UNDERSTANDING GAMES AS PARTICIPATION: AN ANALYTICAL MODEL

MARCELO SIMÃO DE VASCONCELLOS[1] / FLÁVIA GARCIA DE CARVALHO[2] / INESITA SOARES DE ARAUJO[3]

ABSTRACT: Public health communication in Brazil has difficulties in reaching different groups of the population, as well as fostering their participation for building better health policies. Digital games could help in this regard, but there is a need of detailed models that account for social and participatory aspects of games and game playing. In order to provide such model, this study combined theoretical concepts from Game Studies, namely, the concept of games as participation and the Gaming Dispositif-model, with the Model of Communication as a Symbolic Market, from Latin American Communication Studies, creating a game model describing the socially inscribed relations among player, game and other players, based on participation. This article explains the mentioned concepts and the analytical model in detail, concluding with remarks on its possible uses.

KEYWORDS: Participation; Health Communication; Digital Games; Serious Games; Game Model.

RESUMO: A comunicação em saúde no Brasil tem dificuldades em atingir diferentes grupos na população e incentivar a sua participação na construção de melhores políticas de saúde. Jogos digitais podem ajudar a respeito disso, mas nós carecemos de modelos detalhados que levem em conta os aspectos sociais e participatórios dos games e do acto de jogar. Para prover tal modelo, nós combinamos conceitos teóricos dos Game Studies, a saber, o conceito de jogos como participação e o modelo Gaming Dispositif, com o Modelo de Comunicação como Mercado Simbólico, dos estudos de Comunicação Latino-americanos, criando um modelo de jogo descrevendo as relações socialmente inscritas entre jogador, jogo e outros jogadores, baseadas em participação. Neste artigo, nós explicamos os conceitos mencionados e então apresentamos nosso modelo em detalhes, concluindo com observações sobre possíveis usos de tal modelo.

PALAVRAS-CHAVE: Participação; Comunicação em saúde; Jogos digitais; Serious Games; Modelo de jogo.

1 Oswaldo Cruz Foundation. E-mail: vasconcellos@fiocruz.br
2 Oswaldo Cruz Foundation. E-mail: flaviagc78@gmail.com
3 Oswaldo Cruz Foundation. E-mail: inesita.araujo@icict.fiocruz.br

1. Introduction

Games have been used for health initiatives for some time, be it professional training, therapy or health communication. However, games for health tend to direct their messages to the individual rather than the community, typically being playable by only one person.

On the other hand, the field of Collective Health deals with populations. In Brazil, collective health communication is of crucial importance, employing different media to reach the population (Victora et al., 2011). However, often health communication initiatives rely on old communication practices, with unidirectional and centralized production, impersonal style and focusing on diffusion of norms for people's adoption, which alienates several groups in society (Araujo and Cardoso, 2007). Even when they employ new media like digital games, they tend to follow this pattern, which proved itself inadequate to a country as diversified as Brazil.

Such approaches do not allow for a dialogue between health managers and the population, which is unfortunate, since one important objective of collective health in Brazil is to promote population's participation for building better public health policies, understanding such participation as a necessary condition for both health and citizenship.

Digital games, particularly those played collectively, can contribute in this regard, engaging the population for learning about health not only by presenting content in an attractive format, but also by fostering their participation in society.

However, digital games' potential is not automatic, requiring great care and attention in their design for actually benefit society. Unfortunately, there is a lack of research about applications of digital games for public policies (Barrientos-Gutiérrez et al., 2012). Particularly, there is not any analytic model accounting for the collective and participatory-aspects of games, which makes designing such games much more difficult.

The understanding of games as participation could be a crucial advance to fully employing the medium for collective health. Therefore, this study focused on understanding the relationship among player, game and other players, which led to the development of a conceptual model of such relationship. The objective of this article is presenting such model.

Due to the focus on collective health, it makes sense to consider games not only as isolated objects, but also as cultural productions of a given society. As such, the model presented in this text, the *Model for Relational Analysis of Games: Contexts, Participation and Apparatus (MoRAG)*, considers games as objects socially situated, experienced by subjects socially situated as well, focusing on participation as the defining way of interaction between both.

Its construction was grounded on concepts from Game Studies, namely Raessen's concept of game as participation and game culture as a participatory media culture (Raessens, 2005). In addition, MoRAG incorporates ideas from the Gaming Dispositif model (Raessens, 2009) and concepts from the Model of Communication as a Symbolic Market, from the Latin American Communications field, which understand production of meaning as intrinsically social (Araujo, 2002).

In order to adequately present MoRAG, this article will begin presenting some relevant concepts from the field of Game Studies, in order to highlight digital games' peculiarities. Then, each theoretical aspect that grounded the creation of MoRAG will be detailed, followed by an explanation of MoRAG's inner components, concluding with considerations about its possibilities of use.

2. Production of Meaning in Digital Games

2.1. Serious games

Many researchers and educators claim that video games foster a more active learning in students, able to simulating workplace situations and enhancing their performance (Prensky, 2004, Gee and Shaffer, 2005). In the field of Health, there are many examples of the use of digital games, employed from self-care to health promotion and several other areas (Papastergiou, 2009).

Games that have other purposes beyond entertainment are called serious games (Michael and Chen, 2006). Serious games can be understood as games that, while presenting entertainment value, deal with relevant themes for society, aiming to bring some effect to the world outside the game (Raessens, 2010). Health games are a subset of serious games and, similarly, intent to cause changes in the real world. This intention makes important to understand how the player produces meaning from playing such games and what the specific contributions of game media to build such meaning (Raessens, 2005).

2.2. Procedural rhetoric

Procedural rhetoric was proposed by Ian Bogost (2007) in order to explain the production of meaning in games, claiming that their unique ability is communicating through processes codified in game rules and mechanics, creating dynamic metaphors for real world processes. The meaning of a game would emerge in this moment of player's interaction with the rules created by the game designer. By reconstructing the meaning embedded in the rules, the player would "solve" or "win" the game and be persuaded. Therefore, procedural rhetoric states that the meaning of a game is contained in its rules (Bogost, 2007).

Procedural rhetoric rightfully emphasizes the rules' importance for games, but confining the meaning of a game to its rules disregards the narrative elements that contextualize them (Ferrari, 2010). In addition, it reduces the game to an instrument, constrained by rigid objectives, disregarding players' creative potential as co-creators of the playful experience (Sicart, 2012). It could imply that there is a "right way" to experience a game, defined by the authority of the game designer, originating games with strict paths, assuming that adequate reception of the game message supposedly would result in a perfect transfer of knowledge (Vasconcellos, 2013).

Instead, any theory for production of meaning in games must necessarily involve the intervention of the player, since the experience of playing a video game results from the interrelationship between rules, players and culture. Thus, when thinking about games it is necessary to consider participation.

2.3. Participation

Raessens (2005) understands games as a kind of participation and the culture around them as a participatory media culture, facilitating and promoting players' participation in three domains: interpretation, reconfiguration and construction. In its broadest aspect, participation describes citizens and consumers exerting influence in political organizations, consumption and production. In the media, participation means the public's ability to contribute and influence the media production apparatus (Schäfer, 2008). Therefore, understanding games as participation emphasizes their potential to be a meaningful media in society, including the public communications context.

Participation's interpretation domain refers to the player's apprehension of game media, similar to previous media like literature and film (Raessens, 2005). It encompasses the three reading strategies described by Hall (2005): the dominant/hegemonic position, the oppositional position and the negotiated position. Respectively, such positions describe the ways to de-

code a text (in this case, a game) accordingly with the dominant ideology (of the text's authors), opposing such ideology and negotiating with it, accepting some elements while rejecting others.

Reconfiguration describes player's actions over the elements that constitute the game. It encompasses the free exploration of a game, like walking or flying and the manipulation of elements of the game, like picking a box or building a farm. Despite player's intervention, reconfiguration happens within a space of fixed possibilities programmed by the game designers in the code that shapes the digital game (Raessens, 2005).

Construction refers to the insertion of new elements in the game by the players. According to Raessens (2005), construction relies on programming skills for intervening in the code structure of a game, which makes it less common than interpretation and reconfiguration. Construction encompasses a range of activities, like changing or creating new narratives for a game, balancing rules or creating new ones, including more advanced graphics, making interface improvements, inserting characters of other IPs in a given game and even reusing parts of a game as foundation for new kinds of games (Raessens, 2005). A typical example of construction is the creation of mods, which are programs that alter commercial games, from small rule modifications to completely transforming images, sounds, music and rules (Postigo, 2007).

2.4. The Gaming Dispositif

Another element that grounds the present work is the model Gaming Dispositif, aiming to describe digital games, particularly serious games, under a humanist perspective. Assuming that every media has different kinds of apparatus and configurations for their technological elements and forms of use, the Gaming Dispositif describes the meaning of a digital game emerging from its technological base, which shapes

specific player positioning, which itself is based in his or her unconscious desires, which translate themselves in different ways and game texts and its correspondent formats in different situations, institutional and cultural contexts. These last three elements would bring their own cultural and ideological influences, intentionally or not (Raessens, 2009).

The Gaming Dispositif highlights the effect of player's individuality on the act of playing, considering that each player presents different reactions to the virtual world portrayed by the game, be it uncritical acceptance, rejection, acceptance as an extension of the real world and finally acceptance of the virtual world while understanding the hidden rules that structure the game play. This last reaction would be an indication of a player's progress on both critical reasoning and empowerment (Raessens, 2009). Thus, despite not exhibiting explicit participation among its elements, the Gaming Dispositif combines adequately with the concept of participation.

2.5. Communication as a Symbolic Market

Since health communication is such a relevant aspect for this study, the two previous concepts were combined with a communication theory that emphasizes the social production of meaning.

Thus, a third element that grounded MoRAG comes from the field of Latin American Communication. The Model of Communication as a Symbolic Market (MCSM) was conceived for analysis of public communication and it is grounded on the principles of the theory of social production of meaning. It assumes that communication operates like a market, where meanings are socially produced, circulated and appropriated by individuals and groups, which try to spread their own worldviews in the process (Araujo, 2002).

MCSM presents useful concepts for understanding participation, like its tenet that communication is never restricted to the direction from top

to bottom, but each individual who receives messages actively works to create their own meaning for them (Araujo and Cardoso, 2007).

Four main contexts condition such production of meaning, constituted in a dynamic and continuous process: 1) existential context refers to the individuality of the individual, his background and personal history; 2) situational context, also called place of interlocution, concerns the individual's position in society in a given moment; 3) textual context refers to individual's statements, written, spoken, or any other form; 4) intertextual context includes references to other texts, previously collected by each individual (Araujo, 2002).

Thus, MCSM highlights the varied personal and social influences that affect each individual on the communication process, the fact that they do not only "receive" messages, but also change and spread them back to circulation, creating culture in the process. Finally, MCSM's contexts allow understanding in more detail this personal aspect of communication.

3. Model for Relational Analysis of Games: Contexts, Participation and Apparatus (MoRAG)

The Model for Relational Analysis of Games: Contexts, Participation and Apparatus (MoRAG), depicted in figure 1, describes relations between the game as an object, its connections with the player and through her, with other players, under a participatory view. It understands the game as a socially inserted process that in turn reverberates in society. The model has four parts: Player's Contexts, which details the player; Game's Apparatus, which details the game itself, including its technical, aesthetic and cultural aspects; the Domains of Participation between player and game, organized in Interpretation, Reconfiguration and Construction; and finally the influence of Other Players, represented by the gray "lens" that crosses the participation lines. Each part will appear in more detail below.
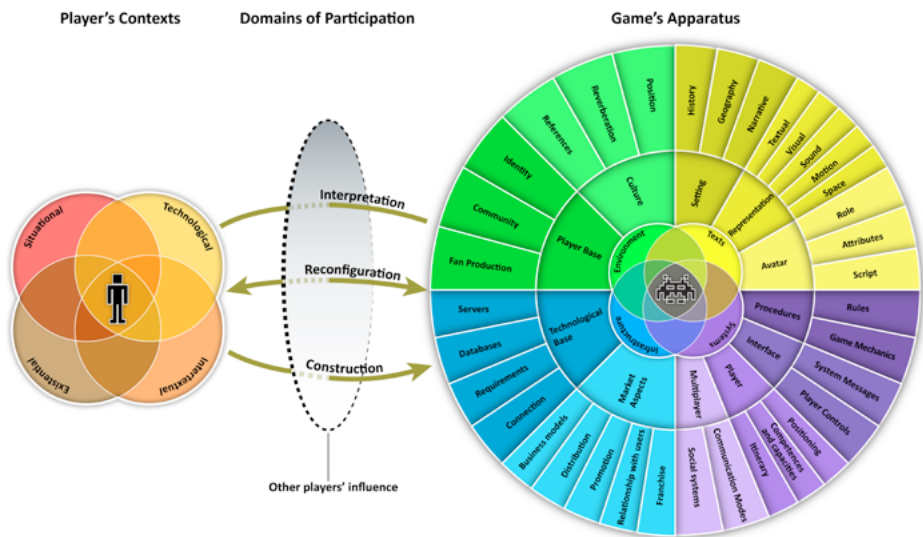

Figure 1. Model for Relational Analysis of Games: Contexts, Participation and Apparatus (MoRAG).

3.1. Player's Contexts

No player "enters" a game in a blank slate, but carries her specific personalities and previous experiences that will influence her perception of the game. MoRAG organizes such player's qualities in four main contexts, adapted from the Model of Communication as Symbolic Market (MCSM). Figure 2 depicts Player's Contexts (Situational, Technological, Existential and Intertextual). The superposition in the center represents the fact that, despite separated for analysis, such contexts are never isolated, but instead they dynamically and continuously influence one another.

Thus, Existential Context refers to the player's individuality, her desires, personal preferences, biography, social and cultural aspects and the way she understands and faces the virtual. The Situational Context refers to the way the player approaches the game, encompassing her on-line reputation, the way she uses the game (as mere entertainment, social space, competition, escapism, etc.) and the ways the physical world interferes with her experience inside the game in terms of game session's frequency, time and duration and the interrelations between game and daily life. The Intertextual Context refers to the player's previous knowledge, including her experience with previous games, knowledge about rules and interfaces, her game literacy and even her general culture and familiarity with other media that could influence the game. Finally, there is the Technological Context. This context departs from the contexts present in the MCSM and it is necessary for describing all the technological aspects that surround and influence the participation of the player in the game. It encompasses technological competence, limits of the computer or console in use, internet connection capacity and stability, hardware for controlling the game (gamepad, mouse, keyboard, etc.), even technological abuse, as the use of unauthorized programs for cheating in game. These factors are not only static elements that interfere with player experience, but contribute decisively to shape player's behavior in a game, influencing even her social interactions.
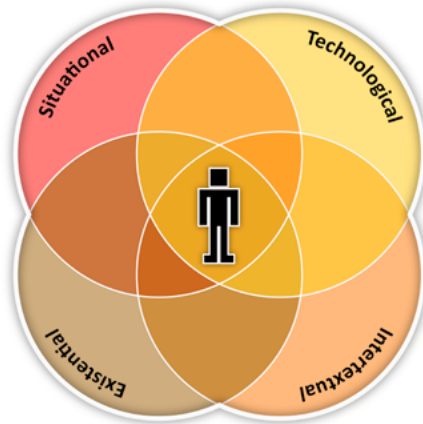
Figure 2. Player's Contexts

3.2. Game Apparatus

The Game Apparatus (figure 3) is the other extreme of MoRAG. Its categories draw inspiration from Gaming Dispositif's elements, but refined and combined in a new configuration. The Game Apparatus organizes the experiential aspects of games in four major categories: Texts, Systems, Infrastructure and Environment. Each major category branches in second level categories, which in turn branches in third level categories (hereafter, such categories will appear italicized and in capitalized form). In case of need, it is possible to carry out analysis with more detail since the Game Apparatus is flexible enough to allow levels of increasingly specific categories (fourth level, fifth level and so on).

Figure 3. Game's Apparatus

Like in the Player's Contexts, these categories are interconnected and dynamically influence each other, composing a whole with specific technological, aesthetic, ludic, social and cultural characteristics. Each moment a given player is playing a game, she experiences elements from these categories in different intensities. Finally, the Game Apparatus assumes that its different categories are results both of creative and technical choices and commercial, ideological, and cultural influences that affect game designers, be they conscious of such influences or not.

3.2.1. Texts

We use *Texts* here in its broadest sense, going beyond written text and potentially including all kinds of symbolic representation (Verón, 1980). Thus, this category encompasses image, music, video, animation and other formats that usually are considered as the "content" of the game. *Texts* branches into three subcategories: *Setting, Representation* and *Avatar*. Of course, it is important to highlight that not every element will have the same importance for every game. For example, most abstract games usually will have few elements in *Setting* and far more elements in *Representation* and *Avatar*.

Setting describes the "world" where the game happens, whether a RPG fantasy world or a chessboard. It branches in *History*, the historical background for the actions of the player; *Geography*, describing maps, regions or levels of the game, including their specific narrative particularities; and *Narrative*, the main story that the player will experience.

Representation describes as the game is perceived to the player's senses, including both the *Textual*, *Visual* and *Sound* aspects and the ways of placing the player in the virtual world (*Space*) and to traverse it (*Motion*). *Representation* is the main responsible for the immersion that players experience sense when inside the game.

Avatar encompasses everything related to the player inside the game's fictional reality. It is important both for player's engagement and for the bidirectional influences between the player (in the physical world) and his narrative counterpart inside the game, the character. These influences are particularly visible on MMORPG players, described by Yee e Bailenson (2007) as examples of the "Proteus Effect". *Avatar* branches in *Role*, describing the position of the player character in the game world; *Attributes*, his distinctive characteristics and *Script*, the path designed for him in the game.

3.2.2. Systems

Systems encompasses the functioning structure of the game, in the ludic, procedural and computational senses. It is possible to argue that *Systems* is the most distinctive category of games. It branches in *Procedures*, *Interface*, *Player* and *Multiplayer*.

Procedures are codified in algorithms that enable both the game's virtual world and the game rules per se. It branches in *Rules*, that defines the maintenance of the game world and the dynamic structure of the game, including conditions for victory and failure; and *Game Mechanics* that encompasses the actions available to the player

and other in-game agents, like non-player char-acters (NPCs), in order to alter the game state. While the game mechanics are a space for play-ers' agency and creativity, game rules guide and condition players' actions, setting up their many different consequences (as victory or failure) as well (Sicart, 2008).

Interface describes the ways of direct relation-ship between player and game. It encompasses both *Player Controls*, the means by which the player controls the game (keyboard, mouse, etc. and their correspondent effects in game); and *System Messages*, the ways the game presents in-formation to the player whether in text, images and audio (score numbers, sounds of enemies steps, audio effects for finishing a level, etc.).

While Avatar describes fictional aspects, *Player* describes the procedural aspects regarding the game player. It branches in *Positioning*, the point of view of the player in game (first person, third person, isometric, etc.); *Competences and Capaci-ties*, describing the ways the game acknowledg-es and rewards the player's performance; and *Itinerary*, the chain of choices and pathways the player effectively takes inside the set of alterna-tives provided by the game.

Finally, *Multiplayer* describes the ways of interac-tion with other players when inside the game. It is an important category to online games like MMORPGs and MOBAS, but also applies to games played in local servers, in split screen (when the screen is divided in sections, each showing the point of view of one player, com-mon in consoles) and even hot seat modes (com-mon in turn-based games, where more than one person plays on the same device taking turns, i.e. changing seats). It branches in *Communication Modes*, describing the many ways for direct in-teraction with other players (including forms of cooperation, competition and opposition) and *Social Systems*, which tend to take the form of guilds, groups and associations, trading spaces and collective events.

3.2.3. Infrastructure

Infrastructure enables the game as a tangible, technological product, encompassing distribu-tion and maintenance aspects and controlling access and permanence of the players. It branch-es in *Technological Base* and *Market Aspects*.

Technological Base describes the structure that supports the game. It encompasses the *Servers*, where the game is stored for download and/or execution; the *Databases* that store informa-tion about players, matches and (in the case of RPGs) characters; the technical *Requirements* or specifications for properly running the game; and *Connection*, describing how the game uses the internet and/or local connections. Despite *Connection* being more important to multiplayer games, each day more and more single-player games demand internet connection, making this subcategory a relevant element for game analysis.

Market Aspects branches in *Business Models*, deal-ing with characteristics like subscription, mon-etization (commercial modes like open source, free, free-to-play - F2P, freemium, microtransac-tions, etc.) and similar aspects of the game as product; *Distribution* forms and channels (physi-cal media, online stores like Steam, download through official websites, etc.); *Promotion* strat-egies (website ads, big market campaigns, part-nerships with other games or products and even questionable actions like payments for favorable reviews); *Relationship with Users*, describing the channels of communication with the players/clients; and *Franchise*, describing other franchise products and transmedia productions (like com-ics, board games, novels, etc.).

3.2.4. Environment

Environment is everything that surrounds the game, but is located (at least in part) outside of it. It includes the *Culture* where the game exists and its *Player Base*.

Culture describes not only the culture of the society where the game exists, but also the game culture of that particular game. It encompasses the *Position* of the game in relation to similar games, other games in general and even in relation to other forms of entertainment; the *References* that the game presents about other elements of such culture, adapting itself to the contemporary media themes and styles; and the *Reverberation* of such game in the larger society, the forms by which game influences culture back. Examples of such *Reverberation* include the extensive vocabulary rooted in game practices that often overflows into the real world situations, the migration of game memes from small niches to the internet at large and the emergence of practices like gamification (Deterding et al., 2011).

Player Base describes the players of a given game. It branches in *Community*, which can be more or less cohesive, and include several subgroups, organizing spontaneous gatherings online or in physical space; *Identity*, which refers the way the players understand themselves regarding the game (hobbyists, competitors in e-sports, strategists, etc.); and *Fan Production* inspired by the game, encompassing all kind of media created by players, like writing fan fiction, producing comics, animations, videos or even other games, typical activities of participatory culture (Jenkins et al., 2006). While *Community* deals with relations between players, *Identity* describes players assuming specific labels or categories in the gaming culture, even without direct contact among themselves.

3.3. Domains of Participation

The relation between the two extremes of MoR-AG, Player's Contexts and Game's Apparatus, happens through participation that, like described by Raessens (2005), is organized in three domains: *Interpretation*, *Reconfiguration* and *Construction*. However, while Raessens confined *Construction* to changing code, it is possible to find examples of players making additions to games without programming. A kind of *Cons-*

truction that adds to the game without necessarily relying on programming is socially agreed rules and procedures, common in MMORPGs and other games played collectively. It includes social and role-playing events in general, like reenactments, parties, marriages, guild politics and even bigger player-created events like wars, truces and faction rivalries (Copier, 2007). In such events, players collectively add another layer of rules over the original game rules defined by the game designers. Such rules are socially enforced and sometimes they change significantly the game experience. Even in single-player games, it is possible to see a similar layering of new rules when, for example, players define stricter victory conditions for themselves, like finishing a game using only a specific weapon or without killing anyone (Vasconcellos, 2013).

Other kind of *Construction* happens outside the game, while still inspired by it, encompassing forums and groups in social media, websites with references and news, fanfic, drawings, cartoons, comics, videos, machinima, cosplay contests and many other social event in the real world (Lowood, 2006). Such *Construction* extrapolates the limits of the game into the real world, creating an ecosystem of participation around a particular game, greatly widening its area of influence, reaching even non-players.

This way, the *Interpretation* is when the player apprehends the game, through either *Texts*, *Systems*, *Infrastructure* or the *Environment* that surrounds it. The *Reconfiguration* arises from the player operations on the elements of the game, allowing an exploratory attitude that goes from reposition an avatar to change the virtual worldview to changing elements of that world, like carrying out missions or fighting enemies. Finally, *Construction* occurs when the player adds something to the game, both creating modifications and additions to the programming code, creating alternative forms of playing the game or through creating media products inspired by the game. These three modes continuously provide feedback to each other: Interpretation is a first step to understand the virtual world, *Recon-*

figuration and *Construction* foster new opportunities for *Interpretation*. *Construction* happens through *Reconfiguration* events, and so on.

Finally, MoRAG accounts for the influence of other players in the game experience. In MMORPGs and other online games, such influence provides content for the player, when other players become cooperators, competitors or opponents inside the game. However, because playing a game is a social process, even in single player games there is always some level of influence from other players. In this case, other players become mentors, imitators or simply fellows who share a passion. Since this influence is multiple and highly variable, it is represented in a more abstractly way as a semi-transparent lens halfway between Player's Contexts and the Game's Apparatus, superimposing the lines of Interpretation, Reconfiguration and Construction. This represents the mediation of the other players (in groups or individually, inside the game or outside of it) in the relationship between player and game. This influence may be subtle, but is always present.

4. Conclusions

The MoRAG allows better descriptions of the flow of communications between player and game, taking into account cultural and social aspects and the influence of other players. It does not intent to describe in a Cartesian fashion the complex human reactions that happen around the play experience, but help to identify the main routes of participation.

As a participatory media, digital games allows and rewards the participation of their players. Perhaps if properly fostered, such participation could reach other areas of life, including the public sphere, enhancing citizenship and promoting a more active instance in discussing and demanding better health policies for society, therefore, contributing to improve the life of the population. This endeavor is not an easy task, though, and developing such games for promoting health requires careful planning and constant evaluations. Consequently, there is a need for game models detailing such aspects of the game experience.

The MoRAG helps in this regard, since it was developed specifically for analysis of digital games, seeking to integrate content, procedures and the technical, commercial / industrial, social and cultural aspects surrounding such games. It also details the particularities surrounding the player and his relations with culture and other players, understanding the game as a dynamic process socially inscribed. The experience of the game, in turn, is a process of participation and as such empower players, first as agents of change in the game and later, hopefully, as assertive citizens in society.

An advantage of the MoRAG is supporting refinements in order to detail internal components of each subcategory of the Game's Apparatus. Thus, if it is useful for a given analysis a more detailed focus on some aspect, it is possible to continue branching the Game's Apparatus's categories into deeper levels. For example, in a study about communication between players on MMORPGs, it could be useful to branch the category *Social Systems* (*Systems* > *Multiplayer* > *Social Systems*) into *Text Chat*, *In-game E-mail* and *Voice Chat*, etc.

Finally, despite arising from a conceptual need on the field of Health Communication, the MoRAG fits a wide range of applications, allowing analysis of games under varied perspectives and disciplines. Not only analysis, but also it potentially allows evaluating projects in development and even helping to design new games focused on player participation, possibly contributing to suggest innovative ways for using digital games in the fields of research, production and public policies.

Acknowledgements

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