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► **To cite this version:**

Quentin Gyger, Nicolas Szilas. A Taxonomy of Synchronous Communication Modalities in Online Games. 17th International Conference on Entertainment Computing (ICEC), Sep 2018, Poznan, Poland. pp.211-216, 10.1007/978-3-319-99426-0_19 . hal-02128598

HAL Id: hal-02128598

<https://inria.hal.science/hal-02128598v1>

Submitted on 14 May 2019

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A Taxonomy of Synchronous Communication Modalities in Online Games

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Abstract. This paper discusses the benefits, limits and specificities of communication modalities in online video games and proposes a corresponding taxonomy. This taxonomy could serve as a guideline for game designers who want to integrate communication into the game mechanics.

Keywords: synchronous communication, taxonomy, online video game, game design, communication modalities, chat, voice over internet protocol, emote, predefined message, indicative signal.

1 Synchronous Communication: Different Modalities

Online games have a social component by definition and since any social act requires communication, it's essential to understand how communication is addressed in online video games. This communication has different topics [1], dispatched to various modalities [2] that have their own benefits and limitations. Communication naturally occurs when it comes to achieve the game's goals, however, there is a greater amount of socioemotional discussion [1]. Victory and defeat being inherent to game's components, knowing how to communicate with different modalities in cooperative and competitive team games is essential. Even though the trend for online games is *Voice over Internet Protocol* (VoIP), there is still massive written communication in chat [3, 4] because of its own benefits such as persistence or the ability to easily follow who said what in a conversation [5]. Based on the analysis of most popular games [6] and additional independent games, we found that the communication modalities mainly present in online games consists of either a written chat, a VoIP (integrated or not in the game), emotes (messages often accompanied by an animation, performed via a command), or *predefined message* (PM) for basic exchanges (i.e. *say hi, good game, have fun*). In several games there are also *indicative signals* (IS), which are alerts (in the form of different signals) used to provide to the other players some pieces of information. Two common IS are pings which are "a combination of animation and sound indicating a point of interest" [7] and freely drawing line in a gamespace such as annotations in Dota 2 [7]. Pings could be more elaborate than just a general

indication, such as the *Smart ping*¹ in League of legends [8] which allows to make specific announcements. In addition, some of these modalities can be mixed, but they generally just coexist in games, according to the kind of game, the players' needs and the evolution of the games. Indeed, they can greatly influence the ability of players to communicate, to spend good time in games and reach their goal in an optimal way. Therefore, these modalities are important in game design.

2 Communication at Different Levels

In online games, the conversation may be *diegetic* or *extradiegetic*, depending on whether its elements transgress or not the fiction [9] established in the game. Diegetic conversations, also called *in character* (IC) or *in role-play* (IRP) conversations, place the players in their character's role. Extradiegetic conversations, also called *out of character* (OOC) conversations place the players as themselves playing a game. A modality of communication like in-game chat or VoIP (inbuild or independent) can be used as much for diegetic or extradiegetic discussions [10]. However, depending on the context of the game and the place given to the role-play, some modalities can take the player out of the game [5]. For example, if a young woman plays the role of an old wizard, voice communication can disrupt the other players' immersion. But the same modality embedded in the gameplay can be very immersive too, for example in DayZ (a 3D survival FPS game), the voice comes directly from the character and the player can speak for his or her character. Integrating communication as an element of game design in itself can allow the player to stay in the flow [11], but an extradiegetic discussion does not necessarily leave the player out of the flow. Indeed, in competitive games, players often communicate as players controlling a character and don't argue in role-play, but their discussions remain at the same diegetic level and a role-play communication could appear discordant. Therefore, the communication must be thought of in such a way that players can remain at the desired diegetic level or can travel to the different levels at the same time.

A distinction is necessary at this level: such a correspondence regarding the diegetic level does not mean that one should not make use of metalepsis, which introduces extradiegetic into a diegetic narration [12]. Indeed, the use of mastered metalepsis has interesting virtues, including in serious games [13]. The assumption here is that back and forth switches between different diegetic levels must be followed by the different players to maintain a consistent communication and keep them immersed in the game. Moreover, role-players frequently navigate back and forth between their IC and OOC status, and sometimes they even do meta-gaming (introduce OOC knowledge in their role-play).

1 “Smart Ping is a radial menu that includes four alerts [(*danger, on my way, assist me, enemy missing*)]. These can be used to communicate with your team faster than taking the time to type and [break the] flow of gameplay”[8]. These alerts are displayed with sound and their own visual effect and are visible to teammates on the terrain and the minimap.

3 Benefits and Limits of Communication Modalities

All communication modalities have inherent advantages and limitations. The benefits and limits of the different communication modalities discussed in this section are intrinsic or technical characteristics and do not constitute an exhaustive list, but they highlight important particularities that are used in game design to reinforce specific aspects of a game.

A chat is a common feature in online games, it allows players to freely converse and this modality of conversation is easy to follow, because the messages remain displayed in sequence along with the utterer's name. In some games, conversations can also be displayed on top of the characters to add role-play immersion. The VoIP feature is very widespread, because it allows players to express themselves instantly without writing on a keyboard, which can provide an effective communication (without interrupting the gameplay). The predefined message mostly have a socioemotional role, but can also be task-oriented. They allow to exchange basic messages, essentially courtesy, without the need to moderate the words of the players. They are usually limited in number but quick to use like in *Hearthstone*² [14]. They can also be displayed in a radial menu such as *Communication wheel* in *Overwatch* [15] which offers eight communication's options and also allow to communicate on specific goals of the game (i.e. *say group up, need healing*). The emote feature consists of pre-recorded sentences (written in or spoken by the character) accessible to other players around the player character in the game (i.e. John thanks you for your help, John is pointing at you). This allows role-play players to take action on their characters. Some emotes have not only a written or spoken component, but also a visual animation (i.e. laughing, dancing, drinking) performed by the character. They are usually enabled by clicking on shortcuts or typing keywords in chat (i.e. */dancing*). Among IS, the ping feature has mainly a strategic communication function: it allows to quickly communicate information about some game's specific objectives. The information they give can be contextual if the player pings a specific object (i.e. tower, opponent or ally players) [7]. The drawing feature can also have the same purpose without the contextual part [7] and allow to give information about a direction or movement, they can also be used for socioemotional communication (i.e. *drawing a smiley or congratulations words*).

The benefits and limitations of these modalities will be assessed across five dimensions (see Fig. 1). The first dimension is called *gameplay coexistence* and represent the players' ability to communicate without interrupting their actions in the game. *Multicommunication* describes the possibility given to the player to follow multiple conversations through the same modality at the same time (without overload of the channel). *Persistence* represents the time interval during which the message will remain visible before disappearing. *Expressive power* represents the variety restriction. *Multilingual* is the possibility to communicate with people who speak

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“short quotes that heroes can [utter] during a game.

| Each emote comes as a sound bite, and in a written form, displayed in a speech bubble next to the character's portrait.” [13]. They're accessible by right-clicking on the portrait.

another language without personal knowledge of this language (online games can be played in different countries). Figure 1 displays the characteristics of modalities according to these five dimensions.

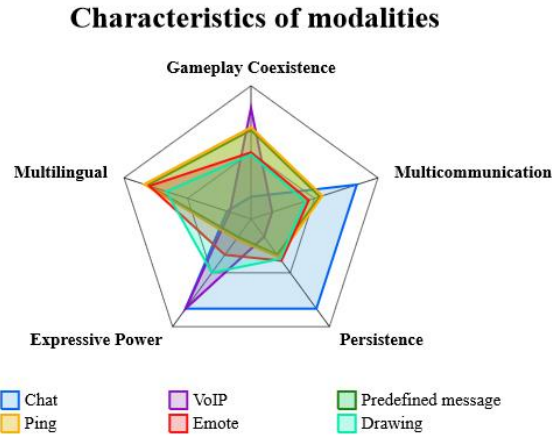


Fig. 1. Communication modalities’ characteristics. This graphic has been made in relation to the intrinsic and technical properties of the different modalities and could be different depending on the context or the modalities’ design.

4 Modalities of Communication: Towards a Taxonomy

The purpose of this section is not to define an exhaustive list of the modes of communication present in every kind of online games, but to give a current overview of communication in online video games [6] to inspire the game designers. Table 1 below is a proposal for classifying these different modalities using their characteristics (see Fig. 1) and characteristics of communication useful to cooperate, have fun or achieve goal in game. For this reason, we introduce in the taxonomy the diegetic aspect described in the Section 2 and the socioemotional and task-oriented function.

Socioemotional messages can be positive or negative and include message that show solidarities, tension relief, agreement, disagreement, tension or antagonisms. Task-oriented communication are asking for or giving an opinion, suggestion or task orientation [1]. These function are essentials for the communication of online games and can be reached with different modalities.

In online games such as Massively Multiplayer Online Games (MMORPG), Multiplayer Online Battle Arena (MOBA) and First-Person Shooters (FPS), to name a few, synchronous communication can be *written* in a chat or *vocal* when it occurs in inbuilt or independent VoIP (i.e. Discord, Ventrilo, Teamspeak). These competitive games may also contain IS (more or less elaborate) that could be *visual* and/or *audio* indications to communicate game’s *tasks* through HUD (head-up display) alerts. Recent successful FPS like Fornite Battle Royal seems to prioritize vocal and PM through a radial menu, but a chat could also fulfill a valid communication function, as the modality and its restrictions would be the same for all players [16]. Other games

without teamplay like Collectible Card Game (CCG), racing or fighting video games could prefer written PM to fulfill a basic socioemotional or task-oriented communication function. Games with Role-Playing (RPG) components could have emotes to give an immersive dimension and encourage players to have *diegetic* conversations. As we have seen above, the modalities have some *intrinsic characteristics*. Indeed, their *persistence* could be low as in VoIP and IS or high as in chat. *Multicommunication* could be described as the possibility for many people to communicate without saturating the discussion channel (i.e. many people can chat at the same time, while few can talk (VoIP) at the same time because channel's overload). The *gameplay coexistence* is an important component based on the ability of players to communicate without interrupting their action in the game. Especially in fast games, efficiency could be crucial in which case it's important that communication coexists with the gameplay. There are also some modalities' *technical characteristics* like the *Expressive power*, denoting the player's ability to communicate freely. It should be noted that a limited communication is not necessarily bad, because it could provide great moderation and the possibility to easily translate messages, which allows the game to be easily *multilingual*.

Table 1. Taxonomy of synchronous communication in online video games. Modalities characteristics are classified by levels (L = low, M = medium, H = high).

Synchronous communication in online games														
Communication Characteristics									Modalities Characteristics					
Sign-system					Function		Diegetic level		Intrinsic			Technical		
Verbal		Non-verbal			Task-oriented	Socioemotional	Diegetic	Extradiegetic	Gameplay Coexistence	Multicommunication	Persistence	Expressive Power	Multilingual	
Written	Vocal	Visual Static	Visual gestures	Audio										
Chat	x				x	x	x	x	L	H	H	H	L	
VoIP		x			x	x	x	x	H	L	L	H	L	
PM	x				x	x		x	H	M	L	L	H	
Emote	x	x		x		x	x		M	M	L	M	H	
Ping			x		x			x	H	M	L	L	H	
Drawing				x	x	x		x	M	M	L	M	H	

Table 1 doesn't constitute an absolute taxonomy of synchronous communication in online games, because some characterizations could be changed depending on the context or integration of the modality. Instead, Table 1 illustrates the common use of the communication modalities in online games.

5 Conclusion

Communication is an important component of game design, as it may reinforce game's qualities such as immersion, coordination, efficiency or sociability of players. In this article, after having identified 6 main synchronous communication modalities, we proposed a taxonomy of such modalities according to a series of dimensions and the communication's characteristics. This taxonomy could serve as a guideline for game designers who want to optimally integrate communication into the gameplay. In addition, the taxonomy proposes a design space in which some regions are unexplored in current online games, which may suggest new communication techniques to be invented in the future.

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