.e. the spatial behaviour of the avatars inside the game space, is also a form of communication in that it communicates their spatial position to the other players. However, the *Rich Interaction Model* with its many heterogenous classes and subclasses seems to be too complex for describing the communication and interaction processes that occur in multiplayer FPS games. For one, not all of the categories are applicable to multiplayer FPS games (or MMORPGs, for that matter). While language-based communication and physical contact can be seen as central interaction forms in multiplayer FPS games, olfactics are definitely not. Furthermore, it seems to be useful to distinguish between those forms of interaction that occur in the game space as such and those forms of interaction (or communication) that do not manifest themselves on the level of spatial structure. In other words, we propose to distinguish between spatial interaction (which takes place in the game space and can be described referring to the levels of spatial and ludic structure) and language-based interaction (located on the level of social structure and made possible by the communicative devices a particular game offers).

It is generally true that the spatial structure of multiplayer FPS games functions as the environment in which a large part of the interaction takes place. Therefore, interaction forms belonging to classes such as spatial behaviour, physical contact, kinesics, and environmental details are all partly to be located on the level of spatial

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structure. However, these forms of interaction are also rule-governed. Therefore, they are part of the ludic structure, too. The interaction forms of the spatial behaviour class, for instance, mainly consist of rule-governed movements (ludic structure) of certain objects (spatial structure) that take place in a virtual environment or game space (spatial structure). The interaction forms of the environmental details class mainly consist of rule-governed interactions (ludic structure) between certain objects (spatial structure) and the environment or objects therein (spatial structure). Similar is true for interaction forms belonging to the physical contact class.

One can relate these spatial forms of interaction to the notion that players form situation models while playing. For this purpose, we will refer to Manninen's *Hierarchical Interaction Model* which he intends to be used "[i]n order to enhance the dimensionality of the interaction taxonomy" [10, p. 393]. The model distinguishes between five different levels of complexity of interaction forms.

The lowest of these levels refers to the control of the avatar's motor system, e.g. moving his or her legs and feet.

The second level refers to patterns that consist of combined signals, e.g. the combination of movements necessary to walk.

The third level refers to the direction or purpose of the interaction form, e.g. where the walking movement is aiming at.

The fourth level refers to sub-goals as part of the "goal-oriented and usually generally described interactions" [10, p. 393] of the fifth level, e.g. various waypoints in a complex change of location.

While Manninen does not discuss the model in too much detail, it seems to be quite useful since it allows a distinction of different levels of complexity in the description of interaction (as well as communication).

With regard to the question of situation models, the higher levels of Manninen's model are most important. The actions that take place on the lower levels can be considered as being determined by quite basic forms of knowledge about processes of avatar control that all except the most inexperienced players will normally possess. However, the goals and sub-goals that the higher levels of the Hierarchical Interaction Model refer to are primarily determined by the situation models the players have formed. As Suchman has noted, "[t]o characterize purposeful action as in accord with plans and goals is just to say again that it is purposeful and that *somehow*, in a way not addressed by the characterization itself, we constrain and direct our actions according to the significance that we assign to a particular context" [46, p. 48].

The goals and sub-goals players of multiplayer FPS games form with regard to the interaction that takes place on a game server are determined by the situation models they have constructed. While the main interest of most players will be to win the game, the goals of the various interaction processes that lead to this aim are formed according to continuous re-evaluations of the gaming situation. If the model a player has formed of the gaming situation is not accurate, this may lead to interaction that is unsuccessful with regard to the interests of his or her team, since the player's goals and the team's goals will deviate from each other. Imagine, for instance, a game of *capture-the-flag* in which the avatar of a player has taken the flag from the enemy base and is on its way back to the home base.

The situation model of the avatar's player consists, among other things, of a representation of the game space (spatial structure), the interaction possible within that game space (which is determined by the ludic structure of the game), the

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position of his or her avatar as well as at least a rough idea of the positions of the other player's avatars. We are talking about a skilled player who is part of a team of skilled players here, so the other members of the player's team will keep the opponent players occupied while our player is running towards the home base. Imagine what happens when, for whatever reason, our player loses orientation, i.e. his or her situation model becomes inaccurate in a small but significant way. Instead of running towards the home base, our player's avatar may be running back towards the enemy base, and our player may only be able to correct his or her inaccurate situation model when the avatar is shot by one of its opponents, who then will return the flag to the enemy base.

Although most cases of inappropriate situation models will probably not be as tragic, our example stresses that one of the main requirements for successful team play is a shared situation model among the players. One can assume that the team of our player might have seen his or her avatar running back towards the enemy base and (probably even successfully) tried to correct the inaccurate situation model by way of communication.

While such communication may take nonverbal forms as well, most of it will usually consist of language-based interaction forms such as text-based chat, speech or pre-defined phrases. These interaction forms are not part of the spatial structure of the game, since their main purpose is to function as communicative devices for the players. They are, however, instrumental in the constitution of a social space and can therefore be located on the level of social structure.

One could argue that the possibility to use communicative devices is part of the game rules and therefore to be seen as part of the ludic structure of the game. The ludic structure, however, mostly refers to the rules that govern the interaction taking place in the game space.

Since language-based communication in multiplayer FPS games is disparate from the spatial structure, it seems sensible to structurally treat it as part of the social structure, though it may play a central role in the models the players construct of the gaming situation.

In the following parts of this chapter, we will analyse in more detail how players use the communicative devices available in multiplayer FPS games and to what end they use them, i.e. what their motivations for communication are. Since especially the latter question requires not only an understanding of the structure of multiplayer FPS games but also at least a rough idea of the social context that surrounds these games, we will begin by examining some research that is of interest in this respect.

12.4 Social Context and Communication Processes

12.4.1 Social Context

One basic distinction to be made with regard to the level of social structure of multiplayer FPS games is that between the social structure that emerges from the interaction of the players in the game and the social context that emerges from the interaction of the players outside of the actual game. The game servers of multiplayer FPS games "function as virtual social spaces" [12, p. 36] in which the players use certain communicative devices to communicate with each other. In fact, the game server's function as social space is a result of this communication. Furthermore, there

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are areas outside of the actual game in which communication between players takes place. Every multiplayer shooter is surrounded by a wide variety of websites and discussion forums through which players form social networks and even social groups like clans that are all part of its social context and fulfil various functions for the game.

In describing this social context, we mainly take as our basis the works of Morris, who has conducted a large amount of ethnographic research on multiplayer FPS games as a part of her Ph.D.-project, focusing on the social context of these games [9, 11, 12]. According to Morris, online games are "structuring and mediating communication between large numbers of participants, and spawning subjectivities and social practices within a cultural economy extending beyond the game itself" [12, p. 31]. Players of multiplayer FPS games do not just play, but also engage in various game-related practices such as game development, criticism, commentary, exchange of information, teaching of game skills, file sharing, and social organisation [11, 12]. In short, they participate in various forms of social interaction that constitutes the social context of multiplayer FPS games.

Undertaking ethnographic research in the field of multiplayer FPS games is not without its problems. Players are generally sceptical towards academics, and although the Internet provides a vast amount of information on gamer culture, this information may not always be reliable and needs verification through comparison of various sources. Morris [12] has discussed these issues as well as questions of ethical constraints regarding ethnographic research in some detail. We do not aim at a detailed description of the social context of multiplayer FPS games. Such an attempt would require both an empirical orientation and extensive ethnographic research none of which is intended here. For us, the relevance of the social context lies mainly in its influence on the social structures that are manifested in the various forms of communication in the game and instead of presenting ethnographic research of our own, we will refer to Morris' findings.

It has already been said that every successful multiplayer FPS game is surrounded by a variety of websites and discussion boards that the players use to establish social networks. Quite a large part of the players of multiplayer FPS games belong to hierarchically organized clans, whose members play together in teams and against other clans. Less formally organized social networks may also be formed through acquaintances from real life, knowledge of the same language (other than English, which is generally presupposed in the international FPS gaming community), or shared social or cultural background. Among the various websites devoted to FPS gaming are these that provide gaming news and reviews as well as sites of online leagues for both individuals and clans, and individual clan pages [11]. Morris rightly stresses the fact that this social context of multiplayer FPS games is not something game developers control. "Web pages, discussion forums and chat venues are all run by players. Clans and competitions are organised independently, as are online gaming ladders and the majority of real-life LAN (Local Area Network) meetings" [11, n.p.].

What is especially interesting with regard to our attempt to understand communication in multiplayer FPS games as a form of CMC is the fact that the social interaction surrounding multiplayer FPS games mainly takes place "in game servers and on IRC channels, ICQ chats, discussion boards, mail-lists" [12, p. 33]. Although face-to-face communication and interaction between gamers does occur at LAN-events or during everyday social interaction, most of what constitutes the

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social context of multiplayer FPS games takes place either inside the game (on game servers) or in other forms of CMC. "Involvement in the online culture, not just through playing the game, but also through web-pages (including discussion forums), mail-lists, Internet Relay Chat (IRC) channels and real-time chat programs, contribute further social influences to the formation of the gaming subject" [9, p. 95]. Hence, in order to appropriately describe the social structures surrounding multiplayer games, one would have to research how the various forms of CMC influence each other and contribute to the formation of a social context that is different from the real-life context of the participants.

As Morris notes, "FPS gamers develop gaming identities which are used across various media" [11, n.p.]. These identities are not the real-life identities of the players, but at least in the case of some players, they are recognizable enough that it is inappropriate to speak of anonymity here. This seems to be an interesting direction for further research, even more so since research on CMC generally emphasizes the fact that there is no guarantee that the self-presentation of interlocutors in CMC is in any way coherent with their real life identities [47]. Without intending to question the validity of this observation, the existence of persistent gaming identities seems to indicate that research should focus on the virtually constructed rather than on the real-life identities of participants in CMC. Although the notion that we perform different roles in different social contexts is not exactly new [48], the phenomenon of persistent CMC identities in gaming contexts has, to my knowledge, not been thoroughly researched yet.

Related to the question of personal identity is the question of group identity. There doubtlessly are different player types in computer games [49] and it is necessary to at least distinguish between clan-players and non-clan-players of multiplayer FPS games. This distinction is also relevant with regard to the question of social norms that govern the communication and interaction processes in multiplayer games. As Morris notes, "[p]layers have developed intricate rules and etiquette governing gameplay and social behaviour, based on fundamental principles of fair play and general social cooperation" [11, n.p.]. While there may be certain social rules that apply to all players (e.g. not to cheat), other rules may be clan specific. Furthermore, clan-players tend to be more professional in their playing style, i.e. tend to focus on playing the game. This also means that certain communicative practices, e.g. talking about non-game-related topics with other players while playing the game, are considered inappropriate more often by clan-players than by non-clan-players. Hence, communication that aims at establishing interpersonal relations may be perceived as a form of miscommunication by more professional players, whereas communication that is task-oriented will generally be perceived as appropriate.

Such an interpretation of communication depends on the situation model a player has constructed of the other players as social actors and the relation between them. Various researchers claim "that the social system should be seen as a network of relationships providing the *space* in which cognitions are elaborated" [18, p. 9]. The reconstruction of the social space as part of the situation model of a player will most likely also include some assumptions about what sort of communication the other players will find appropriate. Hence, the social context of the game as well as the particular social situation on a game server will greatly influence the ways in which players participate in and perceive communication in multiplayer FPS games. These communicative processes are, however, also influenced by the communicative devices that the players can use.

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12.4.2 Communicative Devices

In order to communicate, players of multiplayer FPS games use different communicative devices. Which devices they use depends on the player as well as on the game that is played and whether it is played via LAN- or via TCP/IP-connection. When the players are in the same room, as is often the case with games that are played using a LAN-connection, communication does not necessarily have to be computer-mediated since players may use the traditional communicative devices a face-to-face situation provides [50]. However, most multiplayer FPS games allow their players to play games over the Internet. Since players in Internet-based games are generally not near enough to each other to be able to communicate without technical assistance, most if not all multiplayer FPS games that support multiplayer games using a TCP/IP-connection offer their players at least one sort of (tele-) communication device. PC-based FPS games since *Doom* have established the possibility to write text messages to other players (these messages can generally either be addressed to all players or only to the members of the player's team). Since the PC is the predominant platform for multiplayer FPS games, it can be assumed that text-based chat is still the communicative device used most often by the average player [12].

There is, however, another language-based communicative device that has become quite widespread in the last few years. Voice-over-IP programs such as *Teamspeak* allow players to communicate with spoken language, using a headset or comparable equipment. With regard to this development, it is essential to note that players can keep on fighting their opponents while talking. The time that is saved by not having to enter text messages via keyboard can help a player (and his or her team) to win in a fast game such as the multiplayer-shooter. It has also been suggested that the fact that the flow of the game is not continuously ruptured leads to a more immersive gaming experience [50]. Although there are still many players who do not use voice-over-IP programs, they have become quite usual especially among more professional players or clans. Hence, while they are generally not part of the actual structure of the FPS game and our focus lies on the text-based forms of communication that are a part of that structure, the fact that programs such as *Teamspeak* exist and are used by a large number of FPS players has at least to be noted.

Anolli claims that, among the different signalling systems, "language has a prominent position, as it remains the most powerful, flexible and stable communicative device" [30, p.21]. While this is doubtlessly true for communication in computer games as well, one also has to consider non-verbal forms of communication that take place on the levels of spatial and ludic structure. Although the possibilities for non-verbal communication in multiplayer FPS games are quite limited, it does nevertheless occur. Players may gesture with their weapons, showing other team members where they want them to move to. In *Halo*, it is common practice to shoot at the avatar of a team member that is driving one of the various vehicles in order to signal him to wait. This is accepted behaviour since the avatars in *Halo* are protected by shields that prevent them from being injured by a single shot.

Furthermore, there is also a communicative device that is language-based but would hardly be characterized as very flexible. As Manninen has noted, multiplayer FPS games such as *Counter Strike: Source* or *SWAT 4* offer their players the opportunity

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to communicate using predefined voice-messages, e.g. "Follow me!" or "Need assistance!" However, among the language-based interaction forms in multiplayer FPS games, text-based chat seems to be the most interesting theoretically, since its "rarefied" [42, p. 93] nature makes players develop new ways of using it, for instance by creating forms that can function as substitutes for non-verbal cues.

12.4.3 Language Use

With regard to the use of language in multiplayer FPS games, the influence of the social context of gaming culture has to be emphasized. Most obviously, this applies to the vocabulary used. As Costikyan [51] has noted, there is a rich terminology that is used almost exclusively in certain gaming contexts, e.g. among players of multiplayer FPS games. Here, killing the avatar of another player may be called *fragging*, letting one's avatar jump about the game space in order to avoid being shot may be called *bunny hopping*, and to kill someone's avatar by teleporting into its location may be called *telefragging*. While it should be stressed that rather few players of multiplayer FPS games actually use this terminology, it is true that such genre-specific terminology exists and is used by at least some players. There is, of course, also more and less commonly used vocabulary. While probably just a few players will use expressions such as *low-ping bastard* (a low ping meaning a better Internet connection that leads to faster reaction times in the games), most players of multiplayer FPS games will know that a "*newbie* (or *noob* or *n00b*) is a new player who's just learning the ropes" [51, p. 4]. It may also be noted that calling another player a *noob* is not considered polite behaviour.

Related to this special terminology is another communicative practice peculiar to CMC contexts and often associated with FPS gaming. McKean claims that there exists a "preferred online communication style of online gaming geeks, hacker wannabees, and adolescent chat-room denizens: l33t, pronounced 'leet'" [52, p. 13]. The basic principle that guides the use of *l33t sp34k* (leet-speak) is that certain letters are substituted by numbers or other characters. A is substituted by 4, I by 1, O by 0, T by 7, S by 5 etc. These substitutions may take rather far-fetched forms, for instance when |) substitutes R, but we do not want to go into too much detail here. While this special way of writing is indeed sometimes used by players of multiplayer FPS games, it is probably a bit too strong to talk about the "preferred online communication style of online gaming geeks" [52, p. 13]. In fact, like other game specific terminology, it is not used as often as one might think, and even less often used without irony. What is, however, interesting here is that a certain way to use written language occurs not only in the text-based communicative devices of multiplayer FPS games, but across various forms of CMC. In fact, much of what can be observed in the text-based chat in *Halo*, *Counter Strike: Source*, *SWAT 4* or similar games can also be observed in other forms of CMC, such as Internet Relay Chat.

One of the phenomena related to CMC-specific vocabulary is the use of abbreviations and acronyms. These are very useful in text-based synchronous CMC, since typing words out takes time and this is generally not something a participant in these forms of CMC will want to do. As Schulze has noted, "[t]he prevalent speed [of Internet Relay Chat, JNT] gives rise to the necessity to formulate and type one's contributions fast and efficiently" [29, p. 71]. In fast-paced games such as the

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multiplayer FPS, this need to use as little time for typing as possible is even more urgent. Hence, a variety of abbreviations and acronyms can be found in the communication that takes place in these games (cf. table 1).

Furthermore, these time constraints often lead to rather short sentences that tend not to comply with English grammar rules. This can, in some cases, lead to misunderstandings. Such misunderstandings, however, are not of too much interest here, since they basically arise from the mentioned time constraints. As Riva has noted, CMC can be seen as a "rarefied form of conversation" [28, p. 204], or even as a form of miscommunication. Instead of asking where the constraints of the medium lead to misunderstandings, we want to focus on the question of how players try to overcome the miscommunication that seems to be inherent in text-based CMC. One of the most interesting communicative practices with regard to this question is the substitution of non-verbal cues that occurs in Internet Relay Chat [29] as well as in the text-based communication of multiplayer FPS games. Schulze [29] identifies three types of the substitution of cues in Internet Relay Chat, namely the substitution of nonverbal cues, paraverbal cues, and status and presence cues.

Table 1. Abbreviations and acronyms used in multiplayer FPS games

Abbreviation / Acronym	Meaning	Abbreviation / Acronym	Meaning
AFK	Away from keyboard	OMG	Oh my god
CU	See you	SRY	Sorry
G2G	Got to go	TY, TU	Thank you
LOL	Laugh out loud	WTF	What the fuck

Table 2. Emoticons used in multiplayer FPS games

Emoticon	Meaning	Emoticon	Meaning
:), :)), :))) , :-), :-)) , :-)))	Smiley: humour, irony	: O, :-O	Astonishment
: (, : ((, : (((, :- (, :- ((, :- (((Frowney: sadness, anger	: p, :-p	Tongue out
;), :-)	Winkey: irony, sarcasm	: D, :-D	Laughing
: /, :-/	Wry face: wry humour	^^^	Laughter

There are various ways that nonverbal cues can be substituted. Participants in Internet Relay Chat may use verbs describing the respective action, where as the verbs (or verbal stems) are embraced by asterisks. Another common way of substituting nonverbal cues is the use of emoticons (cf. Table 2). While descriptions of nonverbal behaviour do not occur as commonly in the text-based chat of multiplayer FPS games as does the use of emoticons, both forms of the substitution of nonverbal cues can be found. With regards to the substitution of paraverbal cues in Internet Relay Chat, Schulze refers to reduplication and the use of upper case, both of which occur frequently in the text-based communication of multiplayer FPS games. "Reduplication of a vowel represents dilatation as it would occur in speech.

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Reduplication of the exclamation mark also lends special emphasis to a remark" [29, p. 77]. The use of upper case in CMC is generally interpreted as loudness, since it stands out against the rest of the text. It is even the case that some players may consider continuous "shouting" to be impolite.

Finally, Schulze mentions the compensation of status and presence cues. Presence cues are important particularly since "IRC users have to first check out if people listed in a channel are listening and willing to communicate" [29, p. 78]. On a game server, however, the situation is slightly different in this respect. The players of multiplayer FPS games can observe the avatars of the other players that play on a server. Nevertheless, there may be situations quite similar to these in Internet Relay Chat described by Schulze, when it is not possible for an interlocutor "to see whether another (potential) interlocutor whose nick[name, JNT] is listed in a channel is really present at his or her terminal and following the communication on the channel" [29, p. 78]. In this case, players may use the text-based chat to ask whether a player, whose avatar has not been moving for some time, is actually playing. Many players consider killing the avatar of a player who is not actively participating in the game unsporting. This has to do with the fact that the number of kills is generally counted even in game modes that emphasize other ways to score, e.g. *capture-the-flag*, and a high number of kills may be read as indicating a skilled player.

In fact, it can be assumed that the number of kills a player has achieved is a certain compensation for missing status cues, since being a skilled player is at least part of what constitutes high status in the FPS gaming context. There are other compensations for status cues, too. Signalling one's belonging to a clan is one of the most obvious. While there are, of course, more or less prestigious clans, most of them require their members to attach a *clan tag* to their nickname (which then reads something like "[clan]nickname"). Another possible compensation is the nickname itself, at least in the case of persistent gaming identities. It is, however, to be noted that it is not exactly easy to prevent a player from pretending to be a member of a clan or to use the nickname of another player. While such behaviour is, of course, not accepted among gamers, one at least has to consider the possibility of insincere social status cues in CMC. This is also true for cues such as the register and style of the language used by a player. While these features of text-based communication may provide cues to his or her real-life social context, it is perfectly possible that a player using *l33t-sp34k* is actually a professor of information technology pretending to be an "online gaming geek" [52, p. 13].

12.4.4 Communication and Miscommunication

It has become clear that multiplayer FPS games do not possess the same level of social presence that can be found in face-to-face situations. Still, these games offer the opportunity for social-emotional as well as task-oriented communication (a distinction that has already been made in early research on CMC [53, 19]), even when reduced to text-based communicative devices. We have shown that players find ways to substitute the cues text-based chat in multiplayer FPS games is lacking. Hence, while a preference for task-oriented communication can be observed on game servers, this preference may not necessarily be caused by the constraints of a text-based chat system. Rather, it seems to be caused by the communicative situation in which communication on game servers takes place. In the remainder of this chapter

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we will offer a tentative explanation of why most of the communication in multiplayer FPS games is task-oriented in spite of the fact that the medium makes social-emotionally oriented communication possible. Although we will, again, mainly refer to text-based chat, most of the rather general explanations will also be applicable to voice-over-IP communication.

We have already mentioned that shared goals and shared situation models form an important part of cooperative interaction in team-based game modes. Players do, however, not always share the same situation model. This is equally true for the model that refers to the ludic and the spatial structure as well as for the model that refers to the social structure of the game. Inappropriate cognitive representations of the spatial and ludic structure will prevent a player from successful cooperative interaction in the gaming space. Inappropriate cognitive representation of the social structure or the social space will lead to some interesting forms of miscommunication, or at least to players interpreting certain forms of communication as miscommunication. With regard to these forms of miscommunication, it is essential to understand to what end players communicate as well as what players expect to be the appropriate reasons for communication in multiplayer FPS games.

Quite a substantial body of research exists on miscommunication processes (cf., e.g. [54-56]). While we cannot discuss this research here, we still need a concept of miscommunication that can be used to analyse the communication processes in multiplayer FPS games. For this purpose, we will take as a basis Anolli's *Miscommunication as Chance Theory (MaCHT)* [30] that has been applied to CMC by Riva [28], who notes that "CMC is usually described as an efficient form of *miscommunication*, i.e., a necessarily 'pared down' or, perhaps more accurately, rarefied form of conversation which lacks the rules on which effective interaction depends" [28, p. 204]. We have already discussed the structural aspects of multiplayer FPS games and how they affect the possibilities of communication between their players. Furthermore, it has become clear that players "will try to communicate using any available tool" [28, p. 214], and even develop new ways to use the communicative devices available. What we are interested in now is how players interpret different forms of communication. Here we propose to describe communication and miscommunication from a pragmatic rather than a structural perspective.

Riva claims that the success of CMC "is creating a new psycho-social space that is the fertile ground for social relationships, roles, and a new sense of self" [28, p. 228] and as we have seen, this is the case with regard to multiplayer FPS games. Players with persistent gaming identities interact with one another inside and outside of the various game servers. It does, however, seem that communication outside of game server, i.e. those forms of CMC that can be described as part of the social context of multiplayer FPS games, is more diverse and probably more social-emotionally oriented than communication inside of game servers. This has to do with the structure of multiplayer FPS games as well as with the models players develop of the social situation they are in while playing the game.

It has already been said that players can be categorized in clan-players and non-clan-players. At least broadly similar distinctions would be professional and non-professional players, power-gamers and fun-gamers, or maybe even task-oriented and social-emotionally oriented players. While it is clear that players cannot be appropriately categorized according to such strict binary oppositions, these

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distinctions may prove useful when understood as opposite ends of a continuum. Clan-players can then be characterized as generally being more professional and task-oriented than non-clan players. Still, there are, of course, very professional and task-oriented players that are not in a clan, just as there is a large number of fun clans, whose members emphasize the social-emotional aspects of communication more strongly.

When discussing miscommunication in multiplayer FPS games from a pragmatic rather than a structural perspective, it is useful to remember that every player maintains a certain situation model of the social situation on a game server. This model consists of a representation of the social structure the player becomes a part of when joining a game, which in turn consists not only of the players as social actors and their mutual interpersonal relations, but also of a set of assumptions as to what sort of communication is appropriate in the gaming situation. Such player expectations regarding the appropriate use of communication may vary considerably among different player types. Hence, the same communicative act may be considered entirely appropriate by one player while another player may interpret it as a form of miscommunication.

With regard to players' evaluations of communicative processes, it is useful to distinguish between different forms of language-based communication. Let us start with the communicative processes referring to the game space of the game. There is the kind of communication that aims at establishing a shared model of the gaming situation, i.e. the levels of spatial and ludic structure, among the members of a team. Such tactical and strategic talk generally fulfils an obvious function, namely to make effective cooperation possible. There may be players that do not actively participate in strategy talk, but this form of communication is considered appropriate by most, if not all players. Then there are forms of communication that refer to the ludic structure of the game as well, but do not fulfil a function with regard to that structure. Such communication has been called "crowing" [50, p. 135] and mainly includes "celebrating one's own achievements, those of another or their misfortune" [50, p. 135]. While an excessive amount of such communication would be considered inappropriate by the more professional players, Morris has noted that such "[s]mack talk" (inflammatory and often entertaining statements made to an opponent) is a recognised part of FPS gaming culture" [12, p. 39].

With regard to the forms of communication that refer to the social structure or the social context of the game, one can again distinguish between functional forms of communication (e.g. greeting sequences) and forms of *smack talk* (e.g. playful name-calling) that act as "a source of humour within the game" [12, p. 39]. However, while a moderate amount of *smack talk* (which, as we have seen, can refer to the ludic or to the social structure of a game) is generally considered quite appropriate or even entertaining, certain forms of sincere communication referring to the social structure or the social context of the game are not. Here, the notion that players construct situation models that determine the goals of their interaction proves useful. For more professional or task-oriented players, the game is what being on a game server is all about, i.e. in their situation model the aspects connected with the gaming situation are more salient. The communicative processes of less professional players may sometimes be more social-emotionally oriented. For some of them, being on a game server is mainly a social situation. These players will often participate in a lot of social-emotionally oriented communication referring to the social structure and the social context of the game.

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Such communicative processes do, however, use a certain amount of space in the small area that displays the text-based chat in multiplayer FPS games. Hence, extensive forms of communication referring to the social structure or the social context of the game are interpreted as a form of miscommunication by more task-oriented players. This is not to say that greeting sequences or the occasional reference to the social context of the game is in any way considered inappropriate. Quite the opposite is true. It does, however, seem that the special structure of multiplayer FPS games emphasizes not only cooperative forms of interaction that require shared goals and situation models, but also rather task-oriented forms of communication. This focus on task-oriented communication is not primarily caused by a low level of social presence. Although there are certain constraints, especially with regard to non-verbal and social status and context cues, the preference for task-oriented communication can be explained with reference to the main goal of most players, which is winning the game. Seen from this perspective, certain forms of communication that would be considered perfectly appropriate in other contexts will be interpreted as miscommunication by a majority of the players. Other forms of communication that may be seen as miscommunication in other contexts are considered as perfectly appropriate, even entertaining communication. Hence, it is clear that a consideration of the communicative situation and the social context is necessary to understand communication in multiplayer FPS games as well as CMC in general.

12.5 Conclusions

We have described multiplayer FPS games as a form of CMC occurring in a situation that makes highly cooperative and goal-oriented interaction necessary. This situation is to a great part determined by the specific structure of these games. Although they are a form of networked virtual environments, it has become clear that a description of computer games not only on the level of spatial structure, but also on the level of ludic and of social structure is necessary to arrive at an appropriate understanding of the situation in which communication occurs in these games. With regard to this understanding, one can distinguish between the game space, in which spatial interaction that is governed by certain game rules takes place between the players (or their avatars), and the social space, that is largely constituted through player's use of certain communicative devices that the games offer. While most of the communication in multiplayer FPS games refers to events in the game space, such games are also part of a rich social context that influences the communicative processes and social interaction between players.

Since multiplayer FPS games are a form of CMC, some of the more general observations on CMC apply to them. Most importantly, they lack certain properties of a face-to-face situation with regard to the social presence offered. Though it is possible for players to communicate with each other using verbal, paraverbal, and nonverbal cues, the latter are very much reduced and genuine paraverbal cues are only made possible through the use of additional software such as *TeamSpeak*. Hence, it could be argued that the CMC that occurs in multiplayer FPS games is a form of miscommunication, since it lacks certain properties that communication in a face-to-face situation normally has. However, players (as well as participants in CMC in general) find substitutes for the cues the communication medium is lacking.

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This, together with other factors related to the structure and the social context of the games, leads to certain characteristics of language use that are particular to CMC, e.g. the use of specialized vocabulary or the increased use of acronyms.

Finally, we have proposed to focus on the question of how players evaluate communication in multiplayer FPS games. This is necessary because many forms of communication that could be described as miscommunication from a structural perspective are perceived as successful communication by the participants. Furthermore, there are forms of communication that would not necessarily be described as miscommunication from a structural perspective but are perceived as miscommunication by the participants. With relation to this idea, we have described some forms of communication that occur in multiplayer FPS games as well as the different ways in which they may be perceived by different players. We have shown that it is possible to understand large amounts of social-emotionally oriented communication in multiplayer FPS games as a form of miscommunication, since many players will find the use of game servers for extensive social interaction inappropriate.

Most players greet each other when they enter a server and many players know each other's persistent gaming identities, which seems to indicate that players are generally aware of one another as social actors. Still, extensive social interaction is more often to be found in the various other forms of CMC that constitute the social context of multiplayer FPS games. Such an observation, however, does not necessarily mean that the social presence of multiplayer FPS games is low. Rather, it seems to indicate that interaction in these games is influenced by certain norms as part of the social context in which multiplayer FPS games are situated. One of these norms that at least more professional players generally adhere to is represented by the assumption that communication on a game server should generally serve the game. Hence, other forms of communication such as *smack talk* or communication that refers to the social structure or the social context of the game is considered inappropriate when it takes up too much of the space (in the case of text-based chat) that is needed for strategy talk and the like.

Further research should not only focus on the structure of multiplayer FPS games, i.e. the processes of interaction and communication that take place on a game server as well as the situation in which they take place and how the latter influences the former, but also describe the social context of these games in more detail. This would also include the question to what extent the forms of CMC that surround multiplayer FPS games play a role in the communication on game servers and lead to the development of persistent gaming identities. While concepts such as social presence are useful with regard to the question of how the structure of CMC applications influences CMC, it has to be emphasized that CMC is also influenced by the mutual expectations of its participants regarding its appropriate use.

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