JoSSIT

Journal of Sound, Silence, Image and Technology

December 2020 | Issue 3 | Edited by the research group Sound, Silence, Image and Technology

‘Press Start’

Sound and Music in Video Games

The scientific publication the Journal of Sound, Silence, Image and Technology (JoSSIT) grew out of the research group of the same name (SSIT), which is linked to the TecnoCampus centre as part of Pompeu Fabra University (UPF). The journal seeks to bring together academic debate and scientific research on the relation of sound as a broad concept with an audiovisual context.

Issue 3 | December 2020
ISSN 2604-451X

SSIT
Sound, Silence, Image and Technology
Grup de recerca

TecnoCampus

Centres universitaris adscrits a la
upf. Universitat Pompeu Fabra Barcelona

Introduction

Audiovisual media studies has been gaining ground during the last twenty years, over time carving out a well-deserved space in the academic field of musicology. Nevertheless, video games are currently one of the least discussed topics within the audiovisual discipline, in part because of the methodological complexities involved in their study. Our intention for this third issue of the journal is therefore to value and recognize studies on music, sound, and silence in video games. The title of this issue, "*Press Start*" — besides being a reference to a video game start screen — is intended as a metaphor for the future of the field in Spain. This issue is the first specialized and academically rigorous publication dealing exclusively with music in video games in this country, and offers new perspectives for both a general readership and academics or researchers wishing to deepen their knowledge of the subject.

The issue begins with two chapters with a well-defined analytical perspective. In the first, Fernando Maldonado proposes a methodology that delves into the creative process behind the sonic design of any video game, considering both early and more recent games. The methodology is explained following a broad and deep reflection on the delimitation of the term 'sound design' in the video game context. This explanation, based on the concepts of 'soundscape' and 'immersion', will enable readers to fully appreciate the methodological section.

Alba Montoya presents the second analytical paper of the issue, basing her analysis on a case study which deals with the music of the Spanish video game *Gris* (Nomada Studio, 2018). Her article aims to connect the concepts and resources traditionally used in the analysis of cinematographic media to apply them to a linear narrative video game with no spoken words and which uses music and colour to convey emotions to the player.

Next, Israel V. Márquez explores the beginnings of music video games, seeking out their predecessors in games created before the advent of game consoles and even before the popularization of personal computers. His article, based on a 'media archaeology' perspective, presents a search for the origins of the first music video games, long before the popular *Dance Dance Revolution* (Arcade, 1998, Playstation 1999) or *Guitar Hero* (Playstation 2, 2005), and tracing their influences as far back as the arcade version of SIMON.

Joana Freitas reflects on the presence of sound and silence in *Dark Souls 3* (From Software, 2016). She investigates how the difficulty of the video game and its specific game-

play dynamics affect the immersion and musical perceptions of players, who tend to consider this game's music to be 'epic'. The paper also delves into prosumers' transmedia creations based on the *Dark Souls* musical universe, relating them to the previous studied concepts.

Staying with transmediation, Eulàlia Febrer's paper explains the role of music in the development of competitive video game events – better known as esports. Her study, based on the online game *League of Legends* (Riot Games, 2009-), traces the evolution of the company's commercial strategy, which promotes and prioritizes musical elements in online events, which have spawned bands, music videos and original songs.

Finally, aural immersion is the focus of the study by Marcus Cheng, who carries out a comparative analysis of the experiences perceived by players of first-person video games and audiences of the work by the English immersive theatre company *Punchdrunk*. His paper focuses on the company's production *The Drowned Man: A Hollywood Fable* (2013), which offered the public an experience that critics equated to RPGs (Role-Playing Games).

These carefully selected articles, which are a launch pad for sound and video game studies in Spain, provide an up-to-date perspective on the state of the discipline in addition to offering the reader enjoyable and thought-provoking material on a topic thus far unfairly neglected. We hope you enjoy it.

Lidia López, editor of the issue

Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020
ISSN 2604-451X

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020 | 8-24
ISSN 2604-451X

Active listening, interaction and immersion.

An analytical proposal on the creation and reception of soundscapes in video games.

Fernando David Maldonado Parrales
Tecnocampus, Mataró / Universitat Autònoma de Barcelona
fmaldonadoparrales@gmail.com

Date received: 1-10-2020
Date of acceptance: 30-10-2020

KEY WORDS: SOUNDSCAPE | SONOLOGY | SONIC DESIGN | MUSIC | VIDEO GAMES

ABSTRACT

The following article addresses the field of soundscapes based on the creation of environments in video games. Theories spanning sociology to audiovisual media thereby converge around a topic that is by nature transmedial. The first section will consider several ideas to define the concept of *soundscape in a video game* in order to analyse its parts and, as a result, to better understand the morphology of the sound design. Continuing with the theoretical framework, the term "immersion" will be explored, thus establishing a clear connection between immersion and the sounds of the environment present in this reality.

The second part of the article develops an analytical model for sound environments that allows us to reflect on acoustic design characteristics such as technological evolution, sound aesthetics, and the transmission of information. This all leads to the idea that immersion is not based on realism or state-of-the-art development but on creating a sound design according to game aesthetics, and that its purpose is to capture the player's attention.

Introduction

Due to their multidisciplinary nature, soundscapes can be the object of analysis in many kinds of environment. Thus, we find diverse investigations ranging from how a particular place might have sounded in the past to how someone identifies the sound that surrounds them. It can therefore be deduced that wherever a sound construct is present it can be studied. This brings us to video games, electronically created objects involving an interactive activity and which offer the player immersion in their virtual universe. These elements make video games an optimal resource to observe how sound plays a fundamental role in fulfilling this function. This research therefore results from combining concepts found in sound studies, music-audiovisual language theory and video game studies.

The article suggests that video games can be studied by taking the design of their soundscapes as a starting point. This means specifically focusing on the field of sound design and how the work by sound technicians contributes to creating the internal identity of the video game on the one hand, and the way in which players receive the information on the other, which contributes to their immersion within the virtual reality of the game itself. It is precisely this process from a video game's conception to its reception that will guide this dissertation on sound.

This being the case, the very nature of sound with respect to the internal culture of the video game will be analysed first. Issues such as the presence and significance of sound sources will be dealt with in this section, taking as reference authors such as O'Keeffe (2011) and Huiberts (2008; 2010) in order to address how virtual realities are constructed from sounds. In the same way, the presence or absence of sound sources invites us to apply the theory of sound classification developed for previous works (Maldonado, 2018). Through an analysis of the sound sources of a specific place, we can classify these sources based on their acoustic characteristics, their continuous or occasional presence within the space, or the importance of a given sound in configuring the sound and cultural identity of a particular territory. Hence, transferring this classification to the virtual environment of a video game will help us to distinguish sound sources and obtain as much information as possible. Even though this first section presents an analysis of the sound with the intention of cataloguing, it serves as a theoretical basis for a subsequent discussion of the differences between sounds of a different nature and how these influence the player's perception.

Second, and taking into account the resulting concepts, an analysis will be carried out from the player's point of view. It is important to add that a reasonable argument must include discussion of diegesis, the spatial positioning of sound and how this affects sound reception, and that the IEZA (2008) model will be followed for these analytical processes. In this framework, each quadrant is designated as a category of sounds for the purpose of classifying, and thereby analysing, the sound sources of a video game and their semiotic implications. The model developed by Ermi and Mäyrä (2005) to differentiate between three types of immersion and explain the relationship between them based on the player's expe-

rience will also be used. This reflection on immersion allows us to understand how a virtual environment is capable of capturing the player's attention.

Based on this, one of the objectives of the following research is to correctly assimilate the concepts of the theoretical framework in order to prepare a proposed analytical model based on the sonic relationship of three elements: intention to listen, interaction and immersion. The justification for this proposal is to provide an understanding of how different sound configurations can be decisive when it comes to causing an effect on players, aside from the strictly musical spectrum. Unlike other analytical models, the one presented here works through a comparative process that allows us to reflect on the morphology of the non-musical sound space and the implications for the player's immersion. By advocating a comparative practice, possible aesthetic patterns in sound creation can be represented in a more visual way and the technological evolution that defines and influences sound simulation studied.

Lastly, the application of this analytical model will be exemplified through a series of video games from different periods. The purpose of examining various temporal spaces is to understand how technological limitations are not only defined as those that aesthetically and functionally configure sounds, but also those that influence the state of immersion achieved by the player.

Soundscapes in video games: conceptualizations

Before addressing the main topic of this research, it is imperative to clarify the object of study. In a production-based classification of game audio, three types can be distinguished: voice, sound and music (Brandon, 2005, p. 24). In this article we will address the second category –sound effects– from studies of soundscapes.

At this point, we should clarify the concept of soundscape that will be employed. On the one hand, the adjective "internal" will be used, since only sound sources that come directly from a game will be considered, leaving aside any other external sources the player might be able to hear (sounds from their own home, voices, sounds from outside that may enter their gaming area, etc.). Although these external sources are very important in terms of the degree of the player's immersion (O'Keeffe, 2011), they are not part of this research since, as mentioned in the introduction, it centres on the internal production of audio within the video game itself.

Moreover, the area of interest addressed in this article is the socio-territorial concept of soundscape, and so the music will not be taken into account either. Far from detracting from the amount of auditory information available for the analysis, being able to study the sound and the music separately should facilitate a deeper comprehension of the tripartite relationship between sound, the visual aspect and reception. One reason for this is that by eliminating the musical layer of an environment, the acoustic morphology of a virtual space can be analysed more clearly and other aspects seen in more detail, such as reverberation,

filters or the compression through which a sound passes within the space. Another reason for this separation of music and sounds is that the semiotic functionality of sound sources remains much more latent and classification is therefore easier.
Although this relationship between the sound and the visual aspect is most often addressed from the perspective of musical sources – for example, Chion (1997) and Pavis (1996) – the resulting conclusions and reflections on functionality can be applied to the non-musical sound spectrum. This has been explored by Jiménez and Rodríguez (2015), who explain how the functions of music within video games – devised for audiovisual media but extrapolated to video games Gértrudix (2003)[1]– are perfectly applicable to the remaining sounds since the aim is to introduce the player to a specific scenario and achieve a greater degree of simulation. In this way, both music and other sound sources serve the same purpose and may therefore share the same functions. Along the same lines, Chion (1997, p.15) has shown how sound can add meaning to the visual format, so we conclude that sound is a fundamental part of the development of a video game for both the setting and the narrative.

Nevertheless, although the above emphasizes the importance of the sound spectrum, video games – like many communicative, playful and artistic expressions – are profoundly ocularcentric[2]. On this, authors such as Bull and Back would say that "the epistemological state of hearing has been in a poor second place compared to that of vision" (Bull et al 2015, p.1). One way to easily appreciate the supremacy of the visual elements is to consider that, if they wished, the player could easily deactivate all sounds, whereas removing the images would make the game unplayable. Still, from a pragmatic perspective this differentiation between the visuals and the sound is not negative but a way to more accurately understand the role that sound plays. Although less crucial than the visual aspects, it is important to remember that sound is capable of adding value to action in conjunction with images, which allows us to reflect on deeper aspects such as environment design or narrative construction. Tonkiss would suggest that vision is spectacle while sound is atmosphere, and argue that sound offers us a sense of depth and perspective (quoted in O'Keeffe, 2011, p. 52).
Adams (2006) sees soundscape as a construction through which players must navigate, suggesting the importance of creating an appropriate setting in a video game. Certeau (1988) complements this, arguing that the ability to navigate through this space depends on more than the visible information. These two authors express the importance of using sound in the right way, which may be the result of fantastic sound design or a representa-

1 He explains how music can have various functions within audiovisual media, and in this case applied to video games, which he classifies into narrative functions, functions related to action, functions related to time and functions related to space.

2 A term used by the Finnish architect Pallasmaa (2005) to refer to the way in which in the West has separated vision from sensory experience and embodied knowledge. Consequently, in ocularcentrism, sight is considered the fundamental element to reach "the truth" and "reality" and is therefore given more importance that the other senses (Cortés, 2016).

tion of an existing soundscape[3]. In this way, we can see how certain sound patterns and universalisms are codified so that the player's listening experience complements their visual experience. We can say that the previously encoded information that comes to us through auditory channels must line up with the visual spectrum in order to offer the player an appropriate setting. Jiménez and Rodríguez say the following about how sound and image can jointly create an environment:

> Sound becomes a key substrate for the formal achievement of the medium. Since communication is established through the various visual and sound resources acting mainly in an integrated way, stimulating multisensory perception and constant dialogue between the individual and the operating system, or between individuals through technological means, in this case digital[4] (2015, p. 532).

When discussing what we mean by coding methods and sound universalisms in soundscapes, it should be noted that these concepts stem from considering the proper construction of a sensory environment. A point to bear in mind is that these sound constructions are within a symbolic sphere, so they are not limited to representing real acoustic sources and may use references from other media (television, cinema or animation) to create a sense of harmony between the sound discourse and what the player is seeing.
This transmedial influence is found in games such as *Cuphead* (MDHR, 2017)[5]. The sound design is influenced by 1950s animation and uses sound particles of that era for actions such as jumps, blows or footsteps. The aesthetics in the sound editing likewise resonate with our cultural ideas about "old music" consistent with a faint white noise or equalization that enhances the high-pitched mids, or audiovisual techniques such as *mickeymousing*[6]. In this regard, O'Keeffe adds:

> With what definition of reality are we comparing this soundscape of virtual worlds and how real do we want our virtual environments to be? Most of the environments we experience within games are spaces that we may never actually experience. Our experience of certain soundscapes can be understood in relation to other media representations: television, Internet and cinema. The soundscape of the digital game then becomes a construction of definitions rather than a simulated reality (2011, p. 56).

Even in cases where the objective is to evoke a historical reality, as in some episodes of *As-*

3 Maldonado, F. & Roquer, J. (2019, feb 14) *Paisajes Sonoros Históricos: Análisis del entorno sonoro y modelo para su representación audible* [Comunication] Congreso MUCA. VI Congreso de Música y Cultura Audiovisual, Murcia, Spain.

4 All translations are the author's own.

5 With sound from Sweet Justice Sound.

6 *Mickeymousing* is the use of music in relation to the moving image. It occurs when the music is synchronized with the beat, reinforcing the action onscreen.

sassin's Creed (Ubisoft Montreal, 2007)[7] or *Kingdom Come: Deliverance* (Warhorse Studios, 2018)[8], we find that the sound design "is more based on the interests of the game and what the designer wants to use, often based on what they hope the player wants to hear, than on historical recreation" (Jiménez and Rodríguez, 2015, p. 533).

The theories of anthropologists Domínguez (2007) and Llorca (2014), which not only define a sound territory as a sensory environment but also as a key element in forming the cultural identity of a population, suggest that this type of work — video games — may appeal to the collective memory of a place/time more than to explicit knowledge of the cultural practices they are trying to represent. Similarly, Guirao (2017) investigates the development of the sound setting in the game *World of Warcraft* (Blizzard Entertainment, 2004)[9]. His study examines how technological processes can construct cultural realities from existing identities in video games. Although Guirao's work mostly refers to the music-cultural aspect, simply playing the game reveals how the soundscape fits this process and helps shape the cultural representations of the different races – the soundscapes of a night elf and an orc village, or the footsteps of a tauren and a gnome being totally different. This helps the player to assume that what they are hearing is credible and thus, as previously stated, the soundscape contributes to shaping the narrative.

To conclude, it is necessary to consider the morphology of the soundscape. Identifying which elements are part of it should result in more accurate representations since the sound sources will be more appropriately projected and distributed, and, in turn, gain greater acceptance by the player. Several models classify sounds into various categories. Here we will include one proposed in previous works (Maldonado, 2018) which orders sound sources into "ensemble sources" (which could be considered sources of background sound) and "idiosyncratic sources" (also called "sound marks"): those that have an acoustic or social relevance that allows them greater prominence in the acoustic space. These two elements are subject to the acoustic characteristics granted by the ASP (Acoustic Space Profile), which directly affects how sound sources are heard – for example, with more or less reverberation or with an equalization that simulates the interior of a room. With this information, sound designers can create constructs consistent with the visuals. Kutay (2006) in fact describes how "sonic sludge"[10]can be prevented. He says it is important for the sound designer to prioritize sounds, describing which are most important at certain times. In doing this, the designer has to create sounds that fit with all the others that may occur at the same time (Huiberts,

7 The first game was released in 2007, with several episodes set in various historical eras. The sound was directed by Aldo Sampaio.

8 With sound by Vojta Nedved.

9 For this game, the production company worked with various sound designers, such as Tracy W. Bush and Russell Brower.

10 Kutay uses the term "sonic sludge" to refer to an accumulation of layers of sounds that also acquire an exaggerated presence, thus causing an unintelligible signal that can be considered noise. This concept has similarities to what Schafer calls a low-fi soundscape (1977).

2010). Jørgensen (2008) also argues that symbolic sounds are key components in player versus player games. It is therefore imperative that the sound design addresses this need and that these acoustic priorities are previously established.

Reflections on sound reception

Information from both visuals and sound, transmitted sensorially through the video game, greatly influences the player by capturing their attention to complete an action or engage in the story. There is also a fundamental difference between the degree of attention required when playing a video game and when watching a film at the cinema. In this sense, Pine and Gilmore (1999) make a clear distinction between the two environments, stating that absorption occurs when someone enjoys an experience that engages their attention, while immersion takes place when a person "physically or virtually enters" said experience. With these definitions, we can draw the conclusion that immersion – a state that occurs in video games – is achieved by the user's interaction with the main actions and also with the virtual environment in which the action takes place. As we have seen, sound elements are key to achieving this state, thanks to concepts such as the added value that sound brings to the image, or Certeau's ideas that non-visual information is very important in configuring a space.

Returning to the ideas presented in the first section, there is another element that is key to achieving this state of immersion defined above: the intention to listen. To capture the player's attention, the idiosyncratic sound marks that provide specific information to the player are just as important as those that contextualize the video game environment. In fact, Van Leeuwen defines immersion in relation to sound design as something that occurs when sound is perceived to come from all directions (cited by Huiberts, 2010). There is therefore a dual dimension to how the player experiences the soundscape of a video game, one aspect of which results directly from interaction with the environment and the other from the intention of listening without having to interact with it: a concept similar to Schafer's active listening (1977) but in a virtual environment. This second dimension is experienced in games such as *The Witcher 3* (CD Project RED, 2015) and *Doom Eternal* (Id Software, 2020) in which players can make use of their "intention to listen" to the soundscape and even distinguish elements from it without taking any action. To recap, a player can feel immersed in the sonic sensory experience of a video game when they have the ability to perform actions (to interact) and also, although not necessarily, when they are able to passively listen to the environment (intention to listen).

Immersion is a concept also addressed by Taylor, who says there are two types: the diegetic, caused by the act of playing; and the intradiegetic, which is the immersion "in the virtual space created of the game situated both through the perspective of a character and an embodied point of view" (2002, pp. 8-12). Here we observe a system of immersion by degrees (comparable to a process), in which the author says it is necessary to be diegetically immersed before moving to the intradiegetic phase, since the latter is a deeper state.

Ermi and Mäyrä (2005) contribute to the discussion on immersion and categorize it into three sections: sensory immersion (created by graphics and audio), immersion based on challenges, in other words, on overcoming actions or challenges within the game; and imaginative immersion, which arises when the player empathizes with their character or with the story. Of these three elements, two are created by the player and, although the sound contributes to them (for example, in the sound particles that can be heard when killing an enemy), we are going to focus on so-called sensory immersion, since it specifically affects the morphology of the acoustic space of the game.

This acoustic space, from the player's point of view, can be analysed using the IEZA model, which organizes the sound of the game using a graph with two axes, resulting in four parts: Zone and Effect (diegetic sounds); and Affect and Interface (extradiegetic sounds). Since the intention of this article is to study soundscape, only sounds integrated within the diegetic space will be taken into account. Nevertheless it is important to add that these diegetic sounds can be onscreen (visible) or offscreen (only in the audio). Zuniño would say that "diegetic sounds are from the simulated world; noises of screams, footsteps, gunshots and explosions in a war game, and extradiegetic sounds are those outside the world and far from an apparent reality" (collected by Jimenez, 2015, p. 540).

The first quadrant, Zone, corresponds to what game designers often refer to as ambient or background sound. "This is used to provide a background to the game, giving information about the environment" (Huiberts, 2010, p. 26). Ensemble sounds are therefore commonly subject to the characteristics granted by the ASP (which can include spatial positioning with the option of panning[11] if technology allows). As for interactivity within Zone, we can say that this does not occur. For example, in *Another World* (Delphine Software, 1991)[12], the environment is audible but there is no way of interacting with it. This section (Zone) has been gradually added throughout the history of video games as technology has progressed and is therefore much more present in modern day productions. When Zone sounds are present in a video game, whether with a realistic or fantasy theme, they are advocating a sensory experience that resembles the real world and so we can say this is "realistic immersion". In contrast, in the absence of a sound background, the aim is "symbolic immersion" since the objective is to enhance interactive actions rather than emulate a sensory experience.

The second quadrant, Effect, refers to sound sources that are present within the reality of the video game and that are produced by the player's activity. Sounds made by the avatar and its interactions are common examples of this domain in current games. Sounds may include footsteps, breathing, dialogue, the sounds of weapons such as guns and swords – including from other players in the network – sounds of colliding vehicles or objects. In addition, in games such as *The Witcher 3*, mentioned previously, the player can interact with

11 A feature added with the SNES in 1991 allowing the use of ambient acoustics to be implemented in games such as Zelda III.

12 With sound by Tommy Tallarico.

almost the entire environment and cause new sound particles to be created. This is because the sounds that belong to this quadrant are often designed to react to the player. This denotes a "degree of interaction" defined by the aesthetics of the game or by the technology (ranging from being able to interact with the character's actions to free interaction of the environment). Finally, it should be said that the sound sources present in Effect can be both ensemble and idiosyncratic sources indistinctly. An example of this occurs in *The Witcher* when animal sounds are heard in the forest. When using the *sorcerer's senses*[13], however, the sounds of animals that may be potentially dangerous (bears, wolves or others) are enhanced, thus changing from a background sound to one that gives the player information – a change from ensemble to idiosyncratic sources.

The following diagram provides a compendium of the given concepts by way of conclusion:

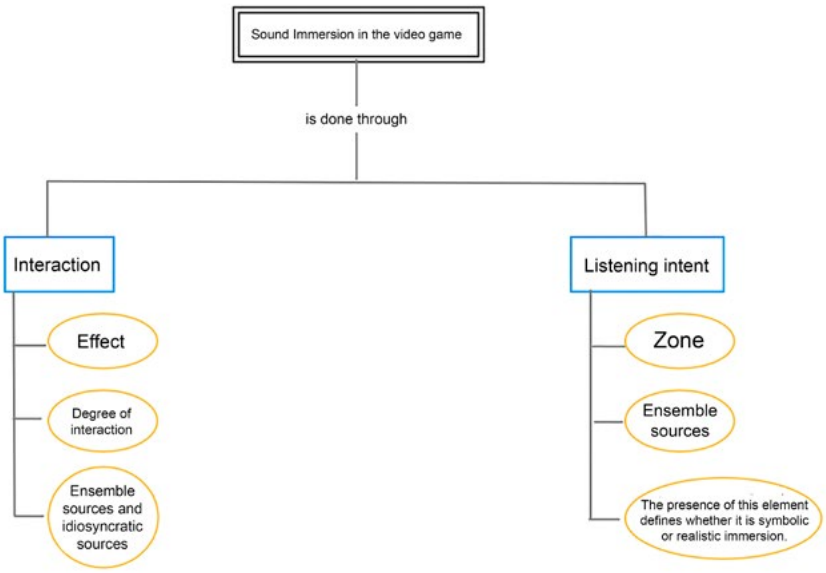

Figure 1: Sound immersion in video games

Analytical model: the ring system

The following section explains the system of analysis carried out in this research taking into account the previous concepts. This system aims to provide a clear representation of the parts that make up the soundscape of each video game in order to reflect on how the player is immersed in it.

This model is based on a central circle (nucleus) that gains additional rings as the characteristics of a game's soundscape are discovered. There are three main reasons for using this type of representation. In the first place, a visually clear system will allow acoustic characteristics (which may or may not be present in a video game) to accumulate around a shared

13 Mechanics that enhance the character's senses so they can pick up clues, become aware of danger or hear warnings.

element, in this case the nucleus, which represents the interaction of the avatar or character. This facility of the ring system enables a better analysis of the soundscape morphology. The second reason is that the type of representation must be able to compare more than one element. In this model, the circle is divided among the different video games to be compared, with their corresponding rings clearly showing the differences in the number of characteristics. Lastly, this type of representation is easily accessible compared to some complex sound literacy systems, which are often based on the tradition of Western musical writing or musicograms and which are skewed to a specifically musical profile.
The rings represent the concepts developed in the previous sections and follow a specific order explained below:

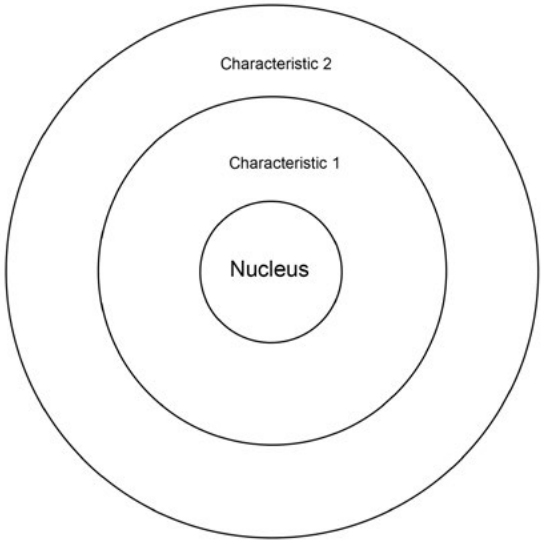

Figure 2: Example of the ring system

The central circle contains the characteristic shared by all video games: *interaction based on the character's actions*. The next ring, labelled "Characteristic 1" in the example, relates to the "intention to listen", and "Characteristic 2" to "free interaction with the environment". These rings in the example will be followed by one representing "spatial positioning" and, finally, "sound particles from other players" connected in a network.
These concepts have been chosen since, as observed in the theoretical framework and in Figure 1, they typify the most representative properties of a soundscape when considering the immersion of the player. They therefore bring together elements of Zone and Effect, or theory about the amount of acoustic information the player will receive.
The way to obtain the sound information corresponding to each category is by experimenting when playing. Therefore, the validity of the system is linked to how the player receives it and its significance. In this way, for the shared characteristic of "interaction based on the character's actions", acts with the avatar are limited to those that make a sound; for

"intention to listen" the player has to leave the avatar inactive and listen to the environment; for "free interaction with the environment" the player must experience as much interactive sound as possible, and the avatar must therefore perform different types of actions with elements of their surroundings (such as shooting walls, hitting elements, injuring an animal, etc.); in "spatial positioning" – best captured with the use of headphones – the player must notice the use of panning in order to locate the events of the video game; and finally, "sound particles from other players" is intended for cooperative or competitive video games which have more than one participant. In this case the activity – and the sound signals – of each player can be perceived by their opponents or allies. Next, we will look at the graphical comparison of several video games for further discussion.

Technological evolution

The example below represents the following games: on the left *The Witcher 3* and on the right *Donkey Kong* (Nintendo, 1984) in its version for Apple II. At a glance we can see there are a large number of sound elements present in the game on the left. This representation shows that a player can hear the sounds produced by the sorcerer, interacting with total freedom, or remain inactive and listen to the environment. In addition, having a sound system that allows the player to identify where the sound source is located will provide a sensory sound experience that closely resembles the experience in real life. This is quite different to the representation of *Donkey Kong*, in which the only sound particles are those generated by the player (in this case footsteps and jumps).

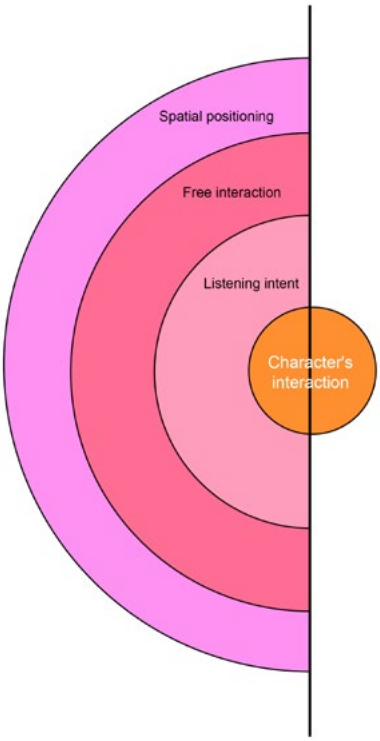

Figure 3: Example 1

Despite the significant difference in sound elements in this example, the concepts above prevent us from talking about "better" or "worse" immersion. Instead, in *The Witcher* the immersion would be defined as realistic and in *Donkey Kong* as symbolic. This argument is justified by observing the morphology of the soundscapes and by understanding that the purpose of the symbolic immersion is to enhance the sensation of "playing" by using sound particles (such as the sound when completing a level) to position the player as the saviour of the character's girlfriend. Thus, we observe that symbolic immersion shifts between two of the categories established by Ermi and Mäyrä: sensory immersion and immersion based on challenges, which arises through overcoming actions or challenges within the game. Although these elements are present in current games, they are used in a noticeably more differentiated and aesthetically integrated way.

These differences allow us to speak of a technological evolution, since previous resources available to develop video games were much more primitive and the sound was limited by two factors. The first of these was the capacity of the devices themselves, which were unable to accommodate large amounts of material and so the sound was limited to elements necessary for the setting. Secondly, earlier sound compression technology prevented the use of realistic sounds, so instead of recording audio, the first sounds were created by reproducing square waves – popularly known as beeps – that came from the internal speaker, later followed by the use of specific sound cards (Vaqué, 2011, p. 25).

Aesthetic decisions

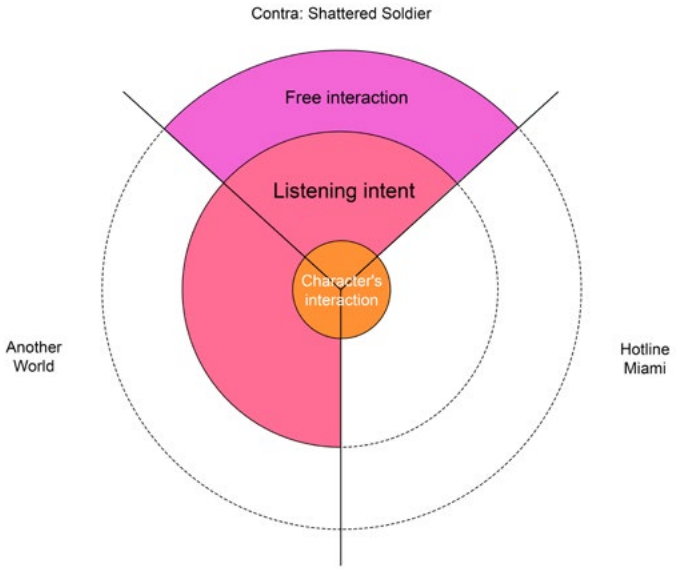

Figure 4: Example 2

This section uses the examples of *Another World* (Delphine Software, 1991), *Contra: Shat-*

tered Soldier (Konami, 2002) and *Hotline Miami* (Dennaton Games, 2013)[14]. This case serves to illustrate how aesthetic decisions also influence the composition of the soundscape. First of all, the background sound of *Another World* changes depending on the various locations and the sounds produced by the character's interaction. However, the degree of such interaction is limited to the narrative of the game. This contrasts with *Contra: Shattered Soldier*, in which the interaction is freer and allows actions to be performed with the environment. This game also has ambient sound (although it is true that the level of the music relegates it to small, almost inaudible sound samples). It should be added that the aesthetics of this game, in which the action takes place horizontally and from a third-person point of view, do not account for any spatial notion of audio. This perspective – which is similar to a platform game and was justified at the time by technological limitations – is a hallmark of the *Contra saga*. Even once the technology was available, it did not become a first-person system and develop an environment with a spatial dimension until 2018. The third element included in the graphic is *Hotel Miami*, played from an aerial third-person point of view and with a retro aesthetic that simulates video games from the mid-eighties in terms of both visuals and sound. Thus, despite the availability of the technology required to produce more realistic sounds, we find that 8-bit sounds were adopted in pursuit of an aesthetic coherence that simulates a technological limitation.

This example shows that the number of rings does not have to mean more technology, but that aesthetic decisions modify and define the path that the sound designer chooses when constructing the soundscape.

Electronic sports and sound information

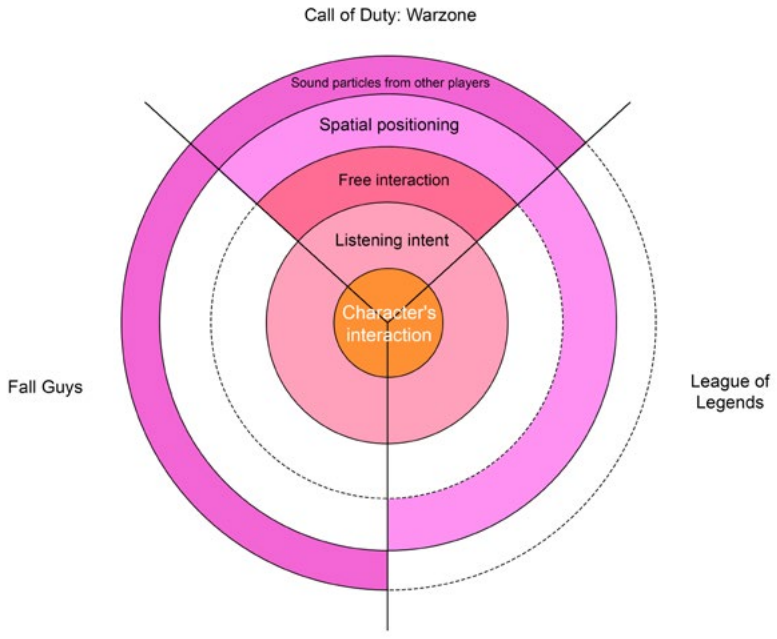

Figure 5: Example 3

14 With sound by Jordan Fehr.

As a final example, we should mention games which involve confrontations between real players. The games used to illustrate this are *Call of Duty Warzone* (Infinity Ward, 2020), F*all Guys* (Mediatonic, 2020)[15] and *League of Legends* (Riot Games, 2009). Here we can see two sound elements present in all cases: those arising from the avatar's interaction and those from the other players (in the graphic with the same colour). This is explained by authors such as Grimshaw and Schott (2007), who indicate that this type of information is the most important to ensure competition and correct gameplay, and that it is essential to obtain data from teammates and enemies in order to develop a game strategy.

In this way, the sound morphology of *Call of Duty*, in which the shooter theme makes it easy to adopt a realistic aesthetic, takes us into a fairly complete sensory experience where, in addition to the presence of the key sound information necessary to win a game, players can explore the environment freely. *League of Legends* has a fantasy setting similar to role-playing games and is a team video game that consists of achieving objectives (such as killing opponents or knocking down towers) to obtain coins which players can use to buy equipment for their characters and facilitate the final task of destroying the rival base. These characteristics of the game mode mean that the environment is not wholly interactive and depends on whether the action is used to gain a benefit[16]. The similarity with shooter games is the importance of the spatial location information for the team and this is reflected in the graphic. In contrast, the last video game in the analysis, *Fall Guys*, does not require the source of the sound to be identified since the objective is to overcome a series of obstacles to reach a goal. Therefore, the rivalry consists in trying to get there first rather than fighting an opponent. Here, the avatars' voices stand out when performing actions such as jumping or crashing, in line with the cutesy aesthetics of both the visuals and sound.

Conclusions

The primary intention of this work was to be able to analyse the morphology of the sound space in a specific way in order to understand how sound can be organized so that the user has the desired experience. The ability to transfer theories from sonology, musicology and anthropology in order to correctly define the object of study shows the transdisciplinary nature of sound studies.

The path this article has taken shows that the soundscape of a video game first requires a sound design influenced by real life and audiovisual environments or the audio creations of sound technicians. Second, these sounds go through a classification system which defines the relevance of each sound, thus establishing a hierarchy that helps the player understand the information the environment can provide.

These processes, which are in the more technical section, fulfil their function when the

15 With sound by Enrique Alcor Martín.

16 This video game has a multitude of playable characters each with various abilities, so while the environment is not interactive in general, there may be a specific ability that produces a sound particle when interacting with a particular element of the map.

player enters a state of immersion. As explained, this immersion is not strictly linked to technological advances or to the aesthetics of the game, thus establishing two categories – realistic and symbolic – which both aim to capture the player's attention but have different means of doing so.

Finally, the soundscape is one of the hallmarks of a video game and a key element in its configuration, an issue we have seen in the examples in the last section. The configuration of the sound design creates aesthetics that are later replicated and even taken to other formats (for example, the cinematics and film based on the *World of Warcraft* universe). It is therefore imperative to begin to acknowledge the importance of the sounds that occur in games, to activate our "sorcerer's sense of hearing" in order to recognize the role of the sound design within the sound universes we enter into.

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020 | 25-40
ISSN 2604-451X

Art and narrative:

music and colours in the video game 'Gris'

Alba Montoya Rubio
Universidad de Barcelona
albamontoya@ub.edu

Date received: 1-10-2020
Date of acceptance: 30-10-2020

KEY WORDS: VIDEO GAME | AUDIOVISUAL MUSIC | INTERACTION | ART | COLOUR | SYNAESTHESIA

ABSTRACT

Creating a specific methodology to analyse the music in video games remains a challenge to this day. Concepts taken from cinema or other linear media are insufficient as both the characteristics of the medium (interactivity and non-linearity) and the huge variety of genres and formats prevent the creation of a universal method for all video games. In this sense, the most viable option may be to create a methodology that can be adapted according to the genre or mechanics of the game in question. To contribute to this field of study, this article presents the analysis of a relatively linear video game using methodological tools traditionally applied to linear audiovisual resources, at the same time as terminology used in the study of interactive audiovisuals. The video game chosen is *Gris* (2018), produced by the Barcelona studio Nómada. It follows in the wake of other video games generally considered to be artistic, such as *Journey or Limbo*, in which the narration and the visual and musical aesthetics are all essential elements. The visual style of *Gris* was determined by illustrator Conrad Roset and its music composed by the group Berlinist. Both create synergies between music and image, highlighting the use of colour above all. This article therefore seeks to delve into the relationship established between music and colour and to contemplate to what extent the game can be considered a work of art.

Introduction

A few years have now passed since music studies in audiovisual media laid the foundations for a methodological analysis applicable to productions in this field. Authors have proposed various methodologies, and it is certainly true that nowadays the issue of analysing the relationship between soundtrack and audiovisuals is no longer a challenge. This progress has allowed many academics to consider going further and to question what should happen in the case of new media, such as video games. Despite being a gradually expanding field, the huge variety of genres and formats make it fairly challenging to provide a unified and valid methodology for all typologies of video game. Should we consider a method of analysis based on whether it is a racing, adventure or fighting game? Or should the variable be the degree of interaction or linearity of the game? These are some of the questions researchers face when entering this rich and immense world and it is highly unlikely that these questions will be answered in a single article. Nonetheless, it may be possible to go some way towards unravelling this spider web, and this is the aim of the present article: to propose a way of analysing a video game. For this reason, the game chosen as a case study is not too far from what would be considered a traditional audiovisual product. *Gris* is an adventure game with a platform format that has been qualified by many critics as an "artistic video game" (Harmon, 2018). The creators do not hide the fact that they were inspired by other video games considered to be artistic, such as *Ori and the Blind Forest* (2015) and *Journey* (2012) (Canòdrom Creative Industries Research Park, 2019). In these games, the story and the visual and musical aesthetics are all essential elements. In the case of *Gris*, the aesthetic is determined by Conrad Roset's illustrations, while the music by the band Berlinist is characterized by the dream-pop style mixing acoustic and electronic instruments.

Why is this video game a good starting point for proposing an analysis methodology in this format? The answer is straightforward; it presents a linear story, in which there are no remarkable variations between the experiences of different players. All players hear the same music combined with the same images, with only slight variations, making it closer to a traditional linear audiovisual. It also presents an experience that is difficult to transfer to film or television, this being the artistic component. We are unlikely to come across a film in which viewers spend hours looking at an image, delighting at the illustrations and the music that accompanies them; or at a narrative level, a storyline that does not conform to the Aristotelian model of setup-conflict-resolution – even less so one structured in five stages, each represented with a different colour. This article specifically emphasizes these two points – the artistic component and the relationship between narration and colours – as well as establishing the synergies between music and image.

The article is divided into three main sections: a state of the art regarding music in video games, which includes a brief overview of the bibliography on this topic. Representative terminology used for traditional audiovisual resources is also called upon, to which ter-

minology from interactive audiovisuals is added. Subsequently, the video game *Gris* is introduced and its creators, the video game production process, and its background considered. The second section presents an analysis of the video game, underlining the storyline and its relationship with the five-stage process of overcoming pain. This analysis combines chronological description of the video game's development and the role played by music. Finally, the article ends with the discussion and conclusions, which highlight *Gris*'s contributions in terms of video game music and to what extent the game can be considered an artistic experience.

State of the art. Music in video games

Since the publication of *Game Sound* by Karen Collins in 2008, a relatively small number of articles and books have appeared related to music in video games. This is probably due to several factors, the main one being the difficulty of analysing their music. It is certainly difficult to take notes while playing or to consider all the different options a video game may offer. Moreover, as mentioned, the video game sector includes a wide variety of formats and genres, making it difficult to systematize a study method in such a vast field. Although not an easy task, new articles and books are regularly published, such as the compilation by Kamp, Summer and Sweeney (2016), and articles in journals focusing on the subject, such as this one. Numerous books have also been written as manuals for composers, clarifying some key aspects and terms used in the sector. Examples include *A Composer's Guide to Game Music* (2014) by Winifred Phillips and *Writing Interactive Music for Video Games: A Composer's Guide* (2014) by Michael Sweet. Beyond these publications, Summers' *Understanding Video Game Music* (2016) lays a foundation and shows the wide variety of possible analytic perspectives for video games. The author proposes a theoretical framework for research in the field of video game music, combining traditional musical analysis methods with new approaches suitable for the digital medium.

Since a relatively linear video game was chosen for the present study, the analysis can be rooted in a much more developed field of study: film. From here, a comparison has been drawn to differentiate one format from the other.

Common audiovisual vocabulary

To begin with, the article uses specific terms taken from film which are perfectly applicable in this context. Among them, the acronym MS (musical soundtrack) will be used to refer to the music heard in the context of the video game, and FM (film music), to refer to the recorded edition of the music created for an audiovisual product, as suggested by Lluís i Falcó (1995)[1]. Other musical terms used for linear audiovisual products that can also be

1 During conferences, the author has acknowledged that this terminology needs to be revisited, among other things, because it does not make sense to talk exclusively about film music given that music is created for more audiovisual formats. However, in the absence of a more up-to-date reference, this terminology will be used for the present paper.

applied to video games are the concepts of diegetic and extradiegetic music (Fraile Prieto, 2008, p. 34). The *leitmotif*, that is, a musical motif associated with a character, plot or a particular aspect of a work of fiction is a widely accepted compositional formula also used in video games. Finally, it is worth mentioning a concept deeply rooted in the field of animation and, therefore, in video games, that of *mickeymousing*, which refers to the musical accentuation of movements or gestures that can be seen on screen.

Differences between interactive and non-interactive audiovisuals

The first thing to keep in mind when comparing film and video games is the importance of technological development. Early videogames could only afford minimal sound, so composers had to work with what little they had (Collins, 2008, p. 9). This was the fundamental reason they opted for simple and repetitive melodies that were easy to remember. Nowadays, with this hurdle behind us, there is a certain absence of melodies (Game Score Fanfare, 2019). Even though most of the initial limitations have disappeared, composer Olivier Deriviere[2] says the mechanics of the game and technological development remain of central importance. For example, in the fighting scenes of the game *Remember Me* (2013)[3], the composer had the idea of creating a series of back to back musical fragments to indicate the fight status (whether the player is winning or losing). This was feasible because the technology allowed such adaptability and because the composer himself decided to implement it, as Deriviere confirms. This constantly changing music makes sense in an action game, in which the music must adapt to its development. In contrast, in graphic adventure games such as *Myst* (1993)[4], the music takes place in a space regardless of the actions of the player. In this way, the player has the necessary peace (or a certain amount of tension, depending on the case) to solve the puzzles in the game.

Another element that distances video games from film is the response of the recipient. When watching a film, the spectator is a passive subject, while a video game player is an active subject. This implies that each player's experience will be personal, different and unique. In the case of film, on the other hand, all the spectators will see the same story told in the identical way. The implications of this fundamental difference in the music are innumerable. This is precisely the central point made by Collins' (2008), who distributes the types of music according to their level of interaction in the following way:

- *Interactive audio* sounds that appear as a reaction to the player's action.
- *Adaptative audio* sounds adapted to the development of the game (the sounds are activated after a certain time or when passing through specific spaces).

2 All the statements attributed to Deriviere are taken from a personal videocall recorded on May 18, 2020.

3 *Remember Me* is an action-adventure video game with music by Olivier Deriviere.

4 In *Myst,* the player can move the character by clicking the mouse wherever they want. They can also interact with specific objects just by clicking on them. There are no enemies in this type of game, instead there is a set of puzzles that must be solved.

- *Dynamic audio* combines interactive and adaptive sound.
- *Nondynamic audio* sounds that exist in a specific space but that are not influenced by the actions of the player.

Although this is an interesting theory, it presents certain ambiguities that make it difficult to use. In fact, when video game composer Deriviere was asked about this terminology, he admitted he was not familiar with it (Deriviere, 2020). This contrasts with composers' use of the terms *leitmotif* or *mickeymousing*. This lack of communication between academia and the professional world prevents such terminology from becoming established and raises the question of how useful it really is if composers are not aware of it. In this sense, Deriviere suggests, for example, differentiating between illustrative music and reactive music (Deriviere, 2020). In a video game, illustrative music would be limited to illustrating what is happening, whether it is an action or a love scene. On the contrary, reactive music would respond to the player's actions. A simple example of this idea can be found in the game *Life is Strange* (2015), in which the player has the option of playing a specific album or song while they look around.
For Berlinist, the band behind the MS for *Gris*, the difference between film and video games lies in the role of the player and how music often serves as a guide:

> Musically speaking, in addition to the different technical process and mechanics that a videogame OST requires, the role of the player is also essential for us as we must guide them, make them feel as a part of the experience, and know when to stress and minimise the musical component (Madarasi, 2019).

Other terminology used by composers is also relevant, such as the term *loops*. In order to avoid repetition becoming tedious for the player, the composer adds layers or produces variations, which dilute the feeling of reiteration. This action of adding layers is called *additive* music according to composer Christian Henson (Spitfire Audio, 2018). Finally, it is worth noting the *trigger*, which can be defined as any event in the game that sets off the music. According to Oscar Osicki (Inside the Score, 2020), a good trigger should not be too obvious as it may distract the player or bring down the game's fourth wall. Good use of layers can often be used to disguise a trigger, says Osicki (2020).

'Gris', an artistic video game

Studio and creators

Gris is a platform adventure game developed by Nómada, a studio founded by Roger Mendoza and Adrián Cuevas, developers with many years of experience in large studios such as Ubisoft Montreal and IO Interactive, where they were involved in developing games such as *Assassin's Creed* (Canòdrom Creative Industries Research Park, 2019). The artistic

side of the studio is provided by illustrator Conrad Roset, known for his watercolours and who has a background in advertising. 79% of the team had never worked on a video game before and some were not even gamers. This was not a coincidence, since the creators' goal was to create an artistic experience accessible to everyone, regardless of whether or not they were gamers (Canòdrom Creative Industries Research Park, 2019). This means that the dynamics of the game may seem simple or too easy for more experienced gamers, and this is reflected by some of the comments on social networks[5].

As previously mentioned, the music was composed by Berlinist, a band from Barcelona started in 2011 by Marco Albano (piano and vocals), Luigi Gervasi (harmonium) and Gemma Gamarra (vocals). Their discography is characterized by delicate pieces of dream-pop blending acoustic instrumentation with electronic processes.

The band joined the studio at the request of Conrad Roset, who had previously heard their music and thought they could provide the right musical setting for the video game (Montoliu, 2019). Berlinist had no previous experience in composing for video games, but one of their members (Marco Albano) was a keen gamer so the group eagerly accepted the challenge.

The background to 'Gris'

When asked about their influences, the game's creators cite *Journey*, *Limbo and Ori and the Blind Forest* (Canòdrom Creative Industries Research Park). Even though Roger Mendoza and Adrián Cuevas both mainly refer to the visual and plot aspects of the video game, there are some common points in these games at the musical level.

Journey is an adventure video game developed by the independent American studio Thatgamecompany and released in 2012 for PlayStation. The plot follows a traveller's journey through a vast desert as they try to reach the top of a mountain, exploring the ruins of an ancient civilization along the way.

Aside from the music, composed by Austin Wintory, the gameplay is silent, with only visual and musical elements guiding the player. For this reason, it is one of the most studied video games among scholars and academics. It is also an online game in which the player must interact with other players all over the world solely through music. A detailed analysis of the video game shows that instrumentation is added within a given scene depending on whether the main player is alone or with someone else. In fact, this study uses the analytic model proposed by Zúñiga Jokela (2013) as an example, this being a thesis which analyses the game's development in parallel with the musical elements that interact and enrich the story.

Limbo is a logic platform video game developed by the independent Danish studio Playdead and released in 2010 for Xbox Live Arcade. The plot follows the experiences of

5 "For me, an exquisitely beautiful experience, but a terribly basic/mundane game. I think in this instance the presentation is absolutely the sole entry ticket, because the gameplay feels barebones and simplistic". Tommy Millar [Nombre de usuario] (2019, January 19) Comentarios del vídeo de Youtube *The Animation of Gris.* (Video Game Animation Study, 2018).

a child looking for his sister in a sinister environment. The game stands out for its monochrome graphics, ambient sounds and minimalist mechanics, which led to it being classified as an "artistic video game". Martin Stig Andersen composed the MS based on his experience with acousmatic music, which results from the mix of sounds.
Ori and the Blind Forest is a platform adventure game designed by Moon Studios, an independent developer. At its launch, the video game was acclaimed by critics and gamers who lauded its system of play, artistic style, story, action sequences and ambient design (Hoss, 2014). The music was created by British composer Gareth Coker, and is entirely orchestral. This MS is the most reminiscent of music that may be heard in an animated film.

'Gris' case study

The plot of 'Gris'

The story revolves around a girl named Gris, who wakes up in the palm of a statue. She begins to sing but loses her voice and the statue's hands crumble, dropping her into a colourless space. When she begins to walk around, she discovers ruins that seem to be powered by points of light. The player soon finds that collecting these lights gives the character new skills and creates new pathways made of constellations of stars.
After reaching Meridian[6], a building that resembles a temple, the girl can travel to four new locations to collect lights and bring the colour back to her world. These include a red desert, a green forest, blue underwater caverns, and a city littered with yellow lights. Along the way she meets various creatures. Some of them help her during the journey but others, such as shadowy birds or eels, threaten to eat her.
When she has gathered enough stars to form a path to the sky, the girl's final destination is blocked by the creature. However, she begins to sing, and the statue starts to rebuild itself through the power of her voice. The girl and the statue embrace and the game ends when Gris climbs up the constellation she has been building throughout the game.

A personal journey

Although the concepts of Gris and Journey are similar in that the main character must overcome obstacles as they travel through the game, Joseph Campbell's Journey is an example of a hero's quest, whereas Gris is based on Kübler-Ross's model of the grief process (Elizabeth Kübler Ross Foundation, 2020a). This is no secret; as levels are unlocked throughout the game there is a clear correlation between them and the Kübler-Ross model. In fact, in an interview, the creators said that the game is about a character trying to overcome depression (Canòdrom Creative Industries Research Park, 2019). To this end, they based the game on the five stages of processing a loss or depression: denial, anger, bargaining, depression and acceptance. However, as authors such as Friedman and James or Maciejew-

6 The name Meridian appears on the Gris FM, since no name is given to the places the character runs through during playthrough. It can be heard at: https://open.spotify.com/track/4VjyBWppQzuQh2XNiYvwxb

ski have pointed out, the lack of experimental evidence for this theory makes its veracity questionable. Nevertheless, this has not prevented the model from being used countless times in popular culture (Elizabeth Kübler Ross Foundation, 2020b) and in the video game discussed here.

In Gris, the model is made visual through specific colours, each of them representing the character's state of mind. Between each stage/colour there are recurring elements that mark the transition between worlds. These include a colour change that occurs every time Gris reaches the statue, which is ever more complete, and the stone figure is accompanied by the motif that Gris sang a cappella during the cinematic at the start of the game. Instruments are added to each new version of the motif, thus indicating that Gris is getting closer to her goal. The four FM tracks linked to this scene relate to elements of the game that appear in the levels Gris unlocks: *Lift*[7] for Red, *Opaque*[8] for Green, *Symmetry*[9] for Blue and *Sparks*[10] for Yellow.

The temple of Meridian, a meeting point between worlds, also indicates the changes that are taking place. This location is also where we see the path to the sky that the character must create using constellations of stars, and how she builds it bit by bit. On a musical level, however, the piece heard is always exactly the same. This stability within the change was probably conceived as a way to remind the player that they have returned to the same location since it may be unrecognizable because of the constant modifications.

As will be seen throughout the analysis, music has a similar function in *Gris* to in *Journey*: to make up for the absence of dialogue or text that helps the player understand the dynamics. It is the music that indicates the progress of the game during each stage and that comments on the character's emotions. The game is therefore almost unplayable and incomprehensible without music.

Denial: Black and White

This is one of the shortest stages of the game. In it, the player discovers some of the game mechanics, such as collecting stars in order to create constellations and jump from one space to the next. After a simple puzzle, the character comes across the hand of the statue. Thus begins the first stage of the game: the colour red, or anger.

At this stage, the music indicates that Gris can start to move through the game. While there is no music, the character walks very slowly and stumbles easily. As soon as the music starts, the player realizes they can continue in a normal way. The *animatto* rhythm of the piano encourages the player to run, contrasting with the quiet moments immediately beforehand.

Anger: Red

This stage begins in Meridian which, as mentioned, is always accompanied by the same

7 https://open.spotify.com/track/2LcPmyfnKpSk5SB5FPJQbn

8 https://open.spotify.com/track/4CCCqWJfC3W9YZfiY1doOw

9 https://open.spotify.com/track/1azM3gGpZzkHRYFYX1RumV

10 https://open.spotify.com/track/4y9aeo1qaJGOF1fywu8IO6

musical track. The first motif associated with Red does not start until the character begins to descend a slope. In this scene the player can only watch and enjoy the music and images before them. The beginning of the motif is reminiscent of the one heard during the first level; a theme mainly driven by a piano with accelerating ascending chords. In this case, a new layer of violins is added, which uses long, slow notes to give the track depth. This establishes the character's progress. The first motif ends when the character reaches the bridge, and silence accompanies her until she climbs the tower. At the top of this building the previous motif ends and Gris's main motif (*Incipit*[11] on the FM) is introduced. This motif will return every time Gris gets closer to her goal.

There are then a few more seconds of silence until *Perseverance*[12] (on the FM) begins. This track features a slow and deliberate piano, giving the barest outline of a melody. Suddenly, the ominous sound of an organ appears, which coincides with a storm that prevents the character from continuing. This is the fragment in which the music is most interrelated with the mechanics of the game; on hearing the first notes of the organ, the player realizes they need to find shelter and wait until the storm passes. In fact, according to the creators, this fragment was based on the music (Canòdrom Creative Industries Research Park, 2019). The decision to use an organ was also deliberate and Berlinist explains why it is the main instrument in this section:

> We liked it because for us it is an instrument that represents the invisible air that fills the spaces and moves the wind. The organ could reproduce the concept of paralysis and movement at the same time. In the ruins, it fills the spaces; in the desert, it moves the main character. It is always there and is an optimal way to convey the player's emotions depending on how it sounds (Berlinist, 2020).

This dynamic continues until Gris gains her first power: to turn into a block of stone. This will allow her to cross the last stretch of desert. In fact, a change in the organ melody indicates that this storm is unlike previous ones and that the character will have to face it to continue. With each step, the music intensifies and layers are added, representing the wind that tries to prevent the character advancing. After overcoming this obstacle, the organ disappears and Gris enters the cave of "denial", decorated with women hiding their faces, and the Gris motif is heard again on violins.

From here the player enters a new space featuring windmills and clocks. The concept seems to be significant here, as music reinforces this idea with distorted effects that make it sound as though it is being played backwards. This may be part of the character's denial, as she refuses to let time pass. However, as the character progresses on her journey, the music departs from this effect and the rhythm begins to accelerate. In this way, Gris final-

11 https://open.spotify.com/track/3ycQaTzqpCH8Ys33DjeKPJ

12 https://open.spotify.com/track/5naAIP8Bi485QEXR6w6Izw

ly manages to set denial aside and take a step forward in her grieving process.

Bargaining: Green

The main characteristic of the track (*Komorebi*[13] on the FM) that floods this new space – the forest – is the peace it transmits. The slow notes seem to imitate the character's walk through the woods. Then, when a little robot begins to follow Gris, the cello enters, reflecting their friendship. This is a strategy similar to that used in *Journey*, in which a viola is heard every time a companion appears (Zúñiga Jokela, 2013). When Gris's travelling companion says goodbye for the first time, the player might think he would not be seen again were it not for two unresolved ascending notes played on the cello. Nevertheless, Gris goes back down to the caves where her friend lives, and he rewards her with a star. From here, Green begins to disappear and return to Red, while the music becomes a mere echo. *Komorebi* does not reappear until Gris gets a second star. Red, once again, coexists with Green.

When Gris gains a new power, the double-jump, the music gives way to the organ, with a slow, ceremonial tempo. The character continues upwards, until she meets the first enemy that she must "confront". This is a bird made of black butterflies that previously appeared in the anger stage. In this fragment, the music changes entirely and creates a tension that would be difficult to maintain throughout the entire scene, since the game mechanics prevent the character from dying. The player is never therefore in any real danger of losing or going backwards by not evading or attacking the bird at the right time. However, the abrupt change to strong musical dynamics, staggered notes and a fast pace causes tension for the player. The music also makes the player aware that danger is still lurking, as there are times when the music maintains its intensity despite the bird not being visible. Creating this precedent also serves to disorient the player, since later on the music disappears, leaving an uncertain silence. The player cannot therefore be sure whether the music has faded out because the enemy is not going to return, or whether they are being misled.

It is also worth noting that Gris cannot get rid of the bird until she makes a bell ring. This is the first time that diegetic music has appeared since the beginning of the game, when Gris sings. The bell is the determining factor in defeating this demon. In addition, as we will see, the bird is a representation of Gris's inner demons, who try to prevent her from progressing through her recovery process, and music is the element that will help her defeat them.

After passing this test, Gris is able to get back to the statue, which is gradually being rebuilt. At this moment, the player also becomes aware that, just like the statue, the music is also more complete: it includes percussion, choirs and cymbals. With this bold music, Blue is introduced.

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13 *Komorebi* in Japanese, means "sun rays that filter through the leaves of the trees." According to Berlinist, the Japanese names were chosen because the game has many ties to the Studio Ghibli imagery and because some words such as *Komorebi* express concepts on their own. (Berlinist, 2020). https://open.spotify.com/track/6X3XKLMWHQys2tMe5uIw7S

Depression: Blue

This stage begins with the sound of rain and music is not heard again until the character is underwater. When it begins, the track used is *Komorebi*[14] since Gris is once again journeying through forest landscapes, now enveloped in rain. This time, however, the track does not play on a loop as Gris walks through the woods, instead changing into a new track titled *Rain*[15] as soon as it finishes. This new motif is based on synthesizers and uses an echo effect as if representing the reflection of the water. The music is also distorted so that it sounds "opaque" when Gris is underwater.

This first stage of Blue ends when Gris returns to Meridian, where the motif appears again. In this second stage, the player supposedly descends to the depths of Gris's subconscious as we see her dive into an increasingly dark underwater world. The track on the FM for this stage is appropriately called *Descent*[16]. In fact, Gris's new power consists of being able to move like a fish and to descend even further. In this fragment, the piano and synthesizers predominate. Again, sonic distortion is used to give the effect of being reversed, as if the character was going backwards in her recovery process. In this section, the player must solve one of the most complicated puzzles in the game, which is made up of several challenges. This is one of the few places the character has to go around several times to solve them all, although some are easier than others. Not until Gris is about to pass the final test does the music stop looping and introduce her motif. At this point, the coordination between the player's movements and the music is not too well synchronized: if the player arrives at the meeting point before Gris's motif ends, the music simply stops. Once the character reaches the meeting point, the central shape turns into a turtle that helps her continue in the dark. Here, a new motif appears (with no version available on the FM). This is related to the previous one but has a stronger rhythm, drawing the player onwards.

In this way, Gris is reunited with the statue, which now has a face. During this transition, the player hears a voice similar to Gris's in the cinematic at the start of the game. It brings with it the last colour of the game: Yellow.

Acceptance: Yellow

This stage begins differently from the others. As soon as Gris manages to unlock the colour Yellow, the shadow reappears, this time turning into an eel that tries to eat her. Once again, it is the music that generates tension for the player, as if the controls are set aside, it soon becomes obvious that the character is on autopilot and there is no real danger of dying. Music not only helps to generate tension here, it also gives the player a false sense of security in the interlude when the eel disappears. The calm music encourages the player to relax

14 https://open.spotify.com/track/4Ljxr8XrVAVNEUwvhGO9PW

15 https://open.spotify.com/track/3XHEC8nVkVaiW67GCmOu9R

16 https://open.spotify.com/track/5vtF3FsdToNb3EUFJPchTG

(although the drum roll indicates that the danger has not entirely disappeared), enabling the eel to take the player by surprise. This time there is nothing Gris can do except run away and wait for the turtle – who will help her get back to dry land – to rescue her.

Henceforth, Gris retraces the path travelled during the Blue stage, accompanied by a track titled *Ascension*[17]. The piece is in a minor mode and has a slow tempo, with long, slurred notes. The piano is hardly audible, and synthesizers and strings predominate.

Gris returns to Meridian, the music unchanged despite the city being more complete. For this level, she needs her three powers: breaking things, jumping and swimming. A new space appears as a magical city lit up with yellow lights. The music seems designed to represent night-time since it emulates a lullaby, with a slow tempo and sounds similar to a glockenspiel or xylophone.

This new level also poses a new level of difficulty; it is a reflected world in which the player must guide Gris through an upside down space, while music adds a layer of distorted sounds and echoes. This sound layer is added or removed depending on whether the space is normal or upside down.

Soon, Gris will discover her last and most eagerly anticipated power: singing. The phrase she sings will be longer or shorter depending on how long the player holds down the button. The ability to sing allows Gris to breathe life into the world around her – flowers, birds, or mechanical creatures.

At the end of the level, extra content is available for players who have collected all the stars. A secret grotto opens in Meridian which allows access to a memory of Gris with her mother (the statue at the beginning). Thanks to this fragment, the player learns that the stars are something that mother and daughter share. Yet the music, through the use of distorted and reversed sound, indicates that the scene is a memory of the past. In this way, the game leads players to understand that Gris is on a personal journey as she tries to come to terms with the loss of her mother.

Before taking the final step, the shadow again appears, accompanied by tense music that warns of danger. Here the player sees that the shadow is actually Gris herself and her reluctance to overcome her pain.

The ending: all the colours

In this final stage, musical silence and black and white colours reign again. Gris climbs the broken statue until she reaches the hand and she rebuilds it with her voice. Although singing means Gris being consumed by her own darkness, the memory of her mother also responds to her singing, casting aside the black and white world and allowing the colours to return. Thus, the statue finally helps Gris reach the constellation of stars she has created throughout the game to climb to the heavens. Meanwhile, the voices of mother and daughter, accompanied by Gris's footsteps through the stars, allow the character to reach her

17 https://open.spotify.com/track/4HTpDwckdexJSbRaY5hagG

destination.

Discussion

As the analysis has shown, music has several functions in *Gris*: it emphasizes the emotions of the main character, warns of danger, gives the player information, misleads them, and adds meanings. According to Berlinist, colours were used to define each space as a way to identify each musical tonality with a specific colour, as proposed by some synaesthesia tables. However, we have established that firstly, the distinction between tonalities is not something most players notice; and secondly, some tracks are heard in more than one space, such as *Komorebi*, which can be heard in both Green and Blue; in addition to the fact that the Meridian motif does not modulate in any of the stages. To summarize, even though the music achieves the objectives required by the game, synchronization errors can sometimes be detected (as in the Blue stage, in which Gris's theme may or may not be heard) and its presence only affects the mechanics of the game on rare occasions, such as when the organ warns of the approaching storm. Thus, in terms of innovation, the analysis of *Gris* does not reveal a particularly ground-breaking game regarding the use of music. That said, it is also worth asking whether this was ever its creators' main goal. The answer to this is probably the same as the response to those who complain about the simplicity of the game's mechanics or its puzzles, which is that it was not their goal to be eminently innovative. Ultimately, the emphasis in this game is on art, and it is certainly true that particular scenes in which Gris is limited to walking or descending a hill would be dull without the music (Canòdrom Creative Industries Research Park, 2019). Berlinist use the metaphor of an art gallery to hint at the purpose of their music in the game:

> We have always thought about music naturally filling the landscape (and not being as mechanical as in other platform games) and giving the feeling that the character is breathing together with it. This was done by considering each space as a painting hanging in an art gallery in which music could make you travel without moving. We included some musical elements to interrupt this peace and make the player understand that they could lose control at any moment (Berlinist, 2020).

In this way, we once again find a characteristic of a video game that is difficult to apply to a traditional audiovisual resource: the ability to allow players to enjoy the space as if it were a painting. In a linear audiovisual product, time is defined. No matter how much the director wants to recreate certain scenes or construct shots similar to a painting, it is they who decide how long viewers will spend watching a scene. In *Gris*, however, the player chooses what they want to see and for how long. And music, art that lives in real time, can remain with us on an infinite loop

Conclusions

At the beginning of this paper, I put forward a relatively simple challenge: to provide tools for video game analysis based on a case study. In order to make use of the terminology and knowledge provided by previous research into film and television, a linear video game, *Gris*, was chosen. But video games are still an interactive type of audiovisual product, and it was necessary to take this into account to develop the analysis. For this reason, the work in the field of video games has been reviewed and analysis of other games taken as an example.

On this basis, a chronological analysis of the game has been carried out, highlighting the role of music in its development. From this study, I have shown that the music is used in an appropriate way but does not provide any notable innovations. What is more, one of the original proposals of this article, the relation between music and colours, has proven to be one of the least relevant aspects of the video game. However, moving away from the canonical expectations of video games and revisiting Berlinist's point of view, which considers the game as "an art gallery" that has been "filled with music", provides a different perspective. The music not only guides or accompanies the player, it also invites them to play around with their own experience. This approach is hardly comparable with a traditional audiovisual product, in which the viewer is unable to recreate or lengthen a scene as they wish. In a video game, the player decides how to direct their experience, how much to lengthen or shorten it, and can even relive it in different ways if they so wish.

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020 | 41-51
ISSN 2604-451X

An Archaeology of Music Video Games

Israel V. Márquez
Universidad Complutense de Madrid
isravmarquez@ucm.es

Date received: 1-10-2020
Date of acceptance: 30-10-2020

KEY WORDS: MEDIA ARCHAEOLOGY | NEW MEDIA | MUSIC VIDEO GAMES | SOUND | IMAGE | NOVELTY

ABSTRACT

This article is a contribution to the study of video games – and more specifically, of so-called "music video games" – from an archaeological perspective. In recent years, much academic attention has been paid to the archaeology of media as an area of knowledge thanks to its ability to construct alternative narratives for media that were previously rejected or forgotten, in addition to offering resistance to the rhetoric around digital and its emphasis on change and innovation. Studies on new media, including those dedicated to video games, often share a disregard for the past (Huhtamo and Parikka, 2011, p. 1), something that is also observed in specific genres such as music video games. Starting from these and other premises, the aim of this article is to understand music video games from an archaeological point of view that allows us to go beyond the rhetoric of change and novelty linked to modern digital and three-dimensional versions of this type of video game.

Introduction

The so-called archaeology of media, or "media archaeology", has been of great interest to academics for several years, especially in the Anglo-Saxon and Central European sphere and increasingly in the Spanish-speaking academic community. The term, inspired by the work of Michel Foucault, has recently been claimed by scholars such as Friedrich Kittler (1999), Siegfried Zielinski (1999), Thomas Elsaesser (2004, 2018), Erkki Huhtamo (2004, 2007), Wolfgang Ernst (2018) and Jussi Parikka (2012), whose contributions have been decisive in clarifying the theoretical bases and methodologies of this new field of research. These researchers converge on the point that an archaeological approach enables media that have been suppressed, rejected, forgotten, or considered obsolete to be revived through the construction of new narratives, also taking into account inventions that never materialized or investigations that were never legitimized but which gain new meaning when revisited. It is therefore concerned with "inventions and inventors that, without apparently having prospered, may have influenced the development of media, and whose recognition is immensely useful when it comes to delving deeper into media history, and therefore art history" (Alsina et al, 2018, p. 2). Taking an archaeological perspective during an era marked by the rhetoric of technological novelty, evolution and revolution remains a statement of principles and a way to resist digital's drive to innovate and its increasingly rapid planned obsolescence. Thus, "In the face of the strategic amnesia of digital culture and the new media industry, Media Archaeology can oppose these forces as a possibility for memory, and the scourge of oblivion", a way of seeing "the old in the new" and "the new in the old" (Alsina et al, 2018, p. 3).

This archaeological perspective or "impulse" towards media (Ernst, 2018) has been especially applied to film analysis. The term "archaeological" in fact first appeared in film studies with such early works as that by Ceram (1965). As Ernst (2018, p. 46) acknowledges, media archaeology "is fascinated with cinematography in terms of its mechanism", a fascination which has resulted in a wide variety of cinematographic archaeology studies (Zielinski, 1999; Mannoni, 2000; Huhtamo, 2004; and Elsaesser, 2004; 2018). Other audiovisual media, such as video games, have not been so fortunate. This is partly explained by their status as a "new medium", since, as Huhtamo and Parikka point out (2011, p. 1), new media studies often share a disregard for the past, because although the challenges posed by contemporary media culture are extremely complex, "the past has been considered to have little to contribute toward their untangling. The new media have been treated as an all-encompassing and 'timeless' realm that can be explained from within". Video game studies, notes Collins (2016), have often ignored the non-digital games that have influenced the history and design of video games.

A notable exception is the work of Erkki Huhtamo, one of the first researchers highlighting the importance of the archaeological approach to the study of video games. According to Huhtamo (2007), an "archaeology of gaming" is much needed, since video games did not

come out of nowhere; they have a historical background which has to be "excavated", and their condition as an interactive medium can even be traced back to the time of the industrial revolutions of the 19th and early 20th centuries. For this author, the video game, as a paradigmatic example of a "new medium", has traditionally been represented as something unprecedented, "a unique phenomenon heralding an imminent transition into a culture of interactivity" (Huhtamo, 2007, p. 59). This overlooks an entire history of public and private proto-interactive devices which, although mechanically simple (at least by 21st century standards) and limited in their interactive potential, paved the way for future applications such as electronic arcade games or the current digital interactive games. For Huhtamo, the archaeological approach allows us to see that the origin of the video game as an interactive medium cannot be attributed to a single source, but rather "emerges from a slowly evolving, complex web of manifold cultural threads and nodes" that began to develop long before the advent of so-called "digital interactive media".

However, with the exception of the works by Huhtamo and other authors such as Parikka and Suominen (2006), the truth is that video game studies have paid little attention to the past and have tended to explain the history of the medium "in a remarkably uniform fashion, built around the same landmarks, breakthroughs and founding fathers (not a word about mothers!)" (Huhtamo, 2007, p. 46). While this has been the case for video games in general, it has also occurred in the specific case of video game sound and music, as pointed out by one of the leading specialists on the subject, Canadian researcher Karen Collins. In her important article *Game Sound in the Mechanical Arcades: An Audio Archaeology*, Collins openly recognizes that historical approaches, including her own (2008), to video game sound have begun by analysing video games, ignoring the important role of their mechanical and electromechanical predecessors in the configuration of their design and functionality and in establishing aesthetic parameters (Collins, 2016).

With this kind of caution in mind, the aim of this article is to understand so-called "music video games" from an archaeological approach that allows us to go beyond their modern digital and three-dimensional versions. The work aims to locate this particular video game genre within a larger network that began to develop prior to the emergence of the most emblematic titles of the genre. This will allow us, according to archaeological logic, to discover what is, or is presented as, "new" in gaming culture by digging into the seemingly old and obsolete.

What kind of video games are music video games?

When we think of music video games, certain titles immediately come to mind: *Dance Dance Revolution* (Konami 1998), *Guitar Hero* (Harmonix Music Systems, 2005), or *Rock Band* (Harmonix Music Systems, 2007). In these games, the theme and playability are oriented to the player interacting with music through the use of peripheral devices that simulate or recreate dance tracks or real musical instruments, from electric guitars to drums. The ob-

jective of this type of video game is for players to correctly execute a song as it is played on the screen. The mechanics, therefore, are not so different from the first "shooter" or "fighting" games – the so-called "twitch" video games – which required "a high degree of concentration, hand-eye coordination and quick reflexes" (Darley, 2002, p. 51). In music video games, rather than eliminating aliens (as in the popular *Space Invaders* from 1978, the prototype shooter game of its time), quick reflexes and skill in handling the controller help the player to correctly execute the musical notes or dance steps successively displayed on the screen, which the player has to reproduce using their own body or their instrument-controller. In this sense, music video games correspond to the type of video games Jesper Juul characterizes as having a "mimetic interface"; that is, video games in which the physical activity of the player imitates the activity of the game on the screen (Juul, 2010).

These types of video games became enormously popular during the first decade of the 21st century. The commercial success of franchises such as *Guitar Hero* meant that they enjoyed a great deal of public attention for quite some time, including criticism related to the type of musical experience that this "new" type of video game was promoting. The most common concern was the fear that "fake" instruments and a superficial understanding could replace a real commitment to learning an instrument. This was a very similar criticism to those levied in the past at instruments such as the pianola or player piano, whose value as a "real" instrument was also questioned in the face of its creators' attempt to make playing an instrument more accessible to non-musicians (Roquer, 2015). However, several researchers have argued that video games such as *Guitar Hero* have done just the opposite and have cultivated a new interest in music. In a UK study conducted in 2008, for example, more than half of young people acknowledged they had played along to music video games, and a fifth claimed to have played a real instrument after this type of video game awakened their interest (Bogost, 2011). Moreover, the cumulative experience of playing the "false" instruments of this type of music video game can be very valuable when it comes to handling real instruments. As ethnomusicologist Kiri Miller (2008) points out, learning to use the controller of a console is very similar to learning to play a musical instrument, even more so if the controller emulates the instrument itself, as in this type of video game.

However, although these video games may encourage someone to play a real instrument, they are still very different from the real thing, especially in aspects such as creativity, improvisation, and originality, which are fundamental in genres such as rock. As Bogost (2011) notes, the true aesthetics and experience of these types of video games relate to musical response rather than musical creation. Songs are grouped by level of difficulty rather than genre or period, and the experience of repeatedly playing a song at increasing levels of complexity does not lead to greater mastery as a musician but to a greater understanding as a listener. Likewise, in her ethnography on *Guitar Hero* and *Rock Band* players, Kiri Miller notes some negative responses on the question of musical creativity in this type of game. One of her informants notes that "*Guitar Hero* is more a matter of pressing the right sequence

of buttons at the right time. There isn't the freedom to actually improvise anything", while another acknowledges that "there is no creation involved in playing *Guitar Hero* (yet). It is essentially the same exercise as playing *Simon Says*" (Miller, 2012, p. 115). As Miller points out, there is a fundamental mismatch between the musical-production mechanics of this type of video game and the musical aesthetic that guides them. Rock musicians do not perform from notation, and the figure of the "guitar hero" in particular is a "'representative icon of individual creative expression', whose musical-genius status relies on apparent originality and spontaneity" (Waksman, 2001, p. 124; Miller, 2012, p. 114). As another of her informants points out: "When you go see an actual musician perform... if you get the perfect musician, they are going to perform something differently every time, and it's going to be amazing every time. But if you get the perfect *Rock Band* player, it's going to be the same". According to Miller, that kind of conformist perfectionism is the antithesis of authentic rock and the very figure of the guitar hero itself, reducing this type of video game to the logic of "pressing buttons on time". In titles such as *Guitar Hero*, players (and potential musicians) would therefore be closer to orchestral players than legendary rock musicians and heroes, because, as Miller, quoting Cottrell, points out, many orchestral musicians acknowledge that "certain aspects of what they do are not, in fact, very creative, and simply require them to reproduce musical information in as straightforward a manner as possible, unfiltered...by their own interpretive ideas" (Cottrell, 2004, p. 120; cited in Miller, 2012, p. 116).

This type of argument highlights the difficulty of thinking about the genre of music video games in terms of improvisation, authenticity, originality, and creativity, since in most cases games are based on listening to sounds (*Guitar Hero*, *Rock Band*) or visualizing dance steps (*Dance Dance Revolution*) produced by others with the aim of repeating the pattern correctly, a kind of experience and playability that nevertheless did not start with these titles.

An archaeology of music video games

The different studies and reports on music video games tend to associate this genre with the commercial success of the *Dance Dance Revolution* and *Guitar Hero* franchises, which were quickly lauded as the two paradigmatic titles of the genre. In some cases, precedents are cited such as *PaRappa the Rapper* (Nana On-Sha, Sony, 1996), considered by some authors as responsible for creating an "industry within the industry" (Horowitz, 2016) since it was one of the first video games to promote the kind of interactive rhythmic experience that was normalized years later through titles such as *Guitar Hero*. This video game, released in Japan in 1996 and a year later in the United States and Europe, follows the adventures of a dog named PaRappa, who must hone his skills as a rapper in order to impress Sunny Funny, a flower-like girl with whom he is in love. The player has to press a combination of buttons following the rhythm of the music so that the sequence corresponds with the series previously displayed on the screen; a system similar to that of later music video

games. The game also stands out for its graphic appearance, an original universe of cartoons and hip-hop aesthetics rendered in technicolour in which a three-dimensional set is mixed with paper-thin two-dimensional characters that look like cut-outs when they turn. "Parappa, in fact, means 'flat' or 'paper thin' in Japanese. So the whole game looks like a trippy pop-up book brought to life" (Herz, 1998). All this highlights the multi-semiotic character of this video game, which combines the signs, processes, and aesthetics of the world of books, cartoons, rap music and hip-hop culture within one product.

However, other machines were already promoting a similar experience years before *PaRappa the Rapper* or any other interactive digital video game that can be cited as a precedent for the music video games genre. The first of these was *Touch Me*, an arcade game released by Atari in 1974. A pioneer in arcade games at that time, Atari decided to release a game based on memorizing and repeating sounds. The player had to watch a row of lights that lit up and generated sounds and then repeat the sequence in the right order. The design of Touch Me was simple and crude: it had no screen and in effect consisted of a smaller than standard arcade cabinet with four large round buttons of the same colour. The game was not popular in its day because pinball machines and video games were more appealing than pressing illuminated buttons on a box without a screen. Despite its failure, according to authors such as Bogost (2011), *Touch Me* laid the foundation for the kind of basic experience promoted by music video games: the musical response.

Figure 1. ***Touch Me*** **arcade promotional flyer. Image courtesy of The International Arcade Museum®**

That aside, *Touch Me* caught the attention of some developers of the time, including Ralph H. Baer, creator of the first home video game system: the *Magnavox Odyssey*. Baer came across *Touch Me* during the "Music Operators of America" convention in November 1976, where he was able to see and test the machine made by Atari. Baer liked the concept of a musical memory game but was horrified by the design and sound of the machine. Accor-

ding to him, the machine emitted "truly horrible and strident" sounds, besides being "visually boring" (cited in Knoblauch, 2016, p. 29), so he decided to use the idea of *Touch Me* with the intention of improving the game and making it more visually and musically attractive, a decision that is best understood in the context of his conflicts with Nolan Bushnell, founder of Atari. As Kent explains:

> In 1975, Magnavox filed a suit against Atari, claiming that Nolan Bushnell attended a demonstration of the Odyssey game console in Burlingame, California, and stole Ralph Baer's concept of electronic table tennis. In an ironic twist, Baer attended a 1976 trade show and stole an idea for a portable game from Bushnell. (Kent, 2001, p. 201)

Baer quickly started work on his improved version of *Touch Me* and introduced his prototype to the Milton Bradley Company, the famous American board game manufacturer. The company executives liked the prototype but suggested some changes (Knoblauch, 2016). It was decided first to change the name Baer had given it, *Feedback*, to *SIMON*, short for the popular children's game Simon Says. Second, to add more features to the game in order to increase its difficulty and thus extend the value of repetition. And third, to change the square design initially presented by Baer for a smooth saucer-shaped design consisting of four large red, blue, green and yellow buttons. In this way, Atari's *Touch Me* was the inspiration for the creation of *SIMON*, a game that following its launch in 1978 achieved a level of success and popularity the Atari machine never had. Baer (with the help of Milton Bradley) thus achieved his goal of improving the concept of the "musical memory game", not only making *SIMON* more visually and musically appealing than *Touch Me*, but also incorporating a system of levels of difficulty that soon became one of the defining characteristics of the game and one of the reasons for its popularity. Despite the success of *SIMON*, Atari did not sue Baer or Milton Bradley for copying their idea, which Baer himself explains as follows: "First of all, I don't think he [Bushnell] had a patent. Second, I think the scheme he had implemented was an old scheme-following a sequential light. *Simon*'s claim to fame was the association of discrete sounds with each light" (quoted in Kent, 2001, p. 202).

SIMON's success led to the appearance of several games that mimicked the model, including a portable version of Atari's *Touch Me* (1978), whose design and sound were remarkably similar to *SIMON*. This portable device copied the coloured buttons on *SIMON*, produced harmonizing sounds, and had the same game variations and difficulty levels as the machine developed by Baer. Its only difference to *SIMON* was its size, which was similar to a pocket calculator, and the inclusion of a small LED screen showing the scores. *Follow Me* is another example of a game based on *SIMON*. It was launched by Sears in 1979 and promised to offer a similar experience to *SIMON* at half the price. Also in 1979, Tiger Electronics released its own version of *SIMON*, aptly named *Copycat* as that is basically what

it was: a copy of Baer and Milton Bradley's original *SIMON*, the only difference being the octagonal disc design.

To keep up with these and other imitations (such as the Einstein games by Castle Toy and *Maniac* by Ideal Toy Company, also released in 1979), Milton Bradley decided to develop and launch different versions of his game by updating the electronics of the device, incorporating more and better visual and sound effects, and adding more buttons and colours beyond the original four. For example, *Super SIMON*, the first of these updates, offered a multiplayer version of the original game by doubling the number of buttons, which translated into more hours and forms of gameplay, as stated by the slogan on the box: "5 different games with more than 20 ways to play". Since then, Baer's game has undergone different modifications and variations but has always remained true to its original concept of being a game based on memory and musical repetition.

Conclusions

This article has tried to apply an archaeological perspective to the study of so-called music video games, a particular type of video game in which the theme and gameplay are geared towards the player's interaction with the music. While this kind of game is usually associated with the commercial and popular success of franchises such as *Dance Dance Revolution* and *Guitar Hero*, an archaeological approach allows us to transcend the rhetoric of change and novelty that accompanied their launch to locate this genre of video games in a larger network that began to develop long before these and other titles appeared between the end of the 20th and the beginning of the 21st century. The enthusiastic, revolutionary and futuristic rhetoric that often accompanies video game discourse (and especially that dedicated to the launch of new titles or devices), creates the impression that "the past functions solely as something worse or less sophisticated, something that has to be left behind and practically forgotten" (Parikka and Suominen, 2006).

The novelty of modern music video games in terms of design, mechanics and playability can be found in older machines going back to Atari's *Touch Me* or Milton Bradley's *SIMON*, two games that laid the foundations for the type of experience that defines this particular genre of video games: musical response based on memorization and repetition of sounds. This is an experience fundamentally based in so-called "retentive listening" (Huron, 2002; Collins, 2013), which occurs when we try to remember what we hear, usually for the purpose of repeating it. Collins illustrates this type of listening using the example of *SIMON*. The essence of this game is to get players to remember simple sequences of tones in order to repeat them, so they listen with the intention of retaining the tone pattern (Collins, 2013, p. 6).

The archaeological approach applied to the study of music video games allows us to observe that, with a greater or lesser number of variations, the numerous musical titles released in recent years have only reproduced the model introduced decades ago by machi-

nes such as *Touch Me* or *SIMON*. While it is true that the images and sounds of modern music video games are more sophisticated and advanced than those from the 1970s, they are still based on the design, playability and difficulty conventions established by their forerunners. This is especially true of features originating in *SIMON*, various elements of which have been borrowed by modern music video games, such as the large buttons of different colours and the increasing levels of difficulty (Knoblauch 2016). As Miller points out (2017, pp. 7-8), *SIMON* managed to bring together interface-specific motor skills, audiovisual engagement, challenges of memory and attention span – characteristics found in most video games. However, *SIMON*'s emphasis on listening, repeating, and linking button presses to audio outputs make it a distinctly musical game and the model on which most subsequent music video games have been based. The designers of these games have continuously integrated more styles of contemporary popular dance and music to their games, helping to make them more conceptually accessible and more affectively complex.

But let us not forget that the origin of *SIMON* is in *Touch Me*, a forgotten and rejected machine that turned out to be a complete commercial failure and was even mocked by Baer, who had no qualms about copying it to create his own musical memory game. Yet within the failure of *Touch Me* and the limitations of its sound, visuals and interactivity can be found the first cultural threads and nodes that began to weave the complex network of music video games long before the genre even existed.

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020 | 52-70
ISSN 2604-451X

From epic fail to epic music: music, silence and failure on *Dark Souls 3*

Joana Freitas
Centre for the Study of the Sociology and Aesthetics of Music of the Faculty of Social Sciences and Humanities, NOVA University of Lisbon (CESEM - NOVA FCSH)
joanareisfreitas@fcsh.unl.pt

Date received: 1-10-2020
Date of acceptance: 30-10-2020

KEY WORDS: DARK SOULS | SOUNDSCAPES | SOUNDTRACK | EPIC | FAILURE | TRANSDIEGETIC

ABSTRACT

Progression through a series of challenges, and the chance that players may lose, is one of the main mechanics used by many video game genres today. While a growing set of titles are exploring game development with mechanisms other than dying (such as walking simulators or narrative-based games), others have gone so far as to be considered a genre in their own right. This has resulted in several forms of online content production by their cybercommunities, among other aspects of commercial success. This phenomenon is best known with regard to the *Soulsborne* RPG series, particularly the *Dark Souls* trilogy (FromSoftware, 2011-2016). Famous for its difficulty (and the fact that the player's character dies many times), *Dark Souls* is often mentioned as a helpful or satirical benchmark to define another game's level of challenge. Besides failure as design, however, *Dark Souls*' sonic and musical accompaniment are a key factor in the narrative arc, player agency, and the construction of meaning.

While the absence of non-diegetic music during the player's navigation through the game world is commonly referred to as *silence*, each area and character has carefully designed sound spaces and cues which build a transdiegetic sonic threshold intrinsically related to the player's (inter) action. In addition, musical accompaniment only features in boss encounters and rest areas, articulating all these spaces.

This paper aims to examine the role of the aural components in *Dark Souls* and their engagement with the player's agency while also being underscored by the orchestral soundtrack. Furthermore, this musical dimension has also attracted the attention of *produsers*, leading to the production of online resources, such as playlists and ambiance compilations. Its music is key, not only for player immersion and narrative definition, but also for the game's commercial success and role in consolidating the *epic* style as a popular genre and its consequent circulation, mainly on YouTube.

"Prepare to Die": *Dark Souls*' (lack of) tutorial

In the midst of a pandemic that continues to define the year 2020, several industries have had to adapt and respond to the many millions of people at home looking for additional ways to be entertained, to consume new forms of media, and to connect and socialize remotely. From live streamed concerts on Facebook to new music playlists on Spotify, the current participatory culture (Jenkins, 2006a, 2006b) exemplifies contemporary society, and reflects and reinforces the increasingly thin barrier between producers and consumers, encouraging *produsers*[1] (Bruns, 2008) to actively engage and circulate content — either original or pre-existing — on online spaces and participate in the general demand for digital activities. The gaming industry is no exception and in fact has played and continues to play a key role in promoting cultural and artistic production as well as entertainment on several platforms.

Titles that have gained enormous popularity since March 2020 include *Animal Crossing: New Horizons* (Nintendo, 2020), *Call of Duty: Warzone* (Activision, 2020), and even *Minecraft* (Mojang Studios, 2011), to name a few. The family-friendly battle royale, *Fall Guys: Ultimate Knockout* (Mediatonic, 2020) was launched merely five months after COVID-19 was deemed a pandemic and attained a record number of downloads on the PlayStation Store (Goslin, 2020). The frantic free-for-all to get to the end of each challenge, via a race or timed survival, in which players were progressively eliminated after each round until the final fight for the winning crown, resulted in the internet being flooded with videos, streams, articles, and memes of colourful jiggly bean-like figures with different costumes and customizations in chaotic but lively virtual landscapes.

Despite apparently being accessible for everyone, the video game[2] *Fall Guys* was quickly deemed a frustrating and punishing experience for many players, either due to cheaters, or to the disorderly way of playing and the mechanics of the system itself. The colourful world accompanied by upbeat electronic music therefore rapidly descended into nightmarish situations marked by anger. This challenging aspect is sometimes paralleled to the renowned video game series characterized precisely by its difficulty: *Dark Souls* (FromSoftware, 2011-2016). From Reddit posts comparing gameplay mechanics to articles mentioning that "[...] it's like *Dark Souls* in that you'll definitely want to play with a gamepad" (Chacos,

1 *Produsers* – merging the words 'producers' and 'users' – is a term coined by Alex Bruns in the context of *produsage*, which aims to explore and define the phenomenon of increased consumer participation, transforming them into producers in a networked context and thus blurring the boundaries between passive consumption and active content production and circulation in a collaborative environment.

2 'Video game', in the context of this paper, encompasses the proposed definition of the term by Jesper Juul, in which "A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable" (Juul, 2005, p. 35). The term 'game' will function as a synonym of video game in this text, as 'video games' are essentially games with which one can interact via a screen in the hardware used (computers, mobile phones, consoles – portable or not – televisions, etc.). The components of rules, challenges, and results with associated values and emotions are thus combined with the (inter)active aspect of video games.

2020), *Fall Guys* is considered by many to be the *Dark Souls* of battle royales. It is worth noting that one specific round – Slime Climb – is considered the most Dark Souls-esque of the entire game. One particular run "but with Dark Souls Music", featuring the soundtrack of the *Dark Souls 3* boss Vordt of the Boreal Valley[3], can be found among the various attempts by streamers on YouTube and Twitch.

Figure 1. A meme mashup between the start of the *Slime Climb round of Fall Guys and the Dark Souls* interface, with elements such as the title of the area, HP[4], items and number of "kudos" ("souls"). Aiwa Rikiar, @CrimsonBloodTea [Username] (2020, August 14) Now this looks like a Thursday [Image attached] [Tweet] Twitter Entry, Retrieved from: https://twitter.com/CrimsonBloodTea/status/1294139680695283713.

The use of this series title as a means to compare and measure difficulty is one of several ways in which the *Dark Souls* universe is transformed, *memefied*, circulated, and shared, increasing its popularity and reach in the gaming cybercommunities even further. While its predecessor, *Demon Souls* (FromSoftware, 2009), was well received by critics but had some unrefined design elements, the subsequent *Dark Souls* trilogy has had much wider circulation and greater success at an international level, consolidating a large fanbase to the point where it is recognized as a genre in its own right (Byrd, 2016).

Known as the *Soulsborne* series, these action RPGs (Role-Playing Games) take place in a medieval fantasy setting on the world of Lordran from a third-person perspective. With the mechanics mainly centred on combat and exploration, the player traverses through several areas in an open-world environment that connects several paths and unlockable zones marked by a central component of the gameplay: checkpoints in the form of bonfires. Bonfires are a core element of the game. In each one, while the character can replenish their health and healing vials (Estus Flasks), the world, respective enemies, and previous encounters the player has had will also respawn. This apparent *reset* is the crucial

3 WillMakeMemes4Food [Username] (2020, August 19) *Fall Guys but With Dark Souls Music*. YouTube video. Retrieved from: https://youtu.be/EB3KLgnR6-I.

4 In the case of *Dark Souls*, HP refers to *life*, or *hit points*, a basic component that indicates the level of health of the player's character.

aspect of all the *Dark Souls* games as it sums up the entire gameplay in repetition and, ultimately, failing. Ironic and undeniably famous for its black screen and red uppercase letters informing the player that "YOU DIED", death is a principal element in the universe, lore, and player interaction. The character encounters several types of enemies representing different challenges in each area until they come face to face with a main enemy directly linked to the narrative in question, known as the boss. The complexity of the combat and the difficulty for the player results in many deaths. Only by learning and predicting what will happen through repetition will the player increase their chance of surviving and progressing.

With failure as design, another aspect of these titles is the vague and minimal storytelling used to present the narrative to players and to convey its lore. Aside from the introductory cinematic, the games leave the historical events, characters' backgrounds, and the contextualization of each area — where most of the information is provided through dialogue with NPCs (Non-Playable Characters), world design, and flavour text[5] — open to interpretation.

This storytelling method requires players to invest in understanding the narrative and timeline in which their character is located. This frequently results in searching online and reaching out to the multiple cybercommunities and platforms centred on the *Dark Souls* universe. From hours of videos proposing narrative theories and chronology explanations to full projects on how to unravel all the plot secrets, *produsers*, as in many audiovisual media, are central to the life of the video game outside its own virtual world.

Another crucial aspect of these titles that is possibly still overlooked by the field of ludomusicology, but not by players, is the musical dimension[6]. From soundscapes to diegetic sound effects, from the soundtrack to fan covers, this is the main focus of this paper.

Contrary to the majority of RPG video games, in which gameplay is usually accompanied by non-diegetic music and adapted to each area and/or narrative context, *Dark Souls* uses this component sparingly. The player only hears music – in a broader sense of the term – in combat situations with bosses, meaning only during very specific encounters. Almost all the areas and everything they encompass — from enemies to NPCs, or just exploration —

5 Flavour text is all the textual elements in an RPG that will not alter or affect the actual gameplay, its main purpose being to inform and characterize items (such as weapons, historical events, locations, or characters). For example, the *Animus* database from the *Assassin's Creed* (Ubisoft, 2007-) video game series and the *Kingdom Come: Deliverance* (Warhorse Studios, 2018) Codex are both internal collections of information from each game divided into characters, locations, and further contextualization, among other categories.

6 Other authors have looked at *Dark Souls* from different perspectives and contexts: from aesthetics and hermeneutics (Vella, 2015), meaningful learning (Ribamar et al, 2016), network and streaming platforms (Gandolfi, 2018) to procedural rhetorics (van Nuenen, 2016). From a musicological perspective, Marcelo Franca, whom I would like to thank for his personal insight on these matters, presented initial research on the dichotomy of sound and silence in *Dark Souls* and *Bloodborne* at *Ludo2018: Seventh European Conference on Video Game Music and Sound* in 2018. It is also worth mentioning the work of Gonçalves Júnior (2019), which, although focused on the first *Dark Souls* game, presents an interesting analysis on the different functional aspects of the soundtrack related to the lore and background mythology.

are devoid of non-diegetic music, thus giving prominence to the carefully designed sonic landscape of each zone, sound effects, and other cues that characterize the player's journey along each path. This apparent lack of music (commonly referred to as 'silence') progressively builds a transdiegetic (Jørgensen, 2007, 2011) sonic threshold intrinsically related to the player's (inter)action, interlinking their agency and immersion throughout the virtual experience. This almost binary form of musical function and the articulation between spaces in the game's narrative inclusively reaches outside the game itself to cyberspace, where users produce content from and for the *Dark Souls* community, and also consolidates this title's influence in the online 'epic' music circuit.

This paper aims to examine the role of the aural components, the functions of music, and the articulation between the idea of 'silence' and 'boss music' in *Dark Souls 3*[7], and their engagement with the player's agency while also being underscored by the soundtrack. This non-diegetic musical dimension — composed almost entirely in an orchestral register — can be considered a key element for immersion and narrative success to foster the player's involvement and flow (Phillips, 2015), while simultaneously constructing a target for *produsers* to share and circulate content on online platforms, mainly YouTube. From fan covers to ambiance compilations, *Dark Souls*' influence is also seen on the online circuit of the 'epic' music universe, at either a musical or visual level, on a larger scale reinforcing video games' direct influence on today's music culture for mainstream audiovisual media.

"Welcome to the bonfire, Unkindled One": *Dark Souls 3* sonic experiences and musical immersion

Launched in 2015, the last instalment of the *Souls* trilogy was critically acclaimed and well-reviewed, considered to be "[...] a fitting conclusion" (Stanton, 2016) by Eurogamer and a "[...] worthy send-off" (Rad, 2016) by IGN, receiving the "Ultimate Game of the Year" award at the 2016 Golden Joystick Awards (Sheridan, 2016).

As previously mentioned, the gameplay and world building are similar to other Dark Souls titles, mainly in the combat, exploration, and interactivity aspects. Set in the Kingdom of Lothric, the universe of *Dark Souls 3* focuses on the cycles between the Ages of Fire and Dark, where the Living and Undead roam the world. With the toll of the bell that signals the dying of the First Flame, the protagonist, known as Ashen One, rises from the grave with the task of pursuing the five Lords of Cinder and returning their souls to the Firelink

7 The paper's case study is limited to the *Dark Souls* trilogy, particularly the third instalment, not taking into account *Demon Souls*; its predecessor, the *King's Field* series (FromSoftware, 1994-2006); or even the PS4 exclusive *Bloodborne* (FromSoftware, 2015). While the *Souls* series titles share many similarities in terms of gameplay (and also their director, Hidetaka Myazaki), the trilogy gained huge popularity and recognition among the RPG genre and the general gamer community. For a more concise research scope and limitation, *Dark Souls 3* is not only one of the most popular titles from the franchise but also the most present in users' online activity, content production, and imagery circulation (from videos to memes).

Shrine in order to link the flame and begin a new Age of Fire, thus ending the Dark[8]. Following the character creation menu and the opening cinematic, the players find themselves in the starting area of the game, titled Cemetery of Ash, where both new and returning users interact with the basic mechanics (such as walking and attacking) and find their first bonfire. In order to progress to the Kingdom of Lothric, the Ashen One must face the first boss – Iudex Gundyr – to open the gates and continue along the path. Both as a satirical/punishing tutorial and a *gentle* introduction to the game[9], these first steps are almost sufficient to demonstrate, at a first glance, the aural experience of *Dark Souls*, the construction of sonic thresholds between spaces, and the player's agency and musical immersion during gameplay.
Cemetery of Ash is one of nineteen areas[10] the player must unlock and traverse to reach the end of the narrative, and all include encounters that can be considered key points to progression. These encounters, namely with bosses, may or may not have a direct connection to the narrative arc (aside from the Lords of Cinder):

AREA	BOSS
Cemetery of Ash	Iudex Gundyr
Firelink Shrine	None; rest/safe area.
High Wall of Lothric	Vordt of the Boreal Valley Dancer of the Boreal Valley
Undead Settlement	Curse-rotted Greatwood
Road of Sacrifices	Crystal Sage
Cathedral of the Deep	Deacons of the Deep
Farron Keep	Abyss Watchers (Lords of Cinder)
Catacombs of Carthus	High Lord Wolnir
Smouldering Lake	Old Demon King
Irithyll of the Boreal Valley	Pontiff Sulyvahn
Irithyll Dungeon	None
Profaned Capital	Yhorm the Giant (Lord of Cinder)

8 As mentioned in the introduction of this paper, in all the instalments the *Dark Souls* story is presented to the player in a fairly vague manner and with few details. Considering the need for practicality and the limitations of this paper, it is not possible to delve into this matter and explore the narrative, although it is worth mentioning some lore aspects that distinguish *Dark Souls 3* from the previous games. The protagonist in this title is also referred to as Unkindled, beings who are cursed and branded with the Darksign. These figures tried to link the First Flame and become Lords of Cinder in the past but were not able to finish this task and were ultimately burnt and died. This connection to the Lords enables them to come back from the dead and roam the world of Lothric to attempt this task once more and reignite the Age of Fire, as shown in the initial cinematic of *Dark Souls 3*. Fire is thus crucial for defining this video game's setting and narrative. Parallel to the previous games, in which the protagonist was Undead and needed to seek elements of the Dark (such as "human effigies" and "humanity" to prevent them becoming "hollow"), *Dark Souls 3*'s main character lacks "flame", seeking "embers".

9 The start of *Dark Souls 3* and the encounter with Index Gundyr is frequently mentioned and *memefied* on several online platforms as another means to identify this video game's difficulty and to consolidate the idea of its own genre. While most games have an introductory tutorial with easy actions to familiarize the player with the mechanics and controls, *Dark Souls* forces the player to face a boss, which results in many deaths and much frustration.

10 In this paper, the following DLCs (Downloadable Content) of this title – *Ashes of Ariandel* and *The Ringed City* – are not taken into consideration, meaning that the areas and bosses of these two smaller instalments are not featured in this analysis, although the mechanics and system are equivalent to the main game.

Anor Londo	Aldrich, Devourer of Gods (Lord of Cinder)
Lothric Castle	Dragonslayer Armour, Lothric, Younger Prince (Lord of Cinder)
Consumed King's Garden	Oceiros, the Consumed King
Grand Archives	None. Another area of access to Lothric Castle
Untended Graves	Optional/secret area. Champion Gundyr
Archdragon Peak	Ancient Wyvern Nameless King
Kiln of the First Flame	Soul of Cinder

Figure 2. All the main areas and respective bosses in *Dark Souls 3*. The names of the musical pieces on the soundtrack are homonyms of the bosses and/or areas in which they are introduced.

In terms of soundtrack integration and functioning, most of the *Dark Souls 3* gameplay time features no musical accompaniment, in contrast to the majority of RPGs. Several AAA[11] titles with similar epic medieval – including medieval fantasy – settings, such as *The Witcher 3: Wild Hunt* (CD Projekt Red, 2015); *Kingdom Come: Deliverance* (Warhorse Studios, 2018); and *The Elder Scrolls* instalments, such as *TES IV: Oblivion* (Bethesda Game Studios, 2006), and *TES V: Skyrim* (ibid., 2011) share many equivalent aspects in the musical structure of the game architecture and interaction.

The soundtracks on these last two video games are divided into categories according to specific areas, locations, or encounters during the player's gameplay, which change and adapt to her actions[12]. *Skyrim*, for instance, has a corresponding set of tracks for urban environments (cities, divided into exterior and interior zones), nature locations (most of the world map, which can be altered by area and time of exploration, from morning to evening), dungeons, and other specific locations. Combat is the main trigger for the shift in the musical accompaniment. In this case, a non-diegetic track suddenly plays in a different register, marked by an increase in *tempo* and rhythm, orchestral *tutti* and, of course, in volume, thus commonly characterizing *battle music*. The binary division between exploration and battle music in this context, also present in the other video games mentioned above, is essential for the players to be aware of their surroundings and possible dangerous encounters, even if these threats are not visible at first glance.

The fact that the player has to search for the source of danger and think about the kind of interaction she will perform transforms primarily the musical, in addition to the visual, meaning the user receives ergodically[13] (Aarseth, 1997; Freitas, 2018). The threat and the musical accompa-

11 AAA is the common term in the video game industry used to characterize video games produced by large studios with high commercial visibility.

12 I have discussed both these video games in more detail on previous occasions. Specifically, In Freitas (2017), I analysed these two titles in the context of music and modding phenomena, converging aspects of musical functioning with immersion, musical style, and *playbour* from modders to add to and renegotiate the musical soundtrack for their personal gameplay experiences in the mods cybercommunity.

13 Ergodicity and ergodic interactions are terms coined by Espen Aarseth in the context of ergodic literature and ulti-

niment associated with it are thereby interpreted as an opportunity to be — or try to be — a "hero", to run away, hide, or to do whatever the player decides from the options available.

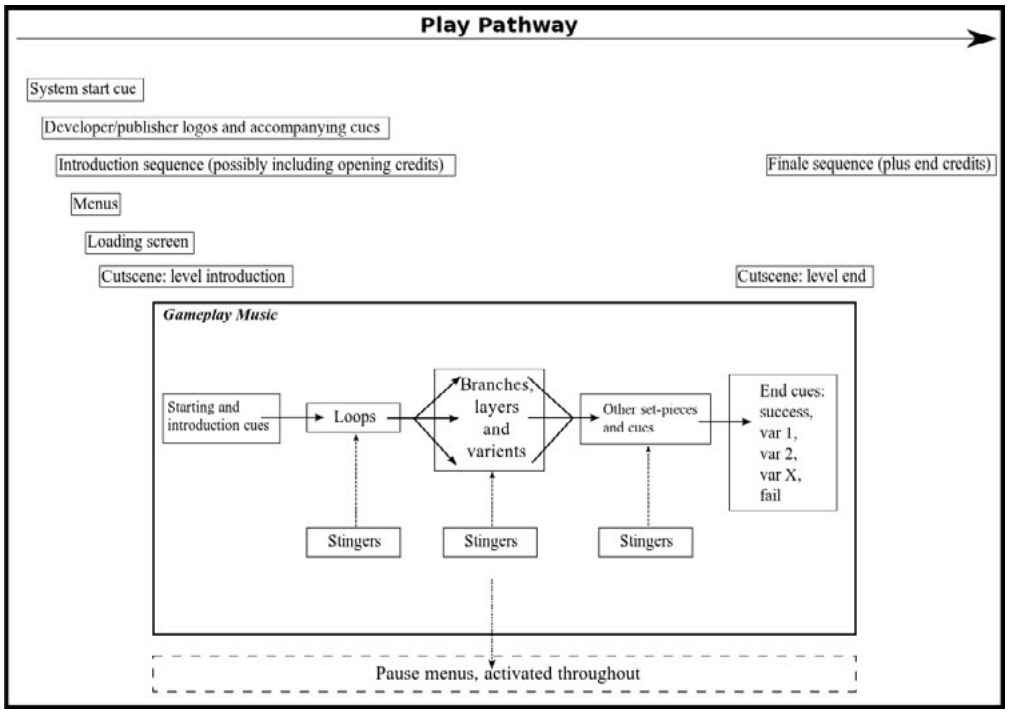

Figure 3. Schematic representation of the musical progression during the playability of a mainstream video game. Image from the book Understanding Video Game Music by Tim Summers (Summers, 2016, p. 14).

While not all of these components may be found in the musical sequence of every video game, Tim Summers points out the several steps at an aural level that characterize what the player can expect to see and hear as soon as she starts to interact with one. Aside from the initial marketing screens with studio and company logos, the main menu soundtrack is often essential for the identification of a game and its branding (Buhler, 2016). Followed by cutscenes and other non-interactive moments, the gameplay may contain cues, loops, stingers, and other musical responses to the player's action and consequences, until the end of a narrative arc or the game itself. *Dark Souls 3* contains all of these steps except, perhaps, during major gameplay: while traversing the world and engaging in regular combat there is no (exploration/battle) soundtrack.

The nonexistence of musical cues during regular gameplay forces the player to be fully aware of her surroundings and, in order to be successful, to understand what each space comprises, particularly the enemies and other threats:

mately what the author considers 'cybertext'. These type of texts must contain information that works in a reciprocal and looped way, which translates into different perceptions every time it is used and interacted with, gaining different interpretations with each user and 'reading'. For Aarseth, cybertextuality is not a new model of text but a new perspective in the multiple textual forms in order to expand the scope of literary studies to include phenomena that would initially be marginalized by the same field, which would include digital narratives such as video games (Aarseth, 1997).

> These spaces, the emotional valleys that Collins speaks of [...] contribute to a "musical tension" in that they are purposely sonically unremarkable to contrast with and direct the player towards the curated experiences of proscribed spaces. (Armitage, 2018)

By considering the opening sequence of *Dark Souls 3* until the encounter with Iudex Gundyr, it is possible to outline the musical pathway of the player's experience in this context: (1) Developer/publisher titles "Bandai Namco Entertainment" and "FromSoftware" → (2) Title screen "Dark Souls 3" with homonymous main musical theme → (3) Opening cinematic (when starting a new game) introducing the track Prologue → (4) Character creation menu with track titled Premonition → (5) Exploration and combat in the Cemetery of Ash (no soundtrack) → (6) Encounter with Iudex Gundyr accompanied by the homonymous track → (7) End of fight and cue for a new sonic space after traversing the boss area to Firelink Shrine. This last area is considered the safe haven, where the player can spend her souls to level up, acquire new items, repair current equipment, and encounter other NPCs for new dialogues, clues, and quests. Besides the boss fights, it is the only area with its own musical dimension that diverges significantly from the register most often used for these enemies. One of the game's co-directors, Yui Tanimura, explains the studio's choice to only use music in the boss context:

> Because this game involves paying so much attention to your environment, to your surroundings, not just visually, but with sound, we felt that the implementation of music outside of the boss battles would get in the way of the actual strategizing throughout the game. I feel that being able to really immerse yourself and dive deep into the actual world as if you're the character themselves, we thought the music would get in the way of that. But for the boss battles, the music obviously helps pump up the situation! So that's basically the behind-the-scenes answer. (Napolitano, 2013)

Contrary to the commonly referred to 'boss music', Firelink Shrine provides the player with a sense of comfort and a safe space. A predominantly female vocal and strings fill the area and stress the shift from the general experience on the world of Lothric. However, Tanimura mentions that music "would get in the way" of enabling immersion for the player, a view which rather contradicts the prevailing wisdom in the context of the video game (especially RPG) music paradigm over the past decade. This is an exceptional choice[14], which

14 It is also worth noting that this particular way of using music during gameplay can also be seen in *Shadow of the Colossus* (SIE Japan Studio, 2005). Originally released in 2005, the 2018 remake of this title brought it a new wave of popularity and success among PlayStation players. This action adventure game shares some similarities with *Dark Souls* in the absence of music while exploring a vast world with scarce information and the cueing of orchestral tracks when encountering huge beings called *colossi* in the context of boss fights. While not defined as an RPG, *Shadow of the Colossus* is frequently cited as one of the best video games in this industry canon. In it, the player controls a young man in a forbidden land. It is characterized by a minimalist landscape and an emotional journey, presenting an artistic experience of storytelling and puzzle challenges (Muncy, 2018).

ultimately distinguishes *Dark Souls* in the epic fantasy genre.

Music and medieval RPGs are interconnected in terms of immersion and player agency. In this context, and in a broader sense for users, these terms converge around the idea of the player being "present" in the (virtual) environment of the video game, oblivious to the reality that surrounds her. This experience is one of the characteristics and main objectives of any interactive virtual experience of this kind (Freitas, 2017). This distancing from the real environment in which the player is located is enhanced if the musical universe of the game is in tune with the narrative and environments it presents. Thus, to be immersive, its music has to be consistent with the rest of the game universe as well as its soundscapes[15]. The aural consistency with the environments built in the video games mentioned is a key aspect directly related to the audiovisual and intertextual literacy required from players at the levels of sound and music, particularly with the instrumentation used and timbric patterns.

This uniformity, however, does not apply to music from a synchronous perspective. The soundtrack cannot be considered historically accurate but rather is contemporary and part of a romantic language present in audiovisual media since the first decades of Hollywood cinema. Claudia Gorbman's statement that "Music, especially lushly scored late Romantic music, can trigger a response of 'epic feeling'" (Gorbman, 1987, p. 81), can be linked to the words of Isabella van Elferen, who adds that, in interactive fantasy contexts:

> Perhaps the first genre that springs to mind in relation to fantasy music is that of the "epic"-sounding orchestral soundtracks to fantasy cinema and computer games. [...] majestic environments painted for the eyes of fantasy readers become visible and audible in film, television and games. Viewers marvel at the beauty of forests and hillslopes, or at the brooding vastness of outer space while being thrilled by the soundscapes that these new lands generate. Epic music sweeps and thunders its intricate melodies and rich harmonies over impressive visuals, irresistibly drawing the audience into the mythical world depicted onscreen. (cf. Jørgensen) (Elferen, 2013, p. 5)

Audiovisual literacy and immersion, converging in the *ALI* model that the same author (Elferen, 2016) proposes in the context of video games, are critical to understand the familiarity created by the relationship between media and users through compositional tropes in music while, at the same time, it is used to consolidate and reinforce the effects

15 In several texts concerning sound in video games, authors use the term 'soundscape' without necessarily defining what it implies, although it can be concluded that in these contexts this concept approaches the definition – which is quite suitable for these media – given by Payne, Davies and Adams: "Soundscapes are the totality of all sounds within a location with an emphasis in the relationship between individual's or society's perception of, understanding of and interaction with the sonic environment" (2009, p. 2). It is also worth noting that, in practical terms, music is often a separate component of sound in video game production and design, which is considered in this paper. The complex way these two aspects intertwine when in action during gameplay should be analysed. At the same time this does not invalidate the application of a more functional lens and the consideration of both aspects separately to understand the general gamer public in addition to a designer's standpoint.

of the soundtrack in the player's engagement with the narrative.

Therefore, while *Dark Souls 3* does not employ non-diegetic music during most gameplay, it uses its soundtrack to stress and create specific immersive spaces for each boss, aiming to provide a unique encounter as the player progresses through the narrative. Orchestral music is used as a vehicle of symbolic and social capital (Bourdieu, 2010) for each boss, characterizing its moment (even if the player dies and repeats it several times until the enemy is defeated) not only as relevant for the story but pivotal for the player's immersion and the affirmation of her character as the "Chosen One" for the task at hand.

Each boss is thus characterized by their music, providing the player – if not already gained through research, tips, and connections with the previous instalments – with sonic clues and layers that may contribute to the likely insufficient information given about the character. To briefly illustrate this, Iudex Gundyr, as discussed previously, is the first boss the player faces, and acts as a test before entering the actual game world. This cues a rather resounding symphonic track with full orchestra. The music accompanies the duel as it progresses: if the player is succeeding and damaging Gundyr, then at a certain HP level she will enter a second phase (increasing the difficulty of the fight even further). The music will reflect this transition, either by introducing new motifs or rhythmic patterns, or by adding layers of instrumentation. From the various videos of boss fights – with or without commentaries and tips to help players in their own playthroughs – the Iudex Gundyr fight video[16] from the GameRottenHD YouTube channel is helpful for understanding the musical transition between the two phases presented by this character. While the first half of the combat is characterized by a consistent melodic line mainly on strings and with some choral notes, the second half (around 01:45) is distinctively marked by the inversion of these motivic lines through the predominance of the female choir and accentuated regular rhythmic strings patterns in the background. Another clear example is the final boss in *Dark Souls 3*, Soul of Cinder.

Another video illustrating this musical transition, this time from the channel Shirrako[17], also characterizes this boss in two phases. The first is well defined with orchestral *tutti* and choir, aiming to represent the amalgamation of all the Lords of Cinder in these moves and spells. The player must completely deplete the boss's health to shift to the second phase (contrary to most of the previous boss fights, in which a new phase is signalled at fifty percent of their HP), which results not only in new abilities but also a new section of the soundtrack. Around 02:50, the intense choir and orchestral register are muffled by the introduction of a single three-note piano motif, slowly progressing to the predominance of piano, strings, and bells until the end of the fight[18].

16 GameRottenHD [Username] (2016, April 11) *DARK SOULS III - Iudex Gundyr Boss Fight [No Commentary]*. YouTube video. Retrieved from: https://youtu.be/J8J7ZB4vJkg.

17 Shirrako [Username] (2016, March 29) *Dark Souls 3 - Soul of Cinder Final Boss Fight Walkthrough [1080P HD]*. YouTube video. Retrieved from: https://youtu.be/padfkzGThWc.

18 This piano motif is directly quoting the musical theme from the final boss of the first *Dark Souls* game, Gwyn. This

This epic music texturing (Summers, 2016) is adapted and tailored to each boss, considering aspects of their narrative background, fighting style, and spatial context. In addition, music is also a useful element at a technical level; for some bosses, the *tempo* stresses the rhythmic patterns of their attacks, helping the player to predict and counter the opponent. It is worth noting that one boss, the Dancer of the Boreal Valley, stands out from the others. In addition to being the only female figure, she is the only boss with a track in a 3/4 time signature, the rest being either in 2/4 or 4/4. The dance connotation and her synchronized moves in a musical register that is as yet unfamiliar to the player transform this fight into what players consider one of the hardest in *Dark Souls 3*. Divided into three phases, it has an eerie motif that is progressively layered as the Dancer's moves quicken and she approaches her demise[19].

While music is then utilized at a symbolic, textural, narrative, and also functional level, what is considered 'silence' is thus the definition of each area between bosses and, ultimately, most of the gameplay. From white noise to wind, leaves, roars, grunts, and other sound effects whose origin may or may not be entirely visible, each zone has specific sonic characteristics that construct and define their soundscapes. While at the High Wall of Lothric the player may come across both living and dead dragons that can be heard at a distance, Road of Sacrifices combines forest and swamp, where trees, echoes, wind, and water play a part in the sonic environment. In combination with the sounds resulting from the player's direct action – such as footsteps on different terrain (which are particularly relevant in the sound design), dialogue with other characters, the use of tools, weapons, and objects – as well as the general interaction with elements of the world, diegetic and non-diegetic components merge during gameplay, structuring the aural dimension of the relationship established between the player, her character, and the narrative, and can thus be defined as 'transdiegetic' sounds:

> By positioning the player outside the game world but with direct access to act within the game world, computer games may utilize extradiegetic sound to give the player information relevant for the choice of actions internal to the diegesis. Since extradiegetic music in films is not part of the fictional world and is not heard by the fictional characters, it is therefore valuable only to the

Lord of Sunlight and Cinder is the last challenge for the player in this instalment, and contrary to the music players are used to when encountering a boss, this piece has a piano solo starting with that single motif (which many users describe as "plin plin plon" in YouTube comments and Reddit threads) instead of a full orchestral theme. Due to this background lore and his "Hollowness", Gwyn does not present a difficult boss fight, disrupting the player's gameplay to a greater extent due to the fact that he is the last boss. This musical connection with the Soul of Cinder of *Dark Souls 3* is thus characterized as nostalgic and sad for experienced players, attributing a particular symbolic connotation to this boss encounter.

19 This special attention to her music quickly gained attention on online platforms, especially YouTube. One particular user published a video analysing in more detail how music simultaneously helps and hinders this boss fight, and the way in which the Dancer, her moves, and particularly her footsteps are intimately linked with the rhythmic pattern and *tempo*. The Game Theorists [Username] (2017, February 14) *The SECRET Rhythms of DARK SOULS! | The SCIENCE!...of Dark Souls 3*. YouTube video. Retrieved from: https://youtu.be/9ZmAiyPRGqE.

> audience [...]. These sounds are central for the comprehension of the positioning of sound in computer game spaces, and work as a bridge between the game world and the player's world. In this respect, these sounds become part of the interface, and enable the interface to become more transparent. (Jørgensen, 2007, pp. 106-107)

The dynamic function[20] (Collins, 2008) of the *Dark Souls 3* soundtrack along with the transdiegetic aspect of these soundscapes provides the player with a carefully designed sonic experience throughout the entire virtual space that can be paralleled to the fog walls that demarcate the boss area and must be traversed (in almost all cases) to start the encounter. The so-called 'silence' in each area and respective sonic environment funnels into a micro sonic bubble right before each fog wall, clearly stressing the shift the player will experience not only in difficulty but also at an aural level. Once the player enters a confined space belonging to the boss rather than the player, and only after his or her defeat, a bonfire will be available, concluding one more step and giving the character another chance to proceed and (probably) continue to fail. With failure as a mechanic and replayability as a necessity, the aural dimensions of *Dark Souls 3* (including 'silence') articulate an interactive experience marked by journeying through sonically defined spaces, orchestral climaxes with bosses, and the calming atmosphere of bonfires and safe havens, where fog walls blur areas and symbolic divisions but not the musical and sonic intentions for the player's interactivity, engagement, and immersion.

"Most epic music ever": the sonic dimensions of *Dark Souls 3* in online spaces and cybercommunities

Like other successful RPGs, *Dark Souls 3* extends beyond its virtual landscape and is the focus of attention on several platforms mainly accessed by fans and users. Aside from its official and fan *wikis*, this title has a widespread presence on the internet, particularly on YouTube, where channels produce walkthroughs, guides, tips, narratives, theories, and other types of content in which music plays a major role in user production, sharing, and circulation on quite a large scale.

As mentioned above, *Dark Souls 3* shares some similarities with other medieval fantasy video games, particularly concerning music and how it is perceived as 'epic'. In online spaces the direct relationship between video games and the epic category is often easy to spot, due to games' narratives and settings, playability, and their marketing in franchises and transmedia logic (Jenkins, 2006a). The circulation of the term 'epic' on the internet – whether in YouTube comments, forums, or social networks – fragments its use and meanings, and can refer to a genre, a style, an adjective, a quality, etc. However, the music in these formats

20 Dynamic music, according to Collins, is a broader term for variable music, encompassing interactive and adaptive music, which the author also explores. In this sense, dynamic music is defined as music that reacts to changes that occur during gameplay and its universe and/or in response to user actions.

can work as a brand, identifying the franchise in question through a theme and recognizable musical content. Even though *Dark Souls* may be considered a genre in its own right due to the characteristics referred to previously, its music, while considered by some as one of the best soundtracks in the last decade (Banas, 2020), aligns with the epic compositional tropes and patterns that currently dominate the video game music paradigm.

On YouTube alone, the search for "epic music" returns more than 312 million results, varying from music videos of a single track to playlists and compilations of over 10 hours of music. Among the most popular, found using the search/ordering filter "relevance", certain videos[21] graphically characterize themselves using *Dark Souls* imagery, relating epic music to power and adjectives of grandeur and heroism. For users who are unfamiliar with this video game, the artwork may be just one more image that blends in with the others used in these videos; but for the familiar user, it may also result in a direct association with previous musical experiences from *Dark Souls* and epic music from other sources (from library music sites, independent artists, or fan composers), thus reinforcing the already established connotations of this soundtrack as a direct link between the orchestral register and the symbolic value of the boss encounters.

On another note, in the same way that users adopt these epic music videos and compilations to accompany them in their daily lives and tasks — from cooking to using the bathroom or doing homework, thus transforming a menial experience into something greater, heroic, or even transcendent — the music of *Dark Souls* is transposed through other types of audiovisual content on YouTube, which reconfigures its initial perception as a soundtrack for difficult, frustrating, and other negative contexts during gameplay. The sonic landscapes, which may or may not be combined with the soundtrack, are manipulated and transformed for ambiance videos, which may be categorized as "relaxing", "ASMR"[22], or just the atmosphere[23]. Other accompanying soundscapes of specific areas (such as Road of Sacrifices or Irithyll of the Boreal Valley[24]) can also be accessed and integrated by users as needed in their domestic and/or personal contexts. Others use this combination for the

21 A selection of videos with Dark Souls images as thumbnails featured in this filter can be accessed here: https://youtu.be/3TAUnYZpMbA, https://youtu.be/rJ8sLgHxa88 and https://youtu.be/XBFTw_3dsnc.

22 ASMR, standing for *Autonomous Sensory Meridian Response*, is, according to Klausen, "'[...] the name of a physiological sensory reaction that can be described as a tingling, static-like sensation across the scalp, back of the neck and at times further areas in response to specific triggering audio and visual stimuli' (Barratt and Davis, 2015, p. 1). The peculiar sensation is also frequently referred to by the audience as *headgasm, braingasm* and – most commonly – *tingles* (Klausen, 2016, p. 49). Despite its bodily nature, ASMR is best known as a technologically-mediated phenomenon in the form of videos due to its presence and recent explosive growth in mediated spaces such as YouTube."

23 Franco Cornaló [Username] (2019, March 25) *Dark Souls III – Atmosphere.* YouTube video. Retrieved from: https://youtu.be/MbH2falYzPE.

24 Ambiance Magic [Username] (2018, November 29) *Dark Souls III - Road Of Sacrifices Ambiance (white noise, wind, trees, distant echoes)*. YouTube video. Retrieved from: https://youtu.be/hlYOomjcdSc. Viewtiful ASMR [Username] (2017, August 22) *Dark Souls III -ASMR- Nap Time In the Boreal Valley - Ambient Sounds {Wind & Snow}*. YouTube video. Retrieved from: https://youtu.be/GlWI6BpLA5U.

purpose of relaxation, as in *Chilling Souls*[25] or Firelink Shrine's music with its ambiance. By mixing all three soundtracks and selecting the ones users consider the best for concentration[26], they can also be used for studying.

It is also worth mentioning the creation of videos and playlists that suggest music and other ambiances to listen to while playing *Dark Souls*, either to add to the existing musical content or to aid gameplay and make the experience less difficult. For the former, thematic videos add newly composed music appropriate to this universe by suggesting tracks for each area that was originally unscored. This new material follows the original soundtrack's orchestral register and has similar compositional tropes, as found in Hollow - Ambient Music for *Dark Souls, or Cursed - Ambient Music for Dark Souls II*[27]. For the latter, playlists of music "to listen to while playing Dark Souls" add a diverse range of musical categories, from music considered 'epic' to classical music (mainly Beethoven and Mozart), and to pop or heavy metal "jams to have some epic battles on Dark Souls"[28].

Although the musical style of these tracks may not enable immersion for most players, the function of overlapping external non-diegetic sonic information helps the user traversing the world between bosses to focus her attention on what is happening at a visual and not an auditory level.

Therefore, despite being famously distinguished by its difficulty and having a specific gameplay and storytelling format that diverges from other mainstream medieval fantasy RPG, the *Dark Souls* universe and its music extends its existence from a personal experience to collective circulation on online platforms, from memes to ambiance compilations. The users' perspective, which is of central importance, should be noted. Through their different roles and forms of agency, users have repositioned themselves as active participants in the consumption and transformation of texts that require a high level of understanding, experience, and familiarity through their personal and collective engagement (Keltie, 2017) in order to negotiate the place, function, meaning, and symbolic value of video game music in these contexts. While *Dark Souls* uses subtitles to warn its players to "Prepare to Die", fans go so far as to adapt and transform this experience into one for studying, working, cleaning, or cooking, turning it into – we might say – a *Prepare to Chill* edition.

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25 Kiactus [Username] (2018, June 27) *Chilling Souls - A Relaxing Mix from Souls series*. YouTube video. Retrieved from: https://youtu.be/FMxj-zHfZbw.

26 Ken Wainwright [Username] (2017, March 11) *Dark Souls 3 - Ambience and music at Firelink Shrine*. YouTube video. Retrieved from: https://youtu.be/lHVY8zz08a0. DragonstarDT [Username] (2018, May 8) *Dark Souls 3 - Game Music for Studying - Dark Souls - Soundtrack Trilogy Best of Mix*. YouTube video. Retrieved from: https://youtu.be/epK4CBE4bB8.

27 Sound Phenomenon [Username] (2017, November 21) *Hollow - Ambient Music for Dark Souls - Full Album*. YouTube video. Retrieved from: https://youtu.be/kOHXUUbZyLM. Sound Phenomenon [Username] (2018, March 4) *Cursed - Ambient Music for Dark Souls II*. YouTube video. Retrieved from: https://youtu.be/AW2mxsPWCXU.

28 Vulkktur [Username] (2015 November 15) *Songs To Play Dark Souls To*. YouTube playlist. Retrieved from: https://www.youtube.com/playlist?list=PLqIFkQch-LMVFx2PhvYV6QMUoHjnoT4Ol. TuneL1nk [Username] (2017 October 12) *Dark Souls 3-Songs to Listen to While Playing*. YouTube playlist. Retrieved from: https://www.youtube.com/playlist?list=PLFV545xORTc69Tass2FMXqBpSn46f1cp4.

To conclude, the current *videoludification* of society (Mäyrä, 2008; Muriel & Crawford, 2018) combined with the digital culture, which encompasses several modes of interaction and platforms including social networks, has enabled present-day cybercommunities to use their *produsage* and flow of activity to question the power of the cultural industries and entities seeking to regulate, and often sanction, their creations. This process is one more reflection of the complexity of intertextual dialogues resulting from the appropriation and transformation of pre-existing content or content made available by several agents, and music is evidently one of the most dominant texts in this paradigm.

Music, whose production and diffusion are associated with and determined by the capitalist systems that dominate Western societies (Nowak, 2016), has an undeniably predominant role in our daily lives. Its processes, which bring together and foster the structuring of bubbles and communities, emphasize the various individual practices of musical consumption and creation, thus demonstrating its importance today. Hesmondhalgh states that "[...] music has the possibility to make people collectively 'flourish'" (cit. in Nowak, 2016, p. 6), relating to the intertextual levels of meaning(s) of music located in one's own interpretation, experiences, and subjectivities, and in relation to others (Hennion, 2001).

The relationship between video games and music as two central hubs of artistic expression and cultural production in today's industries is therefore a convergence of the phenomena expressed above. In the context of this paper, *Dark Souls 3* functions as a model for an examination of the musical dimension both off- and on-line, and more precisely, within the virtual world and in external online spaces. Considering its relative absence in the academic field, this video game presents an interesting case study that encourages the application of a ludomusicological lens to analyse the interaction between the non-diegetic soundtrack, sonic landscapes, and player immersion and engagement. *Dark Souls* stands with other RPGs mentioned as an example of what cybercommunities identify as 'epic' music on YouTube, intimately linking this tag with the orchestra and what is also referred to as 'orchestral music'.

The interconnection between the fantasy worlds, the epic connotation, and the orchestral register of its soundtracks thus builds a musical repertoire familiar both to the industry and to the cybercommunities that consume it, based on a set of codes considered key to the viability of an 'epic music' genre.

However, the growing standardization of this musical language and the respective user listening habits – mostly passive and with specific functions as described, such as relaxing or studying – reveals a primary need to listen to orchestral music, which is then followed by other requirements (usually tags and adjectives) to align it with the 'epic' idea. If the majority of mainstream video games that surpass the latest cinema blockbusters and television successes convey orchestral sonorities in their musical dimensions, then their soundtracks will, to a certain extent, be regarded as 'epic', borrowing imagery and visual cues to illustrate similar music and thus circulating the *Dark Souls* universe on other formats.

If in the world of Lothric the player must constantly witness her own failure and learn through mistakes accompanied by 'silence' until she reaches certain checkpoints of gratification and rewards underscored by "pumped-up orchestral music", then in the real world this music can be a vehicle for transposing her previously virtual sonic experience to an epic daily life. Through users' activity and digital connectivity, *Dark Souls* integrates a roster of interactive experiences that trespass outside their universes to digital platforms that convey and enable a symbolic transformation of musical meaning at any time of day, in the process converting any menial task to a heroic one, while configuring an epic bubble for the self.

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020 | 71-88
ISSN 2604-451X

Living like Giants:

‘League of Legends’ from the screen to the stage

Eulalia Febrer Coll
Conservatori Superior de Música de les Illes Balears
eulaliafebrer@conservatorisuperior.com

Date received: 01-10-2020
Date of acceptance: 30-10-2020

KEY WORDS: ESPORTS | AUDIOVISUAL | STAGE | RITUAL | *LEAGUE OF LEGENDS*

ABSTRACT

League of Legends has become one of the most popular electronic sports video games of the last few years. With this, the musical practices surrounding it have assumed increasing power and relevance, materializing in configurations that extend beyond the field of online gaming. Along with the possibilities offered by using CGI (Computer-Generated Imagery) technologies on stage, every year video game developer Riot Games opens the World Championships with a musicalized show, designed to formalize the competitive event.

This article contextualizes and reviews the audiovisual opening ceremony of the 2019 World Final through an analysis of its three pieces: *Awaken, Giants and Phoenix*. The show's role as a warm-up to the main event brings to light a structure akin to the opening of a ritual, with specific objectives, enabling the event to be recast in terms of the extra-ordinary. Music is presented as a binding element, which highlights the importance of the sound in and for the competition.

Finally, the scope of the ritual is enhanced beyond the physical environment in which it takes place thanks to a live broadcast. This allows for the participation of a much larger audience than would fit in the stands of a stadium. In this way, the ritual and its music allow video game fans to witness and experience the event in a delocalized way.

In recent years, the structures derived from the popularization of video game competitions around the world have given rise to dynamics that place music in a central role for the socialization of the ecosystem[1] developed by brands such as Riot Games, Epic Games and Valve Corporation. From playlists on audio platforms to themed contests, the music created to go with these audiovisuals has become part of the fans' universe, just as the characters themselves.

The event organized by Riot Games for the *League of Legends* World Final (Riot Games, 2009) in November 2019, in which the game's characters were reinterpreted as singers on stage, represented the culmination of the production team's creative power and scope. This article therefore proposes to approach the event based on a contextual and musical analysis, which leads to a ritual reading of it. Its presentation as a transgressive show allowed it to extend beyond the live stage in a delocalized way, creating dynamics that draw on both analogue and digital elements.

Since the audiovisual approach addressed in this article cannot be understood without its surrounding components, we must begin by defining its catalysing element – the video game itself – in favour of the new musical and social dynamics that it affords. This will allow us to home in on the specific elements that define the experience and which transcend the content and format of the musical show itself. For this reason, it is essential to highlight the ritual aspect, which is the foundation for creating the social structures underlying the occasion in order to determine the change in participants' social status (Turner, 1997). This is accompanied by an intrinsically musical element in a form not far from Rouget's description (1985) of music as a group socializer. In this context, the ritual can be understood in terms of work by Van Gennep (1960), which would present it as a formalization of the surrounding processes to produce a shift in the recognized social status of the individual or group – in this case, the team that will eventually win the tournament. The historical religious and sacred implications of the term are re-configured here towards a local meaning (Cantón Delgado, 2009), and materialized through icons, objects of veneration, and sonic proposals with the aim of providing structure and imparting the event with validation and transcendence.

'League of Legends': the video game

Since its creation in 2009, and particularly in recent years, *League of Legends* has been one of the most popular video games in the competitive international esports – or electronic sports – arena. In short, *League of Legends* can be defined as a MOBA (Multiplayer Online Battle Arena) in which two teams of five players face off on a closed map with the goal of being the first to destroy the enemy's nexus and win the game (Ferrari, 2013). Its online format, which can be accessed for free from a personal computer, allows players to participate

1 The social ecosystem here refers to the set of individuals, practices and environments that interact with each other in an intrinsically interconnected way, moving as a whole and not in isolation (Díez Nicolás, 2016; Hawley, 1986).

in an individual or group game. In its competitive format, there are defined roles both within and outside the game; the players and the avatars they choose are the centre of attention, but the teams behind the scenes include coaches, psychologists, marketing staff, and event organizers, among others, resembling those in traditional sports formats.

As part of the expansion towards a competitive format, titles such as *League of Legends* include ritualized processes which extend to and out from the stage to the stands and, as we will see, to the screens of thousands of fans around the world. Like other video games that have made the leap into the professional arena, *League of Legends* is more than a showdown between two rival teams; it extends into the physical and digital space in the same ways as many musical groups, movies and series in other popular and audiovisual formats, to include elements that step beyond the specific event.

Therefore, when discussing *League of Legends* we cannot simply focus on the idea of a "video game" and its sound, but must go a stage further and pay attention to the elements that surround and complement its audiovisuals. Thus, we must first emphasize the concept of esport and the problems its definition entails.

Beyond the definition suggested early on by Wagner (2006) — according to whom esports refers to organized competitive (video) games – the debate around the essence of the term is still present in both academic and extra-academic settings. *Understanding Esports* (2019), the recent publication edited by Ryan Rogers, reveals a tendency to view this type of competition through the lens of traditional sports, and emphasizes the need to understand the element of person-computer interconnectivity.

However, regardless of the definition taken as reference, it is especially important to observe the dynamics created from the concept itself and around the "competitive video game". Its transformation into an (e)sport implies, after all, the creation of surrounding structures that range from professional teams and institutions similar to those in traditional sports to derived cultural forms that serve to create a sense of identity or community, as well as being strictly commercial. In this context, the socializing aspects proposed as an adjacent product, such as music, become key within the universe of the video game.

Según los datos de sus desarrolladores en Riot Games, en su décimo aniversario, *League of Legends* contaba con ocho millones de jugadores recurrentes (Takanashi, 2019) y miles de horas de visualización sólo en plataformas de creación de contenido (Gough, 2020).

The combination of disciplines involved in creating the competitive events that esports translate into, in their position at the centre of the vortex, facilitates the creation of shows and audiovisual formulas that extend beyond the game itself, as for the opening event of the *League of Legends* World Final in 2019.

According to the data collected by the game's developers, on its 10th anniversary *League of Legends* had eight million recurrent players (Takanashi, 2019) and thousands of viewed hours on content creation platforms (Gough, 2020). All this in addition to the 2019 World Final prize pool of more than two million dollars, and the tens of millions of viewers who

witnessed the event from their homes (Lolesports Staff, 2019). In these world finals the two teams facing each other belong to different geographical areas, called regions, which have their own competition structure for the video game discipline. To reach the final showdown, participating teams have to go through a series of elimination rounds (Gamepedia, 2020):

(1) Each region chooses four teams with the highest scores from its own point-based competitions to participate in the so-called
(2) Play ins, from which the final places are allocated to enter
(3) The group stage, in which sixteen teams are divided into four groups. The two leaders of each group will advance to
(4) The knockout stage, in a table format (quarter-final, semi-final and final), in which teams face each other to reach the grand final.

The complex classification system is a sign of the game's popularity. Added to this are different factors including an active community and ramifications for artistic, sporting and participatory activities on a worldwide scale. In this equation, the music has become one of the key elements of the universe created by the brand and a key part of its identity for many of the game's regular viewers and players.

Although it is true that music is used to mark key moments in the gameplay, it does not have a defining role as it may within other genres, such as adventure (Gasselseder, 2013). *League of Legends* has two possible soundtracks, which correspond to an older and a more updated version of the game. While the original is a single linear piece in terms of musical development, the updated version consists of three parts – *early, mid and late* — which are integrated with the events in the game itself as obstacles are overcome[2] .

Even though music underscores each game, players are free to configure the prevalence of the different sounds inserted in the game according to personal preference. For this reason, many players prefer to deactivate the musical options and leave on only those sounds that correspond to in-game actions. To a large extent this happens in favour of introducing alternative music inputs from platforms outside the video game, such as Spotify[3].

In recent years, the sound element and audiovisual pieces beyond the gaming platform have become more significant within Riot Games thanks to the company's music team, based in Los Angeles (California). With the growing artistic presence at the developer, the music team started placing special emphasis on creating songs and bands for the brand based on characters from the game itself and which continue to represent it beyond the screen.

2 The complete piece that accompanies the game, with its different phases, can be found at: League of Music [username] (2014, December 14) *Updated Summoner's Ritf - Complete Soundtrack* [YouTube Video] Retrieved from: https://www.youtube.com/watch?v=iy6YDd5iHB4&t=218s.

3 An example can be found at: https://open.spotify.com/playlist/09fsTNqM1XoHpR7t43NH6k?si=79CioGbRzCNjhaih-_40g (Fiflipl1, n.d.).

Riot Music groups: From *Warriors* to *Giants*

Riot Games, the developer behind *League of Legends*, has a department dedicated to creating musical content: Riot Music Group. Their work is frequently intertwined with other audiovisual fields both within and outside the company and this collaboration has spawned the creation of music videos and large-scale live audiovisual shows (League of Legends, 2020; Zhang, 2019).

Since 2013, when the group was established with a single composer among its staff, Riot Music has invested in recruitment by expanding the team to fifteen people. The head of the group, Toa Dunn, points out that much of the team's growth has been facilitated by an accumulation of successes resulting from the fact that their output has resonated with fans of the game (Personal communication, T. Dunn, September 4, 2020).

The group started by composing songs to introduce new characters for the game, and the success of the soundtrack soon became obvious when *Get Jinxed* (2013), produced with Norwegian metal group Djerv, proved to be a hit. Just one year after this release, the game's world finals staged a collaboration with Imagine Dragons, whose song *Warriors* (2014) could be considered to have officially kickstarted interest in the audio department at Riot.

> I think that when they released Imagine Dragons no one expected Riot to release such a huge song (...) I think there is already an expectation, Riot can't afford not to release a good song, they have shot themselves in the foot in that there are so many expectations [of their songs]. (Personal communication, J. Tejada, *League of Legends* fan, 4 September 2020)

Since then, the ambition of the audiovisual production for each world final has steadily escalated, with the music team beginning to work more closely with those in artistic creation. Thanks to this collaboration between the various audiovisual groups, since 2014 a series of bands created by Riot have themselves become part of the imagery for all the game's fans. The first complementary production based on characters from the video game materialized through the band Pentakill (2014), which Riot Games used to give a musical voice to six *League of Legends* avatars through a heavy metal aesthetic[4]. The most notable songs produced by this group include *Lightbringer* (2014) and *Mortal Reminder* (2017). In 2017, the company began testing the inclusion of CGI technologies on stage at the world finals. On screen, a dragon entered the stadium, landing on the stage with a roar (LoL Esports, 2017) and standing between the musicians and the audience.

4 The avatars or 'champions' that the user can choose to play with have different abilities or 'magic tricks' that differentiate them. Each of these avatars is derived from the so-called lore of the video game in the stories created to contextualize them, which describe their personality and their motivations (Riot Games, 2017).

Figure 1. CGI dragon on stage at the 2017 opening ceremony (LoL Esports, 2017, 10'04")

Shortly after, as K-Pop was becoming popular across Europe and America (Oh, 2013), the group KD/A came into the public eye, inspired, once again, by characters from the video game itself. KD/A has four virtual female members backed by four real-life singers[5]. Furthermore, their debut song and music video, *Pop-stars*, was the central song at the opening ceremony of the *League of Legends* World Final in 2018.

During this years' spectacle, the live stage show was combined with the audiovisual production projected onto screens in such a way that those attending the opening could see both the physical singers on stage and the superimposed virtual *League of Legends* stars on the screens at the same time. Those viewing the event from home were able to witness the combined CGI and human show directly from their computers or televisions.

5 The avatars or 'champions' that the user can choose to play with have different abilities or 'magic tricks' that differentiate them. Each of these avatars is derived from the so-called lore of the video game in the stories created to contextualize them, which describe their personality and their motivations (Riot Games, 2017).

Figure 2. K/DA at the 2018 opening ceremony (Riot Games, n.d.)

In 2019, the band True Damage, created specifically for these world finals, came onto the scene, based on the personification of avatars suggested for the band and artists representing fans' different backgrounds. To this end, the band included celebrities such as Becky G, representing the Spanish-speaking community; singer Keke Palmer; American rapper Thutmose; DJ Duckwrth and South Korean rapper Soyeon. On this occasion, all the components of the show could be watched live on stage as well as through streaming platforms, thanks to the construction of a holographic projection system that used the extra screens at the venue as part of the production design (Stark, 2018; Webster, 2019).

The 2019 World Final: 'League of Legends' on stage

The audiovisuals presented at the *League of Legends* World Finals in 2019 introduced what to this day can be understood as the culmination of the musical spectacle – in a field in which, despite everything, the element of sound is apparently complementary. On 10th November 2019, at AccorHotels Arena in Paris, more than twenty thousand fans, media and participants, got ready to witness the showdown between Spanish team G2 Esports and Chinese club FunPlus Phoenix. Although the results did not satisfy the European attendees, G2 being rapidly defeated, the event was crowned as the esports event with the most live viewers to date (Redacción eSports, 2019).

Pre-game events were set up to create an atmosphere of anticipation for the attendees and all those accessing the event virtually from home. The show's audiovisual presentation, and the fact that fans had been given a preview of the show's content, meant that from the release of *Phoenix* (Sauzin, 2019) expectations were raised both for the matches and their preceding elements, something which could be understood in terms of preliminality (Turner, 1997).

> From the opening of the dragon entering the stage, which was done with augmented reality (...) we had two things: first, high expectations about the opening, but at the same time we were a bit afraid that we wouldn't be able to enjoy the visual part, which in this case was augmented reality. But we were almost looking forward to the opening more than the matches because the game, well, it's alright and I wish it had been five games, but we were so hyped. (Personal communication, J. Tejada, September 3, 2020)

Those at Riot Music suggested bringing the music videos produced so far onto the stage and creating a show that appealed to the imagination and the idea of magic (League of Legends, 2020). To make this work, the creative team had to include specialists from various fields. Along with support from brands such as Axe and Louis Vuitton, this collaboration made it possible to bring characters' abilities to life on stage, as well as facilitating audience participation.

> [The organizers distributed] a bracelet [provided by Axe] that lit up in one colour or another depending on the song (...) When I looked around anywhere in the stadium, I saw a whole part of the audience lit up in that colour, it was so well done. (Personal communication, A. Crugeira, *League of Legends* fan, September 4, 2020)

One of the key elements in providing a unified experience was the choice of characters and their entry on stage. As for previous bands created by Riot, the members of True Damage represented specific avatars, selected to fit into the show and the chosen musical genre, which in this case was a crossover between hip hop and pop.

> We want to stay true to the core truth of who that character is in *League of Legends*, because we are reimagining them in a whole new way, a modern way (...) This is before we think of musicians or vocalists, this is just like who do we think for *League of Legends* could be that band, and once we do that, and we figure out, ok, Ekko is the rapper, Qiyana, she has some flows too, but she also can sing, and then there's Senna, who can really pipe, and then we start writing that song, we start producing that song, and we often we do a demo of the song. And then we figure out, based on their personality, who could be a good rapper, and that's when we found Duckwrth and those guys. (Personal communication, T. Dunn, September 4, 2020)

The characterization of the avatars through their musical alter ego added to the visual element provided by the holograms – representing the avatars' most identifiable image – was a key element for the creation of an indirect intersubjective complicity among the viewers as far as the scenic development was concerned.

Figure 3. True Damage and holographic effects (Riot Games, n.d.)

Along with the musical element as the basis of the performance, and as stated by Judith Becker in reference to ritual events with a shared focus of attention, "Groups of people who are focused on a common event and who share a common history of that event, act, react, and to some extent think in concert, without sacrificing their bounded personal identities" (2010, p. 145). In this way, during the event the public and delocalized viewers merged into one.

The opening ceremony through its tonal and thematic development

The opening ceremony began with a fade to black. The production design was rooted in the use of holographic projections, 360-degree screens and a combination of pop, hip hop, electronic and orchestral styles, which raised cheers from the attendees as the finalists entered the stage (League of Legends, 2019b).

The musical structure of the performance, the backbone of the show, consisted of three consecutive songs: *Awaken*, *Giants* and *Phoenix*, each building on the literary, musical and visual development to create a connected narrative[6].

The three pieces exhibit a tonal relationship to a large extent based on hip hop-style dynamics, including chromatisms and vocal inflections that provide modulations of small intervals. The inclusion of rapped parts is essential for the progressive tonal build-up from beginning to end, from *A minor* to *B ♭ minor* and through various relative and secondary tonalities.

6 The staging can be found at League of Legends [username] (2019, November 10) Opening Ceremony Presented by Mastercard | 2019 World Championship Finals. [YouTube Video] Retrieved from: https://www.youtube.com/watch?v=6QDWbKnwRcc & t = 516s.

1. Awaken		
	A minor	
		Correlations *A-C* and ***A-F***
		First rap: *B-D(-**F**)*
		Second rap: ***F**-C*
2. Giants		Transition: *F-C#*
	D♭ Major (= enharmony of C#)	
		Third rap: *F* to *G (**F**# VII)*
		Transition: *F#-**F***
3. Phoenix		
	B♭ minor	

Table 1. Tonal development of the opening show.

The first two songs are the most intricately interconnected, since *Phoenix* is presented as a slightly separate piece, albeit in a related tonality. The show begins with *Awaken* in *A minor*, while *Giants* is mostly anchored in D♭ *major*. This interconnection is introduced from a common reference in *F* – the keynote that connects the entire sonic production. Rapped sections act as a link between the first and second pieces and appear as small fragments within the latter. The creation of small bridges also shifts the tonality from minor to major, providing *Giants* with the luminosity and strength that makes it the standout song of the show.

In *A minor, Awaken* demonstrates melodic and harmonic correlations between *A-C* and *A-F* quite consistently, allowing the transition towards the first rap to be sustained in *F*. Even so, the first rapped section is introduced through a *B-D* interval of third, which gives a new meaning to the note common to all three pieces, while predicting a shift in the thematic centre. Once in *F*, the leap to *C* occurs organically, thus linking the theme again with the first piece (*A-C*). It is only at the end of the rapped section when a jump towards a tritone is played to *C* ♯, creating, on the one hand, an enharmonic with *D* ♭ which gives way to *Giants* and, on the other, a break with more predictable sonorities.

The second section with rap is followed by Keke Palmer and Becky G. The Latin singer's lines include one that directly appeals to the *League of Legends*' Spanish-speaking community: "*Nadie nos puede parar*" (No one can stop us) (*League of Legends*, 2019b, 03'05"), in the same way that Soyeon's rap in her native language appeals to the Korean community.

With the entry of the third and final rap in transition to the main key, the *F* linking the previous sections is transposed to G, providing another ascending harmonic step with *F* ♯ as its seventh degree. To return to the main key of the theme, however, this same seventh must descend to *D* ♭ major's third. This is made possible through the vocal production of the highest note of the fragment (*F*♮), as well as by the sense of "return" granted by the semitonal descent.

From here, the pause and entry of Phoenix in *B♭* minor is organic, presenting the audience with a climax not only resulting from the evolution from *A* to *B♭* minor, but also from wrapping things up using the only song familiar to the audience.

> I couldn't stay seated, honestly; I ran downstairs to the fences to sing *Phoenix*. Because, of course, we didn't know *Giants*, but with *Phoenix* I went downstairs to scream and the truth is [it was] incredible. I felt like a kid. (Personal communication, D. Fraile, *League of Legends fan*, September 3, 2020)

Of particular importance during this last song is the unveiling of the trophy: truly the worshipped icon of the event. This is accompanied by a strings solo, with sustained notes and an insistent rhythm on the timpani. A progressive increase in intensity emerges through the superposition of instrumental layers, the introduction of an ascending melody and a classic stop plus a syncopated (re-)entry of the voice, which leads back to the chorus for the last time, accompanied by a visual explosion. It is at this moment that the finalists are revealed on stage.

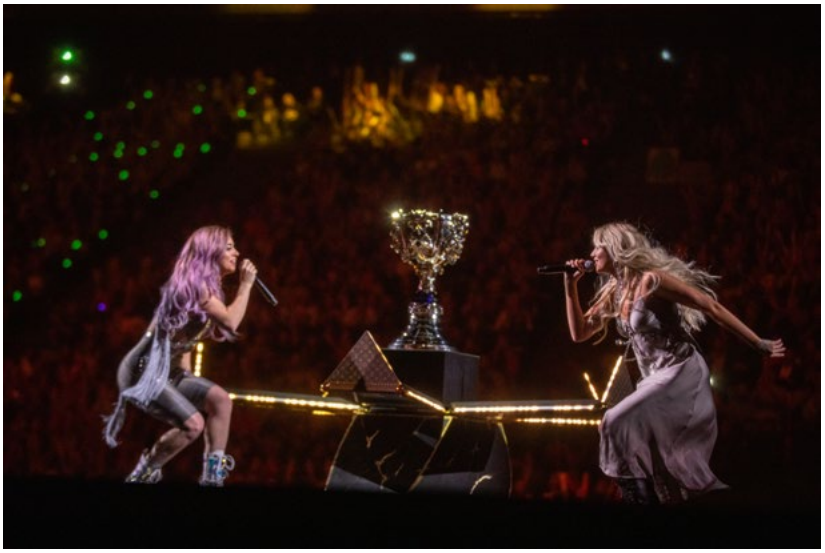

Figure 4. Unveiling the cup during *Phoenix* (Riot Games, n.d.)

Thus, beyond the tonal aspects as such, the thematic link between the three pieces is essential. They appear based on an orchestration combined with electronic elements, a pronounced reverb on the voices, strategically introduced choruses and sustained sung vowels that serve as *bourdons*. These resources are evident from the start of the performance of *Awaken*, which has an ominous character supported by long choral notes and recurring motifs and which is only broken by dramatic silences combined with spectacular scenic resources.

Thanks to this progression, the audience is ready, the players are ready, and the cup waits to be lifted high. The three songs ascend chromatically until they culminate in a piece familiar to most attendees, creating what could be considered a sonic development capable of generating specific states of consciousness within a defined cultural context (Clarke, 2005). In other words, by associating a chromatic ascent with the staging and presentation of a recognizable piece of music at the end of the process, the audience is placed on the edge of the limen, in a moment just before crossing the threshold – the before and after that the grand final represents.

Ritual, transgression, and reception of the event

After reviewing the musical journey, diverse elements related to the preparation of the event can be indicated and a debate held around the musical and social elements.

The production design and the recurring nature of the event since the first *League of Legends* World Final in 2011 brings it closer to other contexts studied in fields related to musical performance (Löbert, 2012; Moberg, 2012). Establishing conventions and focuses of attention in terms of the ordinary and the extra-ordinary appeals to a ritual reading that can be extrapolated to religious terms if referring to the work of musicologists such as Hutson (1999) and St John (2007). As outlined by Robin Sylvan, this sacred or extra-ordinary sense is granted in as far as the phenomena developed through the prism of popular music never allude to "religion in the sense of a traditional form grounded in a stable cultural context, expressing some essential defining quality" (2002, p. 4), but to a form of generalized subculture embedded within postmodernity.

The same concept has been underscored by various authors in reference to events that are closer to the case study format presented here, such as the American Super Bowl (Cottingham, 2012). The parallelism did not escape the attention of some attendees of the event in Paris:

> I think that in recent years (...) Riot has always tried to establish that differentiation, or to get closer to big traditional sports events such as the SuperBowl, the Champions League Final, the All Stars... which have pretty impressive performances. Even Becky G herself told us [in the interview by Movistar] that these performances were even more important than the SuperBowl ones, or so she said. (Personal communication, P. Municio, *League of Legends* fan and reporter at Movistar, September 4, 2019)

In the social phenomenon and identity reaffirmation represented by the creation of a face-to-face final set around a main stage and which expands beyond the screen, we find elements such as those defined by Sylvan almost twenty years ago in *Traces of the Spirit* (2002). Among them are three fundamental pillars:

> (1) ritual activity and collective ceremony with specific practical experiences; (2) a vision of the world that makes sense for these experiences and which transforms them into daily life issues; and (3) the creation of a cultural identity, a social structure, and a sense of belonging to a community.

If we break down these elements, we can find parallels ranging from veneration of icons – represented by the finalists and the cup and hyped up by the sonic input – to the distribution of the audience around a main point of reference, both in extra-ordinary terms, reaffirming the definition of the ritual context according to the points above:

> When the Louis Vuitton box [in which the trophy was kept] opened up, I remember that I ran upstairs and told Juanjo (...); I took his arm and said, "the cup is opening! the box is opening!". I had goosebumps, crying... Oh right then I was in a cloud, and him too because he's been playing since Season 1, so just imagine. (Personal communication, D. Fraile, *League of Legends fan*, September 3, 2020).

The aspects of identity creation and a sense of community that sit alongside this concept are rooted in the emotions the music directly appeals to, as originally conceived by the developers of the event (Webster, 2019). We therefore not only find a *musicking* of the social event in ritual terms (Small, 1999), but also a predesigned structure alluding to the construction of a sonic progression based on an understanding of the audience's cognition, which furthermore relates to elements built on an intersubjective cultural basis and a common point of focus (Clarke, 2005).

The presence of a phenomenon that starts from transversal values creates feelings of belonging through the experience of shared time, an intersubjective agreement of the suggested meanings in the music, and the ability to find oneself reflected in others, making the link with pre-existing social structures obvious (Born, 2012). The audiovisual proposal works, in this case – and as Partridge points out in reference to DeNora (2000) – as a prosthetic technology that allows its creators "to manipulate, to enable and to constrain people" (2014, p. 51). This influence over the emotional state of participants in the event thus helps create a temporary affective bond between them. The experience that is created establishes an environment temporarily defined in terms of "extra-ordinariness", transforming the stadium into a temple in which to project a unique experience, and which expands to the homes of all virtual attendees.

> It is very exciting to be on site, but I think that the people who see it via streaming experience it in a different way, and visually speaking I think it's even better. (...) [At the event there were] lots of people screaming in unison with their glowing bracelets, etc., and that already gives a lot of emotion to the situation. But, on the other hand, I think people at home were able to appreciate

> the show much better (Personal communication, M. Mac-Swiney, Communications Manager at Riot Games Spain, 10 September 2020)

The presence of electronically processed percussion in combination with and in contrast to orchestral elements added a transgressive element that, together with the urban/hip hop style choice, quickly grabbed the audience's attention. This can be read in terms of social anthropology if interpreted as "a form of experience that breaks the boundaries of the everyday" (Kahn-Harris and Moberg, 2012, p. 90). The music presented by Riot shows a convergence of the classic and the urban, of analogue and electronic, placing the show within an intermediate field that breaks down the barriers of what has gone before. This, according to Kahn-Harris and Moberg (2012), would be similar to transcendence in its challenge towards the existing belief systems, boundaries and power relationships in the world, which are there implicitly.

Although popular music is associated with transcendence of the ordinary, it is almost inevitably interconnected with a transgressive element both from aesthetic and conceptual perspectives. The opening show, with True Damage at its centre, also crosses diverse spatial boundaries through its placement within a ritualized context. On the one hand, the limitations of what belongs *inside/outside* the game are blurred, thus providing an extra-ordinary experience for regular players, who were able to see *League of Legends* champions in the flesh onstage through the representation of their alter egos. On the other hand, the event was able to be delocalized through its audiovisual components, which gave it the power to extend beyond a predefined physical space, always mediated by music.

Thanks to broadcasting the event online and its ability to reach into rooms in every corner of the world, we may speak, for the first time, of musically defined rituals that not only create a face-to-face ritual context but that surpass it and make it accessible for e-attendees — or electronic attendees. In this case, with the introduction of holographic technologies that did not depend on tertiary sources, unlike previous versions of the event, a parallel experience was created for live and virtual attendees.

Conclusions

Since the first musical shows created by Riot Music for the *League of Legends* live final, the presence and influence of the musical element has evolved from within the universe of the brand itself. From the first pieces related to the game's MOBA characters, with *Get Jinxed* (2013), to the creation of audiovisual shows in which the video game champions are the main performers, sound has taken on an increasingly central role, both for its capacity as a socializer for the community and due to the participation of the professionals and amateurs who revolve around it.

With the development of CGI technologies, which the show creators began to introduce in 2017, Riot Games has managed to raise the level of expectation regarding the opening (al-

most) to that of the events involving the video game itself. In their last event to date, in 2019[7], the organizers managed to bring together physical and delocalized attendees within a single audiovisual experience which, although distinctive to those who witnessed it live, helped lay the foundations for future formats adapted to digitized contexts.

The ritual aspect created by elements such as the recurring nature of the event, the creation of roles and venerated icons, was intertwined in the show's transgressive musical development, which provided a transcendental experience for its viewers. From the construction of a musical discourse based on a progressive semitonal ascent in the tonality of the pieces to the introduction of an urban genre that collided with other more traditional elements, both pop and orchestral, the event was one of its organizers' greatest achievements to date in audiovisual terms.

Just a few weeks before the opening of the World Final in 2020, a year defined by the current health situation, we can only wonder whether the ritualized format will be given the final push towards becoming a completely delocalized event, hand in hand with music that will socialize and bring it together.

Acknowledgements

All images reproduced in this article have been provided by Riot Games. Toa Dunn, Head of Riot Music Group, and Maye Mac-Swiney, Marketing Communications Manager in Spain, deserve special mention for their help with the research for this article.

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7 The original article was written prior to the 2020 World Final in China.

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020 | 89-105
ISSN 2604-451X

Disruptive Vocalities:

Auditory Immersion in Punchdrunk's *The Drowned Man: A Hollywood Fable* and First-Person Digital Games

Marcus Cheng Chye Tan
National Institute of Education, Nanyang Technological University
https://orcid.org/0000-0003-4481-1772

Date received: 01-10-2020
Date of acceptance: 30-10-2020

KEY WORDS: IMMERSIVE THEATRES | AUDITORY IMMERSION | PUNCHDRUNK | VIDEO GAMES | ACOUSTIC ECOLOGY

ABSTRACT

The intimate associations between video (or digital) games and new modes of immersive performances have been observed by scholars. The liberal interactivity and experience of 'being in' the virtual space of play and 'inside' the fictional world, as an avatar-like audience-participant are just some similarities in both encounters. While Gareth White (2012) has critically interrogated the term 'immersive' in these forms of theatre from an ontological perspective, this paper examines immersion acoustemologically. Through a comparative examination of the acoustic ecologies and experienced auditory immersions of First-Person digital games and Punchdrunk's most recent production, *The Drowned Man: A Hollywood Fable* (2013), this paper posits that immersion in immersive performances is always more than 'total' since sonicities and disruptive vocalities produced by audience-participants, sounds that cannot be anticipated or appropriated to be part of a designed soundscape (utterances, whispers, sounds and noises), would necessarily puncture the virtual integrity of the performance with frequencies of emergence from the intended submergence.

In 2011, London-based Punchdrunk, pioneers of a performance genre now known as immersive theatre, collaborated with electronics giant Sony to devise a first-person immersive game-performance entitled *... and darkness descended*. As an ingenious marketing strategy to launch the PlayStation's then new First-Person Shooter game, *Resistance 3*, the interactive and sensually stimulating performance dissolved the boundaries between video games and theatre by transforming Waterloo station's railway arches into a terrifying post-apocalyptic world and placing audience-gamers in narrow, dank, and poorly-lit tunnels to complete a 'quest'. The interactive, site-specific performance-game was closely modelled on the decimated holocaustic world created in the *Resistance* game series – an alternative reality in which aliens, called Chimera, invade Russia, Europe, and the United States during World War II. In this alternate AD 1957, almost ninety percent of the world's population has been decimated; those that survived have been enslaved. Audience-gamers are identified as a small group of resistance fighters in the barren wastelands of a former United States and their objective is to send a message to Joseph Capelli, the protagonist in *Resistance 3* and one of the remaining survivors of an elite superhuman task force called Sentinel. To complete the game, participants must accomplish the set tasks and remain 'alive' to witness the end of the performance.

While *...and darkness descended* is a deliberate attempt to recreate a videogame as (interactive) theatrical experience that predicates on the "viscerality of liveness" (Allain & Harvie, 2014, p.193) and immediacy of experience, the appropriative relationship between this performance trend and digital games is salient. Marvin Carlson notes how immersive theatre is a logical development from site-specific theatre, installation art, and immersive video games (2014, p.114) and Josephine Machon (2013) draws on theories of game studies to understand 'immersion' in these forms of performances. Writing for *The Guardian,* Thomas McMullan (2014) traces the distinct ways in which immersive performances by companies such as Punchdrunk, Shunt, Belt-Up, and Dreamthinkspeak borrow conventions from video games and transform passive spectators into active participant-players/gamers. McMullan notes how immersive performances' site-specific recreation of a fictional alternate world is similar to 3-D First-Person Shooter (FPS) games such as *Half-Life* (1998). The freedom of the audience to move in these spaces and the option to pursue a scripted narrative is an apparent quality shared by both forms. Describing Punchdrunk's most recent production, artistic director Felix Barret compares *The Drowned Man: A Hollywood Fable* (2013) to the Role-Playing game (RPG) *The Elder Scrolls V: Skyrim* (2011); like the game avatars, "you can follow a character and go on a mission, or you can explore the landscape, find moments of other stories and achieve a sense of an over-arching environment" (McMullan, 2014). *The Drowned Man* is also modelled on a first-person interactive adventure game developed by The Fullbright Company, *Gone Home* (1995), where the audience member is a "hunter, an active assembler" (McMullan, 2014), placed in a space to "discover messages and trinkets behind cupboards [...]. Rather than an audience crafting their own narrative they are

peeling back layers of story, almost archeologically" (Barrett in McMullan, 2014).
The intimate associations of immersive theatre and FPS digital games are immediately evident for both privilege the individual spectator/gamer, relocate him in an alternate world and award him live agency in being part of, and even shaping, the unfolding narrative. More distinctly, immersive theatres employ installations and expansive environments, often site-specific, and require audiences to participate and actively explore (White, 2012, p.221). Audiences move within the space occupied by performers, "a space that is replete with associations and which becomes performative in new ways in consequence of the audience's presence within it" (White, 2012, p.225). FPS games require gamers to assume avatars who purposefully roam the sprawling virtual realms to complete an objective (or series of objectives). Immersive theatrical experiences mimic these virtual game encounters as such performance modes provide a sensorial experience of mental and physical immersion – the perception that one is in a virtual, 'other-world' environment. Explicating on concepts of immersion and drawing comparisons with conditions defined by game theorist Gordon Calleja, Machon observes resemblances between game enactments that involve variation in experience due to player decision-making, and immersive performances, such as those by Punchdrunk and Shunt, that likewise involve a processual interaction in which the audience-participant-performer makes diverse decisions which then results in varied individualised interpretations (Machon 2013, p.62). Immersive experiences in both mediums, consequently, direct perceptual focus from an awareness of "'being in and part of' reality to 'being in and part of' virtuality such that, in the ideal case, virtuality becomes substituted for reality" (Grimshaw, 2008b, p.119). Distinctly, virtuality understood in the context of immersive performances does not refer to the inhabiting of digitally re-composed spaces located behind the fourth walls of monitor screens. Like virtual experiences, however, these performances share the quality of animating the fictional and the 'unreal', whose relationship is ontologically bound with reality outside or the 'being here'. 'Being there' in immersive performances implies "access to the inside of the performance" (White 2012: 221), an experience of interiority in which audience-participants are invited to become 'submerged'.
In view of these intimacies – between performance, performers, audience, and space, and between digital games and immersive forms of performances – this article seeks to examine immersiveness in such theatrical practices from an acoustical perspective. In *Immersive Theatres: Intimacy and Immediacy in Contemporary Performance,* Machon acutely notes how sound is a "vital component" of the immersive experience; "designed, composed and naturally occurring sound is important" (2013, p. 95) and the absence of prescribed sounds or music, being part of a designed soundscape, can engage a participant further rather than displace him from immersiveness. Encouraged by this view, this paper will study the acoustic ecology of immersive theatres: it is concerned primarily with immersion as an acoustic phenomenon and as auditory experience. Through a comparative analysis of the acoustic

ecologies of first-person digital games and immersive performances by Punchdrunk, specifically *The Drowned Man* (2013), I suggest that immersion in immersive theatres is not an encompassing experience but one that is intermittent and fractious; this is particularly so when one, almost inevitably, hears or produces 'extraneous acoustics' – sounds that reside outside the narrative and composed soundscape and sonicities that puncture the virtual integrity of the performance. These disruptive vocalities become dissonances that perforate the encompassing soundscapes which are often, as Gareth White observes, used to maintain control over the event (2011, p. 205). Such unscripted sounds and 'noises' purposefully interrogate the degrees of intimacy and inside-ness purported by creators of such theatres and so reify the impossibilities of creating total immersion.

The designation 'immersive theatres' has been employed loosely in reviews and writings to describe a diverse range of theatrical experiences that involve some form of audience participation, sensual interaction, and mobility in a prescribed site-specific environment. Gareth White (2012) acutely interrogates the term 'immersion' in his article published in *Theatre Research International,* while Machon (2013), in the introduction to her book, discusses the variety of forms that claim measures of immersiveness. She further demonstrates the ways in which the term has been claimed by a diverse range of performance practices which involve some kind of interaction and site-specificity. Considering the pluralistic nature of such performance modes, and sharing similar concerns about the ease of (mis)appropriating the label 'immersive theatre', this paper does not posit totalising claims about auditory immersions in these performance practices and will restrict observations only to Punchdrunk's works – "where actual immersion within an experience occurs" (Machon, 2013, p.40), and where audiences are placed in extensive environments to move, engage, inhabit, and "respond within an imaginative environment" (Machon, 2013, p.68). In addition, given that the experiences of Punchdrunk's works are intended to evoke highly individualised, subjective responses to the space of play and to others at play, as "parallel theatrical universes" in which the work shifts its status in relation to the audience (Barrett in Machon, 2013, p.159), conclusions made here remain 'first-person', personal observations of being in(side) 'Temple Pictures' – the fictional Hollywood studio that was the site for *The Drowned Man: A Hollywood Fable* (2013) – on 5 August 2013.

'Being (In) There': Immersions in 3-D Digital Games and Immersive Theatres

Immersion, in the context of performance, remains an ambiguous designation that at once refers to the level of interactive participation but also the visceral experience of being in(side) the performance environment (and possibly narrative). To delineate kinds of immersion encountered in the range of immersive performances that exist, Machon adapts theories of immersivity developed by game theorist Gordon Calleja to posit three experiences of immersion that are similar to the psychological conditions inhabited by players of video games. As Machon describes, there is immersion understood as absorption – where the theatre event

fully engages the "concentration, imagination, action and interest" (2013, p. 62) of the participant. Immersion can also be realised as transportation: the audience-participant is "imaginatively and scenographically reoriented in another place, an otherworldly-world that requires navigation according to its own rules of logic" (Machon, 2013, p. 63). Total immersion occurs when a spectator experiences both prior forms of immersion and where he is able to locate his own "*praesence* within the experience" (Machon, 2013, p. 63). *Praesence*, as Machon describes, indicates a condition of being both present in the experience and also the 'presentness' of human sensory experience in "the live(d) audience-performer participant interaction and exchange that occurs within the event" (2013, p. 44).

While not synonymous with the immersions employed in game theory[1], the experiential similarities are identifiable. Immersive performances, like 3-D FPSes or Third-Person Role-Playing games (RPGs), rely on visual cues and acuity to allow the player to inhabit and feel 'present' in the alternate world. These cues also permit the gamer to interact, within the limitations of the game engine's parameters, with the virtual world, and to consciously experience a live(d) interaction with other avatars who may be controlled by other players. While game designers recognise that visual realism is not always necessary, it is a recognisably effective platform by which to generate immersiveness, and justifies the continued desire of RPGs and FPSes to design more life-like avatars, achieved through newer techniques and technologies such as HDR (high dynamic range) rendering[2]. Yet even as graphics engines push the boundaries of digital realism, scientific studies of place cells in rats have shown that no virtual environment, rendered visually, can completely convince the brain that a digital reality is real. In "Multisensory Control of Hippocampal Spatiotemporal Selectivity" (Ravassard et al, 2013), published in the journal *Science*, researchers from the University of California discovered that activity in place cells found in sampled rats' hippocampi, the region of the brain identified as responsible for creating and controlling cognitive maps, fell by more than half when placed in a virtual-reality environment – while approximately forty-five percent of the rats' place cells fired in reality, this decreased to twenty-two percent in virtual reality. The study proves that visual stimuli remain insufficient to create a sense of presence, of 'being there' in virtual environments, and that other sensory and proximal cues are necessary to attain deeper immersion.

To create more convincing immersive experiences of virtual other worlds, as such, video game designers rely on multi-sensory modes such as sound and haptics. If deep immersion cannot be attained solely by the visual engine, it is arguably the soundscapes of the game

1 In *Immersion in Virtual Worlds*, Gordon Calleja notes how scholars of immersion in virtual reality often confuse the terms 'presence' and 'immersion' and fail to distinguish between immersion as absorption (engagement) and immersion as transportation. He thus introduces the term 'incorporation' to account for the sense of virtual environment habitation on two levels: the virtual environment is, firstly, incorporated into the player's mind as part of his or her immediate surroundings and, secondly, the player is incorporated (in the sense of embodiment) in a single, systematically upheld location in the virtual environment at any point in time (2011, p. 232).

2 Gamers playing the new *FIFA 15* (designed by EA Sports) have been impressed by the mirror-like virtual replication of football players Lionel Messi, Eden Hazard, and Neymar. See EA Sports (2014, June 9). *FIFA 15 – Authentic Player Visuals.* Retrieved From: http://www.easports.com/uk/fifa/news/2014/fifa-15-authentic-player-visuals

that encourage deeper immersion, both as engagement and transportation. Given the nature of sound –omnidirectional, pervasive, encompassing – as auditory perception, sound design becomes an essential component to achieve a more compelling and complete sense of immersion in the game world; the same can be said of the acoustemologies of theatre and performance (which will be examined in relation to *The Drowned Man* in a later section). Such auditory immersion is enabled through a "sonic perceptual realism" (Grimshaw 2008b: 119) facilitated by the game engine's sonification capabilities. This sonic realism is not, however, mimetic fidelity to the object of emission. While such a reproductive realism, like visual realism, remains effective in creating an immersive environment, there are abstract sounds that are used in game sound design as well and it is, then, the contextual realism to the game world and its narrative that remains imperative. Acousmatic and non-acousmatic sounds, diegetic and non-diegetic music, audio effects and acoustical noise are ways that 3-D games create an acoustemology consonant with the virtual world. Interacting with the sonic environment, giving aural attention to the permeating sounds facilitates gameplay and allows the gamer to be situated 'in' the space of the game, such as in First- or Third-Person shooters where sounds provide accurate location discrimination (Grimshaw et al, 2011, p. 32). In these First-Person or Third-Person perspective games, the player is located within a field of sound and becomes an auditor of sound, influencing even as he is influenced by the soundscapes of play. The materiality of sound is that which renders it ontologically present and 'real' even if it were digitally composed, replayed, or reproduced through various technologies of mediation. It is this acoustemological quality that game developers exploit to dissolve the virtual-real boundary and achieve immersion as transportation. As Mark Grimshaw posits, "sound is of great importance, if not the greatest importance, in creating the perceptual realism of the FPS game that leads to immersion" (2008b, p. 119). Sound events and sound signals (and their interactions that form a game's soundscape) "shuttle players between real and virtual registers of aural, visual, psychological, tactile, and aesthetic engagement" (Cheng 2014, p. 13). Listening to a game's soundscape, particularly with circumaural headphones, creates auditory submersion and dissolves the spaces between the 'out here' and 'in there', the virtual and real; it is that which "play[s] at the interface of virtual and visceral experience" (Miller, 2012, p. 8).

In understanding auditory immersion in gameplay, an analysis of the soundscapes of play is insufficient because an acoustic environment does not account for the experiences of its 'organisms' (specifically, the player's interaction with the soundscape). It is necessary to examine the acoustic ecology of such games where, in soundscape studies, an ecology is defined not only as "the relationship between the soundscape and listener" (Westerkamp, 2000, p. 4) but also the "relationship between quality of an environment and people's state-of-being inside that environment" (Böhme, 2000, p. 14). In *The Acoustic Ecology of the First-Person Shooter* (2008a), Grimshaw meticulously explains the tripartite relationship between the player's experience, a soundscape (a set of dynamic sounds which the player hears),

and a game engine (which has an accompanying sonification system). For Grimshaw, this acoustic ecology is an interdependent one since existing soundscapes produced by the sonification engine compel players to act and react. Players, in turn, generate more sounds, through interaction with the game engine, which consequently facilitate an interplay that provides them with the ability to "auditorily perceive the virtual world" (2008a, p. 13). Auditory immersion is attained when the ecology is well balanced, a "'hi-fi' environment where there is a high degree of information exchange between its elements and the listener is involved in an interactive relationship with the environment" (Truax 2001, p.65)[3].

"I don't know what's real anymore": Auditory Immersions in Gameplay

In a 'Let's Play'[4] video commentary on YouTube, titled *Alone | (MUST WATCH!!) Amazing Oculus Rift Horror Game*[5], game commentator Mark Fischbach, more prominently known by his YouTube channel handle Markiplier, experiments with the Oculus Rift by playing a First-Person survival horror game called *Alone* (2013). The Oculus Rift remains among the most popular and powerful headsets of the VR enterprise. As a low latency goggle that is worn over the eyes, the Oculus Rift generates a stereoscopic 3-D view that renders depth, scale, and parallax in high definition by employing unique and parallel image projections for each eye, mimicking the way the human eye functions in rendering coherent three-dimensional images discerned by the brain[6]. It impedes optics external to the virtual environment by constricting the field of view and limiting peripheral vision, thereby enabling an enveloping, surround-quality optical immersion that helps the gamer perceive that he is 'in' the space of play. Responding to the movement of the wearer's head in real time with almost undetectable latency, something earlier VR goggles lacked, the Oculus Rift has been praised for its ability to evoke a deep sense of spatial immersion[7].

In *Alone*, with the field of view enveloped by a three-dimensional virtual environment, the player's avatar is placed in a living room, alone. Seated on a sofa, this avatar in turn is playing a First-Person horror game on a virtual television. The gamer controls the game-within-game avatar with the conventional prosthetics of gamepad controller (or mouse and keyboard) but controls the avatar's visual field with movements of the head adorned with the Oculus Rift. Distinctly a meta-aesthetic conceived by the game designers to gesture at the game's own virtuality and also dissolve the primary virtual plane, the game-within-a-

3 In Barry Truax's seminal work, *Acoustic Communication* (2001), a 'hi-fi' acoustic environment is one where sounds are heard clearly and where the listening process is characterised by interaction. This environment invites participation and reinforces a positive relationship between the individual and the environment. Conversely, a 'lo-fi' environment alienates and isolates the listener and interaction is discouraged (2001, p. 23).

4 A 'Let's Play' is a series of screenshots or a recorded video documenting a playthrough of a video game, usually including commentary by the gamer.

5 See: https://www.youtube.com/watch?v=mYvewljW7Lg.

6 See the official website for demo videos and technical specifications: http://www.oculusvr.com/rift/.

7 Reviewing the Oculus Rift for *MIT Technology Review,* Simon Parkin notes how, "When you use the Rift, you feel as though you're actually inside these worlds (...) You can almost believe you are fully there" (Parkin, 2014).

game has the doubled avatar explore an abandoned house alone. As the player wanders around the house, clues are discovered that indicate he is not alone; not in this double-virtual space of the game-within-game nor in the primary environment of the virtual living room. This play-within-play dissolves the boundaries between two planes of perception: the double-virtual and the material-real. The actions taken within the embedded virtual plane, the game of the game, shape the first as consequences in the secondary game bleed into the primary virtual space; a deep sense of spatial immersion is thus attained not merely visually but narratologically via the double-interactivity of dual avatars. Whenever his double-avatar discovers a clue, Markiplier is unable to ascertain if it refers to an incident or object in the game-within-game or the game itself. Yet, while this absorbing meta-virtuality is constructed via the game's graphics engines, it is the soundscape of *Alone* that dissipates the borders between the virtual planes and the material reality of the gamer's physical environment simultaneously; the acoustic ecology composed by *Alone* constitutes a deep sense of total immersion that permeates the imagined margins of all three planes. Game sounds with location specificity, sounds produced by the player-environment interaction, and proprioceptive sounds from the player move between the space of the real, the primary virtual plane, and the doubled game-within-game such that a player can no longer convincingly locate himself in either environment.

An example of this auditory immersion occurs in the first few moments of Markiplier's gameplay video. Shortly after donning the Oculus Rift and 'entering' the game, Markiplier recognises that his first-person avatar is playing a game on a digitally composed television and is, in turn, controlling another avatar. As he explores the labyrinth, Markiplier hears an acousmatic sound but is unable to tell if the source is located within the game-within-game, the primary virtual space, or his immediate surroundings. He exclaims, "I don't know what's real anymore, this is so weird" (01:55 - 02:00). This occurs again later in the video when Markiplier realises his avatar is being watched. Hearing a ruffling sound and convinced it is coming from his apartment in the 'real' world, he pulls off the goggles to check and then frenziedly swears about the realness and realism of the sound signals (07:04 - 07:12). The examples demonstrate the ways in which the acoustemology of this game-within-game becomes reflected in the game, which then composes a meta-soundscape as the diegetic sounds in the embedded virtual game bleed into the first. The gamer consistently grapples with the difficulty of locating these sounds of heavy footsteps, screams, and voices and is often surprised that the agents of sound objects and sound events are located within the primary virtual space – the gamer's avatar is not alone in the house. With a high degree of sonic perceptual realism, *Alone*, then, exemplifies the permeability and porosity of sound in immersive environments and its ability to distort spatial acuity, thereby enabling the player to believe he is inside the game.

Reviewing another First-Person horror game for his YouTube video blog, Markiplier trials the Oculus Rift yet again with a dungeon crawler game, *Dreadhalls* (2013). *Dreadhalls* plac-

es the gamer in a scarcely lit dungeon labyrinth with the task of surviving and escaping from the creatures that dwell within. In the first few minutes of the video Markiplier uploads of himself playing the game for the first time – *SCARIEST OCULUS RIFT GAME | Dreadhalls Oculus Rift Horror [With Ending!]* – (Fischbach, 2013b) he is seen (and heard) swearing frequently at the diegetic hisses, growls, and grunts. Being acousmatic, Markiplier's sense of anxiety is heightened as he exclaims, "I don't know what's real, I don't know what's fake" (01:30 - 01:40). Further along the gameplay, his avatar proceeds down the corridors and as he attempts to avoid strange creatures half hidden in shadow, a gargoyle-like statue springs to life accompanied by a piercing crackling hiss, followed instantaneously by a disconcerting hollow silence. As Markiplier turns to locate the source of this diegetic noise, he is attacked, presumably by this creature, and the soundscape rumbles with sonic distortions of rapid heart thumps reverberating synchronously with red flashes that pulsate on the screen. At this point, Markiplier shrieks loudly in fear; he pulls off the Oculus Rift, breaks into tears and swears in disbelief (03:10 - 07:50). Observable from the gameplay video which shares the same first-person view as Markiplier, there is little that is terrifying about the gargoyle, not only because one never quite sees what attacks the avatar but also because the level of graphics realism is, in comparison to many digital games available today, particularly weak and unimpressive. Markiplier's intense reaction can be said to be evident of a deep immersion – both as engagement and transportation – that was experienced acoustically and not visually.

In *Playing with Sound*, Karen Collins posits how "interactive sound situates the player into the space of the game, acting as an intermediary between the virtual and the real worlds and between the character and the player" (2013, p.59). In-game sounds are manifested as "palpable vibrations in [...] players' real-world environments" (Collins, 2013 p. 14) – they are 'real' sounds, for sounds in the gameworld cannot reside behind the screen and must necessarily oscillate into the real. Sound "exists and operates both in reality and in virtuality; it has a real volume and dimensionality [...]" (Grimshaw 2008a, p. 119). Immersion in virtual environments is achieved not merely with visual realism but with sonic synchronism. The soundscapes of virtual spaces become mediums that permit the fluid movement of consciousness between virtual and real coordinates, where presence becomes both 'here' and 'there', and where consciousness becomes located along "the interface of the virtual and visceral experience" (Miller, 2012, p. 8). It is logical to conclude that the exteroceptive sounds (the ideodiegetic sounds of gameplay) and the proprioceptive sounds (sounds emitted by the player's body, such as Markiplier's own heavy breathing[8]) are what trigger a visceral, emotional, and kinaesthetic reaction in both game examples. Despite being visually 'inside' *Dreadhalls* and *Alone*, immersion is primarily achieved acoustically and in that acoustic ecology – the game's sonification engine, the player's proprioceptive sounds, and the programmed soundscape – the experience of total immersion is attained.

8 Proprioceptive sounds are audible when one uses over-the-ear, noise-cancellation headsets such as the ones Markiplier utilises.

Drowned in Sound: Disruptive Vocalities in *The Drowned Man* (2013)

The explication and exemplification of the acoustic ecologies in FPS games is necessary, by way of critical comparison, to comprehend the auditory immersions that immersive theatres employ, particularly since immersive performances seek to compose soundscapes that immerse auditorily. Summarising the views of directors who produce works with degrees of immersiveness, Machon advocates the "affective significance of sound [...] within an immersive experience" (2013, p. 153). Composed soundscapes can assist audience-participants to "hone in on action and image, heighten the detail of the imagination and of the space and enable a sharing of alternative sensory experiences between individuals within the event [...] it creates the sensation of 'stepping into' alternative experiences" (Machon, 2013, p.152).

Such an acoustic strategy is evident in Punchdrunk's *The Drowned Man: A Hollywood Fable* (2013). Based thematically on Georg Büchner's infamous work of fragmented proportions, *Woyzeck, The Drowned Man* was performed site-specifically at 31 London Street, where the entire building of the former Royal Mail sorting office was transformed into a fictional 1960s Hollywood movie studio. With two lead narratives, the themes of love, adultery, murder, and madness were played out through the mirror tragedies of a couple within Temple Pictures and another who live on the outskirts of this imagined Hollywood town. Involving over forty cast members and a play space of over twenty-thousand square feet, spread across four levels, the performance turned six hundred audience members a night into avatars by immersing them as players in a play and at play. With no purposeful linearity, narrative action happened sporadically and simultaneously in a variety of spaces – bedrooms, bars, a diner, a caravan park, executive offices, costume shops, a chapel. In these public and private spaces, characters danced, embraced, fought, conversed, cried, and undressed as audiences, standing in immediate proximity, observed from behind a Venetian *bauta-like* mask. Immersive in an almost literal way, as White describes of Punchdrunk's other immersive works (2012. p. 225), audience members moved within this space of play as they chose to listen to the closet conversations of the characters or interact with the intricate props and detailed sets. Across all four levels, every space was covered in props and sets that helped virtualise a 1960s Hollywood film studio. Littered on the sidewalks, tables, and sofas, one could easily find film reels, cameras, wigs, vintage stationery, and even a bright red Studebaker parked in a central passageway. Mimicking the experience of Massively Multiplayer Online Role-Playing Games (MMORPG) and Massively Multiplayer Online Games (MMOGs), the audience-participant becomes a player-avatar when the masks are worn; the donning of the mask becomes a performative act of complicit play and an inscription of a virtual avatar that then becomes realised in the game space of Temple Pictures. As a dramaturgical strategy that further simulates a virtual game environment, a "parallel theatrical universe", and as a critical device to have audiences "forget they're an audience" (Barrett in Machon 2011, p. 159), the mask worn, according to Barrett, empowers individuals as it shifts their status to

a "ghostlike one" (2011, p. 160). This permits audiences to assume a character, an avatar, in the performance, to be part of the fictional environment and mise-en-scène, and to empower them to act differently from who they are in daily life or even as they would be as an audience – an erasure of spectatorship from the spectator[9]. Like the world of an MMORPG such as *World of Warcraft* or *Second Life*, the audience of *The Drowned Man* were free to roam and interact with the virtual environment without necessarily adopting a particular quest or following a prescribed narrative; they could pursue lead characters for a deeper sense of narrative or wander and linger in any space.

To immerse audience-participants aurally and place them in the acoustic space of Temple Pictures, an incessant, encompassing electronic drone flooded the common passageways of different levels. Reviewing for *Timeout*, Andrzej Lukowski described this persistent soundscape as "menacing electronic music and Spectoresque strings howl(ing) from hidden speakers" (2013, July 17). The deep reverberant drone could be regarded as an artistic intent to create an 'edgy' and ominous soundscape[10] that in turn composes a dream-like virtual existence consonant with the fantasy of being in and part of the lives of movie stars. Because it resonated not as harmony, melody, or distinctive sonic signatures, the drone was relegated to the unconscious attention of the spectator as a means of submerging him in a sonic atmosphere. In select rooms and walkways, this tonally dark soundscape was perforated by songs from the 1960s, *doo-wop*, jazz, and Chet Baker, as well as incidental music not so different from that of a film score. The labyrinth of rooms and stages was thus suffused with sound – musical or incidental – and while not all spaces were saturated with acoustic frequencies, there was a sense that the soundscape was used as a means of controlling and dictating the reactions and responses of audience-participants. In "Noise, Conceptual Noise and the Potential of Audience Participation" (2011), Gareth White notes that the soundscapes employed by Punchdrunk are dramaturgically purposeful and even "fascistic". Apart from being a functional device as a cue that allows the performers to move to different parts of the performance environment, in addition to the established purpose of creating atmosphere, the pervasive, looping sound design is used as a means to "inhibit speech between audience members [...] the same sounds are played throughout, at a volume that is also loud enough to cover much conversation. It is ironic that the atmospheres usually produced by these soundscapes are eerie, unnerving and apparently chaotic but their effect is to maintain control over the event" (White 2011, p. 205).

This auditory control and acoustic absolutism are particularly evident in *The Drowned Man*. From the moment audience members awaited the lift to take them to the different levels

9 Barrett recalls that after the early performances in which masks were used for the first time, some audience members came to apologise because they felt their behaviour had been beyond their control (Barrett in Machon 2013, pp. 160-161). These experiences exemplify Barrett's intention of transforming spectators to avatar-players.

10 Of the little that has been written about the soundscapes of *The Drowned Man*, these are the consistent observations of reviewers. See Noon, G. (2013, August 12). Punchdrunk's *The Drowned Man* is a heady brew of sex and menace. *Metro*; and also Lukowski, A. (2013, July 17). Punchdrunk: The Drowned Man. *Timeout*.

of play, they were sternly reminded to wear their masks at all times and to always keep silent and avoid chatter with friends or fellow participants[11]. The best experience of the performance, the audience was told, would be an individual one: speaking, moving, and interacting amongst familiar company was strongly discouraged. In the lift, conversations, mutterings, and nervous giggling were immediately silenced by the Temple Pictures attendant operating the lift. Distinctly, the voice became a medium to punish these unscripted sounds and disruptive vocalities, in an attempt to maintain the suspension of disbelief and the 'reality' of the virtual-fictional world. All natural sounds, inorganic to this virtual environment, had to be muted and disciplined. Even when an audience member sought assistance to exit the darkly-lit labyrinthine maze, a female assistant, clad in black and blending perfectly with the darkly-lit spaces, responded sombrely in an artificially low register, as a vocalic act of sustaining the frequencies of immersion.

In MMORPGs and First-Person MOGS, players communicate with one another through piped-in microphones and headphones to facilitate collaborative and competitive instructions. Real (though mediated) voices become a distinctive sonicity of the virtual soundscape. In communicating with the voice, identity and the body are brought into the virtual space of play and in an environment where the soundscape is primarily digitally produced; its acoustic invasion seemingly enhances the quality of presence and the real in digitised reality. Players recognise that these avatars are vocally embodied and with that engage more deeply in playing as though it were real[12]. While some gamers believe these embodied, organic sonicities would facilitate greater intimacy and deeper immersive experiences, others recognise how vocality, as unscripted, spontaneous, live, and immediate, would damage the border between the virtual and the real, thereby causing a phenomenological uncertainty due to the increased acoustic porousness of the divide. Studying the development and evolution of the MMORPG, *Second Life*, as a new social and cultural phenomenon at the time, anthropologist Tom Boellstorff suggests that what made debates about the real-time voice impassioned were questions of presence and immersion that implicated the boundary between the virtual and the real. As Boellstorff explains, "Some residents felt voice would damage a border between the virtual and actual that they wished to maintain" (2008, p. 114). William Cheng posits a similar view when he observes how, "In online gameworlds, players' voices [...] accentuate the porousness of the real-virtual divide by registering as objects of phenomenal and somatic excess" (2014, p. 141). Adding to this perspective, media theorist Richard Bartle, in an article re-published on the blog site *Game+Girl=Advance*, propounds:

11 This and subsequent analyses of *The Drowned Man* are based on my personal experience and observations while attending the performance on 10 March 2013.

12 William Cheng discusses issues of ethics, discrimination, and gender politics in such MMOGs where voice communication is prevalent. See Chapter 5 of *SoundPlay* (2014). Karen Collins also discusses the voice in games in *Playing with Sound* (2013, pp. 68-81).

> If you introduce reality into a virtual world, it's no longer a virtual world: it's just an adjunct to the real world. It ceases to be a place, and reverts to being a medium. Adding reality to a virtual world robs it of what makes it compelling – it takes away that which is different between virtual worlds and the real world: the fact that they are not the real world. Voice is reality (Bartle, 2003).

While it is contestable whether voice is necessarily 'reality' since realistic voices can be digitally composed and voices can be digitally distorted by technologies of mediation, the viscerality of a live, raw, and present voice, its grain, tenor, and timbre is intimately associated with the body; likewise, listening is an embodied experience. In multiplayer games, real sonorous relations, cooperative or antagonistic, are formed in virtual spaces and they at once enhance the experience of reality in (and at) play. As a dialectical consequence, real relationships are formed from these interacting and intersecting voices even as raw vocalities threaten to disrupt deep immersion in a virtual space.

This paradoxical audial relationship of piped-in voices in virtual environments is replicated in an audience-participant's aural experience of *The Drowned Man*. Examining the auditory reception and vocal action of audience-participants remains important for the analysis of immersive theatres' acoustic ecologies; while in FPS games, the acoustic ecology is composed of the interaction between the player, the game's soundscape, and the game engine. As earlier posited, an acoustic ecology of an immersive performance is composed of the verbal expressions, or noises, created by the audience-participants, the script as it is vocalised by the actors, the designed soundscape (of incidental/background sounds and music), and the accidental sounds in the performance space. In *The Drowned Man*, these voices and vocalities of surrounding spectators – unscripted, spontaneous conversations, utterances and questions, sneezes and snorts – consistently threaten to disrupt the impervious soundscape, designed with careful intention to create the virtual atmosphere of 1960s America. The chaotic and anarchic noises, the frequencies of reality and the immanent sounds of the body, puncture the soundscapes of designed immersive virtuality and dislocate, auditorily, the audience-participant from his avatar (and other avatars). Another noteworthy example of such a sonic interference involves an audience member who unintentionally probes (and punctures) the seams of this virtual dome by gratifying a real bodily urge. Seeing a glass of water on a coffee table beside a high-backed leather Chesterfield armchair, a young female audience member sat down, hoping for a short reprieve from being immersed and to satiate her thirst. She raised the glass and drank contentedly from it, but as she did so, the sipping sounds of satisfaction attracted an attendant, who stepped out of the shadows and quietly but firmly rebuked her. This tragi-comic moment, as acoustic phenomenon of disruptive vocalities perforating the carefully designed soundscape, made evident how 'noise' can be regarded as interference that disrupts immersiveness conceived and controlled by theatre-makers. As one moved along the corridors and shared spaces with other audience members, one heard, as well, the spontaneous narratives told

over mobile phones, in discreet whispers, or between friends. Revealed in these examples is a fear of an acoustic rupture and a disruptive discordance. As White posits, soundscapes in Punchdrunk's work are organised meticulously to "maintain control over the signal" and noise as interference could bring "chaos into the work itself, and potentially de-territorialise it" (2011, p. 206). To preserve the immersive ecology of *The Drowned Man*, a participant needs to be disciplined and to be managed; he needs to conform to the expectations of the established acoustic community – a soundscape in which "acoustic information plays a pervasive role in the lives of the inhabitants" (Truax, 2001, p. 66). Disrupting this information with vocalic data exposes the fragility of immersion in this virtual environment and de-territorialises the fictional space of Temple Pictures.

Writing about immersion in virtual-reality environments, specifically in video games, Alison McMahan notes how total photo- and audio-realism is not necessary to produce a sense of immersion, "a sense that the world [the players] are in is real and complete" (2003, p. 68). There are, however, three conditions for total immersion to occur: the user's expectations of the game or environment have to match the environment's conventions closely, the conventions of the world must be consistent, and, most significantly, the user's actions must have a non-trivial impact on the environment (McMahan, 2003, pp. 68-69).

The final condition stipulated by McMahan is perhaps applicable to the analysis of *The Drowned Man's* attempt at total immersion (or the lack thereof). The presence of disruptive vocalities and noises resounds with the inevitable consequence of adopting principles of virtual game environments without the engaged responsibilities of a committed avatar and a directed objective; they can be read (and heard) as acoustic traces of audiences feeling a lack of impact on the performance environment given that the production was heavily advertised as an interactive and transformative parallel universe with which audience-participants could actively engage[13]. Recognisably, the view that disruptive vocalities reverberate with the sense of absent absorption does not hold true for all audiences, for there were many who felt involved and invested as they pursued the actors across corridors and hallways in a quest to unravel the plot. Yet the many whispers and conversations, peripheral utterances and exclamations heard on the night that I was present revealed the performance's inability to convincingly create immersion both as transportation and absorption, and much less as a total experience. The unscripted acoustics and undisciplined vocalities continually ruptured holistic immersion; like intermittent signals, the interruptive sonorities at spontaneous play disrupted the intimacies of the virtual-fictional environment. Because an acoustic ecological analysis necessarily places the listener at the core of the sound event, sounds produced by the listener must be considered as well. In doing so, one recognises that the listener (in this case, the audience-participant) contributes equally to the acoustemological experience. Sounds of/from the body, sonicities of the real, cannot be

13 This is the phrase Barrett uses to describe the performance. See Dhaliwai, R. & Remy, T. (2014, April 15) Inside 'The Drowned Man' with Punchdrunk's Felix Barrett – audio slideshow. *The Guardian*.

silenced in the space of virtual-fiction. As Gareth White maintains, 'immersive' is a faulty label to describe these performances since they have "no strong claim to creating fictional or imaginative interiors that is different in kind in more conventionally structured audience arrangements" (White, 2012, p. 233). From an acoustemological perspective, attempts at disciplining sonorities and acoustics will almost always fail and this would mean that immersion in these performance forms is always less than total.

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Journal of Sound, Silence, Image and Technology
Issue 3 | December 2020
ISSN 2604-451X

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