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Exploration beyond gameplay: modding as knowledge in *Guitar Hero* customs and *Pro Evolution Soccer* patches from Brazil

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Introduction

This proposal presents a cognitive take on video games that looks into customization practices in Brazilian on-line communities. Its contribution to the field of Game Studies is presenting a comprehensive account of local game modders dedicated to the franchises *Pro Evolution Soccer* (Konami 2001-) and Guitar Hero (RedOctane/Activision 2005 -). The social network Orkut (2004-2014) may be defunct, but its virtual communities once harbored Brazil's most effervescent game modding groups. Through a history of file sharing, player collaboration and mentorship, these users overcame infrastructure precariousness and different orders of scarcity (material, legal, educational) inventing a new or at least different game culture in the process.

Through an ethnographic case study, I discuss data gathered from observant participation on the communities Guitar Hero Creators and PES Brazukas PC Team and in-depth interviews with some of its key members or hacker-players. Through the technical features and social dynamics emphasized in the production of these *mods* I analyze the reach of these initiatives and the elements they mobilized as they emerge.

This seemingly regional perspective explores the socioeconomic and cultural context of an emergent market country such as Brazil to address issues of global significance such as entertainment consumption, participative culture and media literacy. The broader discussion on politics and cognition adheres to the claims by Moulthrop (2004), Galloway (2006), Newman (2008), among others, about a configurative or action-oriented property of games. Using these to fuel Zimmerman's proposition of gaming literacy (2009), the project intends to highlight video game's intangible (affective) mediation.

Taking inspiration from the anthropological debate on cannibalism in Viveiros de Castro (2005, 2011, 2014), the paper discusses these initiatives through the notions of embodied and enacted cognition present in Varela, Thompson and Rorsch (1993). For the authors of the so-called radical constructivist perspective, knowledge is build from the body up in a biological

take on cognition. In it, conscience, rationality and volition are no longer the reference to experience and perception. Cognition and knowledge should not be addressed only as part of the mind. They constitute the process of subjectivity that is deeply rooted in the physiological and affective nature of the bodies in contact with technical objects (Latour, 2005), the environment, surroundings and other living beings.

Literacy, then, becomes the connection between this embodied take on cognition and video games (re)mediation property. Espen Aarseth (1997) points to a notion of literacy that uses Haraway's cyborg in the search for "the aesthetics of ergodic communication." For Aarseth, what is important about the cyborg literacy only briefly hinted in Haraway's Manifest is its hybrid potential to mobilize the elements or actants (the sign, operator and medium) present in the text. Inside this aesthetics of ergodic communication, the non trivial effort becomes an evaluation criterion for the mods and strategies and technical objects they mobilize. They lead to different levels of exploration, knowledge seeking, group formation, information checking and so on. There is no separation between politics and the technological literacy these initiatives promote. Their codependency is the very point this proposal tries to make.

Users in this case study found intuitive ways to acquire skills to perform the modifications they desire. They did not learn to code by osmoses. Actually, they did not learn how to code at all. Modding in the Brazilian communities is made by graphic user interface programs. This situation resonates with Michael Mateas (2008) thoughts about procedural literacy. He supports that it deal less with program content (in this case, coding or coding lessons) than with assimilating the computer's structural or behavioral functioning, "the more general tropes and structures that cut across all languages" (p. 80).

Video games require and promote different set of skills and a variety of literacies. Zimmerman (2009), for instance, prefers the gaming literacy that surfaces from the confluence between play, design and systems. In their own way, both Mateas and Zimmerman address the configurative logic (Moulthrop 2004) or action-oriented quality (Galloway 2006) mentioned above. This transforms modding itself in a game or a *game-esque* activity that becomes a path towards embodied knowledge production. It produces engagement that leads to exploration. This ludic engagement in Brazilian reality has the potential to circumvent precariousness and scarcity. I am interest to observe, then, how the introduction and popularization of "entertainment technologies" promote modes of expression that have political implications, which starts with gaming. After all, "gaming a system, means finding hidden shortcuts and cheats, and bending and modifying rules in order to move through the system more efficiently— perhaps to misbehave, but perhaps to change that system for the better" (Zimmerman 2009: 25).

Customization and other forms of intervention like playing with graphic interfaces are ways of acquiring technical skills and knowledge construction. Knowledge mediated by video games that projects configuration beyond the material constraints of the game itself. This is

the hybrid nature of cyborg literacy in action with its potential to associate affective attachments, technological literacy and play with entertainment and socioeconomic scarcity.

The hybrid cognition of cyborgs

Varela, Thompson and Rorsch (1993); Lakoff and Johnson (1999) and Clark (2001) rely on Biology and the Cognitive Sciences to explain the embodied nature of cognition and the evolutionary origins of perception. These authors criticize the idea of cognition as only reason or thought. For Lakoff and Johnson, reason "arises from the nature of our brains, bodies, and bodily experience […] the very structure of reason itself comes from the details of our embodiment. The same neural and cognitive mechanisms that allow us to perceive and move around also create our conceptual systems and modes of reason." (1999:04).

Beyond a mere opposition of terms, the body must be considered an inherent part of the thought process (along with perception). In this sense, common expressions like "think with your head" become actual physiological impossibilities. We are always thinking with our bodies which does not mean humans are governed by lust or passion, only that the very nature of thought and perception requires the (usually unconscious) participation of the body. To which Varela *at al* add:

> By using the term embodied we mean to highlight two points: first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context (1993: 172-173).

The extent of this embodiment depends of the point of view one is taking. Varela et al (1993:181-183) talk about the cellular disposition and nerve structure behind the human eye that enables the kind of vision we have. It differs for animals that see colors in other dimensions (humans inhabit three-dimension color spaces while birds four-dimension ones). In a media/communication-oriented debate, one should look for different forms of engagement with these technical objects and their effect on us, for instance. There is the known example of the development of a myriad of visual apparatuses that shaped vision and "trained" the eye (Crary 1992).

In this regard, another point worth stressing is the participation of the "external environment," in the cognitive process. What Bruno Latour (2005) called "technical objects," essentially everything that is not the human. Andy Clark addressed this issue referring to them as "cognitive technology", a term that exploits this expanded notion of cognition to extend also the idea of technology. Following evolutionary biology and the cognitive sciences, one should be able use the word for a spear, the pencil or even Mathematics and writing in the same way it is commonly used for computers and the Internet. The author states:

> […] one large jump or discontinuity in human cognitive evolution involves the distinctive way human brains repeatedly create and exploit wideware—various species of cognitive technology able to expand and reshape the space of human reason. We, more than any other creature on the planet, deploy nonbiological wideware (instruments, media, notations) to *complement* our basic biological modes of processing, creating extended cognitive systems whose computational and problem-solving profiles are quite different from those of the naked brain (2001: 150).

Clark specifically mentions the anecdote where distinctively shaped glasses help the expert bartender to memorize the order and which drinks he has to prepare (2001:141). However, there is recent research on video games, perception and learning that illustrate similar tendencies, like the work of Professor Daphne Bavelier[1]. In this context, stepping out of the purely biological cognitive debate, the notion of literacy then emerges as the tool to assess the impact of media in the reassessment of human reason and perception.

Literacy in this paper is the connection between this embodied take on cognition and video games (re)mediation bias. Inspired by Donna Haraway, Espen Aarseth (1997) points to a notion of literacy that uses the biologist's cyborg in the search for "the aesthetics of ergodic communication." For Aarseth, what is important about the cyborg literacy only briefly hinted in Haraway's Manifest is its hybrid potential to mobilize the elements or actants (the sign, operator and medium) present in the text. With it, he builds his own take of textuality as machinism.

In this proposal, the cyborg literacy that promotes hybrid connections is paired with the anthropological view of cannibalism and the extensively studied Brazilian carnavalization (Bentes 2005). In this sense, they are both sides of the political aspect of technological appropriation. A point Haraway stands for when saying "a cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints." (1991, p. 151).

Similarly, for Brazilian anthropologist Eduardo Viveiros de Castro cannibalism represents the material grounding of the Ameridian cosmology. "The inconstancy of the Indian soul" that names his book. "Cannibalism would be located at the extreme point on a gradient of sociability, whose other pole would be indifference or incommunicability," he says (Vivieros de Catro 2011, 101). For the scholar, to understand the meaning making inherent to cannibal practices opens a door to an Ameridian mode of existence with its historical continuities and discontinuities with the "West". His boldest point is to trace an Amerindian *ethos*, an

[1] For references see Green & Bavelier (2015, 2016); Cardoso-Leite, P., Green, C. S., & Bavelier, D. (2015) and Cardoso-Leite, P., Kludt, R., Vignola, G., Ma, W. J., Green, C. S., & Bavelier, D. (2015).

indigenous way of doing Philosophy, that could be added to the Western epistemological tradition.

Thus, his notion of perspectivism appears as a way of thinking and especially exerting alterity. The Amerindian peoples bestow certain "personhood" – "the capacity to occupy a point do view" (2014, 58) – to beings other than the human (but not unrestrictedly to all). For the indigenous peoples, perspectivism is also a communication practice. It gives to these beings the gift of establishing communication practices on their own. Viveiros de Castro summarizes this as "every being to whom a point of view is attributed would be a subject; or better, wherever there is a point of view there is a subject position" (2005, 50).

The [speculative] attribution of perspective is an exercise of enactment (enacted cognition, according to Varela et al 1993) that puts alterity (otherness) at the center of communication. And the same is valid for cognition. Cognition as the communication of dissonant realities. For this reason, among the embodied approaches to cognition, the *enacted* one proposed by Varela et al (1993) support this paper position and findings about video games customization practices. The ways video games and the computer act as cognitive technologies and invitations to inhabit hybrid worlds. In them, there is not a clear distinction between subjects and machines.

However, personhood, for Viveiros de Castro, is not the return to the old Cartesian subject that gives meaning to the world, but, on the contrary, the perspective, the point of view, creates the subject. This understanding meets Varela *et al*'s radical constructivism positions. Inside the cognitive sciences, they warn "knowledge does not preexist in anyone place or form but is enacted in particular situations" (Varela *et al* 1993: 179). Reflected in Viveiros de Castro's Anthropology, predation becomes an axis of enacted cognition. Hence, the central aspect of cannibalism as both communication and alterity practice. "Mortal war to enemies and enthusiastic hospitality to Europeans, cannibal vengeance and ideological voracity – all expressed the same propensity and the same desire: to absorb the other and, in the process, to change oneself" (2011, 31-32).

With the support of the embodied cognitive framework, it is possible to enter the "game of perspectives" without risking a return to the conscious subject. To assign a point of view or personhood is not the same as assigning consciousness to other beings such as animals, plants and spirits, to indigenous peoples, or software, interfaces, data, to us. It means to speculate the agency of these beings in a given system, but without assigning them a conscience. After all, even the human might not be governed by one. "Appearances can be misleading because you can never be certain which is the dominant point of view, that is, which world is in operation when you interact with someone else. Everything is dangerous; above all when all may be people, and we might not be," adds Viveiros de Castro (2005: 64).

In other words, in the same way personhood – the subject point of view – is enacted in Viveiros de Castro's anthropology, the positions of subject and object are also enacted in an embodied cognition perspective.

Exploration in digital worlds, be them the fictional environment inside a given game title or, more broadly, the computer interface as a space for experimentation, open possibilities for this level of intertwinement. They present themselves and are constructed through this mixture of cultural, political, biological and social/affective aspects. Each strategy highlighted here depends both on the circumstances of their creation and on contingent associations. In addition, I believe their specific traits can be traced back to those heterogeneous elements that brought them forth.

One of main principles of the evolutionary take on cognition is codetermination. According to Varela *et al* (1993), codetermination between organisms and the environment. The authors state that mind, body and environment (the nonhuman) not only work together, but evolved that way too. Varela at al say "chicken and egg, world and perceiver, specify each other" (1993: 172). Meaning that in evolutionary terms organisms emerge from and are shaped by the environment, but at the same time these organisms act in the construction of the environment.

Another potent example of this sort of intertwined relationship is given by Stephen Witt (2015) when he recounts the origins of the audio format .mp3. In *How Music Got Free*, the author narrates how the engineer Karlheinz Brandenburg based his design for the .mp3 format in the research on psychoacoustics done by Eberhard Zwicker. The field deals with the way humans perceive sound and his research mapped out the evolutionary path of the human ear which "natural selection had determined should 1) hear and interpret language and 2) provide an early warning system against enormous carnivorous cats (Witt 2015)." With data from this study, Brandenburg devised a way to explore the ear's "imperfections" or "inherent flaws". He built his algorithm to exclude from the audio file the information humans could not hear or distinguish anyway. Thus, the mp3 became a lighter lossless audio file.

The same is true for video games. Addressing entertainment in a cognitive framework where the mind is not central entails reconsidering the roles of subject and object. In this effort, Galloway's action-oriented definition of gaming proves to be very useful. According to him "One *plays* a game. And the software *runs*. The operator and the machine play the video game together, step by step, move by move." (Galloway 2006: 2). These two entities share the "authorship" of play. Besides blurring the notions of subject and object, this proposition counters certain "inherent humanism" present in the notions interaction and configuration (Newman 2008).

According to Galloway, the player or operator is not interacting with an inert machine (the game as software), it performs as much actions as the human actant. For this reason, he "embrace the claim, rooted in cybernetics and information technology, that an active medium is one whose very materiality moves and restructures itself—pixels turning on and off, bits shifting in hardware registers, disks spinning up and spinning down." (Galloway 2006: 3). In this take on the materiality of video games, Galloway focus on the physical characteristics and configuration of the medium. Later on *The Interface Effect* (2012) the author makes the same deconstruction to show how the human is also an interface for the computer. The human as part of the process through which the computer exerts influence in the world. mainly by the conditioning modes of expression and simulation of outcomes (Galloway 2012: 13-22).

Thus, there is space to observe/explore the intangible materiality of ephemeral elements like fun, attachment (Hennion 2010), affects, challenge, engagement, among others, in relation to digital entertainment consumption. And, in this perspective, they all converge to the idea of literacy.

Literacy as the result from the stimulus provided by this computational ethics for Galloway (2012) or, in other terms, the presence of this computational mode of existence (Simondon 1980; Latour 2013) in our present times. Mateas (2008) has argued this position with his notion of procedural literacy. Furthermore, this paper complements it with Zimmerman's (2009) idea of gaming literacy advancing this cognitive aspect of exploration in video games.

Embodied literacy and exploration

Aarserth explores Donna Haraway's manifest in order to take advantage of its cyborg metaphor. However, the cyborg there is not only a matter of rhetoric. It is an aesthetic proposal. It is evidently connected with technology, mainly electronics and other "natural-technical" formations, as Haraway says, that integrate man and machine. According to her, "microelectronics mediates the translations of labour into robotics and word processing, sex into genetic engineering and reproductive technologies, and mind into artificial intelligence and decision procedures" (Haraway 1991: 165).

The author also subsides to this expanded notion of technology mentioned before. After all, she includes writing and information among them. Furthermore, the nature of the embodiment present in her examples mark her concern over how biotechnologies and Technologies of Communication and Information are dictating production (and reproduction), world views/habits and ways of life. She points to the recurring movement of standardization that threatened to flatten the world. Haraway says:

> […] communications sciences and modem biologies are constructed by a common move - *the translation of the world into a problem of coding*, a search for a common language in which all resistance to instrumental control disappears and all heterogeneity can be submitted

> to disassembly, reassembly, investment, and exchange (Haraway 1991: 164).

Haraway clearly stands for a political approach to these modes of technological attachment. For her the cyborg answers this call for a heterogeneous and emancipation-oriented technological approach. If information, the market and sciences create the divisions and subdivisions that organize and structure knowledge, labor, social practices, culture or, more broadly, human experience, the cyborg becomes a prospect of resistance, counter-hegemonic reorganization (or disorganization). However, as the previous discussion on embodied cognition, this is not necessarily a matter of ideology, but organic reflexes from the bottom up.

In this context, it is possible to perform a differentiation between the technological and (in) formation/qualification demands that present themselves as requirements for mobility and, on the other side, the cyborg kinship and literacy that translates into mobilization. Mobility understood here as the flexibility and availability imposed as normatization by Modernity, the market and so on, and mobilization as the microflights and struggles to avoid this reality. These structural and technical boundaries define the agency of this cyborg literacy in opposition to the idea of production-oriented technical instrumentalization.

Games have a pivotal role in this as state before. According to Zimmerman, “In the coming century, the way we live and learn, work and relax, communicate and create, will more and more resemble how we play games” (2009: 30). Thus, it is important to be attentive to the ludic attachment provided by them. They open up paths to explore another set of skills different from what Haraway originally predicted. Both equally cognitively embodied but in a direction that has learning as the main focus.

This does not mean, however, that gamers are learning actual content like coding by playing or using the computer. In this sense, Mateas' (2008) notion of procedural literacy emphasizes precisely that is the functioning of the computer, its "behavior"' or inner logic, that is passed on to players. The "absorption" of an inner logic it is also present in Zimmerman's gaming literacy (2009) as games become gateways for other forms of sociability and ways of life too. What is in stake here regarding video games customization practices are the intuitive ways of acquiring skills or abilities. Which Mateas summarizes like this:

> By procedural literacy I mean the ability to read and write processes, to engage procedural representation and aesthetics, to understand the interplay between the culturally-embedded practices of human meaning-making and technically-mediated processes. […] it is not the details of any particular programming language that matters, but rather the more general tropes and structures that cut across all languages (Mateas 2008: 80).

There is a strong correlation between computers and video games. Even though they must not be considered the same object, they share the same architecture and are born out of the simulation properties of binary mathematics (Galloway 2012). This connects procedural and gaming literacy, hence, the focus of this study on the implications of their shared computational mediation.

The rise of procedural literacy associated with a configurative or action-oriented ludic attitude – what Genvo (2014) has called ludicisation – supports the idea of a "cognitive *ethos* of exploration." It will make a player look for a customized experience whenever it is possible, even if she is not allowed to, maybe outside the "virtual" world.

The exploration present in customization is analogue to gaming. Thus, this study's option for Zimmerman's proposal. Gaming with structures, interfaces or even the idea of gaming as configurative interaction with media, digital or not. Customization and other kinds of intervention do not contradict or break the rules of a game. They are part of gaming. The player plays the object, but she is also invited to play the structures that support it, the medium it dwells and the community around it. This consists in a cognitive production of knowledge. Knowledge mediated by a *ludic* engagement/attachment. Finding these instances is the search for the current incarnation of cyborg literacy.

Gee (2015) states that video games' consumption and rapid proliferation resulted in the birth of a whole Game Culture. A product of the sociability that surrounds this cultural manifestation not limited to the direct use of games (one does not need to play video games to be part of Game Culture). Therefore, this paper expects to bring out a network of relationships that refer to sociotechnical arrangements and cognitive processes that would reveal the composition, weavings and textures of Digital Culture and of contemporary capitalism, dubbed cognitive (Hardt, Negri 2000).

Through this research on video game hacking, distribution and customization practices, some activities that stood out were the creation of football patches, Guitar Hero customs and software cracks. Patches, as the name implies, are modifications that are more specific. Their aim is to remove, fix or improve a given technical or aesthetic feature and not necessarily build something new, as a whole level for instance. They can be less invasive if you think of a character customization or translation of information, but can also be used to alter gameplay (as allowing players to do a special/bonus moves easily or the game as whole to be easily beatable or maybe harder, for instance). They are instances of modding, but tend to be less invasive and more popular on football franchises. In turn, Guitar Hero customs are reformed games with a new setlist.

On the other hand, cracks are decoding programs intended to overrule anti-copy and/or anti-piracy protections and other devices made to secure the copyright of companies. Those

examples can be found through a quick search on-line. They were the entry point of this case study. As it will be seen later on. In the social network Orkut, specifically, there were innumerous representations of these practices in its communities or closed groups. However, this study will be focused in the main community about Guitar Hero (called Creators) and the Pro Evolution Soccer (Brazukas)

The Guitar Men

This project started from observation made in the virtual communities of the social network Orkut (2004-2014). Launched in 2004, it was created by the Turkish programmer Orkut Buyukkokten. He was a Google employee and the website later became part of the company. In 2012, Orkut still registered about 66 million users, from which more than half were Brazilian[2]. In September of 2014, Google officially deactivated the social network, but they still maintain an open-access database of the communities containing the latest interaction of the forum-like pages.

The Guitar Hero franchised was officially on hiatus since 2010 until it came back in late 2015. However, during the peak of its popularity, what I estimate was from 2006 to 2009 in Brazil, it mobilized players and music enthusiasts (not only rock' n' roll fans) to develop their own contributions, or better, their own take on the game.

Guitar Hero customs in Brazil are called hacks as they are made through the use of software that hack the original game enabling players to alter its functionality, aesthetics and content. In the social network Orkut, the community Guitar Hero Creators (the name is originally in English) dates back from 2007. Due to the technical complexity of seventh generation consoles (PlayStation 3, Xbox 360 and Nintendo Wii), most of the hacking found of those communities is targeted to the PlayStation 2 (PS2). In Brazil, the informal practice of "unlocking" PS2 directly in the hardware in order to make it run pirated DVDs was very common. Also the price of the console became considerably lower after the new ones were released.

With the help of a PC, hacker-players are able to create their own version of the game, generally using an original one available online. After modifying, they burn the result in a DVD. It is necessary to convert them again to a format that the console can read. Another evidence of this unusual/late popularity of the PS2 in Brazil (even after the emergence and popularization of the PS3 in the country) are the statistics from the Brazilian Association of Software Companies (Abes in Portuguese). They estimate that most of the 630 thousands pirated discs apprehended in 2012 are PS2 games.

[2] Available at: http://techcrunch.com/2012/02/20/what-on-earth-is-google-doing-with-orkut/

Due to the advent of Facebook and the heavy migration of user to the social network, there was not much activity happening in the Orkut community during my initial observations in the second half of 2013. Nevertheless, for their structure similar to message boards, the groups functioned as storage of content still holding links that directed to modified games. Besides that, even when a community "dies" for the lack of activity it is possible to find their games in other places: blogs, internet forums, and other social networks as some groups also migrated to Facebook.

Creating your own "hack," as they call it, involves a series of steps. All of them thoroughly explained in innumerous written tutorials and even some video classes on YouTube. It is worth mentioning that communities as GH Creators not only provide games "ready to download." Their administrators, moderators and more experienced regular users act translating and adapting tutorials from websites and forums in English, such as Score Hero. They also produced their own video tutorials using screen capture software to record their actions and post them online. I believe these two factors help to establish the practice of modding Guitar Hero beyond users with some degree of programming or Computer expertise in general.

I found an actual 21 pages long illustrated instructions manual available in the community since 2009. It details in a comprehensive and nonspecific language, all the steps to perform the modification from zero. First, acquiring the original game and copying it to your computer (or downloading it). Then, downloading the program that will enable you to navigate through the content and substitute songs, translate menus and other features at your heart's content.

There are two ways to create your own setlist. The easier way is just finding previously made "game scores" online. The scores or notations are *.chart* or *.midi* files that the game script can interpret and apply to the gameplay. They need to be inserted with a MP3 file of the song. After inserting (adding or substituting) the files, the hacker-player must come back to the program and change the name of the song, artist, duration, among other information, in the menu.

The other way is to create your own notation (in case you do not find the music you want or you just did not find a good version of the song. What happens frequently, the informants said). To produce your own notation, a given user will need MP3 files and another experimental program created specifically to manually "write" the musical notes. Meaning, the gamer must hear the song and, by ear, choose to which buttons (the notes in the game) that melody will correspond. S/he also can choose the avatar (the guitar player) and stage animations, and the bonus events of the song (called Star Power) - a sequence of star-shaped buttons that done correctly double the points. Using a third program is possible to change avatars and other graphic features of the game, as hair, colors, clothes etc. More skilled hacker- players can even design their own characters referring to fictive or notorious characters.

There needs to be a huge manual, intellectual and creative effort to create a GH hack. They synchronize music and score by ear and at the same time must be alert for the duration of the song and the length of the notation otherwise the music may end before or after the game session. These actions point to the laborious, intuitive and many times precarious aspect of these insertions, as they do not always come out "perfect," relying a lot on the hacker-player skill.

Finally, I will address an interview made with one these hacker-players identified here as Felipe that until 2015 at least was still working on his hack called Guitar Hero: Yngwie Malmsteen[3], dedicated solely to the music of the Swedish guitar virtuoso. In July of 2013, Felipe released the demo version of his game, with 43 out of 70 songs that can fit the finished game. His profile page identifies him as resident of the Rio de Janeiro's state area and we talked through the instant message service of the social network Facebook. Although I selected only one interview from the case study for the current piece, Felipe's account can lead us to some common tendencies and solidify some of the impressions written above made through the incursions in the community.

The conversation took place on February 2014 and Felipe first reaction was to assure me he was not a "damn good programmer" ("puta programador" in Portuguese). At the age of 23, he claims to be studying Computer Science, but he "just started a week ago and do not know anything[4]." Felipe said he started the project in 2011 after playing GH hacks and doing minor modifications and substitutions as a test for some time. As a GH player and Malmsteen fan, his hack was intended to fulfill a"musical taste need." There are possibly thousands of Guitar Hero customs on the Web, but Felipe said he never found one solely about the guitar player he admires. It is necessary to mention that Malmsteen really does not fit the mainstream musical scene, and even among heavy metal and guitar virtuosi fans he can be considered too alternative. Joe Satriani and Steve Vai are most well-know exponents of the "guitar hero" act: guitar players in solo careers with mainly instrumental albums. Something that Felipe also acknowledges as he says "I know there is more people that hate him than the opposite. This is not news to me. Some of his albums are actually not so good, but his earlier stuff is really cool. I did the best selection I could and still had to left out some of it."

The GH: Yngwie Malmsteen is based on the PS2 edition of Guitar Hero III: Legends of Rock, originally launched in 2007. Felipe said he actually found some notations and songs on the internet, but he had to make several corrections and adjustments to the material. He said his musical skills – he is a guitar player himself – helped him in the process. According to him, "these dudes [other developers] know the procedures, but they do not have any musical training. They do not understand musical notes and the right way to put them in the game [...] my ear is trained to recognize these sounds." In the community description, he states he

[3] Available at: https://www.facebook.com/GuitarHeroYngwieMalmsteen/

[4] The school year in Brazil starts at the end of the South hemisphere summer in mid February or March, depending on the Carnival dates that year

created 70% of the songs entirely and the others "suffered major modifications because they had errors in charts, bugs and exaggerated or lack of musical notes."

On the process itself, Felipe told me that, for his inexperience, his first attempts went wrong. He even gave up on the project thinking it was software malfunction. It was only with the help of the Orkut communities, where he found the tutorial and video classes in the first place, that his hacks started to work. The hacker-player makes sure to acknowledge the fact he had this network of production and distribution of knowledge at his disposal as one the main reasons for his success. More experienced, now he regrets the deficiencies of the software he uses to hack the game. According to him, they should enable a broader manipulation of content, "I cannot change the songs and the videos in the menu. I wish I knew the guys that made them so I could exchange information with them [possibly meaning give them his feedback or help rewriting the program]."

It is also crucial to state that most if not all editing and modding described here do not involve actual programming (writing in language/computer code). The hacking software are graphic user-interfaces that iconically represent actions that are in fact data processing (as most of our interaction with computers is). Besides that, altering these editing programs or, as he suggested, finding a method of direct modification of the game, would require him to write in language/computer code. Learning how to code definitely allow more control over the process, but the difficult of it and the level of expertise and more formal knowledge required would make these hacker practices restricted to some users.

Therefore, based mainly in a system of easy access tutorials, this example of our Game Culture develops ever more increasingly intuitive ways of learning using the resources of a computer. Their goal is always to make customization tools more accessible to the "average user." Brazilian hacker-players have to balance the equation between more accessibility or more control over the process, as, of course, not everybody can code, but everybody should play/mod.

Football Life

Developed by the Japanese company Konami, the Pro Evolution Soccer (PES) series came to life in 2001. Originally called Winning Eleven (WE), as it is still known in Japan, from the name change onwards the franchise reached international projection. Today, it shares the world market for Association Football (soccer in the United States) simulation with the FIFA series, property of the North-American Electronic Arts (EA).

Contractual matters have made difficult for Konami to acquire the rights to kits and badges of teams and national federations. A problem their competitor, the official game simulator of the International Federation of Association Football (FIFA, in the original French), does not have. Konami negotiates the licenses directly with each team and/or association, and they not

always come through. In such cases, as the British Premier League, the non-licensed squads have generic definitions to dribble this legal issue (Manchester City, for instance, becomes Man Blue). Besides that, some editions not even come with the generic version of the national championship – like the Brazilian Championship *Brasileirão*[5] or the German *Bundesliga*. These are the main motivators for the modding practices.

There is a technological demand that is not aimed at incrementing features, but fix a deficiency. This is a worldwide tendency certainly not restricted to Brazilian, South American or other peripheral communities. There is even an in-game editor so players can change names, teams, edit faces, kits and customize all sorts of characteristics like a given athlete's metrics or performance in the game. The producers' intention is so clear that one cannot alter completely licensed teams like Manchester United[6]. Still in this regard, the football market is highly volatile. This means players change squads constantly. Therefore, making these changes following club transfers or simply put some football player (your favorite or the best in the world) in your local team is another demand.

There are also access division teams. Partially because of the action of modders, the official edition of PES in recent years also features the access leagues. The Brazilian one it is still not complete, but French, Italian, Spanish and English are. This is a common action for modders that include not only Tier 2, but also 3 and 4 (in Brazil, called Serie B, C and D) in their patches. In the official version of the game, this increase came with the new generation of consoles. In them, the standard support for the game switched from DVDs or double-layer DVDs (4.7 and 8.5 GB) to the Blu-ray disc, which has a capacity of 25 GB of data. Furthermore, there is a stream of data that has to be downloaded on-line before playing the game that makes the final file reach 50 GB after installed.

The PC version of PES obviously has more room for maneuver because of its plataform interconnectivity. Modders can easily include external files like the images of team badges (in .jpg, .tiff, .png extensions) even adding them directly in the game folders when possible. Another type of image file can be a photo. With it and 3D modeling software, the addition of avatars resembling the gamers themselves becomes another possibility. Customization and personalization achieve a new level here. After all, who never dreamed about playing for Barcelona or Real Madrid or be the star of your national squad in a World Cup final?

The “Brazukas” community in Orkut is actually the “headquarters” of a team of fans who produce “patches” that are meant for the PC edition of PES. It was not possible to state if the group originates from the Orkut social network or other platform, but my initial observations

[5] Starting with PES 2013, launched in September of 2012, the game comes with the Brazilian national championship mode. Before that, since PES 2011 (launched in 2010), the only way for Brazilian teams to feature in the game was through the Libertadores Cup – the Latin American version of UEFA Champions League – in other words, a continental competition.

[6] This changed for PES 2017 released in September 2016. The only officially licensed Premier League teams now are Liverpool and Arsenal.

established that the moderators of the virtual community belong to different states of Brazil. With one exception, they identify themselves as residents of the Northeast and Southeast regions of the country. By the information in the homepage of the community, it is possible to know that the space was created in 2007 (although the group itself dates from 2004). The community "owner" chose to identify the city of Fortaleza, in the Brazilian Northeast state of Ceará, where he also lives, as “home base” for them.

Some context it is need. The Northeast of Brazil is known for its historical underdevelopment compared to the Southeast (where the cities of Rio de Janeiro and São Paulo are located). The industrial development arrived considerably late to the region that was dedicated to agriculture for most of its history. For this reason, even in its prosperous capitals there is an infrastructural gap between the northern and southern parts of the country. For this reason, it is very telling that the community originated in one of these capitals, Fortaleza. There, even if these hacker-players belong to the middle class or low middle, they would still have substantial difficulties to access broadband connection or high-end computer parts during those first years. Without it, as it will be seen later, downloading the games and components, editing software and sharing the finished mod/patch afterwards become harder.

The Brazukas community had almost seventy four thousand users in 2013, and the moderators gladly boasted of the fact in its description section. Their sign used to read, “the bigger and better community for patchs [sic] of Brazil." Indeed they were the biggest group specialized in patches on Orkut, that was the reason they were selected for the case study. I believed that the high number of participants enabled more of these "hacking initiatives” coming from non-moderator members. They could not even be directly related with the patches themselves – the product offered by the “Brazukas." An elevated number of participants, Iassumed, would enable the realization of more “connections” between users and their respective contacts network.

To abide for this assumption, there was not much activity from the moderators, leaving most interactions to regular members. Size issues aside, a warning posted on July 13th 2012, stating that the community intended to migrate to Facebook, explained this unusual behavior. Back in 2012, most polls already indicated the Orkut was surpassed by Mark Zuckerberg’s page in the total number of unique users in Brazil. However, the first time I visited the community (February 2012), it seemed unaffected by this decision. The Facebook page (created in June 26th, 2010) possessed a little bit more than 2500 members, thirty times less users than the Orkut community. This research understands that the particular characteristics of the latter – its structure similar to a message board, an internet forum –, their considerable difference in existence time and the fact that the Orkut page had a consolidated audience may be the cause for the outnumbering. Even now, in 2016, the Facebook page still has a little bit less than 6500 followers.

Although the moderators were in the process of leaving the community, they still replied to some threads, answered questions and posted content on it. The community functioned basically as a forum, a mirror for their "official blog" inside the Blogspot service. There, they not only share files but act as a real "call center" solving the problems of their "costumers". For examples, moderators are responsible for the creation and maintenance of the "official topics," the ones marked by a tag before the subject. This is a fundamental organizational tool in the community. Tags are inscriptions in the title (or subject) of the topic and they designate its function. These markings are made inside brackets with uppercase letters, e.g. [PATCHES], and they determine specific sections to a certain end.

One of these threads exemplifies exactly the reason why the Brazukas group is considered closed and highly hierarchical group in our methodology. In the tag [BUGS FROM THE BRAZUKAS MIX PATCH], the moderators ask for feedback on their "product." The moderator uses the information given by the users to perfect the patch and take time to answer questions regarding installation and solutions to bugs. This level of sophistication demonstrates how contemporary modding activities are complex, often emulating a kind of (semi) professional structure.

In this sense, the message in the "official blog" header advising users not to share the contents of the blog in another network without proper authorization or without the due credit sounds somewhat ironical. This aims to preserve the name (the brand) and the "originality" of the service provided by them. Besides that, they recommend users only to install patches from their page – called "official patches" by them although they have no relation with Konami whatsoever – under the risk of damaging the user's edition of the game: for the Brazukas Team their product has a "quality seal" that should not be tempered. It is also noteworthy that despite this structure they do not charge for their services and do not even ask for donations, from what could be observed.

The last element analyzed deals with the actions of non-moderator users in the community. Almost ten years of activities and a large number of users have given certain autonomy for these members to solve questions and post content online. In a topic called [CHAT], for example, a user identified as Pablo, not listed as a moderator, helps a new member with a question regarding an older version of the game. It was a quite peculiar inquiry. The new member – apparently, a child or adolescent as seen in his profile picture – wanted to know how to reconstruct the face of an athlete that was not listed in the original game or in the Brazukas patch for that edition: the Chilean national Vargas. Not being able to find a patch – a self-installable file – that would meet the demands of the user, Pablo shared a tutorial that showed how to edit the face of an avatar.

The tutorial carried the instructions of usage of the software Game Graphic Studio, represented by the acronym GGS. Another curious fact about the tutorial is that it was not written, but it is a video on YouTube. There, the steps necessary to execution of the tasks are

shown trough another software that captures the images of a computer desktop screen – it is needless to say that all software aforementioned do not feature among the basic tools of an operating system.

Conclusion

The proposal explored how the computer should not be viewed as a tool or instrument dependent on human will. It also exerts a form of "computational mediation" embodied in the idea of literacy. The notions of procedural (Mateas 2008) and gaming (Zimmerman 2009) literacy highlight a computational property that promotes knowledge production, information seeking, alternative learning methods and creativity through affective and technological attachments. This embodied connection to video games and computers in modding practices is certainly cognitive.

Under Varela et al (1993) and Clark (2001), this paper reviewed the corporeal concept of cognition. Their defense of the intertwined relationship of mind, body and technical objects enabled us to suggest this cognitive approach to media materiality. The enacted cognition of the former authors shapes another lens through which pursue the object, the modding practices already extensively debated in Game Studies. Exploration in this context means experimentation mediated by video games. Playing with games' properties requires a nontrivial, active behavior and as games and *game-esque* activities proliferate they produce a cognitive *ethos* of exploration and/or tinkering. These initiatives prevail precisely for their sensorimotor, psychological, affective and even neurological stimuli. They take the body in its entirety.

In the political sense, the actions described here respond to overall demands for access, information and culture. They are born out of inequality and precariousness, both in the regular socioeconomical view of poverty and scarcity (infrastructure, access to electronic goods) and in the cultural, legal and educational one (musical taste, participative consumption, licensing and programming). The anthropological notion of cannibalism and the figure of the cyborg selected in the study show how and in which ways gamers or hacker-players mobilize themselves to fill these gaps and occupy these spaces: be the regional discrepancies caused by economical globalization or the broader struggle against scarcity and for freedom.

Games

PRO EVOLUTION SOCCER. KONAMI, PC, 2001-.
GUITAR HERO. REDOCTANE AND ACTIVISION, PS2, 2005-.

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