

Towards a (Ludic) Resonant and Sensory Environment: Space, Music and Locative Gaming

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ABSTRACT:

This paper discusses the relationship between locative games and music, using as reference the notions of sound space, acoustic space, and soundscape. The locative game genre reflects the opposite side considering the video game format: in this case, the action leaks from screens and consoles to the urban space with the use of locative media, turning the city into support for the actions of the players. Our hypothesis argues that by using music and other sound features (sounds, effects and so on), the locative game can create a resonant sensory environment caused by music and sound signals that are impregnated in the region. As a methodology, we analysed the locative game GPS Musical Crosswords Puzzle from these concepts – sound space, acoustic space, and soundscape – to show how they can be designed from the experience of locative games.

KEY WORDS:

locative games, music, place, sensorial environment, space.

Initial approach

GPS Musical Crosswords Puzzle (GPSMCP) is a locative game based in Petrolina, Brazil. It is available for Android and iOS systems. The game uses the regional culture from the Northeast of Brazil, especially the songs, as a resource for the design of puzzles and game mechanics. Sensitive Cities Lab (LabCEUS), Federal University of Pernambuco, Federal University of Recôncavo Baiano and the State University of Bahia supported this project in 2015, with funding resources from the Brazilian Ministry of Culture. This paper describes the case of GPS Musical Crosswords Puzzle, focusing on the relationship between game design and songs. We aim to present how this game can create a resonant sensory environment caused by music and sound signals, which are impregnated in Northeast Brazil. To support our ideas, we describe the locative game project GPS Musical Crosswords Puzzle supported by the concepts of soundscape,¹ acoustic space² and resonant sensory environment.³ Locative games reflect the opposite side of video games, considering that the game's content leaks from screens and consoles to pervade the player's space, using locative media. Thus, locative games improve the player's mobility in urban space in order to follow an eventual narrative system, to solve puzzles, to find game characters and items. From this perspective, the city becomes the game board.

Some classes on game design, locative media, smart cities and regional music preceded the game design process. Seventeen Brazilian students from Petrolina attended these classes and then played as GPSMCP's beta testers. At the end of 2015, the SBGames committee placed GPS Musical Crosswords Puzzle in the "Top Five Brazilian Games' list". Then, our choice to present this case study considered the originality of the GPSMCP and the role we play in charge of this project, which improves the task of description⁴

1 SCHAFFER, R. M.: *A Afinação do Mundo*. São Paulo : UNESP, 2001, p. 15-53.

2 McLUHAN, M., McLUHAN, E., HUTCHON, K.: *City as Classroom*. Agincourt : Book Society, 1977, p. 45-47.

3 MACHADO, I.: Sensus Communis: para entender o espaçoacústicoemseuambiente sensorial ressonante. In *E-Compós*, 2011, Vol. 14, No. 3, p. 7-13.

4 *Festival de Jogos*. [online]. [2018-03-15]. Available at: <<https://www.sbgames.org/sbgames2015/#/atividades/festival-de-jogos>>.

To develop our argument, we start discussing the relationship between games and locative media, which gives birth to the locative game genre. Then, we show how digital games moved from the video game screen to the urban space. Finally, we present our description of the GPS Musical Crosswords Puzzle project.

Games and locative media

The term locative media was proposed in a seminal way by Karlis Kalnis in 2003 to make reference to the creative use of LBS and LBT. To Brazilian theorist André Lemos, “place and context are essential in communication processes involving locative media. The flow of information occurs locally promoting new uses of space”.⁵ Locative media can add digital/informational content to a specific location in the geographical space. In these cases, as a rule, transmission and reception must always occur at the local level, providing services according to the user’s position. Locative games incorporate locative media’s functions into their settings, using location-based technologies (GPS, wireless networks, smartphones, tablets) and location-based services (maps, GeoTags, augmented reality browser, social networks which add geospatial information to the users’ messages, such as Facebook, Twitter, Foursquare and so on) as a resource for the creation of puzzles and game mechanics. Using concepts from object-oriented programming, Miguel Sicart defines game mechanics as methods invoked by agents, designed for interaction with the game state.⁶ To Kristine Jørgensen,⁷ game mechanics are everything that determines interactions between games and their players. It includes activities such as running (or persecution), jumping, pushing, treasure hunt, turns, turning, role-playing, point and shooting and so forth. On the other hand, puzzles reflect what Johan Huizinga called an ‘element of tension’ in play, which tests the player’s abilities: motor skills, quickness, intelligence, strength, loyalty, among others.⁸

Harking back to the history of locative games, their pioneering spirit can be attributed to the Geocaching project, launched in early 2000. In Geocaching, players must use smartphones and the global positioning system (GPS) to hide and find containers called geocaches, hidden in different locations of the world. Since then, locative games began to gain more fans all over the world, it is estimated that there are more than 500,000 locative games played in more than 100 countries.⁹ In Brazil, locative games arrived in 2004 in the Vivo em Ação project. Currently, some locative games are available in App Store, Google Play, Windows Phone Store – i.e. *Ingress*,¹⁰ *Code Runner*,¹¹ *Ghostbusters: Paranormal Blast*,¹² *Pokémon Go*¹³ and so on. This rise of the locative genre in computer game culture caused a phenomenon that I’ve been calling the spatial turn in game studies.¹⁴ Is important to highlight that the condition for use of geographical space as the ba-

5 LEMOS, A.: Locative Media and Surveillance at the Boundaries of Informational Territories. In FIRMINO, R., DUARTE, F., ULTRAMARI, C. (eds.): *ICTs for Mobile and Ubiquitous Urban Infrastructures: Surveillance, Locative Media and Global Networks*. Hershey: IGI Global, 2010, p. 129.

6 SICART, M.: Defining Game Mechanics. In *Game Studies*, 2008, Vol. 8, No. 2. [online]. [2018-03-16]. Available at: <<http://gamestudies.org/0802/articles/sicart>>.

7 JØRGENSEN, K.: *Gameworld Interfaces*. Cambridge, Massachusetts: The MIT Press, 2013, p. 122.

8 HUIZINGA, J.: *Homo Ludens: A Study of the Play-Element in Culture*. Boston, MA: Beacon Press, 1950, p. 18.

9 MONT’ALVERNE, A.: *Jogos móveis locativos: estudo de casos brasileiros*. [Master Thesis]. Salvador: RI UFBA, 2011, p. 22. [online]. [2018-03-18]. Available at: <<https://repositorio.ufba.br/ri/handle/ri/3776>>.

10 NIANTIC: *Ingress*. [digital game]. San Francisco, CA: NIANTIC, 2013.

11 ROCKETCHICKEN INTERACTIVE: *Code Runner*. [digital game]. Vancouver: RocketChicken Interactive, 2013.

12 XMG: *Ghostbusters: Paranormal Blast*. [digital game]. Toronto: XMG, 2012.

13 NIANTIC: *Pokémon Go*. [digital game]. San Francisco, CA: NIANTIC, 2016.

14 ANDRADE, L. A.: *Jogos Digitais, Cidade e (Trans)mídia: A Próxima Fase*. Curitiba: Editora Appris, 2015, p. 111.

sis of interactions in gameplay also appears in other locative games’ genres, such as the alternate reality game/ARG, pervasive game, Augmented Reality Game/AR Game, Live Action Role Playing Game/LARP, Mixed-Reality Games, among others. In GPS Musical Crosswords Puzzle’s gameplay, GeoTags are used to hide clues, which work like a crossword puzzle. The players have to move around the city landscape, launching the locations matched by the GeoTags. Thus, we can realise how the game space mixes itself with the city, reflecting part of the funny way provided by locative games. The application for Smartphone serves as a central support for the game; guiding the physical mobility of the player through Petrolina urban space. Locative games might reflect an important shift in the role of space in gaming culture – the spatial turn in game studies. In computer games that don’t use locative media, such as the video games and some mobile games, space is a residual component, a background with little or no importance for players’ interaction. In video games, the players can choose any space to play or change it randomly, whenever something disturbs their attention. On the other hand, in locative games space is the basis for player’s interaction; it should remain the same until the end of the match; if the player decides to restart the game using another space, he’ll lose all the progress he has acquired in the match.¹⁵

Locative games and the city

The appropriation of urban space for ludic purposes is not so modern. The city always offered space for games such as play tag, stickball, cops and robbers, dodge ball and so on. With the spread of video games consoles in the 1980s, perhaps some people commonly believed that the playful appropriation of the city as a playground would be deprecated, resulting in an eventual encapsulation of the players at home in their attempt to play these games. On the other hand, locative gaming can point to a manner for a ludic appropriation of urban space using locative computer games. The computer paradigm that allowed a resumption of the city as a game board and consequently caused the phenomenon of the spatial turn in game studies is called ubiquitous computing (UBICOMP). This model was proposed in 1988 by Mark Weiser to refer to networks and computer systems embedded in everyday objects. For Weiser,¹⁶ computers would evolve in a few years reducing the number of PCs, such as desktops and being incorporated into the environment. Following Weiser’s vision, the first decade of the 2000s marked the rise of ubiquitous computing, considering the emergence of the first smartphones (around 2005), the rise of the operational systems Apples’ iOS and Google’s Android both in 2008, which lowered the costs of these devices. It’s important to register the launch of iPad in 2010, which definitely popularised the tablet format. Another important moment in this timeline occurred in 1997, with the announcement of the 802.11 protocol, which gave rise to wireless networks such as Wi-Fi, Wi-Max, among others that enhance what Weiser called ‘distributed computing’, due to the dissemination of binary data ‘in the clouds’.

William Mitchell is one of the pioneers in the discussion about the new context of urban space created by the dissemination of ubiquitous computer networks and systems. According to Mitchell,¹⁷ the City of Bits will be the capital of the 21st Century, modelled according to patterns of connectivity and accessibility, broadband restrictions, also considering the features of physical space. In this typology of urban space, places would be built

15 ANDRADE, L. A.: *Jogos Locativos*. Salvador: Ed EdUFBA, 2016, p.65.

16 WEISER, M.: The computer of the 21st century. In *Scientific American*, 1991, Vol. 265, No. 3, p. 68-73.

17 MITCHELL, W.: *City of Bits: space, place and the Infobahn*. Cambridge, London: The MIT Press, 1995, p. 47.

with machines and software connected to the doors, windows, streets and so forth. Malcon McCullough¹⁸ presented the concept of digital ground referring to the environment built with ubiquitous computing, affecting the ways in which each human being inhabits physical space. The environment, in this case, becomes more interactive, being able to recognise and respond to the actions that happen in their domains. For McCullough, the digital ground has embedded processors, sensors that can detect actions, applications modelled for specific locations and situations; tags that help identify things and users, screen dissemination and interfaces based on gestures and on movement, among others. These aspects tend to complement the new cycle of user experience introduced by the ubiquitous computing paradigm. The spread of ubiquitous computing gives birth to what Adam Greenfield called "Everyware", a concept proposed to refer to information distributed and processed 'in the cloud'. For Greenfield, "the most significant consequence of spreading computers on all sides is that this implies distributing information on all sides".¹⁹ Thus, according to Greenfield's view, the environment and everyday objects can work as sites for information processing. This kind of scenario built from the information constantly available in space laid the foundations for Mark Shepard's vision of "Sentient City". This concept refers to a feature present in the City of Bits, which works to feel changes in a subjective way without the human characteristic of consciousness. Shepard emphasises that consciousness means to possess wisdom, knowledge, or the perception of all that can be felt and heard. The "Sentient City", according to Sheppard is the one that can feel and listen to things that happen to it, without necessarily having prior knowledge: the city feels the user without necessarily knowing anything about them.²⁰

In this direction, Shepard points out two ways to think of the reconfiguration of a contemporary city following the spread of ubiquitous computation. The first is concerned with looking through the materiality of architecture, seeking to understand how hardware and software available in urban infrastructure can help citizens to create new experiences and organizations. The second is addressed at information processed in urban spaces, examining the notion of sentient when applied to non-human actors, such as cities, which produce a rupture within the historical line that defined its nature and the nature of its citizens. These concepts allow reflections regarding the interface between urban space and locative media, thus creating support for the experience available in GPS Musical Crosswords Puzzle. This discussion highlights that computers can only become ubiquitous inside urban boundaries since architecture works as a spatial tool that allows the establishment of limits for the creative use of locative media. Using music as a resource for playful experiences involving locative media, maybe we can insert the idea of acoustic space into gameplay.

Locative games, space, and music

Space is a transdisciplinary concept because it has transversal characteristics, which are widely discussed in different research areas. The articulation of the space with games reminds us of the seminal study of the philosopher Johan Huizinga, a pioneer in

18 McCULLOUGH, M.: *Digital Ground*. Boston, MA : The MIT Press, 2005, p.13-15.

19 GREENFIELD, A.: *Everyware. The dawning age of ubiquitous computing*. Berkeley : New Riders, 2006, p. 23.

20 SHEPPARD, M.: *The Sentient City. Ubiquitous computing, architecture and the future of urban space*. Cambridge : The MIT Press, 2011, p. 31.

the reflections on the ludic and its relation to culture. According to Huizinga, every kind of game is played inside limits of time and space, where their player has to follow specific rules, which are a kind of temporary world created for a special activity.²¹ This special place received a thorough theoretical treatment when Katie Salen and Eric Zimmerman²² published their treatise on the general analysis and development of the constitutive processes of the game – from their analogical components, commonly represented by cards and boards, to their convergence with locative media, where is located the essence of locative media – and has been recently known as the 'magic circle', being inspired by a passage in Huizinga's classic *Homo Ludens*. The proper terminology proposed by Salen and Zimmerman about this typology of the place is Magic Circle. Although the magic circle is merely one of the examples in Huizinga's list of 'playgrounds', the term is used by authors as shorthand for the idea of a special place in space and time created by a game. Locative games produce a specific kind of magic circle because they can appropriate the urban space as a game board. In this way, the ludic can transform some urban elements – streets, cars, everyday objects- into game tokens. Within our proposal to create a relationship between locative games and music, based on this discussion about space, we can use the concepts of acoustic space, sound space, and soundscape in an analysis of the game GPS Musical Crosswords Puzzle. Although these concepts seem very close, they provide different sound experiences, but they can complement each other (see Figure 1).

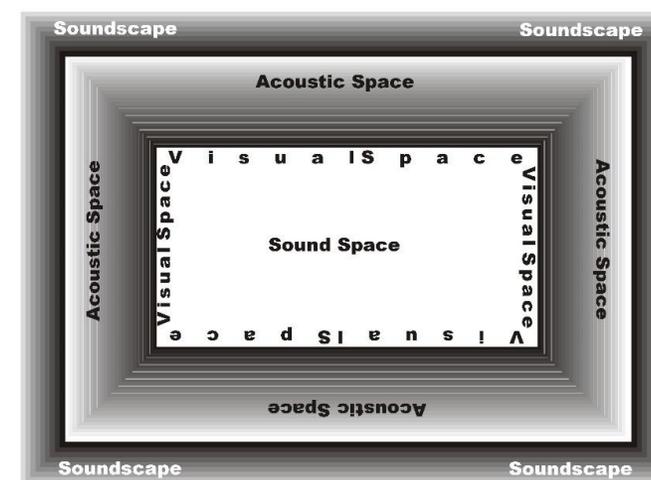


Figure 1: Elements in the space (sound x visual)

Source: own processing

Acoustic space is a term that appears in the work of Marshall McLuhan, especially in those works that bring the discussion about space and its relationship with the media and the arts, as we can see in literature in modernist and postmodernist works (such as James Joyce and Marcel Duchamp, i.e.), who explored the visuality in different languages, maximizing the understanding of visual space. Therefore, acoustic space is born as a counterpoint to this representative of visual hegemony in the works of this period, bringing questions about its limits. Visual space is sequential, linear, asynchronous, static, vertical, evoking the left side of the brain and creating containers or receptacles. Acoustic space is

21 HUIZINGA, J.: *Homo Ludens: A Study of the Play-Element in Culture*. Boston, MA : Beacon Press, 1950, p. 13-14.

22 Ibidem, p.18

its opposite, in the sense that it is simultaneous, synchronous, dynamic, horizontal, evoking the right side of the brain and creating networks. Therefore, the acoustic perception of space has no fixed boundaries or centres, which gives it a multisensory characteristic, which McLuhan brought into the discussion from the emerging of electronic media such as radio, TV, and cinema. He called this ensemble of characteristics, in a few words, as the *sensus communis*. It happens that these two spaces are not exclusive, but may be complementary when we consider, for example, “perceptual coherence”.²³ In fact, their relationship creates what Irene Machado²⁴ will classify as the *resonant sensory environment*, formed by the reverberations of these spaces that blur their edges and smooth them. Thus, while visual space can be limited and cropped by the lens framing of a camera, for example, acoustic space, on the other hand, breaks such limits, causing, in some cases, the impression of an amplification of this previously restricted visual field.

We can observe within the limits of visual space, the appearance of the sound space that is defined, according to Angel Rodriguez, as being “the volumetric perception that appears in the mind of a receiver, as it is synchronically processing all sound forms related to space”.²⁵ Sound space, therefore, is rich in references that can arise from a sound object, defined as a visible sound source, observable within visual space, or an acoustic entity, responsible for the effect of *acousmaticization*, which is non-observable in visual space, that is, outside of a frame, but that can generate a reference in its interior. This is the example of a scene in a movie when someone inside a room hears the sound of steps taken by another person in the hall separated by the wall. The concept of *soundscape* already has an easier understanding, but it cannot be confused with others, i.e. *acoustic space* and *sound space*, inasmuch as we consider a soundscape a set of sounds that compose a certain environment. This term became known through the works of Murray Schaffer,²⁶ a music teacher who developed innovative music teaching and learning techniques. Thus, we can consider a soundscape those sounds that are grouped in a certain environment, not necessarily restricted to the limits of visual space, because it appears as a sound background that can incorporate both the sounds of the acoustic space and the sound space to shape the soundscape.

Before we approach the GPS Musical Crosswords Puzzle in this work, we will show how this type of analysis can be made in a video game and after we will correlate to the characteristics of the locative game. Imagine, for example, a scene in a racing game, where we can see the car controlled by the player, the track, other vehicles controlled by artificial intelligence, background elements, such as bleachers, walls, vegetation and so forth. Applying the framework of the concepts sound space, acoustic space and sound landscape (see Figure 1), we can consider as visual space what is delimited by the framing of the moment of the game, when it is possible to see a “general plan” of a racetrack with a lane, the car in the foreground and a large grandstand in the background. Therefore, sound space is composed of the respective sounds: car engine, reactions as the smoke comes out of the car exhaust, braking and sounds of some player commands on the screen, which despite composing the sound space do not belong directly to the narrative as the sounds mentioned above. Acoustic space consists of sounds that extrapolate the visual space and comprise, for example, acoustic beings such as the sounds of other competitors approaching the pilot, the sounds of the grandstand, as well as the announcements over the speakers about the race in the game mentioned. Finally, in a broader representation of these sounds, creating the sound set that composes the scene; we have the soundscape of the game.

23 RODRIGUEZ, A.: *A dimensão sonora da linguagem audiovisual*. São Paulo : SENAC, 2003, p. 131-240.

24 MACHADO, I.: *Sensus Communis: para entender o espaço acústico em seu ambiente sensorial ressonante*. In *E-Compós*, 2011, Vol. 14, No. 3, p 7-13.

25 RODRIGUEZ, A.: *A dimensão sonora da linguagem audiovisual*. São Paulo : SENAC, 2003, p. 285.

26 SCHAFFER, R. M.: *A Afinação do Mundo*. São Paulo : UNESP, 2001, p. 15-53.

Describing the GPS Musical Crossword Puzzle Project

The GPS Musical Crosswords Puzzle is a locative game²⁷ that uses as a base the urban space of the city of Petrolina in the state of Pernambuco, northeast of Brazil. The project was included in the Public Call for the occupation of CEU (Centre for Arts and Sports Unified), located in the neighbourhood of Rio Corrente, within the framework of the Laboratory of Sensitive Cities - LabCeus - through a call linked to the Research and Innovation Group for Cities (InCiti) of the Federal University of Pernambuco (UFPE) and the Ministry of Culture. The game was developed in parallel to workshops and offered to a group of 17 students. The classes were held at the Centre of Art and Culture Unified (CEU) in the city of Petrolina between March and June in 2015. Four themes were addressed during these workshops: Locative Games Design, Mapping and Locative Media, Smart Citizen and Regional Music.²⁸ After these classes, the students participated in the test stage (called Beta Testing) in the neighbourhood of Rio Current. From the feedback of the students, we launched the final version of the game, which can be played in the region of the border and the centre of Petrolina. Petrolina is a city with a little more than 300 thousand inhabitants, located in the São Francisco Backwoods, northeast of Brazil, and integrated to the neighbouring municipality, Juazeiro, in Bahia, by a bridge with nearly 1 kilometre of extension above the São Francisco River. The region has favourable characteristics for locative games such as flat relief, which facilitates the physical mobility of the players, the constantly clean and open sky, typical of the semi-arid climate, enabling the perfect capture of the GPS signal. Added to this, the colours of the “Velho Chico” (as the São Francisco River is known) create the perfect backdrop for this game.

To play, the user needs to have a Smartphone or tablet and install the GPS Musical Crosswords Puzzle mobile app, which is available for Android,²⁹ iOS and Windows Phone operating systems. The puzzles are linked to points known in the centre and the border of Petrolina, represented on a map, such as Dom Malan Square, Cathedral Sagrado Coração de Jesus, and the pier, amongst others. The key feature of a locative game is its straight relationship to where the game is played, so the puzzles in GPS Musical Crosswords Puzzle can only be accessed if the player is physically close to the locations, pointed at the map by GeoTags. As game designers, it is important to emphasise that these puzzles were elaborated following a progressive system of difficulty, that is, the set of puzzles offers easy, medium and difficult levels. The user interface is composed of three screens, which can be accessed in the buttons at the menu of the mobile app (at the bottom of the screen). The first screen (see Figure 2) shows the positions of the pins and the position of the player on the map of Petrolina. The second screen (see Figure 3) shows a crossword diagram consisting of 10 lines, each corresponding to one of the pins fixed on the map of the first screen. After filling out the horizontal lines in the crosswords, a keyword is revealed in the vertical line. These puzzles are created based on elements of the culture of the São Francisco and north-eastern backwoods, especially the music composed by artists of the region. In the design of game mechanics, references were created by interactions with

27 *GPS Coquetel Musical. (Full Video) HD*. [online]. [2018-03-20]. Available at: <<https://www.youtube.com/watch?v=FMkvzexElqM>>.

28 ANDRADE, L. A., MEDEIROS, M.: *Jogos Digitais, mídia e (ciber) cultura*. [online]. [2018-03-21]. Available at: <<http://culturadigital.br/games/>>.

29 *GPS Coquetel Musical. (Full Video) HD*. [online]. [2018-03-21]. Available at: <<https://www.youtube.com/watch?v=FMkvzexElqM>>.

objects typical of the region's culture, such as musical instruments. For example, in one of the puzzles, in order to have access to the music, the player must "shake" the cell phone as if they were playing a Maraca, i.e., a regional percussion piece. Already in another puzzle, the player must interpret a score to play a song played by the local musicians or bands.

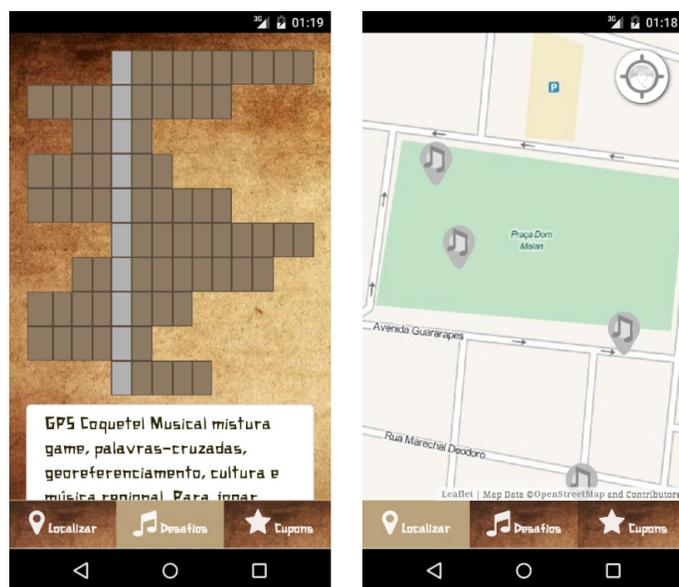


Figure 2: Georeferenced puzzles, Figure 3: Crosswords

Source: own processing

With the purpose of correlating the game GPS Musical Cocktail and the concepts presented throughout this article, we have, at the first frame, the delimitation of the visual space, in this case represented by the geographical limits of the Centre and the border of Petrolina, the only place where game can be played. We can think of these limits as being the edges of the magic circle created by this game, which only make sense for the one who is playing it. Sound space consists of sounds typical of the centre and border of Petrolina, a region appropriate as a game board, which form a kind of background for the player's actions, including car noises, motorcycles, buses and eventually the boats that cross the São Francisco River between Juazeiro and Petrolina. It also covers the noises of people talking as they move in the common places allocated to that portion of space incorporated into the *magic circle*. In the case of acoustic space, it is formed by the reverberation (or resonance) of the sounds in sound space, added to some sounds that are outside the geographical limits of the Centre (visual space), such as for example the sounds of truck engines (sometimes they can be heard when passing on a highway nearby), sounds of police sirens and ambulance, sounds of planes passing above the territory (Rio Corrente is a neighbourhood 10 minutes from the city airport). The soundscape, just like in the race car video game, is the result of this set of sounds that combine to characterise the neighbourhood and compose the urban space or the "urban sounds".

Our intention with this work that discusses the locative game and the "urban sounds" sought to approach players and places, but also to bring regional music as an element added to all these urban sounds. If we want to make a comparison with video game, we can consider the music produced in the region (north-eastern Brazil) as part of the soundtrack of the locative game, since the main objective of the game is to decipher a crossword using regional music tracks produced by local artists who best translate the feeling of those who

live and inhabit this region in Brazil. For this reason, we draw attention to the regional music (as puzzle) that has in its words or song some elements, which refer to the city of Petrolina, the São Francisco River, the bridge connecting the two cities, the stories and legends that emerged from this fertile imagination, that is characteristic of north-eastern Brazil.

Conclusions

At the end of this experiment, it was possible to reach some conclusions. Based on the idea of a *magic circle*, which defines the special place created by the game for its realization, we can think that the GPS Musical Crosswords Puzzle set out a resonant sensory environment, from the notions of acoustic space, sound space, and soundscape. Alongside, the creation of this environment assures a process of mediation, based on sounds, music, and space, between game, player, and reality. Considering the interactions between the player and the puzzles system of the locative game GPS Musical Crosswords Puzzle, we can see that the synergy between visual space, sound space, acoustic space and soundscape, which complement the function of geographical space in the gameplay, represented by the map in the interface and creates the support for the actions of players. Thus, we can conclude that music is now a resource for the puzzles of the game, offering clues to solve crosswords, or as a reward, considering that the player can hear the song in full version when he hits each puzzle in the line. There are other signs of the backwoods that are also present in the interactions stimulated by the GPS Musical Crosswords Puzzle, such as the accordion, *Maraca*, *Caraibeira*, *Caatinga*, besides typical vocabulary words such as *arrocha*, *arretado* and so on, which are used in the construction of the texts in the mobile app screen or user interface. The playful and intelligent use of these signs enhances the creation of a resonant sensory environment from the experience in the locative game GPS Cocktail Crosswords Puzzle.

Thus, this work discussed the relationship between locative games and music, using as reference the notions of sound space, acoustic space, and soundscape. The experiment that guided this paper was conducted based on the game GPS Musical Crosswords Puzzle. Of course, the work presented does not exhaust the possibilities of analysing locative games. Future researches can establish a relationship with similar or more consolidated formats in the universe of games studies, such as pervasive games and alternative reality games (ARGs). A more dense study is needed which points out more locative games and the specificities they bring in them. The next phase of this format may lie in the potential offered by the mobile Apps market.

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