

Making the Virtual Actual

A research model to understand music of
contemporary open-world video games

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ABSTRACT

The global video game industry has in part achieved its ubiquitous cultural influence through the creation of increasingly realistic gameworlds. Of these, contemporary open-world games offer vast internal environments presenting complex narrative constructs and ever-higher production values, including music content. Research into these games has typically ranged from their characteristic technical design and storytelling attributes, to ethnographic studies of their gameworlds, through to commercially based evaluations of the games' soundtrack content. Breaking new ground by merging these disparate lines of enquiry into a cohesive whole, the purpose of this study is to examine the music of open-world game soundscapes as sociocultural artefacts. This study seeks to offer a foundation for explaining the musical functions causal to the popularity of these games according to a research model that determines and separates the constitutive musical components of a gameworld's soundscape into diegetic categories. These components are examined according to a tripartite model with a methodological basis in game music design principles, adopting a gameworld as a virtual ethnography fieldsite, and studies of game music in culture.

This study takes *Grand Theft Auto V* as its focus in demonstrating an application of the proposed model. As an open-world game grossing more than any other form of media and featuring more musical content than any previous title of its series, it is shown that the proposed model does greater intellectual justice to the technical, aesthetic, and sociocultural sophistication of this artefact. The development and application of the proposed research model enables a shift of analytical approach in ludomusicology from an outside-in perspective to one of an inside-out nature. In addition to its application to other games, the offered model affords theorists and game designers a valuable analytical and conceptual tool to see the virtual music of a game as anchored in the actual world.

DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Signed:

Date:

31 May 2019

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QUOTATIONS

‘The first and perhaps most important observation one can make about contemporary video-game music is that there is no longer any such thing as video-game music.’

Rob Munday.

‘... in order to establish an objective fact we have to parameterise the search; we have to narrow the search; we have to exclude many, many things ...’

Jordan B. Peterson.

‘Indeed, through a process of archaizing, which is a mode of cultural production, the repudiated is transvalued as heritage.’

Barbara Kirshenblatt-Gimblett.

INTRODUCTION

On 17 September 2013, the video game publisher Rockstar Games released the most recent title of its flagship series, *Grand Theft Auto V* (*GTA V*).¹ The game grossed US\$800 million on the first day of sales and reached US\$1 billion in three days, breaking six Guinness World Records.² Since then, it has sold in excess of 100 million copies,³ surpassed US\$6 billion in sales, and become the ‘highest-grossing entertainment product in history’.⁴ *GTA V* features more music than any of its predecessors, supplementing the conventional ‘in-game radio’ licensed song catalogue with the series’ inaugural underscore. With players having listened to over 75 billion minutes of music during gameplay,⁵ *GTA V* invites greater scholarly focus as a twenty-first century artefact cultivating and disseminating musical culture. However, this is true of many ‘open-world’ games. Their music has transcended the sophisticated methods through which it is implemented into gameplay, to act as a critical agent in marketing synergies and as a nucleus of subcultural groups and practices.

This study is concerned with formulating and applying a research model designed specifically to study music of open-world games. It does so by merging three disparate lines of inquiry—Game Music Design, Virtual Ethnography, and Music in Culture—to form a cohesive whole. This study rationalises theoretical bases upon which the model operates, and demonstrates its application to *GTA V* by approaching its music as enriching the gaming experience and substantiating the gameworld’s musical culture, and by investigating what its sociocultural significance might be. It is hoped that this research model will afford theorists and game designers an analytical tool to perceive the virtual music of a game as anchored in the actual world.

¹ Rockstar North, 2013.

² Kevin Lynch, ‘Confirmed: Grand Theft Auto 5 breaks 6 sales world records’, *Guinness World Records*, 8 October 2013, accessed 27 June 2016, <http://www.guinnessworldrecords.com/news/2013/10/confirmed-grand-theft-auto-breaks-six-sales-world-records-51900>.

³ Sumit Chakraborty, ‘GTA V Sales Cross 100 Million Units, Red Dead Redemption 2 Ships 17 Million Copies, Take-Two Reveals in Earnings Report’, *Gadgets 360*, 8 November 2018, accessed 5 March 2019, <https://gadgets.ndtv.com/games/news/gta-5-100-million-red-dead-redemption-2-17-million-take-two-interactive-earnings-report-1944484>.

⁴ Harold Goldberg, ‘How the West Was Digitized: The Making of Rockstar Games’ *Red Dead Redemption 2*’, *Vulture*, 14 October 2018, accessed 24 October 2018.

⁵ Stefanie Fogel, ‘“Grand Theft Auto V” Players Have Listened to Over 75 Billion Minutes Of Music’, *Variety*, 27 August 2018, accessed 10 October 2018, <https://variety.com/2018/gaming/news/gta-v-music-1202917461/>.

The following Project Aims are the enumerated ambitions of this study.

Project Aims

1. Develop a mechanism by which the meaning and significance of contemporary open-world video game music can be understood.
2. Identify, categorise and define all practical and theoretical parameters of the resulting mechanism.
3. Develop measures to support accruing ethnographic data in a gameworld while controlling an avatar.
4. Employ ethnography research methods, focusing specifically on music, within the virtual fieldsite of an adopted open-world gameworld.
5. Connect the functionality of all musical content within a contemporary open-world video game through analyses of its technical, narrative, and commercial facets.

To achieve these aims, the following Research Questions have been formulated.

Research Questions

1. How can the musical components of a game be categorised according to diegetic functionality?
2. What adaptations to employing traditional ethnography research methodologies are required in virtual ethnography investigations in contemporary open-world video games?
3. What rationale can provide an intellectual basis for examining the sociocultural significances of open-world game music?
4. How are the technological, narratological, ludic and commercial characteristics of *GTA V*'s music interconnected?
5. What role is played by *GTA V*'s music in Rockstar Games' fostering of the Culture of Connectivity between publisher, artists and consumers?

With these aims and questions proposed, it is timely to discuss the changing nature and perceptions of game music, and an outline of open-world game structures.

Perceptions of Video Game Music

‘The first and perhaps most important observation one can make about contemporary video-game music is that there is no longer any such thing as video-game music’.⁶ What responses did Munday mean to solicit through this paradoxical statement? Of the many explanations that come to mind, the most likely is that Munday sought to counter misconceptions emerging from lax judgement and the lack of differentiation between contemporary game music and its ancestral 1970s and 1980s forms. A pervasive presupposition is that game music still possesses the same robotic, sparse sonic aesthetic of the early console era’s bleeps and bloops soundtrack quality.⁷ McDonald counters this perception, posing that, ‘once an afterthought in terms of game design and overall pop-culture consciousness, video game music is now a legitimate industry of its own’.⁸

Despite the rapidity with which game and game music technology develops, it can be considered a recent iteration of a symbiosis that has existed for millennia as part of a play–music relationship in human activity. Egenfeldt-Nielsen et al. put this into perspective by arguing that rule-based systems of play were present in the societies of the ancient Greeks, Vikings, and likely with *Homo sapiens*’ troglodyte ancestors.⁹ Huizinga argued *Homo ludens* – Man, the Player – as deserving a place in critical nomenclature, with video games representing one of many contemporary ‘play’ manifestations. Since their mid-twentieth century inception video games have achieved a position that is central to the lives of millions of people, although the debate on whether *Tennis for Two*¹⁰ or *Spacewar!*¹¹ constitutes the inaugural video game still persists.¹² The immense commercial popularity and cultural significance of the video game, defined by Galloway as a ‘cultural object, bound by history

⁶ Rob Munday, ‘Music in Video Games’, in *Music, Sound and Multimedia: From the Live to the Virtual*, ed. Jamie Sexton (Edinburgh: Edinburgh University Press, 2007), 51–67, at 5.

⁷ John Broomhall, ‘FULL Circle: Videogame Music & All That Jazz’, *Gamasutra*, 22 July 2014, accessed 12 September 2018, http://www.gamasutra.com/blogs/JohnBroomhall/20140722/221517/FULL_CIRCLE_Videogame_Music_All_That_Jazz.php.

⁸ Glen McDonald, ‘A History of Video Game Music’, *Gamespot*, 28 March 2004, accessed 14 December 2015, <https://www.gamespot.com/articles/a-history-of-video-game-music/1100-6092391/>.

⁹ Simon Egenfeldt-Nielsen et al., *Understanding Video Games: The Essential Introduction* (New York, NY: Routledge, 2008), 1.

¹⁰ Higinbotham, 1958.

¹¹ Russell, 1962.

¹² James Newman, *Videogames* (London: Routledge, 2004), 1.

and materiality’,¹³ has seen merited commensurate scholarly attention only recently. Nintendo’s answer to salvage an industry mired in decrepitude from the ‘game market crash’ of 1983¹⁴ was to promote the Nintendo Entertainment System (NES) console not as an electronic game, but as a toy.¹⁵ This heralded the revivification of the video game industry, but it also perpetuated the axiomatic presupposition that the ‘video game’ is first and foremost a toy, and of little utility beyond the realms of entertainment and fun.

Perfunctory interactions with games of that era likely lead to scholars recognising scenes only of playfulness, such as Mario running over bricks, jumping over green pipes, and collecting coins, all set to the background of a sunny blue sky. A *prima facie* encounter with *Super Mario Bros.*¹⁶ can easily induce associations with animated cartoons, especially when compared with its contemporaneous media such as cinema and television. Newman identifies this unfavourable comparison as precipitating a reductive dismissal of this game and its series as childish because of its bold and primary colours.¹⁷ To reject video games on the apparent nature of their content—for example, ‘jumping on enemies’ heads’¹⁸—reveals an investigative superficiality. Another connotation that has soured the perception of players is an inadequacy of social interaction, summarily that a ‘strong interest in computers and computer games was suspected of being a sign of mental deviation’.¹⁹ Progress has been made in the academic study of video games to address these views; however, this study is concerned primarily with shedding greater light on game music. ‘No longer just the “ugly stepchild” of the games industry’,²⁰ the literature review below discusses the belated but significant ground covered in the scholarly study of video game music. Codifying all of the styles of music in games and the varied forms they take is a step towards answering Munday’s comment on a definition of game music. In search of a more meaningful response to Munday, this study tenders an original approach to the field that will allow scholars to ascribe a more accurate identity to game music.

¹³ Alexander A. Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis, MN: University of Minnesota Press, 2006), 1.

¹⁴ Ian Bogost, *Persuasive Games: The Expressive Power of Video Games* (Cambridge, MA: The MIT Press, 2007), 175.

¹⁵ Tracey Lien, ‘No Girls Allowed’, *Polygon*, 2 December 2013, accessed 24 April 2018, <https://www.polygon.com/features/2013/12/2/5143856/no-girls-allowed>.

¹⁶ Nintendo, 1985.

¹⁷ Newman, *Videogames*, 5.

¹⁸ Newman, *Videogames*, 5.

¹⁹ Carsten Jessen, ‘Interpretive Communities: The Reception of Computer Games by Children and the Young’, *Carsten Jessen*, accessed 30 April 2018, <http://www.carsten-jessen.dk/intercom.html>.

²⁰ Collins, *BEEP*, 2016.

Music is present in almost every video game, meaning that it is also a significant component of the global video game industry, valued at US\$134.9 billion at the publication time of this study.²¹ The playing time of consumers is increasing,²² which means that musical exposure through gameplay time is also increasing. Industry veteran Tommy Tallarico goes further, claiming that at any moment, ‘more people are listening to video game music consistently than any form of media’.²³ These claims are applicable to games of all types, but some require greater temporal investment in gameplay than others, such as those set in an open-world environment, and those of the role-playing game (RPG) genre. Keach has identified the large amounts of time required to explore these games, and to complete the manifold quests and side-activities.²⁴ To investigate the significance of this musical content, the predominant design and function aspects of the open-world game require outlining.

The Contemporary Open-World Video Game

This study has identified the type known as ‘open-world’ games as offering both dynamic and reflexive gameplay, and avenues of critical scholarship are presented through their increasingly realistic gameworlds. With antecedents traceable over several decades and a contemporary popularity boom,²⁵ consumers are now experiencing ‘a golden age of sprawling and exciting open world games’.²⁶ Despite the importance of establishing a genre’s characteristics,²⁷ a single definition of open-world games is yet to be articulated. The task is made difficult by a complex amalgam of industry terminology, marketing schtick, esoteric nomenclature and journalistic vernacular. Video trailers promote games that are based on similar fundamental design constructs as a ‘huge open-world game with ... miles

²¹ Peter Warman, ‘Newzoo Cuts Global Games Forecast for 2018 to \$134.9 Billion; Lower Mobile Growth Partially Offset by Very Strong Growth in Console Segment’, *Newzoo*, 2 November 2018, accessed 29 November 2018, <https://newzoo.com/insights/articles/newzoo-cuts-global-games-forecast-for-2018-to-134-9-billion/>.

²² Newzoo, *2017 Global Games Market Report* (Amsterdam, 2017), 6.

²³ Tommy Tallarico, ‘Video Games- Art in Disguise: Tommy Tallarico at TEDxManchesterVillage’, video, 18:04, 23 July 2013, posted by TEDx Talks, <https://www.youtube.com/watch?v=R6K5B0iBUnA>.

²⁴ Sean Keach, ‘Square Eyes: The 10 video games that take the longest time to finish revealed – can you guess which one takes 693 hours to beat?’ *The Sun*, 4 April 2018, accessed 3 December 2018, <https://www.thesun.co.uk/tech/5971173/longest-video-games-beat-finish-monster-hunter-skyrim-witcher/>.

²⁵ Gameranx, ‘Evolution of Open World Games’, video, 13:43, 25 Feb 2016, posted by gameranx, https://www.youtube.com/watch?v=_M9lvT4HI-g.

²⁶ PC Gamer, ‘The Best Open World Games’, *PC Gamer*, 13 March 2018, accessed 2 April 2018, <https://www.pcgamer.com/au/best-open-world-games/>.

²⁷ Collins, *Game Sound*, 123.

of complete freedom’,²⁸ a ‘real world landscape [featuring] sandbox quests with multiple solutions’,²⁹ or an ‘ambitious open world action experience’.³⁰ This marketing language may be discursive in its precise locutionary meanings, but it also demonstrates that the appeal of these games is associated with their expansive worlds, navigation freedom and emergent events.

The Gameranx game culture site summarises these characteristics to posit the open-world game as ‘a fairly large gameworld that doesn’t direct you to any specific area by means of restriction. You’re not necessarily required to complete the story in order to traverse the world’.³¹ This is accurate, and other benefits of these games’ large environments are branching narratives and collections of diverse and complex musical structures. It is recommended that ‘to understand game narratives, it is essential to analyse game structures and see how they ramify into different forms of narrative play’.³² In order to understand their musical content, the ambition of this study, it is important that the salient narrative dimensions and internal structures of open-world games are distinguished. As with other ludomusicological investigations, this begins with mid-twentieth century game theorists.

Dutch historian Johan Huizinga’s 1938 book *Homo Ludens* studying the play-element in culture continues to offer perspectives on the study of video games. Huizinga’s conceptual promotion of the Latin word *ludus* as ‘the general term for play’³³ was developed by French sociologist Roger Caillois in the 1958 book *Les Jeux et Les Hommes – Man, Play and Games*. Caillois’ *paidia* and *ludus* articulate two opposite poles on a continuum of play, measuring turbulence, improvisation, and uncontrolled fantasy, and the capricious chicanery with which such acts are disciplined, respectively.³⁴ Caillois’ critical nomenclature also extended to the terms *agôn*, *alea*, *mimicry* and *ilinx* to categorise games as competition-, chance-, simulation- or vertigo-based.³⁵ Two structural elements that dominate open-world

²⁸ *Just Cause 3*, ‘Just Cause 3 Trailer at E3 2015’, video, 5:01, 16 June 2015, posted by Kotaku, <https://www.youtube.com/watch?v=-x1q7wY0koE>.

²⁹ *Kingdom Come: Deliverance*, ‘Kingdom Come: Deliverance – E3 Trailer’, video, 2:18, 17 June 2015, posted by IGN, <https://www.youtube.com/watch?v=ZOkd-Lmmcb4>.

³⁰ Rockstar Games, ‘Gameplay Features’, *Rockstargames*, accessed 29 August 2017, <http://www.rockstargames.com/reddeadredemption/>.

³¹ Gameranx, ‘Evolution of Open World Games’.

³² Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals* (Cambridge, MA: The MIT Press, 2004), 383.

³³ Johan Huizinga, *Homo Ludens: A Study of the Play Element in Culture*, trans. R. F. C. Hull (London: Routledge, 1949), 36.

³⁴ Roger Caillois, *Man, Play and Games*, trans. Meyer Barash (Chicago, IL: Chicago University Press, 1961), 13.

³⁵ Caillois, *Man, Play and Games*, 12.

games are the ability to act freely in a large space (*paidia*) bordered by finite boundaries, with narrative and game engine rules that cannot be broken (*ludus*). Aarseth discusses such spatial structures as an ‘open landscape’,³⁶ and Calleja also uses the term in referencing environments ‘which afford players the most freedom for navigation’.³⁷ Open-world is the preferred term in this study, as the ‘landscape’ of a game is understood as one phenomenon within a gameworld. Caillois’ *paidia* – chaos, in essence – may be extrapolated as freedom, and this extends to many gameplay facets. As mentioned above, its most obvious meaning lies in untrammelled movement, with the player’s determined direction of navigation and choice of transport mode key aspects.

This is exhibited in *The Elder Scrolls IV: Oblivion*,³⁸ as the player is not ‘forced to move through a number of limited environments in a linear sequence’.³⁹ This differentiates its open-world environment from games with linear, segmented mission systems such as first-person shooters (FPS), puzzle games and real-time games (RTS). This extends to the freedom of timing, ability and choice ceded to the player, giving rise to the term ‘sandbox’. This term functions in analogy with the actual world children’s sandbox play-space structure (sandpit for British English speakers), alluding to a child’s imagination as the driving force of indeterminate possibilities of play. Kraus acknowledges the influence of *Grand Theft Auto III*⁴⁰ (*GTA III*) as giving ‘rise to a vast number of so-called “sandbox games”’.⁴¹ The game’s design allows the player to ‘choose which, if any, goals he wanted to accomplish or just roam an environment interacting with the artificially intelligent occupants’.⁴² This can only occur in accordance with the rules of the game, which align with the requirements of effort, patience and skill⁴³ embodied in Caillois’ proposed *ludus*.

These rules permeate game design, and Salen and Zimmerman point out that crossword puzzles possess a similar ‘balance that keeps them just flexible enough ... but still rigid enough so that one correctly answered clue leads to others’.⁴⁴ Most obvious within the

³⁶ Espen J. Aarseth, ‘From Hunt the Wumpus to *EverQuest*: Introduction to Quest Theory’ (presentation, ICEC 2005: 4th International Conference, Sanda, Japan, 19-21 September 2005).

³⁷ Gordon Calleja, *In-Game: From Immersion to Incorporation* (Cambridge, MA: The MIT Press, 2011), 82.

³⁸ Bethesda Game Studios, 2006

³⁹ Calleja, *In-Game*, 82.

⁴⁰ DMA Design, 2001.

⁴¹ Gérard Kraus, ‘Video Games: Platforms, Programmes and Players’, in *Digital Cultures: Understanding New Media*, ed. Glen Creeber and Royston Martin (Glasgow: McGraw-Hill Education, 2009), 76–91, at 80.

⁴² Kraus, ‘Video Games’, 80.

⁴³ Caillois, *Man, Play and Games*, 13.

⁴⁴ Salen, Zimmerman, *Rules of Play*, 198.

sandbox metaphor are the encircling borders of the sand play area; in games these are boundaries that players similarly cannot traverse. If one replaces the sand with a gameworld, the box's sides with non-traversable boundaries within that gameworld, and a child with their spade with a player utilising a game controller, the fully abstracted concept is clear.

In open-world games, the borders restricting explorative player movement might take the form of natural or manufactured features, such as unscalable mountains and half-demolished bridges that cannot be traversed. Other mechanisms blocking player movement might be obstacles within the gameworld that function discordantly. For instance, upon entering bodies of water in *GTA III* and *Red Dead Redemption (RDR)*,⁴⁵ the player's avatar dies instantly. There is no obvious narrative reasoning behind this, suggesting that the game designers wanted to encourage an avoidance of water so as to encourage players to pursue other travel means. Another kind of travel restriction that Calleja points to is not based on spatial constraints, but rather on the difficulties of overcoming aggressive in-game agents.⁴⁶ In *The Lord of The Rings Online (LoTRO)*,⁴⁷ the player-controlled Hobbit avatars are free to leave their initial region of the Shire, but they are likely to be killed by enemy combatants without the assistance of friendly higher-level players. In this case 'the spatial constraints of the gameworld are based on rules within the game's narrative, and not spatial structures.'⁴⁸ This example presents a situation in which the game's music is also subservient to the narrative rules. Music that plays in locations that the Hobbits cannot yet reach is likely to be different from the music that plays in the Shire. In order to experience the spatially yoked music of other gameworld locations, lower-level players are compelled upskill their avatars.

Another point is the opaque relationship between game and narrative that often consists of significant overlap, and Aarseth asks, 'are landscape and quest-structure the dominant factors in quest game design, to which the story-ambitions must defer?'⁴⁹ A practical approach is to differentiate between a video game's story – plot, characters, and settings – as residing within its narrative – environment, intertextuality, and non-story elements. This aligns with Jørgensen's view of a film being a narrated story⁵⁰ but, as Salen

⁴⁵ Rockstar San Diego, 2010.

⁴⁶ Calleja, *In-Game*, 82.

⁴⁷ Turbine, 2007.

⁴⁸ Calleja, *In-Game*, 82.

⁴⁹ Aarseth, 'Hunt the Wumpus'.

⁵⁰ Kristin Jørgensen, 'On Transdiegetic Sounds in Computer Games', *Northern Lights: Film & Media Studies Yearbook* 5, no. 1 (2007): 105–117, at 109.

and Zimmerman point out, the dynamic nature of gameplay manifests in narrative experiences that are unpredictable and extemporaneous.⁵¹

As a meta form of a game's fiction, video game narratives can be both embedded and emergent, according to LeBlanc.⁵² These embedded narratives are, in Salen and Zimmerman's view, 'pre-generated narrative content that exists prior to the player's interaction with the game [providing] the major story arc for the game, structuring the player's interaction and movement through the game world in a meaningful way'.⁵³ The 'story' of a game can also be thought of as a main plotline, developed with structures that enable players to interact with the characters and objects of the gameworld.⁵⁴ Emergent narrative content is still within the structural rules of the game, but as the name suggests, it arises from out of these rules.

Extemporaneous changes in gameplay enacted by the player or game engine's programming pose another critical consideration when studying video games and their music. The complex systems within games permit dynamic experiences in which the player participates,⁵⁵ acting within structures of the gameworld. Open-world games can be thought of as the epitome of these ludic principles. Linear and sequential missions can often be undertaken at the player's whim, and allow the unlocking of new items and skills that can be utilised during free exploration. Embedded narrative structures are balanced, therefore, with numerous gameplay possibilities offered within the surrounding open-world environment, and ancillary missions.⁵⁶

An example of this can be found in the fantasy narrative of *The Elder Scrolls V: Skyrim* (*Skyrim*),⁵⁷ in which the main story revolves around defeating an invading dragon horde. A side quest line separated from the main story but within the narrative involves the player choosing to align with the Imperial Legion military faction or the Stormcloak insurgents. Once the choice has been made and the side quests pursued to their conclusions, the player will lose the option to engage with certain other agents and quests in the game, meaning that

⁵¹ Salen, Zimmerman, *Rules of Play*, 977.

⁵² Marc LeBlanc, 'Feedback Systems and the Dramatic Structure of Competition' (presentation, Game Developers Conference, San Jose, 15–19 March, 1999).

⁵³ Salen, Zimmerman, *Rules of Play*, 977.

⁵⁴ Doug Church, 'Formal Abstract Design Tools', *Gamasutra*, 16 July 1999, accessed 30 August 2017, https://www.gamasutra.com/view/feature/131764/formal_abstract_design_tools.php?page=5.

⁵⁵ Salen, Zimmerman, *Rules of Play*, 977.

⁵⁶ Rob Bridgett, 'Hollywood Sound: Part Three', *Gamasutra*, 12 October 2005, accessed 19 November 2015, http://www.gamasutra.com/view/feature/130838/hollywood_sound_part_three.php?page=2.

⁵⁷ Bethesda Game Studios, 2011.

choices made favouring one course of action can negate the existence of others. Actions unanticipated by the player also produce emergent narrative content, such as unexpected enemy attacks or randomised activity programmed by the game engine. This all takes place within the gameworld's setting, or the 'spatiotemporal circumstances in which the events of a narrative occur'.⁵⁸

The narrative rules outlined above tend to be dictated by genre restraints and aesthetic tropes, so that the consistent reality of a gameworld remains grounded in a set of rules and values.⁵⁹ One of these rules may be that in a game developed and designed to appear and function as an actual world city, its in-game cars cannot fly. If a game is set in a modern day city with all of the associated buildings, road networks, and working citizens, flying cars would be incongruous with the narrative.

Incongruous, that is, unless the developers sought to design an environment resembling the reality of the actual world, but with abnormalities. The built-up city environment of *Saints Row: The Third*⁶⁰ contained a vehicle called a 'Genki Manapult' featuring a roof-fastened cannon that could suck up and fire out non-player characters (NPCs). This vehicle's existence within the gameworld was the result of a conscious decision by the game's developers. Were the same vehicle to appear in an otherwise consistently designed gameworld based on eighteenth-century Paris, there would be inexplicable issues of reality and narrative coherence.

The aesthetic design and perceivable function of a gameworld, from its buildings and vehicles to its weather patterns and species of fauna, must remain congruent with each other. Frasca views the characters, endings and settings contained within video games as constituting 'a new form of or an as expansion of traditional narrative or drama',⁶¹ all of which vary from game to game. Whereas some game types can rely on pre-determined linear pathways and levels based in different locales to present a compelling narrative structure, open-world games need to provide the same integrity of experience within a single, vast world. Music plays a critical role in the dynamic events of gameplay, but it also serves as an indicator of cultural identity, environment and custom. This can be couched in Deleuze and

⁵⁸ Gerald Prince, *A Dictionary of Narratology* (Lincoln, NE: University of Nebraska Press, 1987), 86.

⁵⁹ Gonzalo Frasca, 'Sim Sin City: Some Thoughts About Grand Theft Auto 3', *Game Studies* 3, no. 2 (2003), <http://gamestudies.org/0302/frasca/>.

⁶⁰ Volition, 2011.

⁶¹ 'Ludology Meets Narratology: Similitude and Differences Between (video) Games and Narrative', Ludology.org, Gonzalo Frasca, last modified 1999. <https://www.ludology.org/articles/ludology.htm>.

Guattari's terms of the refrain being music indicating ownership over a place⁶² and, by extension, differentiating places from each other. Music acts as 'a collection of characteristic sounds that function to mark out a territory',⁶³ and this is effective in open-world games if paired with conventional visual indicators. This approach to substantiating multiple virtual locations within a single and vast space tends to manifest in location-specific score passages that function as spatial listening maps of 'internally-consistent geographies'.⁶⁴ This encourages the player to form emotional associations with sonic images and specific in-game locations, which are often reinforced with theme repetition and cinematic interpretations of leitmotif techniques.⁶⁵

Conversely, scores that accompany gameplay throughout all gameworld regions require elements such as instrumentation and thematic design to be consistent out of necessity, lest the score feel uncongealed. Other games use pre-composed music such as operatic excerpts and popular songs, licensed for incorporation in the game, to reinforce the reality of a gameworld. For example, a trope of open-world games in which the player controls vehicles is to include such music as radio songs, accessible to the player while driving. Another source of in-game music is animated NPC performances disseminated through a gameworld, which delineate spatial surroundings and help to maintain an overall musical congruency.⁶⁶

This introduction to the narrative structures, normative design characteristics, and musical functions of open-world games has aimed to provide a tangible description of their spatiality and ludic purposes. *Paidia* is instilled in concepts of expansive, traversable environments, and the freedom with which players may navigate through them. This is mediated by external impenetrable (sandbox) boundaries and obstacles of both the environment and narrative, the *ludus*. This is a rudimentary interpretation of the complex meanings behind Caillois' terminology, but a pragmatic one. Embedded and emergent storytelling possibilities have been contextualised through the recognition of an overarching narrative that provides both pre-determined storylines, and emergent gameplay events. The

⁶² Giles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (London: Continuum, 2004), 331.

⁶³ Munday, 'Music in Video Games', 54.

⁶⁴ Steven B Reale, 'A Musical Atlas of Hyrule: Video Games and Spatial Listening' (presentation, 38th Meeting of the Society for Music Theory, St Louis, 31 October 2015).

⁶⁵ Munday, 'Music in Video Games', 62.

⁶⁶ Barnabas Smith, 'Bringing London Murders to the Australian Stage: An Evolution of Game Music Collaboration and Performance' (presentation, Ludo2017 Sixth Easter Conference on Video Game Music and Sound, Bath, 21 April 2017).

objects and symbols contained within these gameworlds are explained as subject to pre-defined conventions of genre and aesthetic design. Commanding academic attention are the methods by which music creates and sustains a gameworld's verisimilitude, and contends with the conventions of genre and style in the gameworld as well as the gaming medium itself. This grows in complexity when the nonlinear nature of gameplay is considered, as the player's interactions are causal to music adapting in real time to suit new gameplay states. A number of established and successful game series not associated with open-world designs are releasing new titles set in open-worlds, capitalising on the game type's commercial opportunities. The use of in-game music to satisfy commercial production imperatives, nurture valued fan bases and infiltrate multiple cultural spheres represent other important considerations.

To identify extant successful approaches to studying game music, and to articulate scholarly gaps, it is prudent to undertake a literature review at this point. For practical comprehension, a brief account of the earliest game music studies prefaces the literature most relevant to open-world game research. Due to its significance to this study, the Grand Theft Auto (GTA) series dominates a review of Game Music Design research, which is followed by literature relevant to Virtual Ethnography and Music in Culture studies.

Literature Review

'It's an exciting time for screen-music scholarship. Invigorating and novel modes of inquiry arise as a burgeoning of diverse disciplines continue to enter the fray, providing new agents that address continuing issues'.⁶⁷ Video game music studies are replete with such effervescent optimism and, as an academic field, ludomusicology benefits from the era in which it flourishes. Through its fraternal links with film music studies, and by embracing elements of musicology, narratology, ludology, psychology and media studies, the sub-discipline stands on the shoulders of giants.⁶⁸

The inaugural use of the term 'ludomusicology' as a portmanteau combining ludology and musicology can be traced to 2007. Guillaume Laroche validated an undergraduate summer research project of deconstructing game music saying that it 'reveals [sic] a lot about

⁶⁷ Ronald Sadoff, 'Roundtable: Current Perspectives in Music, Sound, and Narrative in Screen Media', in *The Routledge Companion to Screen Music and Sound*, ed. Miguel Mera, Ronald Sadoff, and Ben Winters (New York, NY: Routledge, 2017), 108–124, at 112.

⁶⁸ Isaac Newton to Robert Hooke, 5 February 1675.

contemporary composition techniques in a field that is rapidly gaining a lot of popularity ... it's another aspect of understanding human culture'.⁶⁹ The name has remained; however, while the coining of this neologism is salient, it is arguably not the prefatory epochal marker of the field. The corpus of game music scholarship grew initially out of industry- and craft-based writings of the late 1980s and mid-1990s. These include *Mastering Sound and Music on the Atari ST*⁷⁰ and *Designing sound tracks for Coin-op games, or, Computer music for just under \$65.00*.⁷¹ The latter was presented at the 1989 International Computer Music Conference, which also featured antecedents of contemporary live game music performance, including small-room tape-music listening sessions and live concerts that used musical instrument digital interface (MIDI) devices, a Yamaha Disklavier, tape machine and acoustic instruments.⁷²

Since those early days, scholars and researchers have forged pathways bringing game music studies out of composition and coding, and into scholarship. Elizabeth Medina-Gray, Mark Grimshaw, Anahid Kassabian, Stephen Baysted, Isabella van Elferen, Kristin Jørgensen, Roger Moseley, Tim Summers, Michiel Kamp, Melanie Fritsch, Kevin Donnelly and Neil Lerner are some of the most active contemporary proponents of the field. Their contributions are evidenced in the references made throughout this study, while the present review is concerned with approaches made to studying the music of open-world games in particular.

Several isolated examples, such as Zehnder and Lipscomb's 2006 exploration in 'The Role of Music in Video Games', saw game music dragged theoretically away from that in film.⁷³ Soundtrack sales, performance, licensing and marketing did not feature, although some discourse on composition was present, as it was in Rob Munday's chapter in *Music, Sound and Multimedia*. Still conceiving game music as existing within a game before all other places, the thoughts here are some of the earliest considered insights into studying this music academically. The year 2008 was pivotal in game music scholarship, and Kamp et al.

⁶⁹ Tasneem Karbani, 'Summer Research Project was Music to Student's Ears', *University of Alberta*, 7 September 2007, accessed 5 April 2017, <https://sites.ualberta.ca/~publicas/folio/45/01/04.html>.

⁷⁰ Timothy Orr Knight, *Mastering Sound and Music on the Atari ST* (Alameda, CA: Sybex, 1987).

⁷¹ Brian Schmidt, 'Designing sound tracks for Coin-op games, or, Computer music for just under \$65.00' (presentation, 1989 International Computer Music Conference, Columbus, 2–5 November 1989).

⁷² Richard Karpen, 'The 1989 International Computer Music Conference: An Overview of Concerts', *Perspectives of New Music* 28, no. 1 (1990): 336–42, at 337.

⁷³ Sean M. Zehnder and Scott D. Lipscomb, 'The Role of Music in Video Games', in *Playing Video Games: Motives, Responses, and Consequences*, ed. Peter Vorderer and Jennings Bryant (London: Routledge, 2006), 241–258.

suggest that Collins' *Game Sound* was 'the true establishment of the field'.⁷⁴ Indeed, *Game Sound* provided a detailed history of technical innovations and design schema that commented on hardware componentry, from sound cards to arcade machine mechanics, to compositional styles contending with meagre memory allocation.⁷⁵ Collins complemented this monograph by editing *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*,⁷⁶ wherein studies of interactive music-making, chip music, and ringtones were integrated into game music discourse.⁷⁷ These 2008 texts heralded a critical point in ludomusicology, and the succeeding years have seen sustained and exponential interest and production in all publication forms.

Grand Theft Auto

Within the critical literature of open-world game studies, musically inclined or not, it is the GTA series that has received the most attention. In light of the iconic use of popular music through the series, this is unsurprising. There have also been a number of errors and omissions regarding its musical content. Nate Garrets' edited collection *The Meaning and Culture of Grand Theft Auto: Critical Essays* comprises over a dozen thematically connected perspectives on cultural meanings within the GTA series.⁷⁸ References to music are present but, for a games series from a developer that has 'always been known for the music in its games, dating back to the beginning of the company',⁷⁹ they are surprisingly minimal.

Zach Whalen's 2004 'Play Along' article in the (then) nascent online journal *Game Studies* confronted concepts of emerging relevance in game music,⁸⁰ while the GTA series is mentioned in a later film music/game music case study.⁸¹ As an early proponent of modern

⁷⁴ Michiel Kamp, Tim Summers, and Mark Sweeney, 'Introduction', in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers, and Mark Sweeney (Sheffield: Equinox, 2016), 1–7, at 1.

⁷⁵ Karen Collins, *Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design* (Cambridge, MA: The MIT Press, 2008).

⁷⁶ Karen Collins, ed., *From Pac-Man to Pop Music: Interactive Audio in Games and New Media* (Aldershot: Ashgate, 2008).

⁷⁷ Kamp et al., 'Introduction', 1.

⁷⁸ Nate Garrets, ed., *The Meaning and Culture of Grand Theft Auto: Critical Essays* (Jefferson, NC: McFarland, 2006).

⁷⁹ Colin Sutz, 'Rockstar Music Head on "Grand Theft Auto V": We've Topped What's Come Before (Audio)', *Hollywood Reporter*, 26 October 2013, accessed 11 December 2015, <https://www.hollywoodreporter.com/news/rockstar-music-head-grand-theft-649258>.

⁸⁰ Zach Whalen, 'Play Along – An Approach to Videogame Music', *Game Studies* 4, no. 1 (2004), <http://www.gamestudies.org/0401/whalen/>.

⁸¹ Zach Whalen, 'Case Study: Film Music vs. Video-Game Music: The Case of Silent Hill', in *Music, Sound and Multimedia: From the Live to the Virtual*, ed. Jamie Sexton (Edinburgh: Edinburgh University Press, 2007), 68–81.

game music studies, Whalen makes few references to music in ‘Cruising in Los Santos: Ludic Space and Urban Aesthetics in Grand Theft Auto’.⁸² The primary concept discussed is that of mapping semiotic indicators and navigable infrastructure routes in a digital urban landscape onto theories of spatiality, freedom and perception. This is accomplished through an analysis of *Grand Theft Auto: San Andreas*⁸³ (*GTA: SA*), and although the theoretical approach taken is useful to the study of open-world games, the role of the game’s extensive music is underutilised. Elsewhere in the same volume, Bogost and Klainbaum note how ‘the content of the radio stations contribute to the mood and era’ of *GTA*’s game cities.⁸⁴ Despite the developers’ assiduous integration of rap from the early 1990s to reinforce the game’s historical setting for the player,⁸⁵ Whalen draws little on the role music plays in substantiating the gameworld’s reality.

David Leonard’s chapter within the same text seeks to coalesce several discursive perspectives, including societal reaction to *GTA* games, relevant political discourse and how the archetypal ghetto environs is instantiated within *GTA: SA*. ‘Virtual Gangstas, Coming to a Suburban House Near You: Demonization, Commodification, and Policing Blackness’⁸⁶ delves into contentious issues of legitimising depictions of racial stereotypes. When drawing on musical points of reference to contextualise ‘the demonization and celebration of the virtual reality offered through the *GTA* series,’⁸⁷ Leonard opts for non-*GTA* video games instead of other games in the *GTA* series. *50 Cent: Bulletproof*,⁸⁸ *25 to Life*⁸⁹ and *187: Ride or Die*⁹⁰ provide a discussion context. Music’s reflexive commentary on the *GTA* gameworld and its satirical commentary on commercialism, patriotism and social issues within American culture,⁹¹ including racism, are countenanced with only a brief mention of hip-hop.

⁸² Zach Whalen, ‘Cruising in Los Santos: Ludic Space and Urban Aesthetics in Grand Theft Auto’, in *The Meaning and Culture of Grand Theft Auto: Critical Essays*, ed. Nat Garrelts (Jefferson, NC: McFarland, 2006), 143–161, at 143.

⁸³ Rockstar North, 2004.

⁸⁴ Ian Bogost and Dan Kainbaum, ‘Experiencing Place in Los Santos and Vice City’, in *The Meaning and Culture of Grand Theft Auto: Critical Essays*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2006), 162–176, at 174.

⁸⁵ Bogost and Klainbaum, ‘Experiencing Place’, 174.

⁸⁶ David Leonard, ‘Virtual Gangstas, Coming to a Suburban House Near You: Demonization, Commodification, and Policing Blackness’, in *The Meaning and Culture of Grand Theft Auto: Critical Essays*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2006), 49–69, at 49.

⁸⁷ Leonard, ‘Virtual Gangstas’, 65.

⁸⁸ Genuine Games, 2005.

⁸⁹ Avalanche Software et al., 2006.

⁹⁰ Ubisoft Paris, 2005.

⁹¹ Munday, ‘Music in Video Games’, 64.

Pieter Jacobus Crathorne incorporates games of the GTA series released prior to *GTA: SA* in a dissertation that examines game music styles, often inaccurately. Crathorne states, ‘from *Grand Theft Auto III* onward, there has always been a Classical radio station which the player can listen to’.⁹² The station referred to in *GTA III* is Double Clef FM, and its opus includes works by Mozart, Puccini, Verdi and Donizetti. The claim made about all subsequent games possessing a classical music station is, however, patently false. In the 1980s pop/rock canon, 1990s hip-hop,⁹³ country, rock, jazz, disco, electronic, reggae, and heavy/acid/metal/indie rock subgenres of post-*GTA III* games released by the publication date of Crathorne’s study, there is no classical music. An exception might be the expansion prequel game *Grand Theft Auto: Liberty City Stories (GTA: LCS)*,⁹⁴ which takes place within the same gameworld as *GTA III* and reprised its radio stations. Another sweeping statement is that conventional experiences suggest, ‘one would never encounter random classical music in an action game or film’.⁹⁵ The ‘Overture’ from Mozart’s *Le Nozze di Figaro* in *Last Action Hero*,⁹⁶ ‘Ave Maria’ in *Hitman: Blood Money*,⁹⁷ and ‘O mio babbino caro’ in *G.I. Jane*⁹⁸ would be appropriate beginnings to a counterargument.

The western art music Crathorne describes is nowhere to be found in any GTA game since *GTA III*, and before the author’s publication date. Nowhere, that is, unless one considers the recursive string/synthesiser ostinato and choral refrain of Philip Glass’s ‘Pruit Igoe’⁹⁹ featured in 1980s experimental art film *Koyaanisqatsi*¹⁰⁰ classical music. This is a worthwhile point as Gibbons devotes almost half a chapter to ‘Pruit Igoe’¹⁰¹ in the monograph *Unlimited Replays*, mapping its appearance in in *Grand Theft Auto IV (GTA IV)*.¹⁰² *Koyaanisqatsi*’s music has seen favour in classical concerts and live film screenings,¹⁰³ but is not considered classical music in the present study. Gibbons’ work,

⁹² Pieter Jacobus Crathorne, ‘Video Game Genres and Their Music’ (Masters thesis, University of Stellenbosch, 2010), 53.

⁹³ Dennis Redmond, ‘Grand Theft Video: Running and Gunning for the U. S. Empire’, in *The Meaning and Culture of Grand Theft Auto: Critical Essays*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2006), 104–114, at 106.

⁹⁴ Rockstar Leeds, 2005.

⁹⁵ Crathorne, ‘Video Game Genres’, 53.

⁹⁶ McTiernan, 1993.

⁹⁷ IO Interactive, 2006.

⁹⁸ Scott, 1997.

⁹⁹ Phillip Glass, 1983.

¹⁰⁰ Reggio, 1983.

¹⁰¹ William Gibbons, *Unlimited Replays* (New York: Oxford University Press, 2018), 64.

¹⁰² Rockstar North, 2008.

¹⁰³ Gibbons, *Unlimited*, 65.

however, is a valuable trove of writing that records film music's development in relation to game music. An investigative penchant for classical music is also highlighted in *Blip, Bloop, Bach? Some Uses of Classical Music on the Nintendo Entertainment System*,¹⁰⁴ the co-edited *Music in Video Games: Studying Play*,¹⁰⁵ contributions to *Ludomusicology: Approaches to Video Game Music*,¹⁰⁶ and *The Routledge Companion to Screen Music and Sound* evaluation of musical style traditions in postmillennial fantasy game music.¹⁰⁷

Open-World Games

Studies of other open-world games and their music have investigated both the gameworlds and musical experiences outside of gameplay, but not according to a single model. In *Sound Play*, for instance, Cheng allows discussions of single games to play out over a chapter.¹⁰⁸ Of note is a case study analysing the significance of in-game radio station content and score underpinning narrative in the futuristic, post-apocalyptic US-set game *Fallout 3*.¹⁰⁹ In addition to the underscore, the diegetic music that plays on in-game radio stations is also contextualised at length through systematic searches of narrative meaning. Cheng explores the significance of music piece selection through the frame of eschatological theory, from the causality of nuclear atrocities to nostalgia and warped patriotism. The gameworld and its gameplay opportunities form a basis for discussion, including a difficult discussion of music accompanying the conscionably vague actions that players may undertake.¹¹⁰

But for some online discussion threads and blogs,¹¹¹ there is minimal investigation of the music's cultural significance beyond the realm of gameplay. This is not for any lack of research material accessible prior to the monograph's publication. The same music framed in Cheng's gameworld discussion, for instance, was used for *Fallout 3*'s initial promotion

¹⁰⁴ William Gibbons, 'Blip, Bloop, Bach? Some Uses of Classical Music on the Nintendo Entertainment System', *Music and the Moving Image* 2, no. 1 (2009): 40–52.

¹⁰⁵ K. J. Donnelly, William Gibbons, and Neil Lerner, eds. *Music in Video Games: Studying Play* (New York, NY: Routledge, 2014).

¹⁰⁶ William Gibbons, 'Remix Metaphors: Manipulating Classical Music and its Meanings in Video Games', in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers, and Mark Sweeney (Sheffield: Equinox, 2016), 198–222.

¹⁰⁷ William Gibbons, 'Roundtable: Current Perspectives on Music, Sound, and Narrative in Screen Media', in *The Routledge Companion to Screen Music and Sound*, ed. Miguel Mera, Ronald Sadoff, and Ben Winters (New York, NY: Routledge, 2017), 412–428, at 414.

¹⁰⁸ William Cheng, *Sound Play: Video Games and the Musical Imagination* (New York, NY: Oxford University Press, 2014), 19–55.

¹⁰⁹ Bethesda Game Studios, 2008.

¹¹⁰ Cheng, *Sound Play*, 49.

¹¹¹ Cheng, *Sound Play*, 37.

trailer.¹¹² Moreover, an album titled *The Songs of Wasteland: Music As Heard in Fallout 3 – EP* was released as a sort of homage song compilation.¹¹³ The game’s main theme was released later on another paean, *The Greatest Video Game Music*, an album of video game themes performed by the London Philharmonic Orchestra.¹¹⁴ These are supplementary to the game’s original purchasable soundtrack featuring *Fallout 3*’s nondiegetic score.¹¹⁵ Online interviews with the game’s designer¹¹⁶ and score composer¹¹⁷ suggest other avenues of engagement for players and musicians that could be pursued.

L.A. Noire is another game that has received several dedicated studies and mentions offering varied perspectives on its music and representation of a 1940s Los Angeles environment.¹¹⁸ Reale argues a theory relying on the notational transcription of musical cues that play based on the protagonist’s progress, and then draws connections between their harmonic structures and the gaming experience.¹¹⁹ Hart instead explores the game’s use of music as a signification tool aimed squarely to portray a familiar ‘crime jazz’ palette at the nexus of period noir and film noir tradition.¹²⁰ The game is situated thence within a larger chronology of similar film and television media to critique a noir and contemporary jazz aesthetic that has ‘become blended in the public consciousness’.¹²¹ Despite its vast gameworld offering free exploration, there is reluctance, it seems, to categorise *L.A. Noire* strictly as ‘open-world’. Ivănescu telegraphs its ‘seemingly open world’,¹²² Hart identifies its linear gameplay as a caveat to the ‘large degree of freedom of navigation’,¹²³ while some have described it as a ‘closed open world’,¹²⁴ and merely using an ‘open-world sandbox

¹¹² Gamehelper, ‘E3 2008-Fallout 3 Trailer’, video, 3:13, 16 July 2008, posted by Gamehelper, <https://www.youtube.com/watch?v=iYZpR51XgW0>.

¹¹³ Various artists, 2010.

¹¹⁴ London Philharmonic, 2011.

¹¹⁵ Inon Zur, 2008.

¹¹⁶ IGN, ‘Fallout 3 PC Games Interview – A Conversation with Todd’, video, 8:52, 21 May 2011, posted by IGN, <https://www.youtube.com/watch?v=b4DeRmT9gKA>.

¹¹⁷ emPOWERme.tv, ‘Dragon Age & Fallout New Vegas Composer Inon Zur Interview’, video, 8:50, 2 June 2012, posted by emPOWERme.tv. https://www.youtube.com/watch?v=MXZ5sKx_diE.

¹¹⁸ Team Bondi, 2011.

¹¹⁹ Steven B. Reale, ‘Transcribing Musical Worlds; or, Is *L.A. Noire* a Music Game?’ in *Music in Video Games: Studying Play*, ed. K. J. Donnelly, William Gibbons and Neil Lerner (New York, NY: Routledge, 2014), 97.

¹²⁰ Iain Hart, ‘Hard Boiled Music: The Case of *L.A. Noire*’, *Screen Sound* 5 (2015): 19–35.

¹²¹ Hart, ‘Hard Boiled’, 23.

¹²² Andra Ivănescu, ‘Torched Song: The Hyperreal and the Music of *L.A. Noire*’, *The Soundtrack* 8, no. 1, 2 (2015): 41–56, at 41.

¹²³ Hart, ‘Hard Boiled’, 26.

¹²⁴ Andrew Kaus, ‘A Line in the Sandbox: *L.A. Noire*’s Close Open World’, *Destructoid*, 23 May 2011, accessed 16 November 2018, <https://www.destructoid.com/a-line-in-the-sandbox-l-a-noire-s-closed-open-world-201692.phtml>.

formula'.¹²⁵ This should not be mistaken for semantics, as it is upon the accuracy and validity of these terms that this study, and the field, operates.

Scholarly analyses of GTA games have also produced material in the form of journal articles and conference proceedings, and expanded the spheres in which game music can be studied beyond gameplay. It is one of several analyses of strategy and stealth games, but the prescience of Norman Chan's investigation of music in *GTA III*, *Grand Theft Auto: Vice City* (*GTA: VC*),¹²⁶ and *GTA: SA* is notable. The tendrils traced through *GTA: SA*'s early 1990s Los Angeles ghetto setting in conjunction with the licensed use of Ice Cube's 'It Was a Good Day' is a valuable exemplar.¹²⁷ A critique of the game's historically based matrix and the timeline of Ice Cube's post-Los Angeles riots soundtrack releases divulge meaning and purpose that may not manifest explicitly for players, but that are inherently familiar.¹²⁸ Attention is also drawn to the music used during credit titles and menus in games, which was a relatively unusual observation for the time. Chan's study placed licensed music of open-world games in the contexts of gameworld and of game design. Other notable analysis examples are Collins' 'Grand Theft Audio? Popular Music and Intellectual Property in Video Games',¹²⁹ and Ben Aslinger's 'Genre in Genre: The Role of Music in Music Games' in DiGRA conference proceedings.¹³⁰

The natural progression of time means that there now exist anachronistic and disproved claims in studies of music belonging to open-world games. Approaching two decades of publication, Poole's stipulation in *Trigger Happy* that game soundtracks fall into two main classes of popular music or original score compositions has become outdated.¹³¹ Benchmarks such as Cerrati's 2006 interactive game budget indication of \$360,000 bears little resemblance to the multi-million dollar budgets of contemporary games.¹³² Chan's typology delineating game music exclusively as licensed music, dramatic orchestral scoring,

¹²⁵ Reale, 'Transcribing', 97.

¹²⁶ Rockstar North, 2002.

¹²⁷ Ice Cube, 1992.

¹²⁸ Norman Chan, 'A Critical Analysis of Modern Day Video Game Audio' (PhD dissertation, University of Nottingham, 2007), 41.

¹²⁹ Karen Collins, 'Grand Theft Audio? Popular Music and Intellectual Property in Video Games', *Music and the Moving Image* 1, no. 1 (2008): 4–10.

¹³⁰ Ben Aslinger, 'Genre in Genre: The Role of Music in Music Games', in *DiGRA – Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory* (West London: Brunel University London, 2009), 1–8.

¹³¹ Steven Poole, *Trigger Happy: The Inner Life of Video Games* (London: Fourth Estate Ltd, 2000), 81.

¹³² Michael Cerrati, 'Video Game Music: Where it Came From, How it is Being Used Today, and Where it is Heading Tomorrow', *Vanderbilt Journal of Entertainment and Technology Law* 8, no. 2 (2006): 293–334, at 310.

and new music written in a popular style, does not hold up, despite a provided caveat of diversity.¹³³ *GTA V* was described as featuring over 130 stations of licensed music,¹³⁴ when there is in fact less than a fifth of that number. At the time of this work's publication there are approximately 140 licensed songs in *GTA V*, and the proximity of this figure to the proposed 130 stations suggests a mere typing error. Making references to these games as the 'Grand Theft series' denotes even less charity.¹³⁵

Virtual Ethnography

Early pursuits of virtual ethnography did not feature games directly, but rather users' activities within online communities. Christine Hine's proposition in a 1994 conference paper marked a definitive use of nomenclature and approach, by seeking 'to introduce a new form or way of conceiving of ethnography, a virtual ethnography'.¹³⁶ Hine recognised the sophistication, diversity, and persistency of Internet-based gaming as supportive of a virtual ethnography exercise. This was presented as fieldwork conducted in a MOO (multi-user domain object-oriented) game, a variant of a multiple user domain or dungeon (MUD) game. Hine was creating a record in which the ethnographer 'appears as just another participant',¹³⁷ but still observing actively. Li combined social studies theories of community types¹³⁸ with theories of relationship building, transactions and fantasies¹³⁹ to define differing functions and values.¹⁴⁰ Nevertheless, it is Ridings et al.'s virtual community study in the MUD game type that bears the most resemblance to contemporary online gaming communities.¹⁴¹

The twenty-first century dawned in concurrence with a form of digital and virtual ethnography that gravitated more towards gaming communities and gameworlds. René

¹³³ Chan, 'Critical Analysis', 16.

¹³⁴ Isabella van Elferen, 'Analysing Game Musical Immersion: The ALI Model', in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers and Mark Sweeney (Sheffield: Equinox, 2016), 32–52, at 38.

¹³⁵ Nancy S. Parks, 'Video Games as Reconstructed Sites of Learning in Art Education', *Studies in Education* 49, no. 3 (2008): 235–250, at 239.

¹³⁶ Christine Hine, 'Virtual Ethnography', (presentation, 3th International Conference on Public Communication of Science and Technology, Montreal, April 1994).

¹³⁷ Hine, 'Virtual Ethnography'.

¹³⁸ Honglei Li, 'Virtual Community Studies: A Literature Review, Synthesis and Research Agenda', in *Proceedings of the Americas Conference on Information Systems* (New York, NY: Association for Information Systems, 2004), 2708–2715, at 2710.

¹³⁹ John Hagel III and Arthur G. Armstrong, *Net Gain: Expanding Markets Through Virtual Communities* (Boston, MA: Harvard Business School Press, 1997).

¹⁴⁰ Li, 'Virtual Community Studies', 2711.

¹⁴¹ Ridings, Catherine M, David Gegen, and Bay Arinze, 'Some Antecedents and Effects of Trust in Virtual Communities', *Journal of Strategic Information Systems* 11, no. 3–4 (2002): 271–295.

Lysloff's 2003 'online ethnography' focused on the ethnosemantic relationships of Internet-using communities. Music featured more than games, albeit within the context of ripping and sampling of musical recordings by Internet users.¹⁴² Hair and Clark's promotion of critical theory conceptualised in a methodology for critical virtual ethnography,¹⁴³ while T.L. Taylor's contemporaneous writing focused on the impacts of avatar identity constructs.¹⁴⁴ This focus gravitated towards the MMORPG (massively multiplayer online RPG) as a research topic, bringing to the fore game titles such as *Star Wars Galaxies*,¹⁴⁵ *EverQuest*¹⁴⁶ and *Asheron's Call*.¹⁴⁷

Of note is the virtual ethnography carried out by Ducheneaut et al. in the MMO *Star Wars Galaxies: An Empire Divided*,¹⁴⁸ which included spending time 'in the field (in the game) systematically observing social interactions in the cantinas.'¹⁴⁹ A fictional type of bar within George Lucas's Star Wars universe, the cantinas were chosen because, as informal public places, they were popular for in-game social meetings.¹⁵⁰ As a result, the (virtual) environment as a setting for communication and social interactions among players, or more accurately their avatars, also became relevant. Approaching a decade of development, the approach to gameworlds as fieldsites had become a formal analytical process. Studies of Internet-based communities had given way to the virtual worlds of MUD, MOO and MMO fieldsites; however, music still did not play any significant role. Had Ducheneaut et al. redirected their cantina observations from players' social interactions to the music playing in the cantina, the observations made could have produced findings beyond player engagement. This music represented fertile ground for connections with other in-game locations, and with the Star Wars universe so ubiquitous, a range of social groups as well. Despite an increasing prevalence and ludic functions of musical content in MMOs, the analytical focus remained with players and their avatar interactions. This emergence out

¹⁴² René Lysloff, 'Musical Community on the Internet: An On-Line Ethnography', *Cultural Anthropology* 8, no. 2 (2003): 233–263, at 238.

¹⁴³ Neil Hair and Moira Clark, 'An Enhanced Virtual Ethnography: The Role Of Critical Theory' (presentation at 3rd International Critical Management Studies Conference, Lancaster, July 2003).

¹⁴⁴ T. L. Taylor, 'Intentional Bodies: Virtual Environments and the Designers Who Shape Them', *International Journal of Engineering Education* 19, no. 1 (2003): 25–34.

¹⁴⁵ Sony Online Entertainment, 2003.

¹⁴⁶ Verant Interactive, 1999.

¹⁴⁷ Turbine Entertainment Software, 1999.

¹⁴⁸ Sony Online Entertainment, 2003.

¹⁴⁹ Nicolas Ducheneaut, Robert J. Moore, and Eric Nickell, 'The Social Side of Gaming: A Study of Interaction Patterns in a Massively Multiplayer Online Game' (presentation at CSCW Conference on Computer-Supported Cooperative Work, Chicago, November 2004).

¹⁵⁰ Egenfeldt-Nielsen et al, 'Understanding Video Games', 9.

sociology and anthropology backgrounds is evidenced in Taylor's 2006 examination of the multiplayer gaming life for *EverQuest*.¹⁵¹

Tom Boellstorff's work in games such as *Second Life*¹⁵² dances upon a fence-line separating an MMO and the experience of life simulation,¹⁵³ and has been a significant influence on the research in this study. *Coming of Age in Second Life* explains how traditional ethnography methods were used to explore in-game cultural issues such as the interplay between societal constructs and self.¹⁵⁴ While a focus on music in gameworld fieldsites was yet to be recognised in the broader field, Kiri Miller's contemporaneous work was pursuing music, especially in the GTA series. Miller's research is another principal inspiration for the development of the Virtual Ethnography research phase outlined in Chapter I.

In the literature, Miller assigns a role of significance to in-game music within the broader cultural environments explored during fieldwork in GTA titles and, most pertinently, in studying hip-hop culture in *GTA: SA*. In so doing, Miller departs from the conventional online/multiplayer virtual ethnography paradigm, ascribing to a single-player open-world game a theoretical validity commensurate with MMOs. An academic background in folklore is manifest in 'Jacking the Dial: Radio, Race, and Place in "Grand Theft Auto"',¹⁵⁵ which was included in the author's 2012 monograph *Playing Along: Digital Games, YouTube, and Virtual Performance*.¹⁵⁶ This involved employing many of what Whitehead terms basic classical methods,¹⁵⁷ including field recording and secondary data analysis. Other research avenues, such as structured interviews with players outside of gameplay, served to inform the ethnographical and sociological conclusions. Intrinsic connections were drawn between the game developers' creative intentions and the environmental constituents, cultural indicators and identifying links with the game's avatar protagonist.¹⁵⁸

¹⁵¹ T. L. Taylor, *Play Between Worlds: Exploring Online Game Culture* (Cambridge, MA: The MIT Press, 2006).

¹⁵² Linden Lab, 2003.

¹⁵³ Kristin Kalning, 'If Second Life Isn't a Game, What is it?' *NBC News*, 12 March 2007, accessed 5 June 2018, http://www.nbcnews.com/id/17538999/ns/technology_and_science-games/t/if-second-life-isnt-game-what-it/#.WxYkllOFTZ.

¹⁵⁴ Tom Boellstorff, *Coming of Age in Second Life: An Anthropologist Explores the Virtually Human* (Princeton, NJ: Princeton University Press, 2004).

¹⁵⁵ Kiri Miller, 'Jacking the Dial: Radio, Race, and Place in "Grand Theft Auto"', *Ethnomusicology* 51, no. 3 (2007): 402–438.

¹⁵⁶ Kiri Miller, *Playing Along: Digital Games, YouTube, and Virtual Performance* (New York, NY: Oxford University Press, 2012).

¹⁵⁷ Tony L. Whitehead, 'Basic Classical Ethnographic Research Methods' *CEHC Working Papers* (College Park, MD: TL Whitehead Associates, 2005), 25–52, at 2.

¹⁵⁸ Miller, 'Jacking', 414.

Another significant study is Cheng's fieldwork within the MMO *LoTRO* published in both *Sound Play* and 'Role-Playing toward a Virtual Musical Democracy in *The Lord of the Rings Online*'.¹⁵⁹ The fantasy universe within *LoTRO* replicates in virtual form the fictional Middle-earth setting expounded through constructive mythopoetics in J. R. R. Tolkien's literary legendarium.¹⁶⁰ Players can engage in recreational activities such as music-making via an elaborate system implemented in honour of the 'rich musical lore of Tolkien's Middle-earth'.¹⁶¹ Notation transcriptions, code deconstructions, and analysis of audio files address technical and creative perspectives on this music. Cheng's offered ethnography addressed 'the means and effects of music-making [that] are rapidly transforming alongside innovations in video games'.¹⁶² Players and their ability to make music were an object of study; however, as many open-world games do not support a multiplayer mode, other avenues of inquiry can be followed, such as cross-media musical connections and NPC music performances.

Studies of Game Music Culture

Studies critiquing the impact video games have had on society range from case studies of particular games or series to analyses of the global game industry. Music tends to be included as one of many elements, rather than as the specific object of study. When it is given more acute focus, discussions centre on the commercial value of licensed popular music, omitting in large part any reference to game scores. It is true that as online platforms have flourished, the marketing opportunities for game publishers and fan-engagement possibilities have increased. Many of the texts reviewed here bring music into discussions that are based on games in contemporary society, but few manage to account for game music experiences beyond gameplay, and commercial soundtrack sales. An exception is Summers' writing in *Ludomusicology*, in which the author draws attention to soundtracks in particular as a non-game form of game music exposure.¹⁶³

¹⁵⁹ William Cheng, 'Role-Playing toward a Virtual Musical Democracy in *The Lord of the Rings Online*', *Ethnomusicology* 56, no.1 (2012): 31–62.

¹⁶⁰ Jyrki Korpua, 'Constructive Mythopoetics in J. R. R. Tolkien's *Legendarium*' (PhD dissertation, University of Oulu, 2015), 3.

¹⁶¹ Cheng, *Sound Play*, 114.

¹⁶² Cheng, *Sound Play*, 137.

¹⁶³ Tim Summers, 'Analysing Video Game Music: Sources, Methods and a Case Study', in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers and Mark Sweeney, (Sheffield: Equinox, 2016), 8–31, at 21.

Poole's 2000 *Trigger Happy* comments on video games' popularity and situates the design, playing and consumption of video games within contemporaneous and previous commercial ventures and popular culture frames of reference. Despite this breadth of inquiry, the book's Index contains but five in-text references to 'music', and zero for 'soundtrack'.¹⁶⁴ *Digital Play: The Interaction of Technology, Culture, and Marketing* remains relevant through its broad investigation of multiple theories that shaped economic perspectives and studies, providing a cohesive theoretical foundation. Kline et al. demonstrate that postindustrialist innovation can inform studies of future intellectual property successfully.¹⁶⁵ An example is the release in 2000 of Sony's PlayStation 2, which, at the publication time of the present study, remains the 'highest selling and most played console of all time'.¹⁶⁶ The authors include music as one of many structural mechanisms through which game companies sell their products, but it is not a prominent feature. The theories of marketing synergies and specific inclusion of Rockstar Games in *Digital Play* offer theories that can be applied to contemporary publishing companies, consumer bases and intellectual property. The text has influenced the development of the proposed model's third research phase, but its year of publication in 2003 has dated many of its technology-specific and in-text references.

Music is singularly missing from Aphra Kerr's *The Business and Culture of Digital Games*,¹⁶⁷ a monograph well placed to accommodate it. Of tangential value is the picture this text provides, demonstrating that at the time of its release the gaming industry was still codified alongside the film, television and music industries. That is, the rise of the global gaming industry, and the subsequent commercial challenges it presented to the music industry, were deemed more compelling than the use of music in games, as such. Where Henry Jenkins' *Convergence Culture* succeeds in identifying cultural trends and marketing synergies,¹⁶⁸ it fails, for the most part, to recognise music's role in video game marketing. Similarly, *Persuasive Games* contained an analysis of music's role in gaming only through aerobics.¹⁶⁹

¹⁶⁴ Poole, *Trigger Happy*, 252.

¹⁶⁵ Stephen Kline, Nick Dyer-Witherford and Greig de Peuter, *Digital Play: The Interaction of Technology, Culture and Marketing* (Montreal: McGill University Press, 2003), 8.

¹⁶⁶ Sony, 'PlayStation for the new Millennium', *Sony*, accessed 15 August 2018, <https://www.playstation.com/en-au/explore/ps2/>.

¹⁶⁷ Aphra Kerr, *The Business and Culture of Digital Games: Game Work and Game Play* (London: SAGE, 2006).

¹⁶⁸ Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York, NY : New York University Press, 2006), 72.

¹⁶⁹ Bogost, *Persuasive Games*, 293.

Mark J. P. Wolf's edited volume *The Video Game Explosion*¹⁷⁰ also covers exercise and bodily movement,¹⁷¹ as well as approaching the practice of licensing of music and relevant technological developments.¹⁷² Picard's chapter offers useful insights into partnerships between the video game and music industries, the live performance of game music, and game music scoring. Picard's contribution to the volume is relevant to the present study, but this brief sojourn is the extent to which game music receives attention outside of gameplay.¹⁷³

One of Karen Collins' preeminent contributions to game music studies, *From Pac-Man to Pop Music*, is over a decade old. Its proposed theory behind a 'lifestyle/digital/content paradigm' remains transferable,¹⁷⁴ but many of the media platforms and practices discussed have been either developed or superseded by others since its publication. A more recent text, and one seeking to 'unfold in depth this strong alliance between music and game',¹⁷⁵ is *Music and Game: Perspectives on a Popular Alliance*. Fritsch's chronicled history of game music draws on mechanical and technological developments in computers, and developments in other media, to contextualise game music progression.¹⁷⁶ It is valuable to the present study through its analytical scope and depth, while the structural scoring techniques discussed by Paul¹⁷⁷ and aesthetical considerations that Herzfeld proposes¹⁷⁸ are also important contributions to the field. Other chapters extend their purview beyond gameplay to consider the concert hall,¹⁷⁹ and the social appeal for

¹⁷⁰ Mark J. P. Wolf, ed., *The Video Game Explosion: A History from PONG to PlayStation® and Beyond* (Westport, CT: Greenwood Press, 2008).

¹⁷¹ Leonard Herman, 'The Later Generation Home Video Game Consoles', in *The Video Game Explosion: A History from PONG to PlayStation® and Beyond*, ed. Mark J. P. Wolf (Westport, CT: Greenwood Press, 2008), 161–171, at 169.

¹⁷² Eric Pidkameny, 'Sound in Video Games', in *The Video Game Explosion: A History from PONG to PlayStation® and Beyond*, ed. Mark J. P. Wolf (Westport, CT: Greenwood Press, 2008), 251–257, at 254.

¹⁷³ Martin Picard, 'Video Games and Their Relationship with Other Media', in *The Video Game Explosion: A History from PONG to PlayStation® and Beyond*, ed. Mark J. P. Wolf (Westport, CT: Greenwood Press, 2008), 293–300, at 294.

¹⁷⁴ Holly Tessler, 'The new MTV? Electronic Arts and "Playing" Music"', in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins (Aldershot: Ashgate, 2008), 13–25, at 20.

¹⁷⁵ Peter Moorman, foreword to *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 7–9, at 8.

¹⁷⁶ Melanie Fritsch, 'History of Video Game Music', in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 11–40, at 11.

¹⁷⁷ Leonard J. Paul, 'Droppin' Science: Video Game Audio Breakdown', in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 63–80, at 66.

¹⁷⁸ Gregor Herzfeld, 'Atmospheres at Play: Aesthetical Considerations of Game Music', in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 147–157, at 152.

¹⁷⁹ Michael Custodis, 'Playing with Music – Featuring Sound in Games', in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 158–170, at 164.

players.¹⁸⁰ It also features discussion of *Grand Theft Auto (GTA)*,¹⁸¹ *GTA IV*, *GTA: VC*, *Skyrim*, *Oblivion*, *The Elder Scrolls III: Morrowind (Morrowind)*¹⁸² and *Fallout 3*. The volume, however, is peppered with mentions of these games more to evidence a particular design trope or point of meaning, rather than for their own open-world idiosyncrasies. *Understanding Video Games* did not eclipse the confines of the gameworld in its scope, but did offer concentrated analysis of game music types and functionality.¹⁸³

The 2001 book *Digital Cultures: Understanding New Media* relinquished the opportunity to place the established marketing and commodity synergy of games and their music in context.¹⁸⁴ Therein, Jamie Sexton's writing on digital music did not include any mention of game music, and Kraus' case study of *Bioshock*¹⁸⁵ mentioned its music only twice.¹⁸⁶ Concerned with the creation of virtual experiences from a game designer's point of view, titular references to music in *Game Feel* serve as platitudes to canvas a conceptual point. Adages such as, 'If you replace all the art, music and sound in a game with purely abstract shapes and colors, what you have removed is the representation',¹⁸⁷ are based on logical premises but explain little in the way of practical music design techniques in game development. Gordon Calleja makes even fewer mentions of music in *In-Game*, although its role in solidifying the aesthetical representation of a gameworld's distinct location is discussed.¹⁸⁸ This function is relevant to open-world games in particular, which might have many such locations, all requiring musical distinction.

Summary – Considerations Towards a Solution

Munday made a general appeal, stating, 'what is needed for audiovisual media is the definition of music that takes into account the specificity of the medium'.¹⁸⁹ Similar suggestions have been made that call for further forays into the music of open-world games.

¹⁸⁰ Michael Liebe, 'Interactivity and Music in Computer Games' in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 41–62, 43.

¹⁸¹ DMA Design, 1997.

¹⁸² Bethesda Game Studios, 2002.

¹⁸³ Egenfeldt-Nielsen et al., *Understanding Video Games*.

¹⁸⁴ Glen Creeber and Martin Royston, eds, *Digital Cultures: Understanding New Media* (Glasgow: McGraw-Hill Education, 2009).

¹⁸⁵ 2K Boston, 2007.

¹⁸⁶ Kraus, 'Video Games', 88.

¹⁸⁷ Steve Swink, *Game Feel: A Game Designer's Guide to Virtual Sensation* (Burlington, MA: Elsevier), 2009, 171.

¹⁸⁸ Calleja, *In-Game*, 142.

¹⁸⁹ Munday, 'Music in Video Games', 54.

Proposing that ‘radio playlists in *Fallout 3* are evidently ripe for critique,’ Cheng suggests ‘it would no doubt be a valuable endeavour to continue unpacking what this music means and to whom’.¹⁹⁰ This *cri de cœur* is abandoned for the most part, and such committed investigations to open-world diegetic radio music, particularly those of more recent release dates, are yet to be fully articulated. Cheng does cite Miller rightly as undertaking analysis of this kind in the GTA series, while Miller has also noted that ‘few have explored the role of music in [GTA’s] appeal’.¹⁹¹

In 2006 Kerr asked ‘how can we talk with authority about the effects of digital games when we are only beginning to understand the game/user relationship?’¹⁹² Whether of rhetorical or literal intent, this mantle has been taken up with enthusiasm, with numerous accounts of scholarship offering critical perspectives on various game types, interaction possibilities and musical meanings. What remains to be established is a single mechanism that benefits from taking into account these diverse approaches, but that is also designed from its inception to study the music of open-world video games alone. The cultural value assigned to open-world games, evidenced in their commercial popularity, acclaimed gameworlds, and substantial journalistic and consumer discourse, presents a fissure separating scholarship and artefact. This is manifest in Munday’s overt comment on GTA’s in-game radio music, which suggests ‘the use of sound in these games is so innovative that it deserves a whole [work] of its own’.¹⁹³

It is as a response to Munday, Kerr and Miller, among others, that this study takes its cue. The studies of *GTA V*, open-world games, the cultural impacts of gaming, and the music running through all of these pursuits offer a resource base. By selecting and distilling the relevant approaches, and formulating a new mode of application, the proposed research model seeks to pull together disparate but useful approaches into a single methodology. Peterson’s mantra of determining a truth provides a useful starting point in commencing this undertaking. ‘In order to establish an objective fact we have to parameterise the search; we have to narrow the search; we have to exclude many, many things’,¹⁹⁴ Peterson claims. The

¹⁹⁰ Cheng, *Sound Play*, 36.

¹⁹¹ Miller, ‘Jacking’, 402.

¹⁹² Kerr, *Business and Culture*, 2.

¹⁹³ Munday, *Music in Video Games*, 64.

¹⁹⁴ Sam Harris, ‘Waking UP With Sam Harris #62 – What is True? (with Jordan B. Peterson)’, video. 2:15:56, 21 January 2017, posted by Sam Harris, <https://www.youtube.com/watch?v=1gdpyzwOOYY&t=1537s>.

precise evaluation of every possible factor, encapsulated within the literary axiom, ‘to a great mind, nothing is little’,¹⁹⁵ has also guided the proposed model’s development.

A prudent starting point is by playing the game, as in order for the game to reveal its true nature, Jessen argues, one must play it.¹⁹⁶ Newman paraphrases this by arguing that playing the game is vital to understanding it,¹⁹⁷ and although the texts in focus are not literary works but games, the playfulness and connotations of ‘fun’ can remain part of structured, critical analyses. ‘Game music enhances and demands game interaction, as a game needs to be played for its soundtrack to be heard’.¹⁹⁸ Analysing music via gameplay, known otherwise as ‘analytical play’ or ‘close-play analysis’, is essential to the investigation of how game music is programmed and deployed.¹⁹⁹ Moreover, this study explains that contemporary open-world games are well-suited to prolonged investigations through their highly convincing representations of realities. Increases in computational processing power and memory size mean that more complex systems can be employed in-game, which in turn help bring virtual characters, objects and environments to life with increasing veracity. An aspiration of the present study is that the research model offered will remain of utility to the music of future open-world games.

The popularity of this game type is evidenced through game studios releasing new open-world games in series that, hitherto, were based on linear designs. As the game itself is only one part of a much broader culture and scholarly experience,²⁰⁰ the influence of these games and their music extends beyond the gameworld, appearing in what Zagal terms socioculturally informed participatory acts around gameplay.²⁰¹ A benefit of the digital technology epoch is the near-instantaneous access afforded to players and scholars wishing to interact online with discourse and media content that originated in gameworlds. With substantial access to open-world game content both in-game and outside of gameplay, the music of these games can be interrogated via multiple open-source avenues. It should not be forgotten that composition methods and complex implementation practices are integral when

¹⁹⁵ Arthur Conan Doyle, *A Study in Scarlet* (London: Ward, Lock and Co., 1888), 108.

¹⁹⁶ Jessen, ‘Interpretive Communities’.

¹⁹⁷ Newman, *Videogames*, 3.

¹⁹⁸ Van Elferen, ‘Analysing Game Musical Immersion’, 39.

¹⁹⁹ Summers, ‘Analysing Video Game Music’, 13.

²⁰⁰ Newman, *Videogames*, 3.

²⁰¹ José P Zagal, *Ludoliteracy: Defining, Understanding, and Supporting Games Education* (Pittsburgh, PA: ETC Press, 2010), 23.

investigating this music, whether perceived through the lens of musical analysis or theories of media and narrative.

Game studios harness the familiarity and powerful emotional connections this musical content can create to promote their commodities. In-game music and audio is used to market open-world games, build subcultural player communities, and satisfy the commercial imperatives underpinning the industry. The narratological need to delineate multiple diverse in-game cultures and topographies through music, and the associated social engagement and commercial interactions outside of gameplay, are all necessary considerations in this study.

These considerations offer a starting point for this study's ambition of shedding further light on the sociocultural relevance represented not by the music of all game types, but of open-world games specifically. This is an area of ludomusicology that is yet to be explored as comprehensively as it is here, and the narrowing of focus to a single game type is reflective of the field's maturation. As part of a discussion nested in nostalgia and the cultural production mode of archaising, Kirshenblatt-Gimblett argues that 'the repudiated is transvalued as heritage'.²⁰² This sentiment is akin to the gradual acceptance of video games as critical texts, and recognition of the artistic sophistication inherent within game music. The proposed model seeks to offer a tool that would circumvent this process through the establishment of a methodology designed solely to investigate this music. Rather than extruding relevance through iterative and consistent references to its archaic and developing forms, the initial repudiation might be avoided altogether, with contemporary open-world game music perceived as heritage in the making.

Thesis Structure

This Introduction has introduced the core concepts of changing game music perceptions, and the ludic theory behind the spatial structures and narrative constructs of open-world games. A review of the ludomusicology, virtual ethnography, and game culture field literature has identified a scholarship gap concerning open-world game music studies. The method pursuing in seeking to close this gap is articulated in the Project Aims and Research Questions listed above. Chapter I addresses this by introducing a proposed solution in the form of an original tripartite research model. A brief introduction of the model's construction and function is followed by successive rationales of the Game Music Design, Virtual

²⁰² Barbara Kirshenblatt-Gimblett, 'Folklore's Crisis', *The Journal of American Folklore* 111, no. 441 (1998): 281–327, at 298.

Ethnography, and Music in Culture research phases it comprises. The model's methodology is expanded upon in Chapter II, launching from its theoretical basis to elucidate the model as an empirical tool. Text selection, taxonomy of diegetic music types, suggested adaptations to virtual ethnography praxis, and an articulated Culture of Connectivity are presented and discussed.

To demonstrate the model's facility it is applied to *GTA V* in Chapters III, IV and V, taking as their focus the diegetic, nondiegetic, and user interface music in the game, respectively. These are interrogated via a methodology of three research phases, Game Music Design, Virtual Ethnography, and Music in Culture. As the final section of this manuscript, the Conclusion reiterates this study's purposes, and evaluates the ways in which it has sought to meet the Project Aims and Research Questions outlined at its commencement.

This thesis finds that discerning the depth of meaning presented within *GTA V*'s represents significant challenges for scholars, which is argued to be indicative for other open-world games as well. *GTA V*'s musical influences began before the game was released, have continued in-game throughout its lifespan and continue to be an influential component of Rockstar Games' symbolic field. Ludic, technical, and cultural facets of this music have been investigated through an application of the proposed model, and a key finding of this study is the differing amount and character of research results within each of the model's three research phases. It is argued that in order to preserve the integrity of the proposed model, all musical components of a game must be included during analysis. Therefore, such findings should be viewed as variations that occur naturally through an application of the model, which is introduced formally in the following chapter.

CHAPTER I: THE PROPOSED SOLUTION

It has been outlined that open-world video games offer a wide variety of in-game possibilities arising from the player's interaction with the gameworld. Their highly complex technical and narratological processes present convincing realities, which take on new cultural life through promotional practices, both inside and out of the game. These social and cultural penetrations are varied, numerous, and contests of reflexive marketing strategies. To study this, Garrelts argues, 'we must understand what players are given to interact with and the myriad ways in which players and game cultures make sense of, embrace, reject, and appropriate this content'.²⁰³

Music pervades all of these aspects, creating sensations for the player by acting as a bridge between the gameworld and the actual world, and conveying emotional meaning of a given gameplay state.²⁰⁴ To study the music comprehensively, an approach of commensurate sophistication is necessary. In seeking to provide a solution for this, an original research model that has been designed specifically for application to contemporary open-world video games, and in particular those possessive of a sandbox-style gameworld, is proposed. A case study using *GTA V* is provided as a demonstration of this application.

The proposed model is constructed to investigate game music through disparate but connected approaches, and the sequential research phase order merges these approaches into a single methodology of broad understanding but acute focus. It aims to support the scholar not only as an observer, but also as an active participant within the cultural environment of a gameworld. Thus, the proposed model's design and application enables a shift in analytical approach from conventional studies, to facilitate an inside-looking-out perspective. Designed specifically for studying open-world game music, this theoretical approach aims to support the successful conceptualisation of a game's virtual music as anchored in the actual world. Figure 1 below is a graphical representation of the proposed model, illustrating the initial text choice process, determination of its musical componentry, and methods employed during each research phase. The investigative data of each research phase is collated, evaluated and presented as critical theoretical findings at the model's point of conclusion.

²⁰³ Nate Garrelts, 'An Introduction to Grand Theft Auto Studies', in *The Meaning and Culture of Grand Theft Auto: Critical Essays*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2006), 1–15, at 13.

²⁰⁴ Mats Liljedahl, 'Sound for Fantasy and Freedom', in *Game Sound Technology and Player Interaction: Concepts and Developments*, ed. Mark Grimshaw (Hershey, PA: IGI Global, 2011), 22–43, at 32.

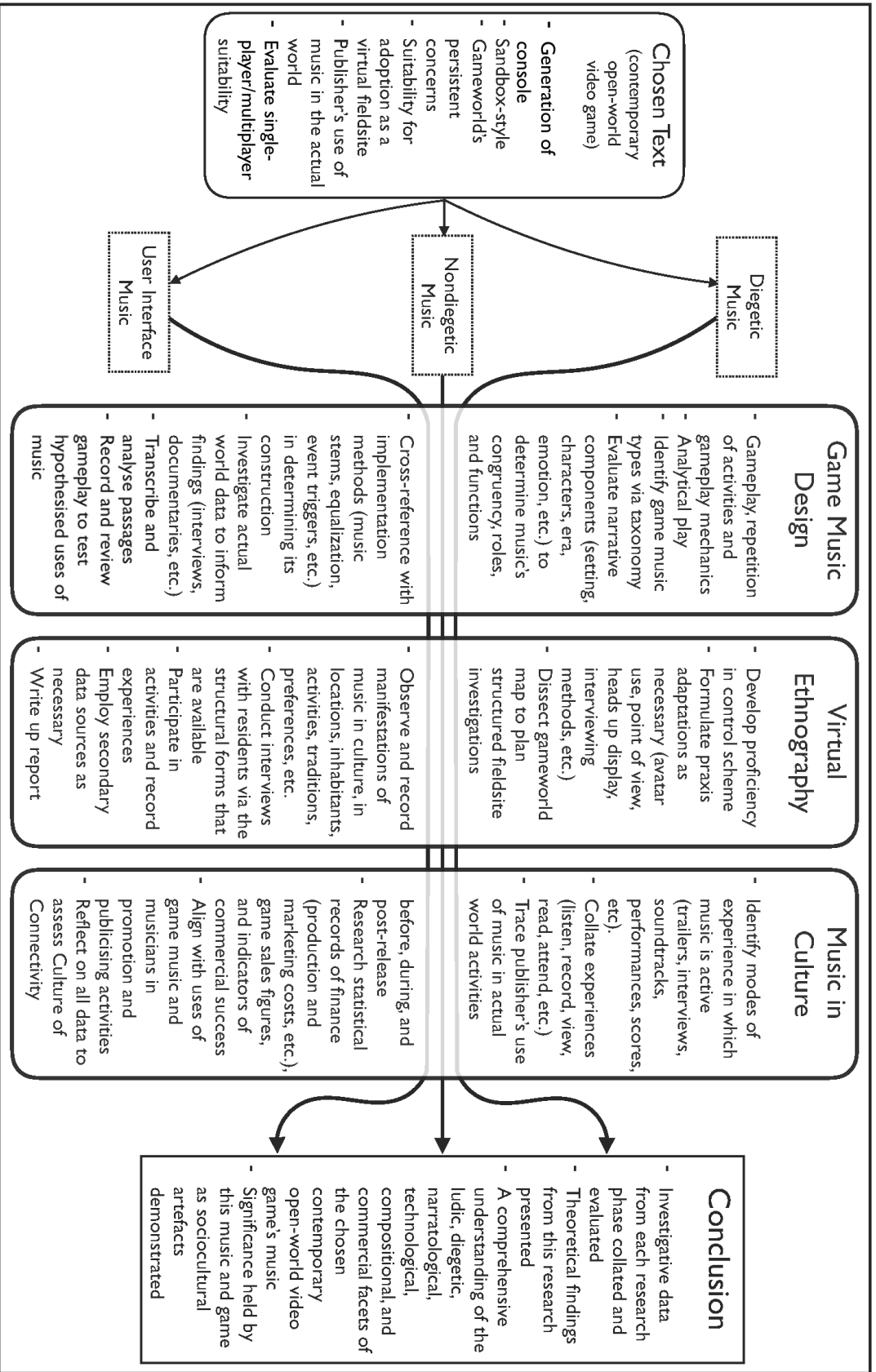


Figure 1: Tripartite Research Model

I.I A Tripartite Research Model

The number three has pervaded and mystified humanity for thousands of years. Its use as theological hierarchical divinity is culturally indifferent; the Father, Son and Holy Spirit of Judeo-Christian doctrine; the Tiratana's three symbolic circles in Buddhism; the three-interlocked triangle Valmnut of ancient Germanic peoples; and the Hellenic mythological demarcation of sky, sea and underworld gods, serve as examples. It manifests in the separation of legislative, judicial and executive powers, and countless colloquial epigrams such as beginning, middle and end, past, present and future, and if at first you don't succeed, try, try again are ubiquitous in modern society. Lease's claim that 'in the extent, variety, and frequency of its use the number 3 far surpasses all the rest'²⁰⁵ comments on a propensity for employing the number across iterative scenarios. This study acknowledges this tendency as a potential subconscious principle underpinning the proposed research model. The development of this model was not governed knowingly by this principle, however, and its eventual tripartite construct is a response to the identified spheres in which open-world game music exists.

As the proposed tripartite model operates with considerable focus placed on a gameworld's representation of reality, a terminology consistent with understandings of reality is used to avoid confusion. The philosophical approach to realms in which video games exist rests on conceptualising the gameworld as a virtual world, and the world of the player being the actual world. The analytical rigidity of binarisms is also acknowledged, and it is beyond the scope of this study to argue all nomenclatural merit in detail. Nonetheless, 'virtual' allows for the ruling out of superficiality inherent within the monikers 'artificial' and 'synthetic', shrugs off the anachronistic 'cyber' and excludes the reflectivity present in 'mirror'. Boellstorff argues that the virtual 'connotes approaching the actual without arriving there', and this description introduces 'actual' as the other salient term here.²⁰⁶ A term used regularly in video game and game music studies is 'real', as in 'the real world'. This is problematic; the antitheses of real cannot be unreal in this case, as gameworlds are real in the same way that personal ambitions and prejudices are. Moreover, real cannot equate to 'offline', as this abstraction requires 'online' to be unreal. The

²⁰⁵ Emory B. Lease, 'The Number Three, Mysterious, Mystic, Magic', *Classical Philology* 14, no. 1 (1919): 56–73, at 56.

²⁰⁶ Boellstorff, *Coming of Age*, 19.

Deleuzian axiom ‘the virtual is opposed not to the real but to the actual’ is useful here,²⁰⁷ and is recapitulated in Boellstorff’s and Summers’ writing. Therefore, perceiving the gameworld as a virtual world, and the player’s world as the actual world, is offered as a serviceable delineation used in the proposed model.

Prior to formal research into video game music, inquiry into games themselves showed that they could ‘be approached from a wide range of academic perspectives and by employing a number of different methodologies’.²⁰⁸ Zagal lists the ability to explain, describe, situate and interpret as defining the ability to understand games within different contexts. These include the ‘context of human culture ... context of other games ... context of the technological platform ... and by deconstructing them and understanding their components’.²⁰⁹ These contexts can be amalgamated and massaged to reflect a layout similar to that of the proposed model, by pivoting the focus of *games* to *game music*. Similarly, Egenfeldt-Nielsen et al.’s detailing of analysis types for understanding video games includes the game itself, the players of the game, culture and ontology, all of which are apropos of game music studies. Collins identifies several factors that affect game audio significantly by impacting upon its study:

Technology (in terms of hardware, software, production, and distribution technology) ... the nature of the industry (in terms of design, production, distribution, and marketing) ... [and] the nature of games themselves, in terms of genre, narrative, the participatory aspects of games, and the functions that audio must fulfill.²¹⁰

The individual components within the proposed model can be found throughout Collins’ description. *Technology* and *narrative*, for example, are included within the Game Music Study phase, while *production*, *distribution* and *marketing* all fall under Music in Culture. *Game Sound* was published in 2008, at a time when open-world games were only beginning to support high-definition environments. To this end, the functionality and participatory elements of game audio may be extrapolated as partly constituting the proposed Virtual Ethnography phase.

²⁰⁷ Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton (1968; repr. New York, NY: Columbia University Press. 1994), 208.

²⁰⁸ Egenfeldt-Nielsen et al., *Understanding Video Games*, 9.

²⁰⁹ Zagal, *Ludoliteracy*, 24.

²¹⁰ Collins, *Game Sound*, 23.

A more recent proposition is that when studying music-oriented cultural artefacts not necessarily included in the initial release of a game, several viewpoints are required. Fritsch argues ‘in order to analyse such artefacts, one has to take the music, the respective game, and the overarching fan cultural discourse, into account’.²¹¹ Based upon three focal points, the value of subjecting material (in this case game music) to musical, ludic and, cultural interrogation is highlighted. It is prudent to reiterate here that the proposed model is not designed to serve all game types. A narrowed focus of contemporary open-world games is causal to results of greater detail produced, instead of a generalised model designed to examine any game type, enshrined in Tolkien’s metaphor of ‘butter scraped over too much bread’.²¹²

The first pillar approaches the game *as a game*. This includes emphasising the technological production of music in games, including recording techniques, the digital coding of music software files into the game engine, and music’s incorporation into gameplay. This is supplemented with dissections of music style, genre, artists, composers and more traditional musicological practices, such as transcription and score analysis. The roles played by music within a narrative are established through diegetic media theory, exploring its connections with story, characters and themes, and its emotional impacts. Player feedback, gaming platform and system music also fall under the auspices of this section of the model, resulting in an inherent acknowledgement and embrace of the game as a mode of storytelling, and as computational code formulated into software. The conclusion of this pillar results in discovering the origins of the music, the processes by which it was put into the game, and how it functions during gameplay. With its compositional style and resulting role within the game narrative established, the music can be explored through a conceptual prism of reality, not play.

A theoretical basis for the methodology in the proposed model’s second pillar research phase lies in the adoption of the internal game environment *as an ethnographer’s fieldsite*. In so doing, the gameworld and its temporal constituents take on the meaning of agents within a place, and existing axiomatically within that space. Open-world games possessing expansive landscapes, varied musical elements and dynamic player/gameworld interactions are apropos

²¹¹ Melanie Fritsch, ‘It’s a-me, Mario!’ Playing with Video Game Music’, in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers and Mark Sweeney (Sheffield: Equinox, 2016), 92–115, at 93.

²¹² John Ronald Reuel Tolkien, *The Lord of the Rings: The Fellowship of the Rings Part 1* (Great Britain: George Allen & Unwin, 1954), 42.

of this scholarly endeavour. As a result, online multiplayer games are chosen as virtual fieldsites, combining in-game player interactions with analysis outside of gameplay. The massively multiplayer online game (MMO), and the massively multiplayer online role-playing game (MMORPG) receive the most attention. Conceptual and gameplay boundaries between MMOs and MMORPG's often blur, and so for ease of comprehension MMO will be used throughout this thesis as a general reference to both MMOs and MMORPGs unless specified otherwise.

In lieu of sociologically driven interpersonal interactions afforded by these games, analytical primacy can be given to interactions that the player/ethnographer has with musical elements of the gameworld in single-player games. Ethnographic exploration practices involving prolonged periods of observation, participation and documentation are employed, and this pillar extends virtual ethnography research efforts by pursuing a music-specific focus. The processes within this pillar result in the documentation of musical elements instantiated within the gameworld's legitimate cultural iconography. Music can be linked with geographical and political boundaries, ethnic dwelling variances, popular culture and an historical or hypothetical epoch.

Progressing from the virtual fieldsite, the third and final phase explores the game's music *as music in culture* within the actual world. The commoditisation of a game's music harnessed by a production company for marketing and publicity is an initial approach. Active within numerous cultural paradigms, the global video game industry has surpassed both cinema and music in revenue,²¹³ and video games at the highest commercial level are exorbitantly expensive to develop and produce.²¹⁴ Consequent commercial imperatives require music to play significant roles in marketing practices including tie-in album releases, artist promotion, publicity material videos and live performances. Game music has surpassed this single dimension of wealth provision to saturate multiple realms of existence, from in-game music absorption mechanisms, to music production documentaries, through to live performance concerts. A player's initial exposure to the music of a game may in fact occur during a video trailer. Once that game releases, emotive connections form with the music during and out of gameplay, renewing associations. Music takes on its own identity in society at large as a result of this, both in association with its parent game, and as its own entity. It serves corporate

²¹³ Trevir Nath, 'Investing in Video Games: This Industry Pulls in More Revenue Than Movies, Music', *Nasdaq*, 13 June 2016, accessed 8 February 2018, <https://www.nasdaq.com/article/investing-in-video-games-this-industry-pulls-in-more-revenue-than-movies-music-cm634585>.

²¹⁴ Goldberg, 'How the West Was Digitized'.

economic purposes, but is also adopted by players and consumers as part of their own social identity. Through researching abundant open-source material, this phase contextualises the cultural relevance of game music outside of gameplay, and in the actual world.

At its conclusion, the proposed research model will have provided mechanisms to investigate the music of an open-world game through multiple lenses, thereby producing several perspectives. The accumulated results from all three research phases can be collated, organised and presented as critical theoretical findings emerging from rigorous and multifaceted investigation.

Original Perspective – Doing Justice to the Text

Open-world games are described accurately, albeit sweepingly, as ‘those games where generally the player is left to his own devices to explore a large world’.²¹⁵ This depiction can be fused with Garrelts’ observation that ‘as digital games have become more technologically advanced, the possibilities for interaction within the world of a game have also exponentially increased’.²¹⁶ This provides some affirmation to the presupposition that the appeal and interest of in-game content is causal to increased player enjoyment and engagement while playing them. Visual quality, aural fidelity and cohesion of compelling stories are more likely to entice players to commit extended periods of time to gameplay.

If this point can be accepted, then the amount of detail and interactions that exists within open-world games precipitates the development of commensurate research methods. Repetition and extended durations of time are likely to be beneficial in applying these. Garrelts concurs, ‘because digital games are so vast and change based on how a person plays, we are obligated to not settle for our first, second, or even third analysis’.²¹⁷ This study interprets Garrelts’ recommendation as first, second and third approaches that pivot from different perspectives. The variety of findings made possible by this multi-angled analytical approach would remain inaccessible to studies pursuing a single line of inquiry.

Beyond the Composition, in the Actual World and Outside of Gameplay

In 2007 Munday proposed deficiencies in academic articles on video game music, arguing, ‘the majority of them are more descriptive than analytical, and tend to be organized around

²¹⁵ John Harris, ‘Game Design Essentials: 20 Open World Games’, *Gamasutra*, 26 September 2007, accessed 17 December 2015, https://www.gamasutra.com/view/feature/130319/game_design_essentials_20_open_.php.

²¹⁶ Garrelts, *Digital Gameplay*, 3.

²¹⁷ Garrelts, *Meaning and Culture*, 13.

a timeline structure'.²¹⁸ Progress has been made towards remedying such a situation, as the literature review above records. As video games have been assigned some of the weight, gravitas and credibility reserved previously for media of a more traditional kind,²¹⁹ so too has their music. Sharing both linear and nonlinear sequencing, 'the ability of the game's music to respond to things happening in the game makes video game music unlike other genres of music'.²²⁰ Lerner's writing centres on connections between game scores and the music of early cinema. Once artistic ancestry is established, Lerner draws on transcribed passages of dynamic score in *Donkey Kong*²²¹ and *Super Mario Bros.* to link composition with archetypal narrative structure. This analytical process yields successful results, provided that the required attention to game music's nonlinearity is also present.

Another benefit of the proposed model is its ability to approach game music while in-game and outside of gameplay. The sequential abstraction of music from its constituent gameworld is a necessary and useful process for tasks such as transcription, aural recognition and technical analysis of digital matter. If it is the sole process, however, the studied musical elements would exist only in test tubes, with their meaning and functionalities within the gameworld or actual world, or both, largely isolated. It is worth remembering that music and sound in games 'is typically present with other modalities (visual, haptic)'.²²² This is a key point when studying music of this nature, which, in its truest form, is embedded within the construct of a video game that needs to be interacted with by a player in order to be experienced. Analysis of game music and analysis of the game itself should, therefore, be compatible with one another,²²³ a point on which van Elferen concurs.²²⁴

Fritsch argues that studying the functions of music within a gameworld's narrative is of utility when interpreting the meanings its composer intended to convey.²²⁵ 'The best and

²¹⁸ Munday, 'Music in Video Games', 51.

²¹⁹ Newman, *Videogames*, 5.

²²⁰ Neil Lerner, 'Mario's Dynamic Leaps: Musical Innovations (and the Specter of Early Cinema) in Donkey Kong and Super Mario Bros.', in *Music in Video Games: Studying Play*, ed. K. J. Donnelly, William Gibbons and Neil Lerner (New York, NY: Routledge, 2014), 1–29, at 1.

²²¹ Nintendo. 1981.

²²² Inger Ekman, 'A Cognitive Approach to The Emotional Function of Game Sound', in *The Oxford Handbook of Interactive Audio*, ed. Karen Collins, Bill Kapralos and Holly Tessler (New York, NY: Oxford University Press, 2014), 196–212, at 196.

²²³ Fritsch, 'It's a-me, Mario!', 95.

²²⁴ Isabella van Elferen, 'The ALI Model: Towards a Theory of Game Musical Immersion' (presentation, RMA Study Day Ludomusicology: Game Music Research, Approaches and Aesthetics, Oxford, 16 April 2012).

²²⁵ Fritsch, 'It's a-me, Mario!', 94.

most reliable historical documents are always primary sources',²²⁶ it is claimed, and there is a wealth of interview and video documentation material elucidating game composers' processes and intent. It is notable that leading research bodies pursuing ludomusicology include game composer addresses in event programmes. 'The narrative fit of game sound reflects how helpful sound is to storytelling and helps bring out the emotions inherent in the story',²²⁷ and insights offered by the composers and audio engineers responsible for creating game music contribute to understanding this.

As software programs, video games require digital editing processes during development and after release, and a part of this concerns music. Game composers often use digital audio workstation software to record, edit and produce music. More specific to game development is 'middleware', computer applications with dedicated tools to edit a game's interactive audio²²⁸ by loading and arranging music files according to customisable interactive properties. By encompassing technological aspects of game music design and function within its focus, the first research phase supersedes conceptualisations of this music only as an emotive facet of the diegesis. The compositional language of game music creation is homologous with composition in general, but its technical implementation processes and software utilities are more esoteric. The meanings behind linear loops, dynamic mixes based on vertical layering, horizontal sequences chunks and generative composition fragments,²²⁹ are of no less consequence than tonality, tempo, melodic phrasing and lyrical content. Munday tackles this by alluding to the video game as a Barthesian text, in that it could be something produced by actions or discursive operations instead of existing as a material thing itself.²³⁰ The fault in this approach, Munday contends, is that when interpreting media forms like video games, 'academic understanding ... is continually being out distanced by the changing technology of gaming itself'.²³¹

Collins highlights Eidsvik's position on technology,²³² that theorising about technical change is difficult because the technology must precede the theory,²³³ while Hart suggests

²²⁶ 'Going Back in Time', *History Detectives Special Investigations*, PBS, <http://www.pbs.org/opb/historydetectives/educators/technique-guide/going-back-in-time/>.

²²⁷ Ekman, 'A Cognitive Approach', 200.

²²⁸ Winifred Phillips, *A Composer's Guide to Game Music* (Cambridge, MA: The MIT Press, 2014), 227.

²²⁹ Phillips, *A Composer's Guide*, 2.

²³⁰ Roland Barthes, *Image Music Text*, trans. Stephen Heath (London: Fontana Press, 1977), 156.

²³¹ Munday, 'Music in Video Games', 52.

²³² Collins, *Game Sound*, 2.

²³³ Charles Eidsvik, 'Machines of the Invisible: Changes in Film Technology in the Age of Video', *Film Quarterly* 42, no. 2 (1988-1989): 18-23, at 23.

that some principles of musicology necessitate a defence of the gaming medium itself, prior to even commencing studies of game music.²³⁴ In seeking to ‘welcome all the available sources of information, from all available perspectives’,²³⁵ this study recommends open-source journalistic and industry-based discussions as worthwhile repositories. By placing this practical and theoretical information on game music’s technological nature on a footing equal to that of a musicological nature, scholars can access, at a minimum, a working understanding of rudimentary technological practices by which this music develops.

‘The video game is necessarily a technological medium’,²³⁶ and Summers alludes to liminal truths of pragmatism when evaluating the necessity of play-based interactions between the scholar and a game’s music.²³⁷ Of video game studies more generally, Zagal’s ‘literacy’ concept commands the ability not only to play games, but also to understand meaning with respect to making them.²³⁸ These literacies already possess complicated interrelationships, which Zagal argues as compounding when other literacies are introduced that go beyond knowledge of the interface, rules and goals of the game.²³⁹ These theoretical difficulties need to be contended with and overcome. As suggested above, gameplay may well not be a player’s initial experience with a game’s music. It will also likely not be the last, with experiences such as listening to a purchased soundtrack album to attending a live performance emphasising Gee’s position that the knowledge of video games is distributed.²⁴⁰ Unger et al. elaborate on this by saying ‘knowledge about the game is not residing in one individual’s head; knowledge about the game is distributed in books, online, and throughout the gaming community’.²⁴¹ When and how game music exits outside of gameplay and in the actual world broader community presents a significant consideration within the present study.

To answer this, this study transfers the concept behind Unger et al.’s schema from games to their music, while maintaining cultural value. Kerr wastes no time allaying validity concerns over the premise that games are culturally formed and culturally valuable. As socially

²³⁴ Iain Hart, ‘Ludomusicological Semiotics: Theory, Implications, and Case Studies’ (PhD dissertation, University of Sydney, 2018), 28.

²³⁵ Eidsvik, ‘Machines of the Invisible’, 23.

²³⁶ Tim Summers, *Understanding Video Game Music* (Cambridge: Cambridge University Press, 2016), 15.

²³⁷ Summers, ‘Analysing Game Music’, 9.

²³⁸ Zagal, *Ludoliteracy*, 23.

²³⁹ Zagal, *Ludoliteracy*, 23.

²⁴⁰ James Paul Gee, *What Video Games Have to Teach Us About Learning and Literacy* (New York, NY: Palgrave MacMillan, 2003), 184.

²⁴¹ John Unger, Porter Lee Troutman, Jnr., and Victoria Hamilton, ‘Signs, Symbols, and Perceptions in Grand Theft Auto: Vice City’, in *Digital Gameplay: Essays on the Nexus of Game and Gamer*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2005), 91–109, at 104.

constructed artefacts, Kerr argues, video games ‘emerge from a complex process of negotiation between various human and non-human actors within a context of a particular historical formation’.²⁴² This would contradict a perception long held in academia that video games are useful only for fun and entertainment.²⁴³ It also ties into the endeavours of writers such as Belinkie²⁴⁴ and Mernagh²⁴⁵ to change perceptions of game music’s juvenility. Recommending that the understanding of games links inextricably with capitalist economic theory,²⁴⁶ Kerr’s theoretical approach demands commercial consideration as well as cultural. With game music accessible in so many forms – digital, online, analogue, live, notational, etc. – research methods should study game music in these forms as well as during gameplay. As this study aims to situate the subject matter of game music within a broader cultural context, the consideration of these non-gameplay experiences as avenues for research is merited.

I.II Game Music Design

Many of the study principles applied to games have grown out of film and television, but a growing panoply of original and adapted theories work to treat games as the primary matter, not an offshoot of older media. Statements of the need for critical terms idiosyncratic to the video game medium abound in the literature, with one of the common points of debate being the terminology and meaning of diegetic sound theory in games.

A commonality of film and video game narrative studies is the diegesis, which Genette’s 1972 *Narrative Discourse* argues as being used for the first time in antiquity by Plato, in Book III of *The Republic*, written circa 392 to 395 BC. Therein, two narrative modes were contrasted so that the poet ‘himself is a speaker and does not even attempt to suggest to us that anyone but himself is speaking’.²⁴⁷ Genette advises that while normative translation results in the term ‘simple narrative’, a better understanding of Plato’s intention is ‘pure narrative’.²⁴⁸ When the poet ‘delivers a speech as if he were someone else’,²⁴⁹ Plato refers to mimesis (imitation).

²⁴² Kerr, *Business and Culture*, 4.

²⁴³ Raph Koster, ‘Games As Art’, *Imaginary Realities*, June 1999, http://imaginary-realities.disinterest.org/volume2/issue6/games_as_art.html.

²⁴⁴ Matthew Belinkie, ‘Video game music: not just kid stuff’, *VGMusic*, 15 December 1999, accessed 2 February 2017, <https://www.vgmusic.com/information/vgpaper.html>.

²⁴⁵ Matt Mernagh, ‘Video Games Saved the Radio Star’, *Exclaim!*, 1 February 2000, accessed 21 June 2017, http://exclaim.ca/music/article/video_games_saved_radio_star.

²⁴⁶ Kerr, *Business and Culture*, 4.

²⁴⁷ Plato, *The Republic*, trans. Paul Shorey (Cambridge, MA: Loeb Classical Library, 1937), 227.

²⁴⁸ Gérard Genette, *Narrative Discourse: An Essay in Method*, trans. Jane E. Lewin (Ithaca, NY: Cornell University Press, 1980), 162.

²⁴⁹ Plato, *The Republic*, Book III, 227.

Bordwell extends this to Plato's pupil, Aristotle, who proposes a slightly different isolation of these modes: 'The poet may imitate by narration—in which he can either take another personality as Homer does or speak in his own unchanged—or he may present all his characters as living and moving before us'.²⁵⁰ Bordwell concludes that there is a basic difference of 'telling (haplé diégésis) and showing (dia mimèseôs)' in stories.²⁵¹ This relationship, complex already in literary theory and film narrativity studies, is complicated further as video games require the player to both tell, and show, gameplay events.

These diegetic theories have not always been in academic favour, and while concepts of diegetic narration can be traced through the Renaissance, the twentieth century heralded its most prevalent use in literary theory.²⁵² Bordwell writes that the 1950s saw a revival of the term diegesis instigated by philosopher Étienne Souriau to describe a film's 'recounted story',²⁵³ and that diegesis is now accepted as describing a story's fictional world.²⁵⁴ Gorbman points to early-twentieth century Russian Formalists' exploration to distinguish fable (*fabula*) from subject (*syuzhet*) – that is, the narrated story and textual treatment of that story, respectively.²⁵⁵

However, it is the French *filmologues* Gorbman cites as informing the theory underpinning a semiotics-based system of film music narrative,²⁵⁶ which Neumeyer has used to similar theoretical effect.²⁵⁷ For narrative form analysis in film, Bordwell and Thompson stipulate diegetic sound as 'sound that has a source in the story world,' both on-screen and offscreen, and nondiegetic sound 'represented as coming from a source outside the story world'.²⁵⁸ Before evaluating this binary application to open-world game music, it is useful to demonstrate that even in films, these two diegetic states transition frequently between each other. Two motion picture examples are provided, beginning with *The Adventures of Robin Hood*.²⁵⁹

²⁵⁰ David Bordwell, foreword to *Point of View in the Cinema: A Theory of Narration and Subjectivity in Classical Film*, by Edward Branigan (Berlin: Mouton, 1984), X–XIII, at X.

²⁵¹ Bordwell, 'Foreword', X.

²⁵² David Bordwell, *Narration in the Fiction Film* (London: Routledge, 1986), 16.

²⁵³ Étienne Souriau, ed., *L'univers Filmique* (Paris: Flammarion, 1953), 7.

²⁵⁴ Bordwell, *Narration in the Fiction Film*, 16.

²⁵⁵ Claudia Gorbman, *Unheard Melodies: Narrative Film Music* (Bloomington, IN: Indiana University Press, 1987), 20.

²⁵⁶ Gorbman, *Unheard Melodies*, 21.

²⁵⁷ David Neumeyer, 'Diegetic/Nondiegetic: A Theoretical Model', *Music and the Moving Image* 2, no. 1 (2009): 26–39, at 28.

²⁵⁸ David Bordwell and Kristin Thompson, *Film Art: An Introduction* (New York, NY: McGraw-Hill, 2008), 278.

²⁵⁹ Curtiz and Keighley, 1938.

Example 1 – *Robin Hood*

In line with contemporaneous practice, this film begins with an opening credit sequence that finishes with two still images of exposition text, all the while accompanied by a nondiegetic track of the score's overture. The sequence concludes with a rousing horn phrase, described by Summers as the genesis of 'the horn fanfare-led orchestral score [signifying] heroic/action narratives'.²⁶⁰ While the final melodic note is held, booming eighth notes are played on a drum, and as the picture dissolves rapidly to a shot with actors, the first moving image presented is that of heraldic musicians striking tenor drums in synchronicity with the score. It is for only a brief moment, but the sight of characters playing drums in time with the music could lead to its designation as diegetic music, that transitioned quickly out of Korngold's nondiegetic score. The consistent sonic quality, and the brevity of this coordinated sound and screen movement,²⁶¹ may also support the view that the music remains nondiegetic.

Example 2 – *Atomic Blonde*

A more definitive example can be found in the action spy thriller film *Atomic Blonde*.²⁶² This film presents a series of fictional espionage and assassination events preceding and culminating in the fall of the Berlin Wall. It is an adaptation of graphic novel *The Coldest City*,²⁶³ and explicates a late-Cold War Berlin setting by employing era-specific songs by artists such as Queen, Public Enemy and David Bowie.²⁶⁴ Early in the picture, a warehouse scene depicting the torturous coercion of captured partygoers by KGB associate Aleksander Bremovych, the villain, features '99 Luftballons' explicitly.²⁶⁵ Upon singling out one prisoner, Bremovych proceeds to intimidate by pressing play on a confiscated cassette player, which plays the song, and mockingly instructing his captive to dance. The hapless man does so to the echoing, tinny refrain of the pop song as it enters its midway breakdown section.

The music is undoubtedly diegetic, emanating from the cassette player, and equalised to reflect the small speaker drivers therein. After watching some timid breakdancing moves, Bremovych lashes out abruptly at the prisoner's head with a skateboard, striking hard,

²⁶⁰ Summers, *Understanding*, 148.

²⁶¹ Bordwell and Thompson, *Film Art*, 267.

²⁶² Leitch, 2017.

²⁶³ Antony Johnston, *The Coldest City* (Portland, OR: Oni Press, 2012).

²⁶⁴ Caitlin White, 'How "Atomic Blonde" Director David Leitch Used Music to Turn a Stuffy Cold War Film Into a Spy Thriller', *Uproxx*, 17 July 2017, accessed 23 November 2017, <https://uproxx.com/music/atomic-blonde-david-leitch-director-interview/>.

²⁶⁵ Nena, 1983.

propelling an explosive blast of blood and tissue matter from his victim, who collapses to the ground. Several more vicious strikes against the defenceless prisoner signals to the viewer that this is no longer an interrogation, but a cold-blooded murder.

‘99 Luftballons’ continues to play throughout, completing its breakdown section and moving into the next verse. As it does, the snare drum fill volume increases, and by the first sung lyrics the song broadens its frequency spectrum. In the space of six or so seconds, the song transitions from a diegetic state – a recording emanating from the audio player in the warehouse – to a nondiegetic state, equalised to reflect the normative sonic aesthetic of underscores. The increase in volume, bass and clarity allows the song to underscore and enhance the emotive actions taking place in the scene. This continues until Bremovych has killed his victim, and the song returns immediately to its former audio state. To reinforce a return to a diegetic state, the final shot accompanied by the song is a close-up of the cassette player, which is stomped on and destroyed by Bremovych, cutting the song short and stopping the music.

This scene portrays a traceable diegetic–nondiegetic–diegetic series of audio contexts. The transitions are fluid and concise, and the specific use of the cassette player prop leaves the viewer with no doubt of the diegetic music state, thereby clarifying its nondiegetic state as well. Even the *Robin Hood* example, in which the music continues to play over the cross-fade of two different shots, is relatively unambiguous. Additional codifying of these diegetic audio states is often not necessary in film; however, video games present an environment in which indeterminate gameplay possibilities cannot be aligned so easily to these binary states. By its very nature, ‘dynamic audio complicates the traditional diegetic–nondiegetic division of film sound’.²⁶⁶

Application of Diegetic Theory to Video Games

Jørgensen notes that game scholars using this framework ‘tend to take their point of departure from this newer, film theory understanding of diegesis’.²⁶⁷ Alternatively, Collins proposes dual terminology pairs, with the player’s conscious game interface interaction being diegetic, and their corporeal response to the experience being extradiegetic; the

²⁶⁶ Collins, *Game Sound*, 125

²⁶⁷ Kristin Jørgensen, ‘Time for a New Terminology? Diegetic and Non-Diegetic Sounds in Computer Games Revisited’, in *Game Sound Technology and Player Interaction: Concepts and Developments*, ed. Mark Grimshaw (Hershey, PA: IGI Global, 2011), 78–97, at 80.

diegetic/nondiegetic divisions still are employed but Collins' separates them further through the demarcation of dynamic and interactive states.²⁶⁸ By these rules interactive nondiegetic sounds are produced as a reaction to gameplay and are outside of the diegesis, and diegetic sounds can be adaptive, interactive or nondynamic.²⁶⁹

Another categorisation proposed by Stockburger was based on French theorist and musician Pierre Schaeffer's *objet sonore* in *Traité des Objets Musicaux*.²⁷⁰ Schaeffer's search for semantic properties of sound through reduced listening was extended by Stockburger to focus on sound objects. The resulting typology included effect sound objects, zone sound objects, score sound objects, interface sound objects and speech sound objects.²⁷¹ Jørgensen points out that Stockburger's model attributes sound type based on its relation to the game engine, and notes that the author does not discuss how diegetic/nondiegetic concepts should be interpreted for game sound analysis'.²⁷² Jørgensen argues that confusion arises when the meaning of diegesis is extended beyond a fictional world of the story to the universe of a game, because it implies that the gameworld is a storyworld.²⁷³

Kamp goes some way to address this by employing a categorisation of game sound based on its relationship with the story world, rather than its existence within the story world.²⁷⁴ This also raises the factor of the 'source' of game sound. If the source of the music can be perceived, it is producing diegetic music (like the tape player in *Atomic Blonde*); if it can't, it is producing nondiegetic music. Whalen's contemporaneous work argues the usefulness of applying this binary concept to sound in games more, despite the inherent complications,²⁷⁵ and pursues diegetic audio comparisons between cartoons and Akira Yamaoka's score to *Silent Hill*.²⁷⁶

Before this can be addressed, there remains a clarification of the terms mentioned already. In earlier published works Jørgensen uses the term 'extradiegetic,' as Genette does, although the former gravitated to using 'nondiegetic' in more recent work. Genette outlines

²⁶⁸ Collins, *Game Sound*, 125.

²⁶⁹ Collins, *Game Sound*, 126.

²⁷⁰ Pierre Schaeffer, *Traité des objets musicaux. Essai interdisciplines* (Paris: Éditions du Seuil, 1966).

²⁷¹ Axel Stockburger, 'The Game Environment From an Auditive Perspective' (presentation at Level Up: Digital Games Research Conference, Utrecht, 4–6 November, 2003).

²⁷² Jørgensen, 'New Terminology', 80.

²⁷³ Jørgensen, 'New Terminology', 80.

²⁷⁴ Michiel Kamp, 'Suture and Peritexts: Music Beyond Gameplay and Diegesis', in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers and Mark Sweeney (Sheffield: Equinox, 2016), 73–92, at 75.

²⁷⁵ Whalen, 'Play Along'.

²⁷⁶ Konami Computer Entertainment Tokyo, 1999.

the perspective as ‘any event a narrative recounts is at a diegetic level immediately higher than the level at which the narrating act producing the narrative is placed’.²⁷⁷ Genette turns to the Louis XV era *Manon Lescaut*²⁷⁸ to demonstrate these levels within the diegetic construct.²⁷⁹ In this story, the first level called ‘extradiegetic’ is the literary act of writing fictive *Mémoires* by M. de Renoncourt, and as the events recounted within *Mémoires* are inside the first, Genette terms them ‘diegetic’ or ‘intra-diegetic’. These second level events have narration by the *Lescaut* protagonist Des Grieux, and, being a narrative set within the second degree, this is termed metadiegetic.²⁸⁰

Winters identifies diegetic and intra-diegetic as a tautology in film studies,²⁸¹ but the ‘meta’ prefix can also confuse otherwise straightforward premises. Of Greek linguistic origin, depending on whether the accusative or genitive noun declension is in use, meta can mean *beyond* or *after* or *with* respectively. This is the case in Latin, where the ablative is employed for words that grammatically require a sense of ‘with’ to precede their use; however, there is no ablative in Greek.²⁸² As C-3P0 recalls the events of preceding films to the Ewoks in *Return of the Jedi*,²⁸³ musical themes accompany the narration. Winters has identified that this sound occupies an intra-diegetic role as it emanates from a character engaged in a narration act, but also offers its description as a meta-diegetic narration.²⁸⁴ The metadiegetic operating narrative aside, it is salient that Genette uses *extradiegetic* not in synonymy with *nondiegetic*, but as a designation of the narrating instance, as such.

Jørgensen’s use of *extradiegetic*, on the other hand, appears a consistent substitute for *nondiegetic*, and the nuance of inference separating these two terms merits discussion. Whether in its noun, adverb or submodifier grammatical form, ‘extra’ maintains a homologous lexeme denoting something as additional, supplementary or greater than the usual. As a bound morpheme, the prefix ‘non’ may indicate negation, exclusion or, more simply, the opposite of (subject), among other meanings. The difference may seem negligible, but it posits this: An *extradiegetic* element is inferred as an addition to that which

²⁷⁷ Genette, *Narrative Discourse*, 228.

²⁷⁸ Antoine François Prévost, *L'Histoire du chevalier des Grieux et de Manon Lescaut* (London: Les Frères Constant, 1734).

²⁷⁹ Genette, *Narrative Discourse*, 228.

²⁸⁰ Genette, *Narrative Discourse*, 228.

²⁸¹ Ben Winters, ‘The Non-Diegetic Fallacy: Film, Music, and Narrative Space’, *Music and Letters* 91, no. 2 (2010): 224–244, at 237.

²⁸² Jonathan Lynn and Antony Jay, *The Complete Yes Minister*, 15th ed. (London: BBC Books, 2003), 253.

²⁸³ Marquand, 1983.

²⁸⁴ Winters, ‘The Non-Diegetic Fallacy’, 237.

is diegetic; another layer that is separate from the diegetic core. Conversely, a *nondiegetic* element can be described with greater simplicity as the opposite of diegetic. The latter version maintains a useful delineation within the dialectic, instead of the proposition that the antithesis of diegetic is not in fact its direct opposite, but rather a supplementary (extra) abstraction. It is primarily for this reason that the proposed model employs *nondiegetic* to describe elements that are not diegetic, and uses the unhyphenated form as per Collins' glossary definition.²⁸⁵

While this discussion has devoted focus to *nondiegetic* music, it should be acknowledged that in ludomusicology, diegetic audio elements are debated similarly and often sub-categorised. Grimshaw espouses a distinction between different diegetic sound types heard during FPS gameplay that uses *ideodiegetic* and *telediegetic* definitions.²⁸⁶ *Ideodiegetic* sound, Grimshaw proposes, 'refers to all gameplay sounds that can be heard by one player; all sounds within that particular player's resonating spaces', and can be derived from the player's character, or other nearby sound sources.²⁸⁷ *Telediegetic* sounds are, in the one instance, sounds *ideodiegetic* to one or more players, but if unheard by another player they become *telediegetic* for the latter player alone, so long as 'the response to the sound by the former has the consequence for the latter'.²⁸⁸

To summarise, the term given to a sound example is a consequence of the context of the sound. Grimshaw's separation of meanings concerns the networked multiplayer game domain of FPS games. Elsewhere, Grimshaw and Schott suggest splitting *ideodiegetic* even further still, into the categories of '*kinediegetic* (sounds triggered by the player's actions), and *exodiegetic* (all other *ideodiegetic* sounds)'.²⁸⁹ This further delving into sub-sub-categories highlights the complication of appropriating acoustic ecology studies of film to games directly, as responsive relationships exist between the player, game engine, and other players in FPS games.²⁹⁰ Player avatars do not speak in *GTA V*'s online multiplayer

²⁸⁵ Collins, *Game Sound*, 184.

²⁸⁶ Mark Grimshaw, 'The Acoustic Ecology of the First-Person Shooter' (PhD diss., University of Waikato, 2007), 226.

²⁸⁷ Grimshaw, 'Acoustic Ecology of the First-Person Shooter', 226.

²⁸⁸ Grimshaw, 'Acoustic Ecology of the First-Person Shooter', 226.

²⁸⁹ Mark Grimshaw and Gareth Schott, 'Situating Gaming as a Sonic Experience: The Acoustic Ecology of First-Person Shooters', in *Situated Play, Proceedings of DiGRA 2007 Conference, The University of Tokyo, September 2007*, ed. Authors & Digital Games Research Association (Finland: DiGRA, 2007), 474–481, at 476.

²⁹⁰ Grimshaw, Schott, 'Situating Gaming', 476.

component, GTA Online, with player-to-player communication sound achieved through headsets with microphones, and the gameworld's own sound heard equally by all players.

Klevjer's lamentations of conflict²⁹¹ arise from Juul's literary notion of the 'diegesis' demanding that fiction is only considered projected, and that the diegetic state seems less emphasised than the story and discourse of a narrative, in which the latter presents the former, often in achronological form.²⁹² Corresponding distinctions of time in games and time in narratives – play time and fictional time – do not coalesce as smoothly when separating fiction and diegesis. The two notions are argued as synonymous in Juul's theory, implying that 'the activity of play is only fictionally relevant to the extent that we can consider it as homologous to discourse'.²⁹³ The conundrum would appear accurate given Juul's self-proclaimed description of time in games, stating 'play time is comparable to discourse time, and fictional time is comparable to story time'.²⁹⁴

Distillation of Theory – Diegetic, Nondiegetic, and User Interface

A basic distinction in narrative analysis of music remains diegetic and nondiegetic, even though energy spent developing the distinction has driven theorists and analysts to the point of jettisoning it.²⁹⁵ It is not for nothing that Buhler has so remarked. Galloway alludes additionally to the controversy that arises from clashes of narratology versus ludology perspectives, although affirming that 'the diegetic-nondiegetic split ... is still useful for understanding different types of gamic action'.²⁹⁶ This study does not seek to criticise the explorations referenced, nor those who conduct them; however, it is argued here that the value of simplicity should not be underestimated. A significant aspect of this theoretical discussion worth noting is the predominance of sound and audio driving scholarly analyses, with music included more under the banner of game audio, rather than in its own right. Music commands inclusion in the diegetic quandary; Collins' *Game Sound* deals with sonic componentry of games, and applications elsewhere of the same interactive–adaptive–

²⁹¹ Rune Klevjer, 'What is the Avatar? Fiction and Embodiment in Avatar-Based Singleplayer Computer Games' (PhD diss., University of Bergen, 2006), 57.

²⁹² Jesper Juul, *Half-Real: Video Games Between Real Rules and Fictional Worlds* (Cambridge, MA: MIT Press, 2005), 60.

²⁹³ Klevjer, 'What is the Avatar?' 58.

²⁹⁴ Juul, *Half-Real*, 160.

²⁹⁵ Sadoff, 'Roundtable', 110.

²⁹⁶ Galloway, *Algorithmic Culture*, 127–128.

dynamic audio principles show a greater focus on music.²⁹⁷ In light these varied of diegetic theories, pragmatism encourages a reduced diegetic music type taxonomy for game music, with no Pyrrhic loss of structural integrity, parameterised for this Game Music Design phase.

Grimshaw classifies diegetic sound as ‘sound that emanates from the gameplay environment, objects and characters and that is defined by that environment, those objects and characters’, and cites footsteps, gunfire and ambient battle noises as FPS examples.²⁹⁸ While these are sound effects, a performing musician or car radio station would be isomorphic in its diegetic function. Elaborating on this line of in-game sound recognition, Jørgensen proposes that ‘as long as the referent is diegetic, the signal does not need to be’.²⁹⁹ In terms of open-world game music, this would mean that the player does not need to perceive the source of diegetic music visually. Instead, they can formulate an understanding of how and why the music exists within the gameworld, which is why *discern* is the critical verb used.

In its transitive form, definitions of discern are ‘to detect with the eyes [or] senses other than vision ... to recognise or identify as separate and distinct [and] to come to know or recognize mentally’.³⁰⁰ To form an a priori interpretive structure,³⁰¹ the player can amalgamate and homogenise all of the other gameworld’s signifying componentry. An example might be the player hearing a recurring horn motif when moving through a military camp; ‘although the instrument remains unseen, [it] clearly does not belong to the score’.³⁰² Erbe describes this as ‘signal-like, ornamental music that contributes to the game’s atmosphere by characterising certain locations aurally’,³⁰³ and is therefore diegetic.

The proposed model’s music-centric focus deviates from Grimshaw’s theoretical instances in which music is no longer a naturally occurring part of the substantiated reality of the gameworld. For example, a ‘beep’ sound effect indicating that a player has just joined

²⁹⁷ Karen Collins, ‘An Introduction to the Participatory and Non-Linear Aspects of Video Games Audio’, in *Essays on Sound and Vision*, ed. John Richardson and Stan Hawkins (Helsinki: Helsinki University Printing House, 2007), 263–298, at 265.

²⁹⁸ Grimshaw, ‘Acoustic Ecology of the First-Person Shooter’, 224.

²⁹⁹ Jørgensen, ‘New Terminology’, 84.

³⁰⁰ ‘Discern’, *Merriam-Webster Dictionary*, last modified 2019, <https://www.merriam-webster.com/dictionary/discern>.

³⁰¹ Pangburn, ‘Sam Harris & Jordan Peterson - Vancouver - 1 (CC: Arabic & Spanish)’, video, 2:06:37, 31 August 2018, posted by Pangburn, https://www.youtube.com/watch?v=jey_CzIOfYE&t=5994s.

³⁰² Marcus Erbe, ‘Mundane Sounds in Miraculous Realms: An Auditory Analysis of Fantastical Games’, in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moorman (eBook: Springer VS, 2013), 125–146, at 133.

³⁰³ Erbe, ‘Mundane Sounds’, 133.

a multiplayer team bears no meaning to the diegetic noises of vehicles rumbling and trees crashing within the gameworld. According to Jørgensen's interpretation of Grimshaw's theory, this would constitute diegetic sound,³⁰⁴ but as it is not produced by the gameworld, it cannot be diegetic. The proposed model argues that music heard during gameplay possessing no discernable source of emanation in the gameworld and that promotes the emotions of gameplay in an underscore role, should be classed as nondiegetic. There remains music that is not heard during core gameplay at all, but during other parts of the gaming experience.

A game program includes static startscreens, menus with options to select and the like.³⁰⁵ Some of these may be designed consciously to flesh out the game's narrative, such as a brief opening video that plays before core gameplay commences to provide a story's exposition. Others are processes inextricable from 'digital computer technology';³⁰⁶ an example might be a screen that is displayed while the game software is booted from the computer's hard drive. As it is not part of the gameworld in which core gameplay takes place, music playing during such a screen would automatically be nondiegetic. It is true to say that it can serve a narrative purpose, but the existence of loading screens in video games is not a developer choice – it is a mandatory inclusion. The same can be said of menu systems that the player navigates in order to alter game settings, and because music featured in these instances is disconnected with the core gameplay in which diegetic and nondiegetic music exists, it is given its own category of *user interface* (U.I.) music.

Diegetic, nondiegetic and user interface are proposed henceforth as video game music types constituting a taxonomy of musical content within open-world video games. This is achieved without the use of inter, intra, meta, extra, ideo, exo and other prefix-dependent nomenclature, and can be expanded with further musical categorisations as dynamic or interactive if required. This rationale relies on the importance of restrictive language, not to preclude necessary terminology, but to reduce the amount of terms employed where possible. Another governing principle is the scholar's analytical discretion, as not all games have music playing during loading screens, and not all gameworlds have discernible sources of music. In light of game individuality, the basic taxonomy established undergoes a detailed breaking down of music types in Chapter II.

³⁰⁴ Jørgensen, 'New Terminology', 84.

³⁰⁵ Liebe, 'Interactivity and Music in Computer Games', 48.

³⁰⁶ Liebe, 'Interactivity and Music in Computer Games', 46.

I.III Virtual Ethnography

On Ethnography Developments

An overview of ethnography's inception and predominant analytical concerns provides a foundation for understanding the adaptations required of virtual ethnography, the second research phase. In the early to mid-twentieth century Lowie stated that 'ethnography is the science which deals with the "cultures" of human groups',³⁰⁷ and this adage remains an accurate description of contemporary forms of the discipline. Historians trace the discipline to scholars of antiquity such as Strabo and Herodotus among the Greeks, and Tacitus and Ptolemy among the Romans.³⁰⁸ Halicarnassus-born Herodotus 'has often been considered the Father of Ethnography no less than the Father of History',³⁰⁹ although the historian's use of *ethnos* and *genos* terminology produces confusion over lexical hierarchies. Han F. Vermeulen offers a *Begriffsgeschichte* positing early forms of modern ethnography emerging from the German Enlightenment through to anthropologist Franz Boas' work in the United States, and this diachronic purview is most relevant here.

The Russian conquest of Siberia began in 1581,³¹⁰ but by the early eighteenth century this same vast geographical region was largely still *terra incognita*. Daniel Gottlieb Messerschmidt conducted the first scientific exploration of Siberia during the 1720s, and the German naturalist's work 'set an example for the empirical and comprehensive study of Russian Asia and its inhabitants'.³¹¹ It was also redolent of noble piety entrenched in European sociopolitical manoeuvres during the Age of Exploration epoch. This precipitated further expeditions by other German speaking Enlightenment historians, such as Gerhard Friedrich Müller, August Ludwig Schlözer and Adam Frantisek Kollár.³¹²

Changes in focus and nomenclature, and branching disciplines of ethnography are traceable throughout eighteenth-century literature. The Latin term *historia genitum*, coined in 1732, described a 'history of peoples',³¹³ or *Völkergeschichte*;³¹⁴ this became Müller's

³⁰⁷ Robert H. Lowie, *The History of Ethnological Theory* (New York, NY: Farrar & Rinehart, 1937), 3.

³⁰⁸ Han F. Vermeulen, *Before Boas: The Genesis of Ethnography and Ethnology in the German Enlightenment* (Lincoln, NE: University of Nebraska Press, 2015), 2.

³⁰⁹ C. P. Jones, 'ἔθνος [nation] and γένος [genus] in Herodotus', *The Classical Quarterly* 46, no. 2 (1996): 315–320, at 315.

³¹⁰ Vermeulen, *Before Boas*, 23.

³¹¹ Vermeulen, *Before Boas*, 88.

³¹² Vermeulen, *Before Boas*, xiv.

³¹³ Vermeulen, *Before Boas*, 438.

³¹⁴ Vermeulen, *Before Boas*, 446.

Völker-Beschreibung or a ‘description of peoples’ by 1740³¹⁵ and it was succeeded ultimately by *Volkskunde* in 1776.³¹⁶ This is important as the meaning held by these terms transformed from the collective ‘all peoples or nations’ and history, to the individual ‘single people or nation’ description.³¹⁷ It demonstrates a shift towards the ‘participant observation’ concept that underpins ethnographic research and, in Stagl’s words, stresses ‘human cultural diversity over the fundamental unity of mankind’.³¹⁸ Participant observation praxis is discussed in detail below, but the concept of travelling to a place, participating in the activities there and making observations (writing, annotating, recording, reflecting) is sufficient for the time being.

These proposed origins were modernised by, among others, Franz Boas’ work in the United States from 1886 onward,³¹⁹ and the fathers of social anthropology within the British school, Branisław Malinowski and Alfred Radcliffe-Brown. Malinowski is often attributed with the participant observation method,³²⁰ which became central to the ethnographic studies that shook off archaic perceptions of the ‘noble savage’ and fragility of femininity. This can be found in explorer Mary Kingsley’s *Travels in West Africa*³²¹ and *West African Studies*,³²² published during the Pax Britannica.³²³ *Coming of Age in Samoa* focused on indigenous adolescents on the Samoan island Ta’U,³²⁴ and *The Ojibwa Women* co-author Ruth Landes is credited with pioneering studies of gender relations and race.³²⁵ Anthropologist Sir E. E. Evans-Pritchard’s 1940 monograph *The Nuer* was a study of those Nilotic peoples,³²⁶ Paulin J. Hountodji’s *Sur la Philosophie Africaine* centred similarly on African peoples,³²⁷ and

³¹⁵ Vermeulen, *Before Boas*, 438.

³¹⁶ Vermeulen, *Before Boas*, 446.

³¹⁷ Vermeulen, *Before Boas*, xv.

³¹⁸ Justin Stagl, ‘Rationalism and Irrationalism in Early German Ethnology. The Controversy between Schläzer and Herder, 1772/73’, *Anthropos* 93, no. 4/6 (1998): 521–536, at 521.

³¹⁹ Vermeulen, *Before Boas*, xv.

³²⁰ Vermeulen, *Before Boas*, 2.

³²¹ Mary Kingsley, *Travels in West Africa: Congo Français, Corisco and Cameroons* (London: Macmillan and Co, 1897).

³²² Mary Kingsley, *West African Studies* (London: Macmillan and Co, 1899).

³²³ J. E. Flint, ‘Mary Kingsley—A Reassessment’, *The Journal of African History* 4, no. 1 (1963): 95–104, at 96.

³²⁴ Margaret Mead, *Coming of Age in Samoa: A Psychological Study of Primitive Youth for Western Civilization* (New York, NY: William Morrow & Company, 1928).

³²⁵ Ruth Landes, *The Ojibwa Women* (New York, NY: Columbia University Press, 1938).

³²⁶ E. E. Evans-Pritchard, *The Nuer: A Description of Modes of Livelihood and Political Institutions of the Nilotic People* (Oxford: Clarendon Press, 1940).

³²⁷ Paulin J. Hountodji, *Sur la Philosophie Africaine: Critique de l’Ethnophilosophie* (Paris: François Maspero, 1977).

Orientalism by Said³²⁸ critiqued Western representations of Eastern cultures.³²⁹ It is, therefore, culture and the people, actions and surroundings that create it that form the basis of ethnographic research. Lowie's *The History of Ethnological Theory* is a treatise 'explicitly devoted only to that part of anthropology ... which concerns culture'.³³⁰ A discussion on a precise epistemological understanding of culture is beyond the boundaries of this study. Keeping the literary dangers of single, reducible descriptions in mind, Lowie's thoughts are useful to note here:

By culture we understand the sum total of what an individual acquires from his society—those beliefs, customs, artistic norms, food habits, and crafts which come to him not by his own creative activity but as a legacy from the past, conveyed by formal and informal education. The relation of ethnography to sister disciplines is thus clear.³³¹

'Key aspects'³³² of culture, such as Tyler's enumerated 'knowledge, belief, art, morals, law, custom, and any other capabilities and habits',³³³ can also be merged with Lowie's definition. This means that the ethnographer can seek out the same phenomena irrespective of the locale, from Malinowski's *Argonauts of the Western Pacific*³³⁴ to American scholar James P. Spradley's participant observation studies of homeless alcoholic males and congenital hearing loss.³³⁵ It is here that ethnological developments begin linking with video games in earnest, as the varied communities of gamers around the world offer cultural interest similar to those described above. Video games, and open-world games in particular, enable the ethnographer to focus, not on the indigene of distant jungles dwellings, but on players engaging with a gameworld, as a fieldsite.

Perhaps fittingly, the origins of word 'field' lie in the Germanic *felthuz*, disseminating later into *feld* (German), *veld* (Dutch) and *feld* (Old English).³³⁶ The spatiotemporal investment made when adopting a place for prolonged ethnographic fieldwork is

³²⁸ Edward Said, *Orientalism* (New York, NY: Pantheon Books, 1978).

³²⁹ James Clifford, *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art* (Cambridge, MA: Harvard University Press, 1988), 23.

³³⁰ Lowie, *The History of Ethnological Theory*, xii.

³³¹ Lowie, *The History of Ethnological Theory*, 3.

³³² Vermeulen, *Before Boas*, xv.

³³³ Edward B. Tylor, *Primitive Culture: Researches Into the Development of Mythology, Philosophy, Religion Language, Art, and Custom* (London: John Murray, 1920), 1.

³³⁴ Branisław Malinowski, *Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagoes of Melanesian New Guinea* (London: George Routledge & Sons, 1932).

³³⁵ James P. Spradley, *Participant Observation* (New York, NY: Holt, Rinehart, and Winston, 1980).

³³⁶ 'Definition of field in English', Dictionary, last modified 2019. <https://en.oxforddictionaries.com/definition/field>.

fundamental to the discipline, and is a direct descendant of the Siberian explorations of eighteenth-century German scholars, if not the Classical historians. A need for authorial integrity highlights the importance of staying within a fieldsite to conduct first-hand research, lest a study relinquish actual fieldwork experiences for ‘low-level generalizations’.³³⁷

This brief review of developments in ethnography has aimed to demonstrate the discipline’s transition in focus from history, to the description of people, and then to their culture. Conducting research within an adopted fieldsite continues a tradition of exploration³³⁸ both fundamental to the practices involved and required in the production of valid research material. Clifford posits that, through this, ‘the predominant mode of modern fieldwork authority is signalled: ‘You are there . . . because I was there’.³³⁹ The fieldsite and participant observation practices employed in studying culture are also crucial to the virtual ethnography argued for here. In light of this, it is prudent to examine studies providing a precedent for this research phase, and ways in which the discipline may be extended and adapted to open-world games.

A Theoretical Pivot and Virtual Ethnography

Early pursuits of virtual ethnography did not feature games directly, but rather users’ activities within online communities facilitated by the Internet. There is substantial precedent supporting the deployment of the ethnographic investigation methods applied several hundred years ago in Siberia, to the realms of MMOs. The present research phase seeks to extend this praxis to focus on single-player environments of open-world games, irrespective of whether or not a multiplayer mode is present. The potential for open-world game music to form a research focus with primacy over players’ interpersonal and in-game interactions has not received the exploration that it merits, Miller’s and Cheng’s work notwithstanding. The 2004 game *GTA: SA* remains the most ethnographically investigated of the series and perhaps of any single-player open-world game. This is in spite of the sophistication of expanded musicscapes within more recent open-world games, and the penetration of their music within the actual world.

³³⁷ Clifford, *The Predicament of Culture*, 27.

³³⁸ Clifford, *The Predicament of Culture*, 55.

³³⁹ Clifford, *The Predicament of Culture*, 21.

Just as current virtual ethnography praxis is an evolved version of older actual world pursuits, this study argues that it can be adapted for applications in open-world games that do not feature a multiplayer mode, and so resolves a gap in scholarship. An exemplar for this might be drawn from the *Star Wars Galaxies* example, in which Sweeney critiques music in *Galaxies* as a ‘gameplay mechanic and as a performative art’.³⁴⁰ The game features ‘the fertile ground for discussing social interactions within video games’,³⁴¹ but the function of music within a discourse of the game’s cultural dimensions remains less studied. Miller proposes that ‘it is now widely acknowledged that the ethnographer’s subjectivity is the central organising principle of “the field”’.³⁴² Saliently, Miller’s point refers to non-multiplayer games, which are ‘just as shaped by collegial collaboration, a history of design precedents, and attentiveness to current trends’.³⁴³

Temporality and Type

The expansive gameworlds common to MMOs and other open-world games supports the application, or modified application, of virtual ethnography research methods. This is not tantamount to arguing that these methods can be moulded, or should be moulded, for applications to any or every game type. For example, mobile ‘casual gaming’ titles tend to feature diminutive processing capabilities, and offer smaller gameworlds designed to engage players in brief, enjoyable bouts of gameplay. The minimalist soundtrack in *Hitman Go*, for instance narrates a chess-like mechanic of the player’s turn-based movements aiming to ‘knock off’ enemy agents from grid points, repeated over multiple linear levels.³⁴⁴ *Forge of Empires* introduces nondiegetic music loops as the player’s gameworld size increases around a statically existing city, and the music fulfils more of an ‘accompaniment for interest’ role than forging cultural indicators.³⁴⁵ Ludically compelling as they may be, these small environments and limited musical components show that the scholar’s temporal investment required in virtual fieldsite studies can be determined significantly by the size of a gameworld.

³⁴⁰ Mark Sweeney, ‘Aesthetics and Social Interactions in MMOs: The Gamification of Music in *Lord of The Rings Online* and *Star Wars: Galaxies*’, *The Soundtrack* 8, no. 1, 2 (2015): 25–40, at 26.

³⁴¹ Sweeney, ‘Aesthetics and Social Interactions in MMOs’, 27.

³⁴² Kiri Miller, ‘The Accidental Carjack: Ethnography, Gameworld Tourism, and Grand Theft Auto’, *Game Studies* 8, no. 1 (2008), <http://gamestudies.org/0801/articles/miller>.

³⁴³ Miller, ‘Accidental Carjack’.

³⁴⁴ Square Enix Montreal, 2014.

³⁴⁵ InnoGames, 2012.

The complexity of the gameworld is as important, if not more so, than the size. MMO studies see the scholar's time shared between investigations in the virtual fieldsite, and conducting studied correspondence with its players. If an open-world game has no such online or multiplayer mode, there must be satisfactory opportunities for extended periods committed solely to fieldwork in lieu of these interpersonal discussions. Usefully, projections of time to be spent in a gameworld, and the replay value of a game – or its 'replayability' – carry currency in reviews and previews. Game type often links with playing time, and this can be demonstrated through a snapshot review of several contemporaneous games.

In a 2011 article, three games released the previous year –*Star Wars: The Force Unleashed II*,³⁴⁶ *Medal of Honor*³⁴⁷ and *Vanquish*³⁴⁸ –were reportedly 'chastised by critics and consumers alike for being incredibly brief—all [taking] about five hours to complete'.³⁴⁹ These games were a third-person action game, a first-person shooter and a third-person shooter, respectively. All three contain narratives based on consecutive but separate stages. Character skill upgrades and collectable items notwithstanding, to complete these games the player must complete objectives successfully while navigating linear levels of pre-determined pathways. In such linear environments, playing time can only conceivably be increased through multiple play-throughs of the same levels, following the same general pathways unavoidably. All possess single-player story modes, while the Wii version of *The Force Unleashed II* supported a limited multiplayer mode and *Medal of Honor* featured an online multiplayer mode with a range of scenarios and character class choices. 2011 also saw a report from publisher Activision estimating that 'the average Call of Duty (CoD) user invests 170 hours into the game every year'.³⁵⁰ CoD and *Medal of Honor* are military-based franchises and, like many other FPS series, their multiplayer modes are the enticement for consumers,³⁵¹ meaning that multiplayer gaming bears significant relation to playing time.

³⁴⁶ LucasArts, 2010.

³⁴⁷ Danger Close Games, 2010.

³⁴⁸ PlatinumGames, 2010.

³⁴⁹ Timothy J. Seppala, 'The Incredible Shrinking Game: The Truth of Game Length in the Modern Industry', *Ars Technica*, 14 April 2011, accessed 9 January 2018, <https://arstechnica.com/gaming/2011/04/the-incredible-shrinking-game-the-truth-of-game-length-in-the-modern-industry/>.

³⁵⁰ Martin Gaston, 'The Average Call of Duty User Plays for How Long?' *Videogamer*, 31 May 2011, accessed 9 January 2018, <https://www.videogamer.com/news/the-average-call-of-duty-user-plays-for-how-long>.

³⁵¹ Royce Wilson, 'If You're a Longtime Fan There's Plenty of Appeal in Call of Duty: World War II', *news.com.au*, 15 November 2017, accessed 9 January 2018, <https://www.news.com.au/technology/home-entertainment/gaming/game-reviews/if-youre-a-longtime-fan-theres-plenty-of-appeal-in-call-of-duty-world-war-ii/news-story/562739b61d31a31ab45c3646b05c0e7f>.

Single-player is the only mode in *Skyrim*, and its main quests were estimated to take approximately 30 hours to complete by the lead designer.³⁵² The additional content – side quests, hidden locations, discoverable items and the like – were estimated as providing a further ‘two to three hundred hours of gameplay’.³⁵³ The game’s creator and veteran open-world game designer, Todd Howard, maintains that emergent gameplay and player quest freedom are of paramount import.³⁵⁴

Instead of online gameplay opportunities, an unfolding narrative and RPG elements can be delivered only in *Skyrim*’s single-player mode. It should be noted that not every RPG is set in an open-world environment, and not every open-world game is an RPG, examples being *Transistor*³⁵⁵ and *Tom Clancy’s Ghost Recon Wildlands*,³⁵⁶ respectively. As single-player games do not require coding and digital infrastructure to facilitate online play, more of the game’s software resources can be dedicated to convincing the player of the gameworld’s verisimilitude. The depth, intricacy and integrity that contribute to environmental believability in open-world games are often bound to persistent concerns of the gameworld.

Persistent Concerns of the Gameworld

The ‘persistent’ features of video games have been associated historically with multiplayer games that support online player connectivity. Whalen describes these matrices as ‘persistent real-time worlds existing as a large-scale role-playing game’,³⁵⁷ echoing Kushner.³⁵⁸ The authenticity of a gameworld’s persistent concerns can be conceptualised as narrative rules built into the game engine that are persistent, rather than in reference to an MMO’s sustained Internet connection. These might include a virtual economy such as *GTA V*’s stock exchange, Liberty City National Exchange, which is subservient to the player’s actions during missions

³⁵² Owen Hill, ‘E3 2011: Skyrim’s Main Quest 30 Hours Long. Additional Content “Two to Three Hundred” More’, *PC Gamer*, 8 June 2011, accessed 9 January 2018, <https://www.pcgamer.com/skyrims-main-quest-30-hours-long-additional-content-lasts-two-to-three-hundred-more/>.

³⁵³ Hill, ‘Skyrim’s Main Quest’.

³⁵⁴ Mike Mahardy, ‘Fallout 3 Creator on the Future of RPGs, Open-World Games, and Nintendo Switch’, *Gamespot*, 27 February 2017, accessed 7 June 2018, <https://www.gamespot.com/articles/fallout-3-creator-on-the-future-of-rpgs-open-world/1100-6448161/>.

³⁵⁵ Supergiant Games, 2014.

³⁵⁶ Ubisoft Paris, 2017.

³⁵⁷ Zach Whalen, ‘Game/Genre: A Critique of Generic Formulas in Video Games in the Context of ‘The Real’’, *Works and Days* 43/44 22, no. 1,2 (2004), 289–303, at 299.

³⁵⁸ David Kushner, *Masters of DOOM: How Two Guys Created an Empire and Transformed Pop Culture* (New York, NY: Random House, 2003), 225.

and to extemporaneous fluctuations dictated by the game engine. Ramifications of falling prices of company stock in which the player has invested affect other gameplay opportunities, such as the acquisition of property or vehicles. Other games employ persistent concerns that go beyond conventional RPG character levelling-up and trait improvement tasks, and centre more on the avatar's sustenance.

*Red Dead Redemption 2 (RDR2)*³⁵⁹ is riddled with such mechanisms, which compel the player to remain aware of their avatar character's health, stamina, cleanliness, attire, ingestion, morality of actions, and sleeping habits. Failure to monitor these factors successfully may not result in failing the game in the long-term, but are virtual quotidian responsibilities pressed onto the player. *Kingdom Come: Deliverance* places similar demands on the player's conscience, with the protagonist's health, hunger, equipment condition and energy levels all imperative to success.³⁶⁰ Other persistent concerns come in the form of mandatory choices, such as which faction to support, which NPC to save or kill, or which avatar to choose to play as. These can all preclude missions or change the main story of a game.

Marcus, in Boellstorff et al., proposes that 'virtual worlds are now directly accessible as "real" life for full ethnographic study [and are] as accessible as physical world groups to the application of ethnographic methods at their highest standards of practice'.³⁶¹ These are virtual worlds of authentic and familiar realities in which the player can exist, observe, document, participate in and reflect upon the activities, inhabitants and cultures that they encounter. In a sense, they offer engagement in a form of ethnography that is, perhaps, more related to the traditional discipline than to studies of online communities in the dual spaces of gameworld and actual world. Some open-world games are more felicitous to the methodological point of departure argued for here, in which the subject of focus is transferred from the online and offline lives of players to the portrayals of a gameworld's musical elements. If virtual inhabitants and their cultural signifiers are presented with sufficient sophistication, then this crucial philosophical pivot is possible. Adaptations to extant methods of virtual ethnography and specific gameworld rules are discussed in Chapter II.

³⁵⁹ Rockstar Studios, 2018.

³⁶⁰ Warhorse Studios, 2018.

³⁶¹ George Marcus, foreword to *Ethnography and Virtual Worlds: A Handbook of Method*, by Tom Boellstorff, Bonnie Nardi, Celia Pearce and T.L. Taylor, eds. (Princeton, NJ: Princeton UP, 2012), xiii–xvii, at xvii.

The examination of open-world game music via the previous phase of the proposed research model seeks to explore and determine the conveyance of narrative via diegetic implementation. When approached through the lens of virtual ethnography, the same musical elements are transfigured to become axiomatic indicators of the cultural complexity found in virtual societies and ecosystems. Through the prolonged study of activities and lifestyle idiosyncrasies of the virtual fieldsite's inhabitants, the diversity and meanings of the music they create can be comprehended in a way that is not possible through other modes of analysis. This form of virtual ethnography is offered as a viable and necessary component of the proposed research model, which is followed by its third and final research phase, Music in Culture.

I.IV Music in Culture

Video games have carved cultural niches independent of other media, infiltrated industry award programs and expos, and feature in globally competitive sports. The video game is also one entry in a long list of storytelling and communication tools, and, as such, has received the initial scepticism and eventual celebration concomitant with new phenomena. On this point, Stokes summarises:

In the 18th and 19th centuries, moralists fretted that novels would leave readers ... sexually inflamed, disconnected from reality, and prone to vice, family desertion, and even suicide. The advent of radio was feared as a distraction from wholesome reading; in turn, movies were decried as a distraction from wholesome family radio listening.³⁶²

Bowker notes the fundamental change storytelling and the keeping of records undergo with the advent of network technologies.³⁶³ As electricity-dependent digital technology innovations, video games preceded other digital media such as DVD and Blu-Ray, but have still benefited from online infrastructure. In contrast to early uses of 8-bit folk and classical music arrangements, contemporary open-world game music can be described as 'music that has been written for, or adapted to, video-games',³⁶⁴ and an integral component of their marketing and promotion.

³⁶² Patrick Stokes, 'Just a Game', *New Philosopher*, May/July 2018, 24.

³⁶³ Geoffrey C. Bowker, 'The Past and the Internet', in *Structures of Participation in Digital Culture*, ed. Joe Karaganis (New York, NY: 2007), 20–36, at 27.

³⁶⁴ Munday, 'Music in Video Games', 51.

At the dawn of high definition (HD) gaming, Munday articulated that game music maturation required a shift in analytical focus from form to function.³⁶⁵ For the most part, this study concurs with this rational assessment, however Munday's concern was in relation to the in-game function of game music. Since that time it has come to perform a range of functions relating to, and at times quite differentiated from, its parent game. In seeking to do justice to the sociocultural relevance of contemporary game music, the proposed model proposes a Music in Culture research phase through which both form and function are scrutinised.

Context for a Commodity

The global video game industry has long surpassed both film and music combined in gross sales,³⁶⁶ generating US\$108 billion in 2017 globally³⁶⁷ and US\$134.9 billion in 2018, evidencing a 12-month growth in excess of ten per cent.³⁶⁸ Many game production companies are publicly listed. *GTA V*'s publisher Rockstar Games, for example, is a subsidiary of Take-Two Interactive Software, Inc (Take-Two), which owns a number of other companies that develop and produce games. *GTA V* alone has earned in excess of US\$6 billion, or approximately 24 per cent of the People's Republic of China's entire market revenue for 2016 of US\$25 billion. Such commercial success manifests in commercially driven analyses that place video games firmly within the 'commodity' and 'culture' analytical boxes.

The lucrative commodification of video games and the subsequent ramifications in society are two aspects of shared focus in the literature, with development cost, revenue and sales figures providing an impetus for critical discourse. There is a large body of literature analysing video games artistry, creativity and culture as well, although in some ways 'culture' seems a reductive term when describing the global infatuation with, and proliferation of, video games. 'Gaming culture' can manifest in blaming FPS games for corruptive gun violence; meaningful interactions occurring every moment between online gaming community members; mobile and casual games being played anywhere on almost any powered device; gaming being appropriated for use in educational institutions; players competing for lucrative prize money on them; and military personnel using them as training tools.

³⁶⁵ Munday, 'Music in Video Games', 51.

³⁶⁶ Nath, 'Investing in Video Games'.

³⁶⁷ Newzoo Games, *2016 Global Games Market Report* (Amsterdam: Newzoo International B.V., 2017), 12.

³⁶⁸ Warman, 'Newzoo Cuts Global Games Forecast for 2018'.

Zagal describes games as ‘understood as part of a broader culture or subculture where the aesthetics, language, music and other elements are those that are understood and valued by certain cultures or subcultures’.³⁶⁹ Game music is apropos of this description, and the proposed model’s first and second phases maintain a music-centric focus throughout their digital, narratological, and fieldsite approaches. The present Music in Culture phase interrogates the music of open-world games as a commodity and a soundtrack for society, no longer to be confined within a gameworld. A significant mode of connecting players and video game content (including music) is via the marketing and promotion strategies of the companies producing these digital commodities. High development and marketing costs need to be recouped, particularly those incurred by AAA studios (a colloquial name bestowed on the largest game studios and akin to the ‘Hollywood studio’ moniker). An archetype comes to mind of ruthless and profit-driven executives on the one hand, and the untold masses consuming products mindlessly on the other. This reductionist fantasy casts the industry in a dark light of Marxist oppression theory, and corporate objectives in game development are undeniable. Nevertheless, this presupposition pigeonholes game studios such that it undermines their active nurturing of gaming communities.

Of these, a growing focus on musicians and contributing artists featured in games presents opportunities for fans to engage with a video game’s music, outside of gameplay. A relationship has been established between publishers (companies), musicians (artists) and fans (consumers), at the centre of which lies the integral common factor of music. Within the proposed research model, this relationship is termed a Culture of Connectivity, and is discussed later in this chapter.

The literature review in this study’s Introduction points to investigations into music and game activities studied through broad sociocultural lenses, rather than via a single mechanism. The contemporary open-world game has become so complex in design and function that, to cite Koffka’s corrected gestalt aphorism, its ‘whole is something else than the sum of its parts’.³⁷⁰ To this end, music has exceeded the emotional reinforcement role, and transcended the relegation of profit insurance. Liebe articulates the multidimensionality of game music by arguing that in addition to a shared history, ‘the convergence of games and music manifests itself on various levels, be it commercial, structural, perceptual or

³⁶⁹ Zagal, *Ludoliteracy*, 26.

³⁷⁰ Kurt Koffka, *Principles of Gestalt Psychology* (1935; repr. London: Kegan Paul, Trench, Trubner & Co, 1935), 176. Citations refer to the 1936 edition.

artistic’.³⁷¹ The modes through which players experience game music are so varied that a view focusing solely on statistically or commercially based research cannot capture the cultural meaning represented by these artefacts. The implicit *cri de cœur* within the title *Video Games: A Medium That Demands Attention* poses a collection of scholarly perspectives on games being, among others, social, technical and emotional technology.³⁷² The proposed research model is a response to this identified need for a scholarly mechanism that goes beyond isolated perceptions of game music, so as to situate it within a framework of actual world cultural meaning.

Theory of Approach – Text, Source, and Names

Just as close-play analysis and notation transcription produce empirical findings, gaming culture, news, review and journalistic websites provide valuable insight into the creative intent behind game music. The approach taken in this phase of the proposed model makes use of these means to investigate the implications posed by game music within subcultural realms. The availability, reliability, and interpretation of these sources are subjected to a theoretical connection with the game as a text.

The term ‘text’ carries literary baggage, but it is discussed here due to its use in prominent ludomusicological studies. Predating Aarseth’s stipulation that the cinema ‘text’ is transient in its perception³⁷³ were the concepts in Genette’s *Paratexts: Threshold of Interpretation*, which have been adapted to contemporary media theory, including video games. Genette names a paratext as ‘empirically made up of a heterogeneous group of practices and discourses of all kinds and dating from all periods’, federated under the one term.³⁷⁴ In a video game context, Kamp asks when the playing of a video game actually begins by referring to the transient, non-interactive cut-scenes that preface gameplay. After this kind of sequence, the player assumes control in earnest,³⁷⁵ and core gameplay can usually be identified ‘when a camera angle with on-screen interface elements appears’.³⁷⁶

³⁷¹ Liebe, ‘Interactivity and Music in Computer Games’, 41.

³⁷² Nicholas David Bowman, ed., *Video Games: A Medium That Demands our Attention* (New York, NY: Routledge, 2018).

³⁷³ Espen J. Aarseth, *Cybertext: Perspectives on Ergodic Literature* (Baltimore, MD: The John Hopkins University Press, 1997), 63.

³⁷⁴ Gérard Genette, *Paratexts: Thresholds of Interpretation*, trans. Jane E. Lewin (Cambridge: Cambridge University Press, 1997), 2.

³⁷⁵ Kamp, ‘Suture and Peritexts’, 73.

³⁷⁶ Kamp, ‘Suture and Peritexts’, 73.

Complicating matters are the cinematics, menu sequences, loading screens, studio logos and player-controlled preparatory gameplay such as inventory sorting, that often preface the player assuming control.

Time is as factor here, for, like books, films and television media, the inspiration, development and promotion of games all take place long before the actual product is released. A literary text might be a work of extended prosaic sequences adhering to a single narrative, adorned with publishing details and illustrations, and housed within bound octavo covers. These adornments Genette terms ‘peritext’, while ‘epitext’ ‘is any paratextual element not materially appended to the text ... but circulating ... freely, in a virtually limitless physical and social space’.³⁷⁷ The complexity of this codification increases when situated within Genette’s broader transtextuality schema of intertextuality, paratextuality, metatextuality, hypertextuality and architextuality.³⁷⁸ Kamp adopts principles embedded within this theory to argue that the peritext of a film might be the pre-feature production company logo, and that the music in games ‘is subject to this paratextual fluidity’.³⁷⁹ To demonstrate the latter, Kamp synthesises Genette’s analytical theory with the music of sports game and their licensed music, which crosses from the paratextual domain to a game’s epitext.³⁸⁰

The present study avoids the paratextual approach to game music analysis found in the work of Kamp, Genette and Aarseth, but is not criticised here. Its worth as a mechanism to demarcate elements associated with game music has been demonstrated in the literature, by the authors above. The complications of pursuing Genette’s theory (or approximations thereof) to video game music, however, are argued as superfluously problematic for this project. Focusing originally upon physical books, the epitext/peritext distinction is more readily applied to ‘codex books of the modern era than they are for more complex multi-media productions’, such as video games.³⁸¹

Hart broaches difficulties arising from the blurred lines of text, epitext and peritext music categories by arguing that some game music exhibits the characteristics not only of a single category, but also of multiple categories.³⁸² Theoretical obstacles are produced

³⁷⁷ Genette, *Paratexts*, 344.

³⁷⁸ Genette, *Paratexts*, xiii.

³⁷⁹ Kamp, ‘Suture and Peritexts’, 75.

³⁸⁰ Kamp, ‘Suture and Peritexts’, 75.

³⁸¹ Steven E. Jones, *The Meaning of Video Games: Gaming and Textual Strategies* (New York, NY: Routledge, 2008), 25.

³⁸² Hart, ‘Ludomusicological Semiotics’, 208, 238.

unavoidably when ‘rigid demarcations between formally discrete texts become fluid liminal zones’,³⁸³ growing in complexity when combined with related schema such as diegetic music types. For example, the Twentieth Century Fox fanfare music playing in a cinema is, simultaneously, paratextually a peritext, extrafictional music,³⁸⁴ nondiegetic music and, arguably, a component of the film’s epitext.

In seeking to avoid drilling down into claustrophobic theoretical arguments not essential to this study, the video game is referred to as a text from time to time, as well as a game or title. In this way, ‘text’ can be interpreted as an artefact and an object of study, inspired by the ‘very minimal’ definition Genette offers.³⁸⁵ In a similarly minimal sense, intertextuality is used here in reference to the literal presence of story elements within more than one text of a connected nature. These will usually be within a series of books, films or games, and can transcend medium if connected through narrative. An example is the metaphysical ‘deep magic’ that connotes ‘the effects of justice in a created world’,³⁸⁶ used first in *The Lion, the Witch and the Wardrobe*³⁸⁷ and then throughout The Chronicles of Narnia. This recurring intertextual narrative element can be traced throughout the larger Narnia canon, in film, television, and the video games *The Chronicles of Narnia: The Lion, the Witch and the Wardrobe*,³⁸⁸ and *The Chronicles of Narnia: The Voyage of the Dawn Treader*.³⁸⁹ Irrespective of the production medium or publishing date, these are all connected intertextually through the deep magic concept.

It is not obvious within the textual analyses of games literature how their characters should be referred to. Many of the most discussed are mononymous, such as Mario, Link, Luigi, Sonic (the Hedgehog), Pikachu, Scorpion, Cortana, Pac-Man, Dragonborn and Kratos. Other iconic characters are known so pervasively by their sobriquet – like Master Chief (fully Master Chief Petty Officer John-117) and Agent 47 (an assassin from the Hitman series) – that to refer to them otherwise would be more obfuscating than illuminating.

This study takes its cue regarding character referencing from critical literature that, while it may not always focus on game music, forms a body of appropriate ludological

³⁸³ Peter Lünenfeld, ‘Unfinished Business’, in *The Digital Dialectic: New Essays on New Media*, 2nd ed., ed. Peter Lünenfeld (Cambridge, MA: MIT Press, 2000), 6–23, 15.

³⁸⁴ Guido Heldt, *Music and Levels of Narration in Film: Steps Across the Border* (Bristol: Intellect, 2013).

³⁸⁵ Genette, *Paratexts*, 1.

³⁸⁶ Paul F. Ford, *Companion to Narnia: A Complete Guide to the Enchanting World of C. S. Lewis’s The Chronicles of Narnia* (San Francisco, CA: HarperCollins Publishers, 1994), 132.

³⁸⁷ Clive Staples Lewis, *The Lion, the Witch and the Wardrobe* (London: Geoffrey Bles, 1950).

³⁸⁸ *Traveller’s Tales*, 2005.

³⁸⁹ Fox Digital, Entertainment 2010.

analysis. Master Chief and Sonic are mentioned conventionally in Rome and Hussey, but Samus Aran from the Metroid games is referred to only as Samus.³⁹⁰ Lancaster articulates the Tomb Raider series protagonist's name in full at times but predominantly as Lara,³⁹¹ which is the case for Shaw, who also omits *Assassin's Creed's*³⁹² hero Altair's surname.³⁹³ Both 'Accidental Carjack' and 'Jacking the Dial' articles refer almost exclusively to the player's character in *GTA: SA* by his initials, CJ. Miller introduces him first as Carl Johnson,³⁹⁴ while Bogost doesn't even countenance this, using CJ only.³⁹⁵ In fact, references to characters in Schell's opus *The Art of Game Design* are limited almost completely to first names.³⁹⁶ This is irrespective of the fictional universe, literature or media type. The ubiquity in the literature is one reason, but the proclivity for using Christian names when discussing Michael De Santa, Trevor Phillips and Franklin Clinton in the majority of journalistic reporting and industry discussion is another. This is the case in *GTA V's* official guide and in the (currently) scarce critical discourse such as Polasek's review,³⁹⁷ which is why this study uses the characters' first names as well.

Satellite Sources — Modes of Experience

The different ways of experiencing game music outside of gameplay all offer potential research data if treated as primary sources, and Summers refers to these research avenues as satellite sources.³⁹⁸ The term encompasses production documents, interviews, reports, scores, associated recordings and music, player comments, reviews and liner notes. This is useful in conceptualising any form that game music might take other than its original in-game form. Broadening the scope of resources in this way is a step towards rectifying what Summers' terms the 'dearth of detailed, explicit investigations of music in games'.³⁹⁹ The

³⁹⁰ Ben H. Rome, and Chris Hussey, *Games' Most Wanted: The Top 10 Books of Players, Pawns, and Plower-Ups* (Lincoln, NE: University of Nebraska Press, 2003), 191.

³⁹¹ Lancaster, Kurt. 'Lara Croft: The Ultimate Young Adventure Girl. Or the Unending Media Desire for Models, Sex, and Fantasy'. *PAJ: A Journal of Performance and Art* 26, no.3 (2004): 97–97, at 88.

³⁹² Ubisoft Montreal, 2007.

³⁹³ Adrienne Shaw, *Gaming at the Edge: Sexuality and Gender at the Margins of Gamer Culture* (Minneapolis, MN: University of Minneapolis Press, 2014), 83.

³⁹⁴ Miller, 'Jacking the Dial', 402.

³⁹⁵ Bogost, *Persuasive Games*, 113.

³⁹⁶ Jesse Schell, *The Art of Game Design: A Book of Lenses* (Boca Raton, FL: CRC Press, 2015).

³⁹⁷ Patrick M. Polasek, 'A Critical Race Review of Grand Theft Auto V', *Humanity & Society* 38, no. 2 (2014): 216–218, at 216.

³⁹⁸ Summers, *Understanding*, 44.

³⁹⁹ Summers, *Understanding*, 4.

proposed research model seeks to adopt the same perspective of viable resources. For the Music in Culture phase, these may include actual world music performances, livestream videos, public events and podcast episodes. As sources, the insight gleaned from their multiple avenues of inquiry informs perspectives. However, the actual instances of hearing, playing and reading about game music may be thought of more accurately as ‘modes of experience’. This approach aims to instantiate the full spectrum of written, graphical, video, audio and immediately kinespherical research matter within the experiential modality itself.⁴⁰⁰ The term is employed during the third research phase when referencing examples of open-world game music experienced in the actual world, and outside of gameplay.

In light of the diversity of these experiences, a brief overview of their nature here is followed by a comprehensive elaboration in Chapter II. An obvious example is the soundtrack album, released as a tie-in product with a game and featuring music from the game. These provide supplementary income stream for the game’s publisher, while advertising modes such as trailers aim more to stimulate interest around the game. Typically short and concise, these videos contain visual and audial iconography of the game (or any product) they are advertising. Other videos are released both before and after a game’s release, usually with behind-the-scenes and developer ‘diaries’ documentary themes, and often showcasing designer personnel such as composers. These videos include interview content, which can also take the form of online posts, printed articles and audio-based platforms such as podcasts.

The concept of the interview can be understood in its broadest sense here, and its relevance to the elucidation of a game’s music is the primary consideration. Live events that discuss and/or promote game music might be a performance of game music, a convention event, an interview panel or a festival. Attending a live event in person, or in an immediately kinespherical sense, is optimum. However, such events are often recorded and livestreamed, and attendees often upload unofficial recordings to the Internet. The inextricably technological nature of games means that game music is usually created in software, and represented digitally with graphic notation. However, many musical themes from video game are purchasable as traditional notated scores as well, offering a range of performance and analytical research opportunities. It should be noted that many of these experiences cross-pollinate, but differentiations are made easily on a case-by-case basis. They offer

⁴⁰⁰ Galen Strawson, *Mental Reality* (Cambridge, MA: Bradford Books/MIT Press, 1994), 196.

information as scholarly sources; however, when they are perceived as experiences, their individual role as musical knowledge transmitters within cultural hubs becomes clearer.

Culture of Connectivity

Collins approaches this concept through the lens of interaction and interactivity between different agents and modalities, and these insightful principles offer a serviceable framework to discuss this third phase. Extending the interaction relationship between player and game, Collins draws attention to the interpersonal interactions between players within a multiplayer game environment, and in the actual world. ‘Interpersonal interactions ... take place both internally and externally to the game ... [and] may also be extended into larger sociocultural interactions such as those between player and developer.’⁴⁰¹ This was the case after a 2007 live previewing of *Assassin’s Creed* in beta version at the Electronic Entertainment Expo (E3), which was also broadcast online. The developer’s ensuing public relations campaign benefited from a feedback loop, with the bugs that players perceived and criticised in the unfinished version fixed prior to release. This process of developer–player interaction resulted in several accomplishments. The developer was able to identify the consumer-identified problems with their game, and incorporate consumer feedback while polishing the game prior to release. The final game was influenced by the player feedback,⁴⁰² and gameworld objects interacted more realistically as a result. Perhaps more powerful is the vehicle itself, in that the design authority ceded to the consumers evidenced a path for strengthening a corporate brand based on establishing credibility with fans.

This demonstrates a paradigm in which the developers and publishers of the game encourage reciprocal connections with the consumers. The sense of ownership and responsibility for the players was a unique result of a debugging process designed to fix gameplay faults. This is also not an isolated case, and similar paradigmatic interactions transcend problem-solving tasks and monetary sacrifice to inspire brand loyalty, temporal investment in gameplay, and mutual respect. This extends to the consumer’s proclivity for participating in gaming culture activities, from authoring web-based forum posts, to sharing game developer videos, through to furnishing their milieu with game-related paraphernalia. This means that what occurs in-game, and what occurs in the actual world, is part of a

⁴⁰¹ Karen Collins, *Playing With Sound: A Theory of Interacting with Sound and Music in Video Games* (Cambridge, MA: The MIT Press, 2013), 10.

⁴⁰² Collins, *Playing With Sound*, 10.

reflexive relationship in which each impacts the other causally. Miller articulates a recurrent theme here, ‘that both digital media and embodied knowledge can bridge space and time, creating connections between dispersed and diverse individual human experiences’.⁴⁰³

Music is an active agent within these experiences, acting as a conduit of cultural participation and growth. With the vast documented numbers of players around the world, at any moment ‘more people are listening to video game music consistently than any form of media’.⁴⁰⁴ Summers’ statement that ‘musical cultures exist within, and surround, video games’⁴⁰⁵ is almost a commentary on the Culture of Connectivity concept formulated in the present study. This concept seeks to articulate how music breaks free of the gameworld, to take on a unidirectional life of its own in the actual world. It encompasses the reflexive roles played by three entities: the publisher of a game, the musicians featured in the game and the consumers engaging with the game. The efficacy of this concept is contingent on interactivity, not between one or two units, but between all three, as illustrated in Figure 2. Each entity is ensconced within a circle, and their cumulative intersections of activity meet in the middle to complete the concept.

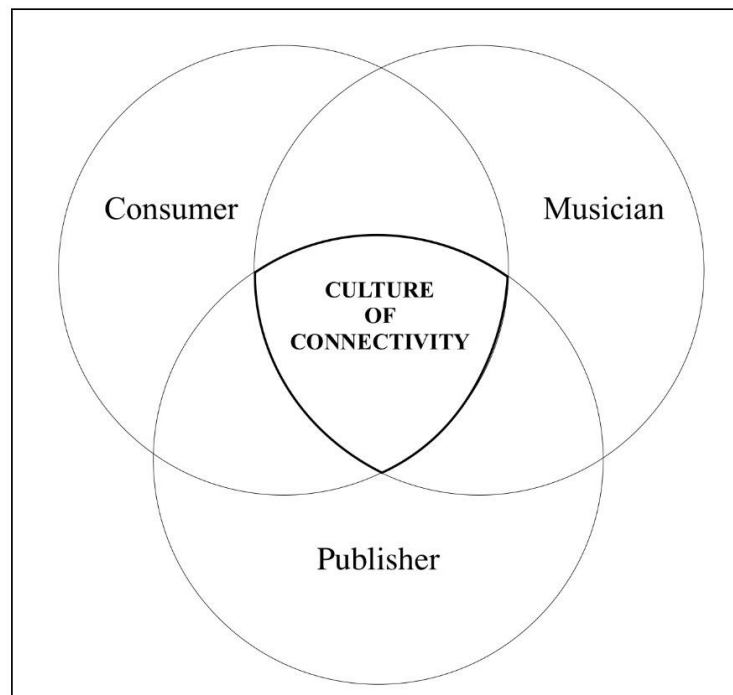


Figure 2: Culture of Connectivity Concept

⁴⁰³ Miller, *Playing Along*, 4.

⁴⁰⁴ TEDx, ‘Video Games- Art in Disguise’.

⁴⁰⁵ Summers, *Understanding*, 42.

In form and feature, this is something of a spiritual successor to the work of Kline et al. in *Digital Play*. The diagrams in that text are organised sequentially around the circuits of marketing, technology, and culture. The co-interactions and contradictions within these interactions include discussions of commoditisation, consumers and marketing ideas.⁴⁰⁶ The present study differs in this regard by maintaining a focus on music as the core element shared by each unit. Collins' similar approach is useful in delineating who is acting, and how they are acting, but the focus lies with player interaction within, and outside of, the game. Rather than other players, the Culture of Connectivity articulation espoused here takes game music and the interactions around it as its fundamental principles. A company produces a game, solicits musicians to compose or license their music for gameplay, and the consumer purchases the game from the publisher. However, consumers may be exposed to the in-game music prior to release by way of the publisher's marketing schemes and, post-release, the game's musicians can engage with consumer fan bases through other promotional activities run by the publisher.

This organisation of musical interactions offers a framework through which such activities, both past and yet to be, may be investigated. Kärjä cites a relevant example of the ability of video games to inform would-be music consumers' choices.⁴⁰⁷ Despite having neither a publishing nor a recording deal with any company, Finnish indie rock band Poets of the Fall's 2005 inaugural album debuted at number one on the Finnish pop charts. No marketing campaign was undertaken to support the self-released *Signs of Life*, and a single from the album called 'Late Goodbye' had achieved equally surprising success in radio play charts.⁴⁰⁸ Kärjä explains that 'Late Goodbye' can be heard during the end credits in its entirety in *Max Payne 2: The Fall of Max Payne*.⁴⁰⁹ Throughout gameplay, the player can also hear modified excerpts of the song, and it is the combination of direct and subliminal exposure that is credited with propelling the album's actual world popularity.

This example highlights the emotional and cultural meaning assigned by players to in-game music, in this case a Finnish indie rock song with English lyrics,⁴¹⁰ and its metamorphosing into consumption of the same content outside of gaming. Similar

⁴⁰⁶ Kline et al., *Digital Play*, 52.

⁴⁰⁷ Antti-Ville Kärjä, 'Marketing Music Through Computer Games: The Case of Poets of the Fall and Max Payne 2', in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins (Aldershot: Ashgate, 2008), 27–44, 27.

⁴⁰⁸ Kärjä, 'Marketing Music Through Computer Games', 27.

⁴⁰⁹ Remedy Entertainment, 2003.

⁴¹⁰ Kärjä, 'Marketing Music Through Computer Games', 27.

interactions were part of a crowdfunding project undertaken by composer Jeremy Soule, who sought to garner funds for a symphony composition and recording through the Kickstarter website. Not only was the initial goal of US\$10,000 reached within the first 24 hours, but by the donation period conclusion, the initial goal sum had been donated more than 12 times over.⁴¹¹ Video game scores have predominated in Soule's career, and the proposed Symphony No. 1, 'The Northerner', purports to share significant stylistic and aesthetic characteristics with one of Soule's most celebrated works, the score to *Skyrim*. Players are estimated to have invested an average of 150 hours in *Skyrim*,⁴¹² with undocumented hours spent playing other games scored by Soule. It is perhaps unsurprising that fans felt compelled to support Soule in a distinctly non-gaming venture.

I.V Summary

It is the strategic ordering of differing approaches within the proposed model that produces a methodology able to study the highly complex and multifaceted text that is the open-world game. The nature of games means that players 're-create themselves in new worlds and achieve recreation',⁴¹³ and the detail and expanse within open-world games means they are singularly felicitous to recreation. Their design construct relies on music as a sonic notification of ludic form, and as a powerful tool in the substantiation of their virtual realities. It transcends the in-game world and, via modes of experience, exists in marketing activities, performance, commodities and discourse of many kinds. Moseley (in Mera et al.) has suggested that methods of media-archaeology can 'call on us to listen to what media can tell of history rather than the other way around',⁴¹⁴ and the proposed model is offered as going some way to achieve this. It investigates the music open-world games by interpreting their narratological, technical, commercial and sociocultural meanings, as elements constituting an artefact characteristic of a period in time. Its methodology extends the utility of current mechanisms, and is designed to be applicable to open-world games of the future. In this

⁴¹¹ Jeremy Soule, 'The Northerner: A Musical Journey by Jeremy Soule', *Kickstarter*, 20 March 2013, accessed 30 August 2018, <https://www.kickstarter.com/projects/499808045/from-the-composer-of-skyrim-soule-symphony-no-1/posts/430577>.

⁴¹² Chris Suellentrop, 'Skyrim' Creator on Why We'll Have to Wait for Another "Elder Scrolls"', *Rolling Stone*, 21 November 2016, accessed 30 August 2018, <https://www.rollingstone.com/culture/culture-features/skyrim-creator-on-why-well-have-to-wait-for-another-elder-scrolls-128377/>.

⁴¹³ Gee, *What Video Games Have to Teach Us*, 3.

⁴¹⁴ Roger Moseley, 'Roundtable: Current Perspectives n Music, Sound, and Narrative in Screen Media', in *The Routledge Companion to Screen Music and Sound*, ed. Miguel Mera, Ronald Sadoff, and Ben Winters (New York: Taylor & Francis, 2017), 108–124, at 112.

sense, it aims to withstand the ‘the changing political, social and cultural contexts in which [games] are produced and consumed’.⁴¹⁵ This chapter has described the onus behind this proposed model’s formulation, and the analytical purposes it seeks to serve, with three distinct but related research phases introduced. The following chapter discusses the considerations necessary to a successful application of the proposed research model.

⁴¹⁵ Kerr, *Business and Culture*, 4.

CHAPTER II: FROM THE CONCEPTUAL TO THE EMPIRICAL

II.I Selection of Text

In seeking to achieve the first Project Aim of developing a mechanism by which the music of contemporary open-world video games can be comprehensively understood, this chapter begins by determining what constitutes a contemporary open-world game. It considers the computational power of gaming machines, the amount of music, the realism of production, and the world design of games, which equates to assessing the narrative, aesthetic, compositional and technological aspects of these texts. This process is the first analytical step of implementing the proposed model, and goes to the second Project Aim of identifying, categorising and defining all practical and theoretical parameters of the proposed model. It also aligns usefully with Peterson's argument that 'in order to establish an objective fact we have to parameterise the search; we have to narrow the search'.⁴¹⁶

Criteria

The following criteria articulate characteristics of an open-world game that are necessary when considering in an application of the proposed model.

- Design based on 'sandbox-style' principles is preferable.
- Sufficient substantiation of culture within the gameworld.
- In-game musical content of sufficient quantity and narrative function.
- Prevalence of music in the game's promotion and cultural reception.

The metrics by which 'sufficient' can be determined will be subject to interpretation. For example, the number of digital files present cannot determine a gameworld's sufficient quantity of music, and neither can the megabytes of audio data contained within a game's software package. Similarly, there is ambiguity in conceptualising a gameworld as possessing sufficient cultural realism to offer scope for virtual ethnography fieldwork.

⁴¹⁶ Harris, 'Waking UP With Sam Harris #62'.

Gameplay is recommended as the means through which these aspects can be evaluated, and a game's suitability assessed. For instance, a prescient recognition of the kinds of persistent concerns discussed in the previous chapter can designate a suitable text. They indicate a gameworld in which rules emulate the actual world, suggesting that other components of the game's narrative, such as music, will have been implemented with similar complexity. This remains dependent upon the capacity of machines to run game software, and this where console generation can assist in the text selection process.

Generation, Release and Platform

The tripartite model proposed here is designed for application to future open-world games as well as those already released. Successive generations of consoles feature increased internal componentry processing power capabilities, designed to produce superlative gaming experiences and encourage gameplay interactions of greater profundity. Drive storage, memory allocation, and processing power of a machine affect the integrity of its graphics, such as lighting, shading and reflections, and animation, such as fluidity of movement, NPC actions and Newtonian physics simulations. The authenticity of musical and aural components, such as their quantity, bit rate and implementation, rely similarly on streaming speed, memory allocation and storage allocation. Production value levels of these components are pivotal in a game's representation of a believable reality, and if all of these factors coexist in realistic and logical harmony, in-game cultures can be presented convincingly to the player. It is this circumstance, and the level to which it succeeds, that constitute a gameworld's verisimilitude, and the substantiation of its reality. Therefore, the era in which a game is created and the console generation on which it is designed to run, are significant factors when selecting an open-world game as a text.

Companies bringing a gaming console to market seek to improve on their competitors' machines. As a result, many game consoles perform the same essential tasks, often with nominal differences in performance, image quality and sound options. A game running more smoothly on a PC than on a Mac might be attributed to a custom-installed processing chip, while the PS3's colours and audio could be slightly brighter and clearer respectively than those from an Xbox 360, due to internal processor power. *Far Cry Primal* is an open-world game set in the Mesolithic Age, in a fictional land of cave men, mammoths and tribal

warfare.⁴¹⁷ A thorough game test-run by EuroGamer put the Xbox One, PlayStation 4 and PC versions of the game through various gameplay settings to analyse its performance. The findings suggested that although the PS4 version featured more refined graphics, both game consoles handled Ubisoft's reemployment of the Dunia Engine (game engine) well, and the PC version offered a wide array of game settings, known as the scalability.⁴¹⁸ The performance standards did not differ greatly between platforms, perhaps because modern consoles and PCs are on a relatively similar technological pane.

A more contrasting comparison is the original PS2 game *GTA: SA*, and its 2013 re-release for mobile and handheld devices. The PS2 offered significant improvements over its predecessor, and GTA creator Dan Houser recommends that 'the big technological advance was when things moved to DVD, almost more than the power of Playstation 2'.⁴¹⁹ From a music and audio perspective, Rockstar's sound and music directors Allan Walker and Craig Collins made full use of the console's 48 audio channels and its ability to stream audio off the game disc.⁴²⁰ The 2009 iPhone 5s could run the game comfortably. However, as a mobile phone, the restricted ergonomic requirements and small, treble-heavy speakers offered a gameplay experience very different from that of the PS2. This decreased sound quality is to be expected with most handheld game consoles and mobile devices. Collins has made the point that, despite the aspirations of game development, telecommunication company Nokia recommended that games on their phones should be playable without any audio,⁴²¹ such was the importance placed on music. In the case of *GTA: SA*, the PS2 version would provide an experience more conducive to concentrated analysis.

The release of vintage game collections for extant and new specialised consoles is another re-release example, such as the Sega Mega Drive Ultimate Collection with games adapted for PS3 and Xbox 360, and the Nintendo Classic Mini: NES designed as per the original console, but with pre-loaded games. These games may feature music in its original form, but the music in other re-releases may be rearranged substantially. For instance, John Broomhall's MIDI jazz, blues and funk-infused soundtrack for the MS-DOS game *Transport*

⁴¹⁷ Ubisoft Montreal, 2016.

⁴¹⁸ David Bierton, 'Face-Off: Far Cry Primal', *Eurogamer*, 3 April 2016, accessed 30 August 2018, <https://www.eurogamer.net/articles/digitalfoundry-2016-face-off-far-cry-primal>.

⁴¹⁹ Variety, 'Dan Houser's Very Extended Interview About Everything 'Grand Theft Auto IV and Rockstar'', *Variety*, 19 April 2008, accessed 2 September 2015, <http://archive.li/OSCqF>. Original *Variety* article archived, citations refer to archived article.

⁴²⁰ David Greeves, 'Allan Walker & Craig Connor: Grand Theft Auto', *SOS*, February 2005, accessed 22 February 2016, <https://www.soundonsound.com/people/allan-walker-craig-connor-grand-theft-auto>.

⁴²¹ Collins, *Game Sound*, 127.

*Tycoon Deluxe*⁴²² was recorded by live instruments for a 2013 re-release, almost note for note, based on original files extracted painstakingly from floppy discs.⁴²³ Emulator software can be considered if an original game or hardware is unavailable, although questions of authenticity arise. Another consideration that may prove useful in this text selection process is the gameplay environment, which Lerner discusses in comments⁴²⁴ regarding the 1977 arcade machine game *Circus*⁴²⁵ and its Atari 2600 release as *Circus Atari* three years later.⁴²⁶ The new platform meant that Atari's *Circus* lacked mechanical arcade machine sounds of coin-operated starting mechanisms and plastic button depressions, which can raise questions of experiential authenticity. A game's market region can also precipitate musical variations. Popular rock and electronic music from established artists was featured in the North American, Australasian and European releases of *Gran Turismo*,⁴²⁷ while the game's Japanese release featured a score reflecting generic rock influences, commissioned explicitly for the game.⁴²⁸ Whether attributable to market-specific aesthetic values or to commercial imperatives,⁴²⁹ the authority to claim which version is the 'true original' requires a corroborative explanation.

This study concurs with Summers' advice, which recommends that 'the scholar should simply select the version that will be most valuable and interesting for academic study'.⁴³⁰ Experience in gameplay and knowledge of gameworld construction as detailed above allow the scholar to conclude whether a game meets the specified criteria or not. A general rule suggested in the present study is that games released for the sixth and seventh game console generations form the earliest body of contenders. The criteria discussed here, and the metrics by which games' suitability can be assessed, aim to support the scholar in selecting an open-world game with music to be studied via the proposed research model. Pursuant to these recommendations, this chapter now provides an explanation of how, and why, the game chosen as a case study text meets these criteria.

⁴²² Chris Sawyer Productions, 1994.

⁴²³ Broomhall, 'FULL CIRCLE'.

⁴²⁴ Neil Lerner, 'The Origins of Musical Style in Video Games, 1977–1983', in *The Oxford Handbook of Film Music Studies*, ed. David Neumeyer (New York: Oxford UP, 2014), 320–347, 320.

⁴²⁵ Valeau and Ivey, 1977.

⁴²⁶ Lorenzen, 1980.

⁴²⁷ Polys Entertainment, 1998.

⁴²⁸ Cyber Head Limited Company, 1997.

⁴²⁹ Summers, *Understanding*, 15.

⁴³⁰ Summers, *Understanding*, 28.

The Selected Case Study Text

Rockstar Games' *GTA V* is offered as a game appropriate for a case study demonstration of the proposed model's ability. Before its rise as a culturally influential and commercially significant powerhouse, the video game publisher Rockstar Games was DMA Design, based in the Green Park industrial estate within the Scottish city of Dundee.⁴³¹ The mid-1990s saw DMA conclude their already successful *Lemmings* game series while engaged in courtship with Japanese company Nintendo, which was seeking to launch titles rivalling its main competitor console, the Sony PlayStation.⁴³² It was, however, another in-house DMA project involving cars, crime and cops that eventually brought the company to the forefront of the UK game development community, and subsequently the global industry.

An early design document for this game stated that, 'the aim of *Race 'n' Chase* is to produce a fun, addictive and fast multi-player car racing and crashing game which uses a novel graphics method'.⁴³³ *Race 'n' Chase* evolved into *Grand Theft Auto* but maintained the essence of this original concept brief. Advancements in game design technology and consumer-level gaming machines have allowed GTA's creators to maintain these core narrative themes, and to tell their stories in larger and more sophisticated gameworlds. Several titles of the series have marked these maturing systems, with one of the most significant developments being the shift from two-dimensional games to a three-dimensional gameworld in *GTA III*. Kraus gives particular credit to the influence of this game:

Grand Theft Auto III (2001) gave rise to a vast number of so-called 'sandbox games' which combined elements of driving games, shooters and others in a 3D environment which let the player choose which, if any, goals he wanted to accomplish or just roam an environment interacting with the artificially intelligent occupants of the latter.⁴³⁴

The diversity of in-game assets and gameplay design expanded to include more vehicle and building designs, improved mechanics of character animation, and day/night and weather cycles. Music accessible via an in-game vehicle radio mechanism, a component maintained since the first game in the series, evolved to become a powerful storytelling tool

⁴³¹ Magnus Anderson and Rebecca Levene, *Grand Thieves & Tomb Raiders: How British Video Games Conquered The World* (London: Aurum Press Ltd, 2012), 226.

⁴³² Anderson and Levene, *Grand Thieves & Tom Raiders*, 226.

⁴³³ GamerSpawn, 'The History of Grand Theft Auto (Documentary)', video, 48:35, 20 April 2013, posted by GamerSpawn, <https://www.youtube.com/watch?v=6xhY9LSGbNk>.

⁴³⁴ Kraus, 'Video Games', 80.

for gameworlds set in the past. The move to HD gaming allowed for visual, auidial and gameplay mechanics upgrades in *GTA IV*, but these also necessitated more research. Hundreds of pedestrian photos, 12-hour videos of the skyline, traffic pattern monitoring, and evaluations of each neighbourhood's ethnic makeup all helped to inform the designers of New York City's essence, on which *GTA IV's* Liberty City is based. Plot lines and mission variety grew in line with the expanding gameworlds. Whitlock views this as concomitant with the gaming industry expansion, positing that 'with the growth of the game market, narrative structures have emerged which parallel post-Aristotelian, twentieth century theatre'.⁴³⁵

For *GTA V*, Rockstar North harnessed the processing power of the Xbox 360 and PS3 consoles to develop one of the largest, densest gameworlds of contemporaneous open-world games. It featured the most music of any GTA game, and this was expanded in later releases of the game for Xbox One, PlayStation 4 and PC. *GTA V* also debuted a dynamic score in addition to continuing the series' core gameplay trope of playing licensed pre-composed music via an in-game radio. This balanced the popular music content to create varying combinations of environmentally supportive musical elements, and an underscore accompaniment to missions. In a striking narrative divergence, *GTA V* features three avatar protagonists instead of the usual one, all possessing individualised characteristics, and all inextricable from the game's main story. The 2013 release date places this game safely within the contemporary console generation argued for above, and its signature open-world, sandbox-style environment supports its adoption as a text. The licensed pre-composed music, original dynamic score and technical implementation of music present compelling research opportunities within the game's diegesis.

The music of this game has also been part of one of Rockstar Games' most elaborate marketing and community engagement plans. In the past, Rockstar has exploited its fusions with other companies and niche subcultures to promote its games and brand. Ventures include sponsored events at leading nightclubs, a skateboarder clothing line, and graffiti artists commissioned to design game packaging.⁴³⁶ These activities have supplemented more typical musical promotions, such as game-based commercial soundtrack releases, which create multiple profit centres for the games and, as in film, serve to potentially defray

⁴³⁵ Katie Whitlock, 'Beyond Linear Narrative: Augusto Boal Enters Norrath', in *Digital Gameplay: Essays on the Nexus of Game and Gamer*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2005), 189–207, at 191.

⁴³⁶ Kline et al., 234.

production costs.⁴³⁷ There is a substantial body of journalistic discourse, developer and musician interview material, documentary videos and game culture commentary surrounding this game. It is suggested that *GTA V*'s music is a superlative contributor to the gameworld's verisimilitude, a key brand identifier used in adroit marketing campaigns and a culturally informative tool.

At the commencement of this study, the PC version of *GTA V* featured more musical content than its Xbox and PlayStation counterparts. This, and the superlative processing capability that custom internal PC components offer, were predominant reasons for using this platform. Newman's view that 'exploration of videogame space is a kinaesthetic pleasure'⁴³⁸ was also integral to the development of this setup. The exteroceptive senses of sight, hearing, and touch are relevant to this study, as they translate to visual, audial, and haptic interactions during gameplay. A detailed description of the setup array employed during this study is provided for posterity as Appendix 3. The PC ran sequential versions of the Windows operating system, stored *GTA V*'s game files on a solid-state drive, and featured a graphics processing unit able to power a curved, 34-inch UltraWide, 21:9 monitor effectively. The 21:9 aspect ratio (the proportional relation between the width and height of a screen described as an x:y ratio) is wider than 16:9, the international standard. This means that the gameworld occupies more of the player's peripheral vision, and the monitor panel's curvature offers consistent viewing angles by enveloping the player's field of view. This equipment facilitated the running of *GTA V* at a native resolution of 3440x1440, at approximately 60 frames per second, and a visual clarity superlative to its console versions.

The initial research was conducted using a 2.1 channel stereo system; however, as *GTA V*'s PC version audio settings offer a surround sound option, a standard for most contemporary open-world games,⁴³⁹ an upgrade was made to a 5.1 system. Cross-platform synergies resulting from Microsoft's ownership of both the Windows operating system and Xbox brands mean that proprietary Xbox One and Xbox 360 controllers can be used with a PC. A wired Xbox One gamepad was used during this investigation due to its ergonomic design and stable connection. The finalised setup produced sharp gameplay images, fluid

⁴³⁷ Jeff Smith, *The Sounds of Commerce: Marketing Popular Film Music* (New York, NY: Columbia UP, 1998), 188.

⁴³⁸ Newman, *Videogames*, 125.

⁴³⁹ Kirk Hamilton. 'The First Five Games I Use To Test A Surround Sound Headset', *Kotaku*, 13 January 2017, accessed 8 November 2017, <https://www.kotaku.com.au/2017/01/the-first-five-games-i-use-to-test-a-surround-sound-headset/>.

on-screen movement, a balanced spatial auidial experience, and stable haptic feedback through the gamepad.

II.II Music of the Diegesis

Moseley poses a pertinent thought:

To ask the question of itself: what kind of stories can be told about changing representations of audiovisual narrativity? Whether parsed in aesthetic, critical, or political terms, such stories account for how and why events are perceived to precipitate, coincide with, succeed, and recall one another.⁴⁴⁰

This study seeks to tell a new story, and the following taxonomy is offered to assist in categorising the music of open-world games in response to Moseley’s rhetorical question. This section is tasked with describing the practical application of the proposed model by breaking down the diegetic music states established in Chapter I, into subcategories as may benefit the open-world game being studied.

Video Game Music Diegetic Taxonomy

- Diegetic:
 - Radio
 - Environmental
- Nondiegetic:
 - Score
 - Stinger
- User Interface (U.I.):
 - Menu
 - Loading

Diegetic – Radio

Diegetic music in video games is used to achieve goals around the reinforcement of the setting, characters, and story that cumulate to form a game’s narrative. In this sense, a game’s

⁴⁴⁰ Moseley, ‘Roundtable’, 112.

diegetic music functions in equivalence with music in the actual world, as one of many sociocultural identity indicators and a sonic backdrop to quotidian life.

Puzzle and side-scrolling platform games feature diegetic music, although the plotlines of these games are usually based on finite sequences in environments that are not designed to replicate the actual world with fidelity. The discursive transportation of the player to contrasting locations throughout multiple missions in FPSs can benefit from music's ability to reinforce an environment's characteristics. The meandering plot of *Call of Duty 4: Modern Warfare*, for instance, has missions based in the Caucasus Mountains and Altai Mountains in Russia, Riyadh in Saudi Arabia, Baghdad in Iraq, Azerbaijan, and Ukraine.⁴⁴¹ Music can play an important role in differentiating between these settings, necessary because 'players need clues about where they are when they enter a virtual game environment'.⁴⁴²

It is important to acknowledge that not all open-world games feature in-game radio mechanisms such as those in the GTA series. Many have no such music-playing constructs built into their gameworlds, as would be accurate for games set in a pre-Gilded Age era. A taxonomy of music types in open-world games has been established, but it is the use of these terms that is of import here. As *GTA V* has been adopted as a text through which the proposed model can be demonstrated, it is pragmatic to incorporate a radio subcategory support of the theoretical argument being made here.

In truth, radio music is one of many different forms of environmental music, and would normally fall under the environmental subcategory. As will be explained in Chapter III, this musical content can be experienced in a variety of scenarios, from pre-coded missions to free exploration, and from building interiors to stereo systems. As this same musical content is experienced predominantly when controlling a vehicle, the use of a radio subcategory is merited. This subcategory would be useful to the study of in-game radio music in many other open-world games, such as titles in the *Fallout*, *Saints Row*, *Forza Horizon*, *Watch Dogs*, *Far Cry*, *Mafia* and *Final Fantasy* series.

The decision here aligns almost precisely with Grimshaw's doctrine, which recommends that 'diegetic sounds, then, can themselves be separated into two categories as a means of comprehending their disposition in [the] ecology' of a gameworld.⁴⁴³ Grimshaw

⁴⁴¹ Infinity Ward, 2007.

⁴⁴² Michael Sweet, *Writing Interactive Music for Video Games: A Composer's Guide* (Crawfordsville, IN: Pearson Education, 2014), 26.

⁴⁴³ Mark Grimshaw, 'Player Relationships as Mediated Through Sound in Immersive Multi-player Computer Games'. *Scientific Journal of Media Education* 34, no. 17 (2010): 73–80, at 74.

divides these subcategories into ‘environmental sounds’ and ‘sound events’, and while the terminology differs slightly here, the proposed taxonomy concurs with the stipulated benefit of accommodating subcategories.⁴⁴⁴

The GTA series has cultivated a reputation for engendering its games realistically with popular music through a symbiotic relationship of in-game radio and gameplay. There is difficulty in forming a single aphoristic summation that succeeds in describing accurately just how intrinsically connected the radio music content of the GTA series is to its games. They ‘have used diegetic music since the first game in the series [when] every car option had a different radio station, giving every car a different musical style’.⁴⁴⁵ GTA’s diegetic radio music ‘indicates the zeitgeist for the time periods the games evoke’,⁴⁴⁶ and with titles set in different eras, Bogost and Klainbaum argue that this music contributes to the era, mood and specific city in GTA games.⁴⁴⁷ This might be *GTA: VC*’s ‘80s pop/glam rock populating a virtual 1986 Miami, gangster rap placing the player in *GTA: SA*’s 1992 Los Angeles environment,⁴⁴⁸ or *GTA IV*’s dense and gritty city radio music representing ‘as wide a swath of the modern New York music scene as possible’.⁴⁴⁹ As well as merging jazz, funk and world music scenes, Russian and Eastern European hip-hop influences were embodied in the Vladivostok FM station. The game’s theme, ‘Soviet Connection’,⁴⁵⁰ reflects the story of Serbian-born Niko Bellic’s perseverance to realise the mythologised American Dream, through music.⁴⁵¹

The principle of licensing popular music for players to listen while driving in-game has been followed in many open-world games in which vehicle-controlling is a primary gameplay mechanic. *Saints Row* was the first installment within its series⁴⁵² and, as an action-adventure game set in a fictional open-world city, with 12 in-game radio stations to listen to while driving, comparisons with GTA were inevitable. One review described *Saints*

⁴⁴⁴ Grimshaw, ‘Player Relationships’, 74.

⁴⁴⁵ Tim van Geelan, ‘Realising Groundbreaking Adaptive Music’, in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins (Aldershot: Ashgate, 2008), 93–102, at 95.

⁴⁴⁶ Patrick Osborne, ‘Evaluating the Presence of Social Strain in Rockstar Games’ ‘Grand theft Auto IV’, *Studies in Popular Culture* 34, no. 1 (2011): 109–132, 124.

⁴⁴⁷ Bogost and Klainbaum, ‘Experiencing Place in Los Santos and Vice City’, 174.

⁴⁴⁸ Bogost and Klainbaum, ‘Experiencing Place in Los Santos and Vice City’, 174.

⁴⁴⁹ Ben Fritz, ‘“Grand Theft” Music a Phone Call Away’, *Variety*, 18 April 2008, accessed 2 September 2015, <http://web.archive.org/web/20100211102638/http://www.variety.com/article/VR1117984286.html?categoryid=16&cs=1>. Original *Variety* article archived, citations refer to archived article.

⁴⁵⁰ Hunter, 2008.

⁴⁵¹ Osborne, ‘Social Strain’, 117.

⁴⁵² *Volition*, 2006.

Row as unoriginal and derivative, copying GTA's game design and mechanics, but still offering highly enjoyable, technically sturdy gameplay.⁴⁵³ The Mafia game series developed by 2K Czech and Hangar 13 also offers urban open-world exploration, with radio stations available throughout their gameworlds. These games have used popular music as diegetic tools to provide their games with era-specific audios structure. The airwaves of *Mafia III* are full of licensed songs popular in 1968, the game's setting,⁴⁵⁴ while the era-transcending narrative of *Mafia II* featured music popular during multiple decades.⁴⁵⁵ The open-world racing game *Forza Horizon 3* includes a radio component,⁴⁵⁶ but so do many racing games not set in an open-world environment, as Summers has studied.⁴⁵⁷

This ludic technique is used in virtual versions of actual world locations, fantastical worlds, and futuristic environments. There is an identified 'vestigial sense that contemporary virtual world's must somehow be related to everyday life, in the real-time, phenomenological here and now'.⁴⁵⁸ This was perhaps true of older games, but can be argued as an anachronism now. For example, the 'apocalyptic barren Capital Wasteland'⁴⁵⁹ of *Fallout 3* and other *Fallout* titles set in the years following AD 2200 have an in-game radio mechanism. This is not an extraneous mechanic, but a way to underline a 'clash between atrocious actions and upbeat radio tunes'.⁴⁶⁰ The juxtaposition of diegetic swing era tunes, classical violin repertoire and American hymns is experienced in a future decimated by nuclear war. *Final Fantasy XV* took this open-world radio concept in a different direction,⁴⁶¹ as the player can listen to music via the radio while controlling a vehicle, but the diegetic music that plays is a series of themes from previous *Final Fantasy* game soundtracks. This works as a platform of powerful intertextual association, by which music of older *Final Fantasy* games, experienced originally as nondiegetic accompaniment, now exists as diegetic radio music. For the many millions of players already with experience in these games, this reminiscing draws them deeper into the series-wide musical lore, and introduces players new to the series in similar fashion.

⁴⁵³ Douglass C. Perry, 'Saints Row Review', *IGN*, 28 August 2006, accessed 30 August 2018, <https://au.ign.com/articles/2006/08/29/saints-row-review>.

⁴⁵⁴ Hangar 13, 2016.

⁴⁵⁵ 2K Czech, 2010.

⁴⁵⁶ Playground Games, 2016.

⁴⁵⁷ Summers, *Understanding*, 88.

⁴⁵⁸ Boellstorff et al., *Ethnography and Virtual Worlds*, xvii.

⁴⁵⁹ Summers, *Understanding*, 86.

⁴⁶⁰ Cheng, *Sound Play*, 196.

⁴⁶¹ Square Enix Business Division 2, 2016.

Diegetic - Environmental

Jesse Schell's aphorism, 'sound is what truly convinces the mind that it is in a place',⁴⁶² is a useful opening to discussing environmental music. People walking through a shopping boulevard feel little surprise when they hear energetic music emanating from a shop front, from the street performers busking for money, or from the private vehicles driving by. The same can be said of gameworlds featuring virtual version of the same musical elements, which have rock music blasting from a stereo system, or an opera performance in a concert hall. A notable example of the latter environment is found in the stealth-action game *Hitman: Blood Money*. *Blood Money* is not an open-world game, but its sequential missions take place within fairly open level environments, and gameplay transpires dynamically based on the player's various options for assassination. Cheng recounts the player guiding Agent 47, the professional assassin protagonist, through a clandestine mission in the bowels of an opera house. A rehearsal of Tosca is underway on stage, and the player must determine how to kill Alvaro d'Alvade, an NPC portraying the character of Cavaradossi. The repeated snippet of diegetic music emanating from performers rehearsing on-stage enhances the setting's believability, and the loop likely mitigated the demands on computer memory required.⁴⁶³ Open-world game equivalents of this include watching a Ricky Gervais comedy monologue in *GTA IV*, or taking in a variety show at the Theatre Râleur in *Red Dead Redemption 2*.

The concept of NPCs performing music in-game to flesh out an environment is no longer a singular addition to the customary textual and audio dialogue through which information is communicated,⁴⁶⁴ but rather the convention. Garrelts posits, 'as digital games have become more technologically advanced, the possibilities for interaction within the world of a game have also exponentially increased'.⁴⁶⁵ The growing amounts and fidelity of musical content flourish in the expanding environments of open-world games. It is difficult to separate these musical performances from narrative as a segregated abstraction, as they are linked so intrinsically with the games' environments. Instead of licensed music the musicians in *Skyrim* perform original bardic music written by the game's score composer, Jeremy Soule. These are cultural indicators of musical lore in the gameworld, and fulfil the same purpose as *Blood Money's* opera excerpts. *GTA IV* features diegetic music in this

⁴⁶² Schell, *The Art of Game Design*, 4.

⁴⁶³ Cheng, *Sound Play*. 169.

⁴⁶⁴ Garrelts, *Digital Gameplay*, 3.

⁴⁶⁵ Garrelts, *Digital Gameplay*, 3.

environmental form, with buskers performing jazz saxophone pieces in various areas of the gameworld. Like *Skyrim*'s minstrels, the player can interact with these NPC buskers, made all the more tangible through the realistic equalisation of audio by fading and panning as the player moves around the musician. Other examples include a honky-tonk pianist entertaining patrons in the American frontier saloon in *RDR*, Kass the accordion-playing bird appearing throughout *Zelda: Breath of the Wild*⁴⁶⁶ and the ensemble playing in *Horizon Zero Dawn*'s fictional city of Meridian.⁴⁶⁷

Even when the player is not able to see these performers, their music can often be heard when occluded by the walls of a building, such as music tracks emanating from a nightclub. Performed music is often combined with other environmental music like tracks playing on a stereo, NPC's mobile phone ringtones and in-game media. This is the music that accompanies films, television shows, video games and advertisements experienced by the player in the gameworld. Several GTA titles feature in-game television programs and commercials, which feature music functioning in the same way that it might in the actual world. This music remains diegetic to the player, and in order to differentiate between this music and other diegetic types, it is assigned the subcategory of 'in-game media'.

Nondiegetic – Score

Early 1980s arcade games with what are often considered simplistic and outdated music elements bear little resemblance to the high production values, and technical constructs of contemporary game music. While the matter seems relatively settled now, an aspect of some linguistic contest has been the use of 'score' in video game music studies. Both games and film began predominant forays into society with inescapable sounds extraneous to the narrative. Zehnder and Lipscomb claim 'almost since its inception, cinematic imagery has been accompanied by musical sound',⁴⁶⁸ noting that 'film score' progenitors found purpose originally in disguising projection equipment noises. This was before the 'impact of including a musical score as a means of enhancing and expanding on the psychological drama of the audio-visual experience' was perceived.⁴⁶⁹ Whalen has written, 'it is important that the videogame medium adopts certain roles for music from prior narrative media',⁴⁷⁰

⁴⁶⁶ Nintendo EPD, 2017

⁴⁶⁷ Guerilla Games, 2017.

⁴⁶⁸ Zehnder and Lipscomb, 'Role of Music in Video Games', 242.

⁴⁶⁹ Zehnder and Lipscomb, 'Role of Music in Video Games', 242.

⁴⁷⁰ Whalen, 'Play Along'.

and gameworld scores are ‘designed to amplify, heighten the intensity of, or provide emotional or ironic commentary on the narrative on folding in a pre-constructed tableau’.⁴⁷¹ Therefore, an audial soundtrack underscoring visual components remains a prime commonality, and the fundamental associated narrative principles apply.⁴⁷²

In order to study game scores, they must be understood as scores in the traditional cinematic sense. ‘As film studies emerged from literary and cultural studies and later developed its own approaches, so [too] has video game scholarship emerged from a number of different fields and disciplines’.⁴⁷³ Similarly, throughout the cultivation of approaches to video game music, comparisons are often drawn with, or relate game music to, that of film. This is not necessarily a simple process. The publisher of *Ludomusicology* stipulates, ‘as with any new area of study, this significant sub-discipline is still tackling fundamental questions concerning how video game music should be approached’.⁴⁷⁴ Whalen argues that studies of visual and audial elements in established media such as film benefits such inquiry into videogames, with shared tropes and design concepts.⁴⁷⁵ Moreover, Summers notes specifically that ‘the broader [alignment] of game music with film music ... is an almost inescapable aspect of engaging with game music’.⁴⁷⁶

The genesis of many game music approaches lies in film music studies, but methodologies continue to develop in necessitous divergence from that of film, driven primarily by the nonlinearity idiosyncratic to video games. To this end, Collins argues, ‘the implications of this interactive aspect are vast in terms of how we scholars may approach games audio’.⁴⁷⁷ There still remains abounding fertility in intertextual game/film music analysis, as demonstrated in Summers’⁴⁷⁸ exploration of the 1997 Nintendo 64 game *GoldenEye 007*,⁴⁷⁹ which was based on the film *GoldenEye* released two years earlier.⁴⁸⁰ ‘The game elaborates on moments of the film that are only briefly depicted’ and, through the cross-media transference of iconic musical themes, ‘the two media retain distinct

⁴⁷¹ Reale, ‘Transcribing’, 77.

⁴⁷² Zehnder and Lipscomb, ‘Role of Music in Video Games’, 242.

⁴⁷³ Kraus, ‘Video Games: Platforms, Programmes and Players’, 81.

⁴⁷⁴ Cover copy, *Ludomusicology*, 2016.

⁴⁷⁵ Whalen, ‘Play Along’.

⁴⁷⁶ Summers, *Understanding*, 57.

⁴⁷⁷ Karen Collins, ‘From Bits to Hits: Video Games Music Changes its Tune’, *Film International* 3, no. 1 (2005): 5–18, 18.

⁴⁷⁸ Summers, *Understanding*, 70.

⁴⁷⁹ RARE, 1997.

⁴⁸⁰ Campbell, 1995.

identities with their own versions of the same narrative'.⁴⁸¹ Éric Serra's film score largely utilises synthesised electronic sounds, and Graeme Norgate and Grant Kirkthorp's game score is reminiscent of this, both stylistically and melodically. It incorporates metallic-sounding ostinati and variations on the iconic *James Bond Theme*,⁴⁸² but does not attempt to re-create it precisely.⁴⁸³ In this direct example of film-to-game analysis, Summers uses the term 'score' as an interchangeable common noun describing the nondiegetic musical accompaniment to picture and play respectively. Composer James Hannigan proposes:

When pre-recorded music came into games in the 1990s, an orchestral score similarly excited many, at first perhaps because it, too, merely existed. But as time went on, the function of music in games and the meaning embedded in it became more important, as did the idea games could tell stories.⁴⁸⁴

Largely in agreement with Summers, Whalen, Reale and others, Hannigan points to emerging technological forms mimicking those preceding them. This involves borrowing genres and narrative techniques from genres such as horror, action and science fiction. To that end, composers are often required to adopt a language of Hollywood film music to underscore plots.⁴⁸⁵ The 'bleeps and bleeps' era musical aesthetic features in contemporary games, not necessarily for reasons of nostalgia, but as part of a popular electronic and synthesised score sound. It is worth reiterating here the quote that opens this study, with the claim that there is no such thing as game music, is a commentary on the significant diversity of game music. The substantial majority of game scores exist under the authority of Western music theory principles, and processes of theme development, ensemble instrumentation, temperament and expression. Solo vocal parts, folkloric chants and massed choirs have also found purpose in game scores, as they have in film. There is a high degree of musical diversity in the scores of open-world games alone, which can be illustrated in several open-world game examples from 2015.

⁴⁸¹ Summers, *Understanding*, 70.

⁴⁸² Monty, 1963.

⁴⁸³ Summers, *Understanding*, 70.

⁴⁸⁴ James Hannigan, 'James Hannigan on Video Game Music: Is it Art? Part 3', *Classic FM*, 11 February 2015, accessed 3 May 2015, <https://www.classicfm.com/discover-music/periods-genres/video-game/is-it-art-part-3/>.

⁴⁸⁵ Hannigan, 'Video Game Music: Is it Art? Part 3'.

For *Far Cry Primal*, composer Jason Graves abstained from using any instruments that contained plastic and metal, so as to reflect *Primal*'s Stone Age setting sonically.⁴⁸⁶ An 1868 Victorian London setting of *Assassin's Creed Syndicate*⁴⁸⁷ saw Austin Wintory diverge from the series' epic orchestral underscoring, and 'futuristic hybrid synth' elements.⁴⁸⁸ Wintory cultivated a 'visceral intensity of extreme intimacy' with a chamber-ensemble aesthetic inspired by Purcell and Mendelssohn.⁴⁸⁹ In contrast, the use of syncopated drum rhythms, staccato strings, distorted electric guitar and bright tempi accompany players in the explosive action/adventure game *Just Cause 3*.⁴⁹⁰

Nondiegetic – Dynamic

The nonlinearity idiosyncratic to video games substantially defines the creative parameters of video game music. This is because player actions and unexpected gameplay events make the use of entirely linear music problematic. A rudimentary example might be peaceful legato strings underscoring the player's navigation of a forest, morphing into bombastic percussion when an enemy appears and engages the player in battle. Were this a scene in a film, the music would sound the same during each viewing. However, if the player happens to walk away from the nearby enemy during gameplay, and conflict is never initiated, the introduction of 'combat music' would be incongruous with the gameplay events. The music is subservient to the extemporaneous actions of the player, such as deciding which direction to navigate, and the game engine, which instructs an enemy to avoid or attack the player, among other elements. The concept of dynamic audio, so typified by games, can be traced to the live performance of musical accompaniment in twentieth-century cinema.⁴⁹¹ The organists, pianists and conductors accompanying films improvised musical form as the

⁴⁸⁶ Bryan Menegus, 'The Far Cry: Primal Soundtrack Was Made With Skin, Bones and Dirt', *Kotaku*, 6 March 2016, accessed 7 March 2016, <https://www.kotaku.com.au/2016/03/the-far-cry-primal-soundtrack-was-made-with-skin-bones-and-dirt/>.

⁴⁸⁷ Ubisoft Quebec, 2015.

⁴⁸⁸ Joel Ferris, 'Interview with Austin Wintory, composer for Journey and Assassin's Creed Syndicate', *Nerd Reactor*, 6 October 2015, accessed 9 April 2017, <http://nerdreactor.com/2015/10/06/interview-austin-wintory-composer-for-journey-ac-syndicate/>.

⁴⁸⁹ Emily Reese, 'Joon Media ep 8 Austin Wintory and Lennie Moore', 22 October 2015, in *Level with Emily Reese*, produced by Sam Keenan, podcast, MP3 audio, 38:47, <http://lwer.podbean.com/e/joon-media-ep-8-austin-wintory-and-lennie-moore/>.

⁴⁹⁰ Avalanche Studios, 2015.

⁴⁹¹ Lerner, 'Mario's Dynamic Leaps', 1.

feature was played, ‘generating musical scores that were, in their own ways, unlimited in their variety, contingencies, and ephemerality’.⁴⁹²

‘Game sound is emergent as technology permits, with the ludic study of music following gradually behind’,⁴⁹³ and ludomusicology scholars have embraced this aspect of game music. Unlike linear mediums of film and television, this nonlinearity has resulted in many games featuring nondiegetic scores comprising not full-length pieces but, rather, numerous smaller musical tracks, known as stems. The game engine determines how to sequence, layer and play this music based on gameplay events.⁴⁹⁴ Composers are consequently guided by these technical constraints, but creative principles and compositional choices regarding music development are still based primarily on aesthetic choice and emotional appeal.

Nondiegetic – Linear

‘Cinematic’ is an adjective often used to describe game score music; however, within academic investigations of game music the term cinematic is used to describe non-interactive sequences of gameplay. These are usually linear, animated clips, also known as Non Interactive Sequence (NIS)⁴⁹⁵ or full motion video (FMV), during which the player has neither control nor a participative role.⁴⁹⁶ There is little perceivable need to challenge this locution, as its etymological origin lies in the proven industry nomenclature of game composers and developers. Writing music for cinematics is closely aligned with film composition, as they ‘can be scored “to picture” like a film’.⁴⁹⁷ Sharing this linear structure are cut-scenes, which Phillips describes as taking ‘control temporarily away from the player so that a short scene can play out’.⁴⁹⁸ Cut-scenes in games are often used to progress the narrative through pre-set animations and dialogue, and, like cinematics, can be scored to picture. Phillips describes ‘quick time events’ (QTE) as a ‘series of cinematics that are broken by brief pauses in which the player is prompted to enter a button sequence, the

⁴⁹² Lerner, ‘Mario’s Dynamic Leaps’, 2.

⁴⁹³ Rebecca Roberts, ‘Fear of the Unknown: Music and Sound Design in Psychological Horror Games’, in *Music in Video Games: Studying Play*, ed. K. J. Donnelly, William Gibbons, and Neil Lerner (New York: Routledge, 2014), 138–150, at 142.

⁴⁹⁴ Phillips, *A Composer’s Guide*, 194.

⁴⁹⁵ Bridgett, ‘Hollywood Sound: Part Three’.

⁴⁹⁶ Collins, *Game Sound*, 18.

⁴⁹⁷ Phillips, *A Composer’s Guide*, 126.

⁴⁹⁸ Phillips, *A Composer’s Guide*, 153.

success or failure of the sequence invoking different outcomes'.⁴⁹⁹ QTE music can function dynamically by adapting to the player's timing and choices, while cinematics and cut-scenes are linear sequences during which music accompanies visual action 'locked to picture', as in film. Most core gameplay – exploring, searching, combating, traversing and competing – is impacted by the player's actions and the game's rules, and game scores have become dynamic to accommodate this out of necessity.

'Games, like films, have opening and closing title sequences where music is used as a formal device to ease the transition' in the narrative.⁵⁰⁰ Credits music, or the nondiegetic music that accompanies end credit sequences in video games, can be placed under this subcategory. Hoffert maintains that, 'like film credits, it's not unusual to link many of the themes and musical ideas that were in the body of the game',⁵⁰¹ and, like film, video game credit sequences have moved beyond obvious bookend placements. Roman Polanski's *Frantic* begins with opening views of its Paris setting, with Ennio Morricone's main theme, credits and title preceding any story-progressing action.⁵⁰² In contrast, *Gladiator* has no detailed opening credits, beginning with Hans Zimmer's lilting duduk line and the film title prior to a battle scene commencing.⁵⁰³ Before reaching any written credits in its quintessential 'Bond opening' montage, the pace of *Quantum of Solace* is set by the MGM symbol, followed immediately by an adrenaline-fuelled car chase sequence.⁵⁰⁴ The storytelling approaches to films' opening credit sequences are diverse across genre and period.

Video games, especially those produced by AAA studios with vast development staff to credit, tend to delay these sequences until the main story's conclusion. Studio logos, health warning messages and cinematics are usually first seen upon loading a game, all of which may or may not be skipped. All lead to the main menu with its interface music, but the game's title may not even be displayed during this time. For example, *GTA IV*'s opening credit sequence runs at an early stage of gameplay, and takes the form of a cinematic, captured with in-game assets and animations to introduce the game's setting, characters and tone. A slow string bariolage ostinato, nimble bass line, and electronic drum part fade in and

⁴⁹⁹ Phillips, *A Composer's Guide*, 153.

⁵⁰⁰ Munday, 'Music in Video Games', 62.

⁵⁰¹ Paul Hoffert, *Music for New Media: Composing for Videogames, Web Sites, Presentations, and Other Interactive Media* (Boston, MA: Berklee Press, 2007), 126.

⁵⁰² Polanski, 1988.

⁵⁰³ Scott, 2000.

⁵⁰⁴ Forster, 2008.

out under the protagonist's conversation with NPCs. The linear sequence ends, and core gameplay begins with the player given control of the main character.

It is also common for open-world games to feature a 'prologue mission', or a series of missions prior to the commencement of the story in earnest, running an opening cinematic and displaying the game title only once this is complete. Story exposition and establishing the Holy Roman Empire setting in *Kingdom Come: Deliverance* mean that the player's main quest activity extends the game's prologue for approximately five hours before its opening credits run. Conversely, *Assassin's Creed: Origins* throws the player in the deep end by almost immediately staging a compulsory hand-to-hand combat sequence, set to Sarah Schachner's 'battle music' cues. This sequence also serves as a tutorial, another common activity developers use to introduce gameplay mechanics to the player.⁵⁰⁵

Stinger

Speaking from a composer's perspective, Marks describes stingers as 'bits of music which are triggered to call attention to ... significant events [and which] are generally very short in length, beginning and ending within a few seconds'.⁵⁰⁶ This accords with Phillip's definition of 'a short track usually ten seconds or less, that is triggered when a specific event occurs',⁵⁰⁷ although Sweet also suggests a relationship between stingers and transitional cues in games.⁵⁰⁸

Casual games often feature stingers,⁵⁰⁹ such as the original version of *Angry Birds*.⁵¹⁰ Upon completing a level of the game, a three-second stinger rising harmonically to a triumphant major chord plays, with cymbal accentuations and synthesised choral 'ah' sounds. The brief fanfare is stimulating, both functioning as an indication of changing gameplay states and rewarding the player musically for their perseverance. It also shares the tempo, pulse and instrumentation of the main theme of the game. In this instance, the stinger's secondary function as a musical component is embodying positivity and congratulatory conveyance, but its primary function is emphasising a gameplay event to the player.⁵¹¹ To fulfill this role, stingers can take many forms depending on the requirements

⁵⁰⁵ Ubisoft Montreal, 2017.

⁵⁰⁶ Aaron Marks, *The Complete Guide to Game Audio*, 2nd edn, (Burlington, MA: Focal Press, 2009), 236.

⁵⁰⁷ Phillips, *A Composer's Guide*, 148.

⁵⁰⁸ Sweet, *Writing Interactive Music*, 165.

⁵⁰⁹ Sweet, *Writing Interactive Music*, 48.

⁵¹⁰ Rovio Entertainment, 2009.

⁵¹¹ Sweet, *Writing Interactive Music*, 48.

of gameplay. A stinger in *Donkey Kong Country* of several arpeggiated augmented chords, barely a second long, accompanies Donkey Kong and Diddy Kong when they access a secret level area.⁵¹² This assuages the player's initial fear in losing sight of their gorilla avatar and, as a consequence, notifies them more generally of approaching secret areas. In this instance, the music plays while the player can still view their avatar; however, stingers are used frequently to notify the player of gameplay elements not immediately viewable.

Gameplay in the RTS game *Age of Empires III (AOE III)*⁵¹³ takes place within a series of finite but sprawling locations, wherein the player cultivates and defends a microcosmic empire. Core gameplay requires the player to control dozens of soldiers, citizens and buildings throughout their empire, and over expansive quantities of game map. To help, a sonic notification superseding all other sound elements signifies that the player's empire is under attack by an enemy, and has been a design trope of the AOE series since its inception. In *AOE III*, this alert takes the form of a few brief fortissimo concert A notes from a French horn that plays 'immediately, with complete disregard of the musical framework of the queue that is currently playing'.⁵¹⁴ This can prove crucial to victory, emphasising the ludic indispensability of the stinger, and, despite its musical qualities, this aural danger alert could be categorised as a sound effect due to its brevity and monophonic and repeated note.

The distinction between stinger and sound effect is sometimes a difficult one to make. Continuous music in arcade games was not established until after the late 1970s, with the exception of *Space Invaders*.⁵¹⁵ It was the early 1980s that saw an increased use of multiple sound chips, such as in the 1982 Taito game *Front Line*.⁵¹⁶ Musical polyphony was still subordinate to sound effects, but an additional chip allowed music and sound effects to play simultaneously, rather than the former being interrupted for the latter to exist.⁵¹⁷ Soon thereafter, the 1985 release of Nintendo's *Super Mario Bros.* for the Family Computer (Famicon) and NES presented a closer relationship between music, sound effects, and kinetics in composer Koji Kondo's soundtrack. Moseley notes that 'the stingers and effects in Kondo's soundtrack ... are carefully integrated into their harmonic, rhythmic, and kinetic

⁵¹² Rare, 1994.

⁵¹³ Ensemble Studios, 2005.

⁵¹⁴ Sweet, *Writing Interactive Music*, 173.

⁵¹⁵ Taito, 1978.

⁵¹⁶ Taito, 1980.

⁵¹⁷ Collins, *Game Sound*, 15.

contexts and his music was composed with their graphics and gameplay in mind'.⁵¹⁸ The 'bwoop' sound effect accompanying Mario's jumping action is indeed tonal,⁵¹⁹ but it is still distinct from the underscore.

Games set in amorphous environments, and those existing in dystopian and post-apocalyptic universes, for example, benefit from this obliqueness. The survival horror game *Silent Hill* featured music by composer Akira Yamaoka, which Whalen describes as evolving to a 'cacophonous ringing of metallic noises and atonal chaos',⁵²⁰ rendering divisions between music and ambient sound effect elements indecipherable. Nine Inch Nails founder Trent Reznor imbued the depraved gameworld of *Quake*⁵²¹ with 'aggressive beats ... destructive sound ... [and] electronic atmospheres', amalgamating sound effects, ambient noises and music in a similar fashion.⁵²²

A similar soundscape design can be found in the *DOOM* series reboot.⁵²³ In *DOOM*, the player employs a devastatingly minacious arsenal to shoot at, blow up and ultimately destroy waves of enemies, in a futuristic research facility in pandemonium on the planet Mars. Composer Mick Gordon's score pays homage to the original *DOOM*⁵²⁴ 'midi soundtrack which combined technology with metal'.⁵²⁵ Gordon's score features corrupted sine waves and noise,⁵²⁶ aberrative sonic elements with dark synth-rock sounds,⁵²⁷ and otherworldly rhythm section parts. The result is a gameworld possessing a sonic environment in which music and sound effects exist in, at various moments, intersubjective harmony and a disparate state of flux.

It is not unusual to have sound effects and music integrated closely with one another. Just as stingers play an important musically communicative role in games, sound effects of commensurate intent are prevalent in other media. Walter Murch offers a cinematic

⁵¹⁸ Roger Moseley, *Keys to Play: Music as a Ludic Medium from Apollo to Nintendo* (Oakland, CA: University of California Press, 2016), 267–268.

⁵¹⁹ Collins, *Playing With Sound*, 3.

⁵²⁰ Whalen, 'Play Along'.

⁵²¹ Id Software, 1996.

⁵²² Mernagh, 'Video Games Saved the Radio Star'.

⁵²³ Id software, 2016.

⁵²⁴ Id Software, 1993.

⁵²⁵ Mick Gordon, 'DOOM: Behind the Music Part 1', video, 3:39, 12 May 2016, posted by Mick Gordon, <https://www.youtube.com/watch?v=ua-f0ypVbPA&t=77s>.

⁵²⁶ Mick Gordon, 'DOOM: Behind the Music Part 2', video, 3:56, 27 May 2016, posted by Mick Gordon, <https://www.youtube.com/watch?v=1g-7-dFXOUU>.

⁵²⁷ Sam Machkovech, 'Rip and Tear Your Eardrums with *Doom* 2016's Soundtrack, Finally Loosed from the Game', *ARS Technica*, 29 September, accessed 27 July 2017, <https://arstechnica.com/gaming/2016/09/doom-reboots-killer-dynamic-soundtrack-has-finally-been-sequenced-as-an-lp/>.

perspective fused with mythological contemplation, positing that ‘most sound effects, for instance, fall midway: like “sound-centaurs,” they are half language, half music’.⁵²⁸ An example is the emulation of physical motion’s physiognomic structure, known more conventionally in film and game music literature as ‘mickey mousing’.⁵²⁹ It describes the musical or noise accentuation that plays in time with a kinetic action. Whalen has traced the technique to the sliding whistle accompanying Mickey Mouse’s physical actions in the 1928 cartoon *Galloping Gauchos*,⁵³⁰ and both Whalen⁵³¹ and Lerner⁵³² have written about its use in Mario.

In open-world games, the conclusion of a mission usually involves a smooth transducing of gameplay contexts, returning to free exploration with minimal interruption. The player may even have no suspension of avatar control during this transition, and so a stinger or short sound effect can serve as a signpost. For instance, in *The Witcher 3: Wild Hunt* a stinger consisting of a single held note defiantly indicates the end of a mission.⁵³³ This is additionally useful as the player can continue controlling their avatar, interacting freely with the gameworld throughout the mission ending sequence. If not for the stinger and text displayed briefly, the state of gameplay could be ambiguous. *Assassin’s Creed: Odyssey* features a slightly longer but equally grandiose stinger to signify the completion of all tasks required to ‘finish’ a specific location, ending with a triumphant timpani accent.⁵³⁴

An indication of a mission completion, as well as apprehension by law-enforcement officers or avatar death, form the predominant use of stingers in GTA games, which were initially amelodic sound effects. *GTA*’s rudimentary vocal cue consisted of a male voice declaring ‘Mission complete’, accompanied by a crowd of voices exclaiming ‘Wow’ as the sonic, and comical, indication of a concluded mission. *GTA III* featured a stinger comprising a four-bar phrase in common time, with rhythm section instruments swinging sixteenth notes, an E mixolydian modal centre, and drop-tuning of the bass instrument, transcribed in Appendix 1.

⁵²⁸ Walter Murch, ‘Walter Murch’, *Transom*, 1 April 2005, accessed 12 December 2015, <https://transom.org/2005/walter-murch/>.

⁵²⁹ Neumeyer, ‘Diegetic/Nondiegetic’, 35.

⁵³⁰ Iwerks, 1928.

⁵³¹ Whalen, ‘Play Along’.

⁵³² Lerner, ‘Mario’s Dynamic Leaps’, 6.

⁵³³ CD Projekt Red, 2015.

⁵³⁴ Ubisoft Quebec, 2018.

Main Music Theme

Main musical themes are discussed at this point, between nondiegetic and U.I. music, because they often exist in either diegetic state, or in both. Like the low, menacing riff of the theme for *Jaws*,⁵³⁵ or The Rembrandts' upbeat rock song 'I'll Be There For You' describing its parent television show *Friends*,⁵³⁶ a video game's main theme can be one of the most distinguishing and memorable aspects of the product. 'Often considered one of the most important tracks in the game, the main theme serves as a game's musical signature'.⁵³⁷ They may not even have been written as a main theme, such as the 'Super Mario Bros. Theme Song' (colloquial title) heard initially in the first *Super Mario Bros.* level. Described more accurately as the 'Ground Theme', 'Overworld Theme' or 'Above Ground music', this 8-bit calypso track is one of six musical accompaniment pieces that Koji Kondo composed for the game.⁵³⁸

Even so, consumer affection and prolonged socialisation mean that this single upbeat and memorable track is one of the most recognised in the broadest game music canon, as Lerner has noted.⁵³⁹ Its placement in the first level of *Super Mario Bros.* could suggest other cognitive associations, as this is the point at which players spend considerable time honing the dexterity and reflexes that gameplay requires. With numerous accidental 'deaths' leading to multiple replays of the same level, this music may have found a culturally iconic status through inculcation. This process occurs over iterative timespans and multiple media types, and highlights the commodification potential of game music. Included negligibly in the soundtrack to the film *Super Mario Bros.*,⁵⁴⁰ it featured prominently in *The Super Mario Bros. Super Show!* television series.⁵⁴¹ This venture boosted the awareness of Nintendo's characters⁵⁴² and its adopted main theme; however, Shuki Levy retains credit as composer. Levy's contemporaneous work included music for another DiC Entertainment show, *Inspector Gadget*,⁵⁴³ which has inspired a number of licensed video games itself. It can be

⁵³⁵ Spielberg, 1975.

⁵³⁶ Burrows, 1994.

⁵³⁷ Phillips, *A Composer's Guide*, 149.

⁵³⁸ Chris Kohler, 'Behind the Mario Maestro's Music', *Wired*, 15 March 2017, accessed 27 July 2017, <https://www.wired.com/2007/03/behind-the-mario-maestros-music/>.

⁵³⁹ Lerner, 'Mario's Dynamic Leaps', 13.

⁵⁴⁰ Morton and Jankel, 1993.

⁵⁴¹ Binder, 1989.

⁵⁴² David Sheff, *Game Over: How Nintendo Zapped an American Industry, Captured Your Dollars and Enslaved Your Children* (Wilton, CT: CyberActive Publishing, 1999), 192.

⁵⁴³ Deyries, et al., 1983.

surmised that the main themes of video games follow meandering intertextual pathways, with different media often sharing the same music.

Film/game tie-ins form a substantial body of commercial, highly popular, and cyclical main themes. *Star Wars: The Empire Strikes Back*, manufactured for the Atari 2600, was the first licensed Star Wars game and included an 8-bit excerpt of John Williams' theme.⁵⁴⁴ This music has been reiterated over decades of Star Wars universe games, from *X-Wing*,⁵⁴⁵ to the Force Unleashed series, through to *Star Wars Battlefront II*.⁵⁴⁶ This extends to franchise crossover games as well, such as *Angry Birds Star Wars*.⁵⁴⁷ This is relevant to the case study analysis in Chapters III, IV and V, and to open-world game music studies in general. Main themes can also be a musical narrative truss in chronological entries of a series, such as Stephen Rippy's main theme for the *Age of Empires* (AOE) series. This theme was heard initially in the opening cinematic of AOE⁵⁴⁸ and has been included in successive AOE cinematics as nondiegetic score accompaniment. Each version has been reprised with arrangement, harmonic and stylistic alterations, depending on the historical period of each game. Todd Masten, audio director of *Age of Empires: Definitive Edition*,⁵⁴⁹ included this 'memorable thematic element' specifically in this remake due to its immediate consumer recognition.⁵⁵⁰ As well as nondiegetic music, this theme has featured during menu navigation in a number of AOE games. Therefore, the music is both the AOE series' main musical theme, and U.I. music, simultaneously. This is not uncommon, and as a significant musical signature and brand identity tool, the main theme of a game is often heard during user interface sequences, and not necessarily during core gameplay.

User Interface – Menu

These sequences include the displaying of studio and developer logos at the commencement of running game software, prior to the cueing of a main menu. Customarily, games have a main menu accessed prior to core gameplay through which the player can elect to start playing and access customisation options altering video, audio, control and gameplay settings. Another

⁵⁴⁴ Parker Brothers, 1982.

⁵⁴⁵ LucasArts, 1993.

⁵⁴⁶ EA Dice, 2017.

⁵⁴⁷ Rovio Entertainment, 2012.

⁵⁴⁸ Ensemble Studios, 1997.

⁵⁴⁹ *Forgotten Empires*, 2018.

⁵⁵⁰ Windows, 'The Music of Age of Empires: Definitive Edition', video, 2:26, 21 August 2017, posted by Windows, <https://www.youtube.com/watch?v=jL7dx4FoBSE&t=34s>.

customary menu is accessed by the player pausing gameplay, providing opportunities to change other gameplay settings. These and other less instructive menus are sometimes differentiated, sometimes not. Phillips refers to the former as the game's opening menu, while music playing during the latter is termed a menu track.⁵⁵¹ Sweet combines main menu and title screen,⁵⁵² and different still is Jørgensen's extrafictional start menu nomenclature.⁵⁵³ The present study refers to the initial menu from which the main selections can be made as the 'main menu', while the menu accessed during core gameplay is the 'pause menu', due to its temporary suspension of play, as described by Kamp.⁵⁵⁴ So that the player can concentrate on their options in a peaceful atmosphere, Phillips states that music playing during a pause menu is often subdued.⁵⁵⁵ Many games follow this line, opting for a musical de-cluttering and minimal distraction to the player's perusal of gameplay customisation choices.

A game's main musical theme may appear in the pause menu, but is more likely to occur in the main menu. In part, this can be attributed to the historically low memory and storage allocation for music in game development, which may also be why games released prior to 1980 featured little in the way of main themes. Until sufficient memory resources allowed music to be included during core gameplay, a game's main theme and its menu theme were often one and the same, purely out of circumstance. Many main themes playing during a main menu can be ended abruptly if the player elects to begin core gameplay. This is significant, as it means that only the first part of an entire theme may be experienced, and is particularly obvious in older games that featured few menu choices. The main menu in *Gex* had three selectable options,⁵⁵⁶ meaning that its main theme was likely to be heard only briefly. The full two and a half minute long theme of *Commandos: Beyond the Call of Duty* would also cease prematurely if menu selections were made briskly.⁵⁵⁷ Since these 1990s examples, memory increases have allowed for more complex compositions, and the introduction of main themes with greater diegetic sophistication.

Spec Ops: The Line uses a licensed song and evolving visuals in its main menu system to reinforce plot development.⁵⁵⁸ The story of *Spec Ops* delves perniciously into the

⁵⁵¹ Phillips, *A Composer's Guide*, 148.

⁵⁵² Sweet, *Writing Interactive Music*, 27.

⁵⁵³ Jørgensen, 'Transdiegetic Sounds', 109.

⁵⁵⁴ Kamp, 'Suture and Peritexts', 73.

⁵⁵⁵ Phillips, *A Composer's Guide*, 148.

⁵⁵⁶ Crystal Dynamics, 1994.

⁵⁵⁷ Pyro Studios, 1999.

⁵⁵⁸ Yager Development, 2012.

hallucinogenic subconscious of the military officer protagonist, as he deteriorates psychologically in parallel with his environment. Licensed rock and grunge songs set a musical tone for gameplay, but the progressively macabre narrative convulsions are reflected in main menu changes. At the game's commencement, the main menu shows a soldier sitting or standing variously, with a sniper rifle and a tattered but fluttering American flag beside him. This tableau changes as the game's levels, or 'chapters', are completed. The soldier is shown prone for combat, then with scavenger birds picking at his corpse, and finally missing completely, his weapon absent, and the once robust flag torn, fallen, and draped over his initial position. Composer Elia Cmiral's electric guitar phrases provide a sombre, crunching accompaniment to this regression to morality. Licensed music is used as well, and Jimi Hendrix's Woodstock version of 'The Star-Spangled Banner',⁵⁵⁹ originally 'The Anacreontic Song',⁵⁶⁰ also plays in the main menu. This corrupted anthem fuses together themes of consternation and eventual despair through its distorted tone, ambiguous rhythmic structure and inferences of malformed patriotism.

User Interface – Loading

'Consisting of an electronic computational device and a game simulated in software',⁵⁶¹ a video game provides only what its code and digital files contain, and what the machine it runs on can process. Loading sequences, sometimes called transition screens, are displayed by the game while the required media is loaded.⁵⁶² The loading of digital data through a processor running game software is a concept inseparable from gaming. A precursor to Nintendo's 8-bit GameBoy, the handheld Game & Watch console, used small, affordable chips that confined games to compelling but simplistic storytelling.⁵⁶³ *Donkey Kong* was a port from the original arcade version,⁵⁶⁴ and while difficulty increases made gameplay enjoyable, it was repetitive and featured no theme music. The trade-off was that it also required no loading sequences that would have delayed the player in commencing gameplay.

⁵⁵⁹ John Stafford Smith and Francis Scott Key, *Star Spangled Banner* (Philadelphia, PA: A Bacon and Co., c. 1815), accessed 24 February 2018, www.loc.gov/item/ihas.100000006/.

⁵⁶⁰ John Stafford Smith and Ralph Tomlinson, *The Anacreontic Song* (London: Longman and Broderip, c. 1779), accessed December 12 2018, www.loc.gov/item/ihas.100000012/.

⁵⁶¹ Galloway, *Algorithmic Culture*, 1.

⁵⁶² Sweet, *Writing Interactive Music*, 27.

⁵⁶³ Sheff, *Game Over*, 49.

⁵⁶⁴ Nintendo EAD, 1982.

Traditionally, unavoidable loading sequences have used static screens that require minimal processing power to display, so that there is visual interest for the player during the waiting period.⁵⁶⁵ These loading screens can be visually fracturing, but Richard Rouse III cites examples of eliding them altogether on earlier generation consoles. *Spyro the Dragon*⁵⁶⁶ avoided 'loading screens entirely [by] having Spyro fly into the air for a second (while the necessary data is swapped in) and then having him fly back to earth in the new level'.⁵⁶⁷ Rouse also points to the small but multitudinous inter-level areas in *Half-Life*,⁵⁶⁸ which are designed with the same architecture as levels. This meant that players could run over the border between levels and 'not even know they had crossed a level boundary'.⁵⁶⁹

Many games still use static screens with small 'loading' animations designed according to the game's iconography, and use music to sustain the player's interest. Hannigan has reminisced that it was 'in the not-so-distant past when simply having a clip of sampled speech or a dazzling chip tune in the menu or loading screen of a game amazed many'.⁵⁷⁰ While waiting for levels to load, the game engine in *Left 4 Dead*⁵⁷¹ passes the time 'by triggering short, scripted commentaries on the past action or the characters' prowess'.⁵⁷² Huiberts identifies the technique of loading screens continuing audio storytelling, presenting short atmospheric flashbacks, and encouraging the player to remain focused on the story. *Kane & Lynch: Dead Men* uses similar loading screen imagery,⁵⁷³ 'preventing the real world or real world thoughts from interrupting' the gaming experience.⁵⁷⁴ Erbe is more critical of loading screens in *Dragon Age: Origins*⁵⁷⁵ by citing inconsistencies of the music, which is sometimes 'heard during loading breaks so as to anticipate on-screen occurrences', and sometimes vanishes altogether.⁵⁷⁶

Main themes can 'summon vivid memories of gameplay long after a player has completed a game and set it aside',⁵⁷⁷ and open-world game loading sequences offer fertile

⁵⁶⁵ Sweet, *Writing Interactive Music*, 27.

⁵⁶⁶ Insomniac Games, 1998.

⁵⁶⁷ Rouse, *Game Design Theory & Practice*, 452.

⁵⁶⁸ Valve, 1998.

⁵⁶⁹ Rouse, *Game Design Theory & Practice*, 452.

⁵⁷⁰ Hannigan, 'Video Game Music: Is it Art? Part 3'.

⁵⁷¹ Valve South, 2008.

⁵⁷² Grimshaw, 'Player Relationships', 3.

⁵⁷³ IO Interactive, 2007.

⁵⁷⁴ Sander Huiberts, 'Captivating Sound: The Role of Audio for Immersion in Computer Games', (PhD dissertation, Utrecht School of the Arts, University of Portsmouth, 2010), 101.

⁵⁷⁵ BioWare, 2009.

⁵⁷⁶ Erbe, 'Mundane Sounds', 133.

⁵⁷⁷ Phillips, *A Composer's Guide*, 149.

ground for the recapitulation of musical elements of core gameplay. Loading screens in the Assassin's Creed series place the main character in a liminal, shapeless space, and allow the player to control the avatar while text snippets of facts and hints cycle. Music playing during these sequences is usually an extract from, or composed in the style of, the music of core gameplay. *Far Cry 4* utilises its loading screens to reinforce the character of its fictional Himalayan country, Kyrat, by playing throat-singing chants of Tibetan monks, a predominant actual-world inspiration for its setting.⁵⁷⁸ *Skyrim* also features gameworld fact text and rotating characters from the gameworld, but its loading screens are silent. Silent too are the loading screens of *Red Dead Redemption* and *Skyrim*'s antecedent *Oblivion*, which fades in legato lines of its score as gameplay loads.

The construction and narrative purposes of these diegetic, nondiegetic and U.I. musical elements have been established. Now, the proposed model requires a cognitive shift to support perceiving them not as musical elements of the gameworld, but as cultural indicators of a virtual fieldsite.

II.III Virtual Ethnography Praxis and Adaptations

Whitehead proposes that ethnography is not a 'rigid investigator control experiment', but a process of discovery, making inferences and continuing inquiry.⁵⁷⁹ The methods of traditional ethnography are not relegated to antiquity by virtual ethnography, but are embraced by it.

Virtual Ethnography Praxis

Claims made in the relevant literature support this position, and underpin the methodologies employed in the second research phase of the proposed model. Whitehead lists basic classical methods as including 'secondary data analysis, fieldwork, observing activities of interest, [and] recording fieldnotes and observations', which can be applied readily to gameworlds.⁵⁸⁰ Secondary data references include scholarly and popular publications, products, archival documents, maps, and statistical data and records, and this information can be used to identify research gaps and rectifying solutions. Other techniques, such as 'participating in activities during observations ... and carrying out various forms of informal

⁵⁷⁸ Ubisoft Montreal, 2014.

⁵⁷⁹ Whitehead, 'Classical Ethnographic Research Methods', 3.

⁵⁸⁰ Whitehead, 'Classical Ethnographic Research Methods', 3.

and semi-structured ethnographic interviewing’, may necessitate adaptations, depending on the game.⁵⁸¹ Boellstorff labels the term ‘participant observation’ as intentionally oxymoronic, arguing that one cannot fully participate and fully observe simultaneously.⁵⁸² This contends in part with Strathern’s view that participant observation exists as part of the ‘open-ended, nonlinear methods of data collection ... yield[ing] materials for which analytical protocols are often devised after the fact’.⁵⁸³

There are theoretical contradictions, but adaptable methods can overcome these. Indeed, the ‘ethnographer must be ontologically, epistemologically, and methodologically flexible and creative in the use of a range of methodologies that will help in understanding’.⁵⁸⁴ This would suggest a departure from rigid methodologies, to presume a range of more malleable techniques performed by a committed researcher.⁵⁸⁵ The ‘patient, self-critical discipline of imposing objectivity on experience’ in virtual ethnography is supported by ‘reflective observational practices and ... recording of fieldnotes’.⁵⁸⁶ In light of this an, open mind and malleable methods are recommended as important to virtual ethnography, and ethnographic research of any kind.

Boellstorff et al. frame their discussion to describe virtual worlds as possessing certain characteristics, one of which is a multi-user nature. ‘They exist as shared social environments’ supporting engagement in solitary activities, but ‘thrive through co-inhabitation with others’.⁵⁸⁷ Therein lies a conceptual complication. The more anthropological tenet of virtual ethnography that Boellstorff pursues is based on conducting research predominantly in MMOs, and, therefore, in a multiplayer environment. *GTA V* features a GTA Online Multiplayer mode as well as a single-player mode, and the exclusion of GTA Online from the present study is addressed below. Interviews play a fundamental role in the accrual of data during fieldwork, so as to inform conclusions upon later reflection. In the absence of actual world players assuming the role of interlocutor, and NPCs controlled by the game engine, most forms of dialogue-based interview are impossible. As stipulated above, however, the purpose of virtual ethnography in the present study is not to discover

⁵⁸¹ Whitehead, ‘Classical Ethnographic Research Methods’, 3.

⁵⁸² Tom Boellstorff, ‘A Ludicrous Discipline? Ethnography and Game Studies’, *Games and Culture* 1, no. 1 (2006): 29–35, at 32.

⁵⁸³ Marilyn Strathern, *Commons and Borderlands: Working Papers on Interdisciplinarity, Accountability, and the Flow of Knowledge* (Wantage: Sean Kingston Publishing, 2004), 5.

⁵⁸⁴ Whitehead, ‘Classical Ethnographic Research Methods’, 8.

⁵⁸⁵ Whitehead, ‘Classical Ethnographic Research Methods’, 8.

⁵⁸⁶ Boellstorff et al., *Ethnography and Virtual Worlds*, xiv.

⁵⁸⁷ Boellstorff et al., *Ethnography and Virtual Worlds*, 7.

players' socialised perceptions to gaming, but to contextualise the musical elements of culture within a gameworld, substantiated as a reality.

Virtual online gameworlds offer a persistency in that they continue to exist in some form even when players log off, while 'single-player non-persistent worlds [are] encountered in many non-networked console and computer games' as well.⁵⁸⁸ To elucidate, Boellstorff et al. cite *Bioshock* as an example of a non-persistent world. There is a critical distinction to be made here, as *Bioshock* is nonlinear in its design but is not an open-world game, while *GTA V* is both nonlinear in much of its design and an open-world game. Persistent concerns of gameworlds such as economies, day–night environment cycles, and permanency of player choices suggest that single-player open-world games do indeed continue to exist after the player has stopped playing. The game engine, not players' actions, can present the player/scholar with a single-player gameworld that is different from the last time they entered it.

In this way, single-player open-world games can sustain a persistency greater than that of FPS multiplayer games. Boellstorff et al. describe *Halo: Combat Evolved*,⁵⁸⁹ for example, as inappropriate for virtual ethnography, since 'the world is only "on" as long as players are present'.⁵⁹⁰ The sense of 'worldness' in the city of Los Santos and state of San Andreas in *GTA V* is tangible, as is the depth to which its music propels an internal, virtual culture. The game is a superlative example of the sense of 'being there' that Miller espouses, which is felt conventionally in the field, and a virtual 'fieldwork's rite-of-passage quality'.⁵⁹¹ Boellstorff recommends taking 'these games ... on their own terms' and, in that spirit, the present discussion examines the application of virtual ethnography research methods, adapted to investigate the musical culture within the *GTA V*'s coherent system of meaning.⁵⁹²

Virtual Ethnography Application

In single-player games, the process of close-play analysis, otherwise known as analytical play or studied gameplay, is a predominant form of interaction between player/ethnographer and gameworld/fieldsite. This form of gameplay is conducted during free exploration and without taking part in story missions. By controlling a digital character throughout this

⁵⁸⁸ Boellstorff et al., *Ethnography and Virtual Worlds*, 8.

⁵⁸⁹ Bungie, 2001.

⁵⁹⁰ Boellstorff et al., *Ethnography and Virtual Worlds*, 8.

⁵⁹¹ Miller, 'Accidental Carjack'.

⁵⁹² Boellstorff, 'A Ludicrous Discipline', 33.

investigation, the agency of the ethnographer is embodied within an avatar,⁵⁹³ albeit not completely. Miller's research has shown that there is ample agency and import in 'playing along: working within the constraints of game rules, commercial platforms, and existing repertoires'.⁵⁹⁴ There is credibility, therefore, in considering the NPCs in *GTA V*'s gameworld 'citizens' within San Andreas, and the gameworld identified as a fieldsite,

There is a large degree of freedom provided when navigating the fieldsite, and this extends to transportation methods. Making observations while on foot or riding a bicycle has the benefit of being conducive to the impromptu participation in activities. Another reason is that travelling in cars tends to block ambient noises of the surrounding environment, although they are useful for reducing the travel time of long journeys and offer their own research opportunities. The *GTA V* map can be dissected to aid in the navigation of its areas, creating zones that have closed boundaries, on paper at least. These boundaries are more of a conceptual tool used to restrict diffuse ambulatory exploration and provide a formalised investigation structure, and can be modified easily as they are impermanent. They are drawn up based on contiguous social and geographical regions identified through analysis of the map's suburbs, neighbourhoods, and regions, to pursue ethnographic data sequentially throughout each zone. Terminology changes required while focusing on this second research phase mean that soundtrack and diegetic music are exchanged for musical elements of the field, or musicscape of the environment. This adapted vocabulary is necessary in distinguishing the methodologies within Virtual Ethnography from narrative technology in Game Music Design, and modes of experience in Music in Culture. It is also useful in perceiving the virtual fieldsite axiomatically as a 'place' possessing a substantiated reality, not as a gameworld.⁵⁹⁵

The originality of the proposed model's form of virtual ethnography brings with it the challenge of how best to present research findings. The main element contributing to this challenge is the distancing of the scholar's actions from any kind of interpersonal contact, to one of solitary fieldwork within a virtual world. The circumvention of unmediated subjectivity has been a priority in light of this research matrix, and the processes here are not intended to approximate an auto-ethnographical account. Instead, the *Weltanschauung* of great exploration and adventure inherent within traditional ethnographic fieldwork is

⁵⁹³ Boellstorff et al., *Ethnography and Virtual Worlds*, 7.

⁵⁹⁴ Cheng, *Sound Play*, 5.

⁵⁹⁵ Boellstorff, *Coming of Age*, 17.

embedded within these processes.⁵⁹⁶ This rationale is espoused in Boellstorff et al.'s handbook, wherein the authors claim 'the ethnographic research paradigm does not undergo fundamental transformation or distortion in its journey to virtual arenas'.⁵⁹⁷ This is corroborated by the observation that each fieldsite will require a modification of ethnographic approach, and this analytical view is of substantial utility to the presentation phase of this research.

A preliminary recommendation of avoiding the 'ethnographic present' tense has been adopted,⁵⁹⁸ as the present tense can unintentionally render the descriptions of objects and recordings of actions obsolete. This morphological consideration is significant to the accurate representation of virtual fieldsite findings, and so a grammatical syntax employing the simple past tense with participles is used. This provides a candid tone and conveys a reflective inference. The Research Questions of this study pertaining to the virtual ethnography research phase guide the actions and ambitions of fieldwork, as would be required of any ethnographic investigation.⁵⁹⁹ The prosaic, almost conversational quality used by Kingsley and others can be tempered with analytical references to secondary data sources,⁶⁰⁰ to encourage critical, although not ardently scientific,⁶⁰¹ erudition.

Storytelling in its most rudimentary form requires a storyteller to conjure or interpret a relayed narrative. Edgar expresses narrative as, in reduced terms, 'the recounting of an episode, or a series of episodes in temporal and causal sequence',⁶⁰² a view relevant to the recounting of fieldsite experiences. The concept of narrative persists in ethnographic writing too – not necessarily borne of the author's harrowing emotional upheaval,⁶⁰³ as portrayed in *L'Afrique fantôme* – but in the distillation of fieldsite data, and crafting of a literary story. To this end, Emerson et al. approach fieldnotes and other data not as examples in a thematic narrative, 'but as building blocks for constructing and telling the story in the first place'.⁶⁰⁴

⁵⁹⁶ Marcel Griaule, *Les Grandes Explorateurs* (Paris, France: Presses Universitaires de France, 1948), 119.

⁵⁹⁷ Boellstorff et al., *Ethnography and Virtual Worlds*, 4.

⁵⁹⁸ Boellstorff et al., *Ethnography and Virtual Worlds*, 194.

⁵⁹⁹ Renato Rosaldo, *Culture and Truth: The Remaking of Social Analysis* (Boston, MA: Beacon Press, 1993).

⁶⁰⁰ Whitehead, 'Classical Ethnographic Research Methods', 3.

⁶⁰¹ Boellstorff et al., *Ethnography and Virtual Worlds*, 190.

⁶⁰² Pelham Edgar, *The Art of the Novel: From 1700 to the Present Time* (New York, NY: The Macmillan Company, 1933), 16.

⁶⁰³ Michel Leiris, *L'Afrique fantôme* (Paris: Librairie Gallimard, 1934).

⁶⁰⁴ M. Robert Emerson, Rachel I. Fretz, and Linda L. Shaw, *Writing Ethnographic Fieldnotes* (Chicago, IL: University of Chicago Press, 1995), 171.

The grammatical first person is used when presenting ethnographic findings in Chapter I's diegetic music section, and in its equivalent nondiegetic section in Chapter IV. An exception is when reference to large geographical landmasses of relative assumed permanence is made, such as mountains and city locations. This is because they are unlikely to change form radically in the near future; as virtual natural disasters do not pervade the *GTA V* gameworld, this may extend to large urban constructs too.

This perspective is useful when recounting experiences arising from participating in activities, and describing other interactions during fieldwork. It draws on the third method of locating ethnographic subjects in GTA gameworlds put forward by Miller, that is, to 'suspend one's disbelief and treat them like actual places with human inhabitants'.⁶⁰⁵ As argued through this study, intellectual acquiescence is fundamental to the success of the proposed form of virtual ethnography. By restricting the 'broad methodological palette' afforded to ethnographers,⁶⁰⁶ and maintaining the implicit storytelling aspects conceptually, the presentation of field research in this study aims to remain true to, and extend, principles of this discipline.

Haptic Interactivity and Control

Newman recommends that 'videogame spaces are experienced viscerally with the whole body',⁶⁰⁷ and the necessity of learning a game's control scheme for successful gameplay should be a consideration when conducting fieldwork. Deciding which button to press or toggle stick to move is an unavoidable thought process that requires cognitive attention during fieldwork. Non-gamers and non-game music scholars may see this as a distraction, as the lower order mental processes of remembering button sequences imply a reduced ability to conduct virtual ethnography with efficacy. With any recursive action involving consistent kinaesthetic engagement, however, the attention paid to the minutiae of the action decreases over time.

Neuroscience literature underpinning this view is based on research suggesting that repetitive and prolonged short-term training and rest sequences, a behavioural pattern

⁶⁰⁵ Miller, 'Accidental Carjack'.

⁶⁰⁶ Boellstorff et al., *Ethnography and Virtual Worlds*, 65.

⁶⁰⁷ Newman, *Videogames*, 125.

commensurate with gaming, allow new declarative memory to be formed efficiently.⁶⁰⁸ Yamazaki et al. conducted this research by testing cerebellar cortex activity using a model simulation for the optokinetic reflex, a combination of smooth pursuit, and saccade (simultaneous and rapid movement of both eyes between points) movements. These ocular responses are experienced during interactions with gameplay and computer tasks with a high cognitive workload, which also sees increases in pupil dilation⁶⁰⁹ and saccadic eye-movement time.⁶¹⁰

Whether or not this suggests an increase in perceived information,⁶¹¹ the vestibulo-ocular reflex that enables eyes to focus on specific point is a function of the cerebellum,⁶¹² the focus of Yamazaki et al.'s research. It is the mechanisms active within the cerebellar cortex and cerebellar/vestibular nuclei, Yamazaki et al. propose, that participate in long-term motor memory function – or ‘muscle memory’. It has been proven independently that the large-scale motion of virtual visual surroundings, such as gameworlds, triggers the optokinetic reflex.⁶¹³ This in turn can gain a short-term increase with short-term training and rest playing sequences,⁶¹⁴ and enables the formation of motor memory within various cerebral nuclei. The mere engagement in gameplay facilitates the muscle memory that provides instinctual and reflexive responses, manifesting in dexterous proficiency with a controller.

A game's control scheme can be perfected through extended gameplay interaction that, ultimately, allows the player to trust in their extemporaneous reactions to gameplay, and commit their cognitive focus to higher order tasks, such as ethnographic research. Miller has

⁶⁰⁸ Tadashi Yamazaki, et al., ‘Modeling Memory Consolidation During Posttraining Periods in Cerebellovestibular Learning’, *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 11 (2015): 3541–3546, at 3541.

⁶⁰⁹ Sandra P. Marshall, ‘Assessing Cognitive Engagement and Cognitive State from Eye Metrics’, in *Foundations of Augmented Cognition*, ed. Dylan Schmorrow (Mahwah, NJ: Lawrence Erlbaum, 2005), 312–320.

⁶¹⁰ Koji Takahashi, Minoru Nakayama, and Yasutaka Shimizu, ‘The Response of Eye-Movement and Pupil Size to Audio Instruction While Viewing a Moving Target’, in *Proceedings of Eye Tracking Research and Applications Symposium 2000, Palm Beach Gardens, Florida, USA, November 6–8, 2000*, ed. Andrew T. Duchowski, ACM, 2000, 131–138.

⁶¹¹ Charlene Jennett, et al., ‘Measuring and Defining the Experience of Immersion in Games’, *International Journal of Human-Computer Studies* 66, no. 9 (2008), 641–661.

⁶¹² Christopher Bergland, ‘How Does Practice Hardwire Long-Term Muscle Memory?’ *Psychology Today*, 27 March 2015, accessed 27 September 2018, <https://www.psychologytoday.com/au/blog/the-athletes-way/201503/how-does-practice-hardwire-long-term-muscle-memory>.

⁶¹³ Loïse Caroux, Ludovic Le Bigot, and Nicolas Vibert, ‘Impact of the Motion and Visual Complexity of the Background on Players’ Performance in Video Game-like Displays’, *Ergonomics* 56, no. 12 (2013): 1863–1876.

⁶¹⁴ Bergland, ‘Muscle Memory’.

commented on this research aspect, positing that the ethnographer-player ‘becomes the avatar’s apprentice, building technical skills through increasingly difficult exercises until becoming accomplished enough to improvise’.⁶¹⁵ This has also been proven in the critical matrix of military training and defence. The first US Navy fleet vessel designed from its inception to use these Xbox gamepads is the 2018-commissioned USS Colorado (SSN 778). Personnel familiarity is claimed to cut training time, and the ergonomically designed Xbox controllers allow sailors to control onboard photonic masts,⁶¹⁶ successor to the periscope.

Music in games ‘is a discrete patterns of sound and silences generated by the game software which, in combination with other visual, kinaesthetic and tactile sensory stimuli, contribute to creating the phenomenon of the gameworld’.⁶¹⁷ As music of this research environment is the primary focus of this research phase, it is recommended that the use of a controller within virtual ethnography is necessary, and does not impact negatively on the analytical integrity of findings.

***GTA V* Adaptations**

In developing a *GTA V* gameworld imbued with realism and persistency, it is likely that Rockstar North and Rockstar Games did not have the scholarly endeavour of virtual ethnography in mind. In light of this, practicality and logistical choices have been considered in supporting fieldwork authenticity. These include avatar choice, point of view (PoV), gameplay settings, and the interpretation of gameplay mechanics. Participant observation and recording is carried out easily when live music performances are encountered, and by visiting the locations in which music is made and played. The design of *GTA V* is more conducive to physical engagements between avatar and NPC, rather than spoken interactions. Extended conversations with extemporal subject and reaction pathways are usually not possible, as the game was not designed with extended conversation trees. This means that the studied accumulation of San Andreas citizens’ musical choices and preferences must be achieved through means other than parsed questioning. What the game mechanics do support is the carjacking of NPCs, a process that gives the player immediate exposure to the music playing in a stolen vehicle, immediately after the time of theft.

⁶¹⁵ Miller, ‘Accidental Carjack’.

⁶¹⁶ Navy Live, ‘Five Things to Know About USS Colorado’, *Navy Live*, 13 March 2018, accessed 5 February 2019, <http://navylive.dodlive.mil/2018/03/13/five-things-to-know-about-uss-colorado/>.

⁶¹⁷ Munday, ‘Music in Video Games’, 54.

Employing this seemingly philistine *modus operandi* may seem at odds with the amenable and non-violent participatory nature in which ethnographic data should be accrued. Nonetheless, it is not so detrimental to the philosophy of virtual ethnography to preclude its use. To maintain theoretical grounding, the practice of interviewing in virtual ethnography merits further attention as well.

Whitehead distinguishes between ethnographic interview types according to the level of structure and/or control provided by the investigator, and they are diverse. The ethnographer's plan is maintained during unstructured interviews,⁶¹⁸ while semi-structured interview and structured interviews rely on interview guides and stimuli, respectively. A 'natural conversational ethnographic interview' functions as described,⁶¹⁹ while Bernard's informal interview form is characterised 'by a *total lack* of structure or control' and relies on the ethnographer's records.⁶²⁰ *GTA V*'s single-player mode offers a similar variety of interviewing possibilities, from carjacking interactions and verbal salutations, to comparatively prolonged conversations. As the proposed model is designed for future game applications, it is worth noting that other single-player open-world games offer a wider range of interviewing opportunities. As a principle, primacy is placed on the 'valid understanding of the sociocultural contexts, processes, and meaning systems that are of significance to the study participants' through ethnographic investigation.⁶²¹ Conversations and more structured interviewing form one part of the entire observation, interaction, and participation processes allowing the ethnographer to assign meaning to sociocultural contexts in the field.⁶²² Boellstorff et al. summarise that the 'practice of ethnography in virtual worlds is informed by the twin trajectories of the development of methodological frameworks and ongoing [sic] technological change'.⁶²³

Ultimately, the '[game] software instructs the machine to simulate the rules of the game through meaningful action',⁶²⁴ and it is these rules by which virtual ethnography must abide. In GTA games, carjacking is one of many rules embedded within the narrative construct. Welsh recommends that 'carjacking is a simple matter of procedure, a tactical

⁶¹⁸ Whitehead, 'Classical Ethnographic Research Methods', 15.

⁶¹⁹ Whitehead, 'Classical Ethnographic Research Methods', 16.

⁶²⁰ H. Russell Bernard, *Research Methods in Anthropology: Qualitative and Quantitative Approaches*, 3rd ed (Walnut Creek, CA: AltaMira Press. 2002), 204.

⁶²¹ Whitehead, 'Classical Ethnographic Research Methods', 6.

⁶²² Whitehead, 'Classical Ethnographic Research Methods', 6.

⁶²³ Boellstorff et al., *Ethnography and Virtual Worlds*, 17–28.

⁶²⁴ Galloway, *Algorithmic Culture*, 2.

application of logic in a particular situation. As such, it becomes second nature, everyday, and thus blends into the background'.⁶²⁵ The confines and freedoms of gameplay dictate other limitations and extensions that contrast with actual world fieldwork, such as interlocutory ease. The study of virtual worlds should 'be driven by research questions not a priori methodological dogmas or preferences',⁶²⁶ and so this study argues that carjacking is an action in service of fieldsite data accrual.

Avatar Choice

By featuring three protagonists, *GTA V* offers gameplay experiences that are precluded by most contemporary open-world games. The choice of avatar for this research phase is based on practicality and characteristics of the *GTA V* gameworld. African-American Franklin Clinton's plotline is bound inextricably to a persistent gang war, and narrative consistency means that he is likely to experience unprovoked attacks throughout Los Santos by NPCs of his rival Ballas street gang. Trevor Phillips' personality means he will emit offensive and incendiary remarks to NPCs extemporaneously, which invariably elicits responses of a violent or avoidant nature, making for unfavourable gameplay interactions. The remaining protagonist, white middle-aged male Michael De Santa, possesses a nefarious past. This element of his character is confined most often to story missions, and Michael's interactions with NPCs are the most conducive to soliciting positive conversations. It is because of Michael's genial interactions relative to Franklin and Trevor that he presents the most balanced and effective avatar option for fieldsite research.

First-Person PoV

In the early 1990s, Texas company id Software defined the FPS genre with *Wolfenstein 3D*,⁶²⁷ portraying a gameworld of a freely navigable castle environment of structured pathways in which to exterminate numerous enemies. Key to the groundbreaking realism of gameplay was the first-person perspective, exploiting parallax-motion and graphics to place the player in the virtual shoes of the protagonist.⁶²⁸ *Quake* and *Duke Nukem 3D*⁶²⁹ developed

⁶²⁵Timothy J. Welsh, 'Everyday Play: Cruising for Leisure in San Andreas', in *The Meaning and Culture of Grand Theft Auto: Critical Essays*, ed. Nate Garrelts (Jefferson, NC: McFarland, 2006), 127–142, 139.

⁶²⁶Boellstorff et al., *Ethnography and Virtual Worlds*, 5.

⁶²⁷Id Software, 1992.

⁶²⁸Kline et al., *Digital Play*, 144.

⁶²⁹3D Realms, 1996.

and further popularised what had become fundamental FPS design, in which the player sees no more than their character's hands or weapons.⁶³⁰ The perspective is employed in games of other types too, such as *Oblivion*, (open-world), *Forza Horizon 3* (vehicle racing game), and *Ace Combat 6: Fires of Liberation* (flight simulator).⁶³¹

GTA games have avoided this in the past, only offering a first-person view in the re-releases of *GTA V* for PlayStation 4 and Xbox One, and PC, harnessing the memory and processing capabilities of those platforms.⁶³² Animation Director Rob Nelson explains, 'we felt like one of the most compelling things you could do to make an experience people have had before feel different was the new first-person mode', and the resulting gameplay offered 'a very intense, in-your-face experience'.⁶³³ The first-person PoV encourages a visceral sense of corporeal existence within the gameworld, as the player sees through the avatar's own eyes. Open-world games not offering this perspective should not be excluded from ethnographic research, but this PoV delivers a heightened sense of corporeal existence that is distinct from a third-person perspective. In furtherance of an enhanced exploration experience, and a more engaging and realistic interaction with assets within the gameworld, navigating the *GTA V* gameworld has been viewed through the first-person perspective.

HUD Removal

The purpose of a heads-up display (HUD) in gaming is to provide a visual representation of gameplay status to the player, usually in the form of a compartmentalised collection of useful statistics. Customarily, these include indicators of health, armour, inventory and navigation, and are positioned at the game screen's periphery to avoid obstructing core gameplay while still being viewed easily. Removing the HUD completely is a further step towards cultivating an environment favourable to virtual ethnography.

This is a dangerous option during the earliest experiences with a new game, as details of health and spatial information vital to an avatar's survival would be missing. Once the player has become sufficiently comfortable with the control scheme, statistical indicators

⁶³⁰ Mark Grimshaw, Craig A. Lindley, and Lennart Nacke, 'Sound and Immersion in the First-Person Shooter: Mixed Measurement of the Player's Sonic Experience', in *Proceedings of Audio Mostly Conference – A Conference on Interaction with Sound*, ed. Interactive Institute (Piteå, Sweden: Audio Mostly, 2008), 9–15, at 9.

⁶³¹ Project Aces, 2007.

⁶³² Daniel Krupa, 'Grand Theft Auto 5: A New Perspective', *IGN*, 4 November 2014, accessed, 18 January 2018, <https://au.ign.com/articles/2014/11/04/grand-theft-auto-v-a-new-perspective>.

⁶³³ Krupa, 'Grand Theft Auto 5: A New Perspective'.

and map layout of a game, the HUD can be dispensed with. Without a HUD displayed, the player can break free from visual shackles indicating digital game software, to experience only what the gameworld presents as its own reality. In light of this, the removal option of the HUD in *GTA V* was taken during field research.

Exclusion of GTA Online

A predominating virtual ethnography focus is the study of MMO gaming communities. While *GTA IV* had limited multiplayer options, *GTA Online* offers a developed multiplayer mode, which exists within the same gameworld as the single-player mode and features structured and ambient missions, and activities. RPG influences are found in the player's avatar body, clothing, property and vehicle customisation, and in avatar fitness and driving statistics that are advanced through gameplay. Rockstar Games releases updates for *GTA Online*, usually as part of a diegetic theme, and typically containing new missions, competitive activities, weapons, clothing, vehicles and music. As well as the Valentine's Day Massacre Special and the I'm Not a Hipster update, new music was introduced in a significant Lowrider update. The After Hours update perpetuated *GTA*'s symbiotic relationship with music by introducing a nightclub to co-own and operate, and actual world motion captured DJs performing their music in-game. New and intertextual music/narrative elements are key considerations of the proposed research model, but *GTA Online* will not be investigated here for several reasons.

One is a philosophical position. *GTA Online* represents potentially fertile ground for virtual ethnography studies of the conventional MMO kind. In seeking a new perspective that extends existing methods, this project shifts focus consciously from the intersubjectivity of actual world players. Instead, the instructive capacity of music embedded within the stipulated culture of an open-world environment is the focus of this study. This music-centric virtual ethnography is predicated on the scholar's axiomatic interpretation of a gameworld as existing in and of its own reality, and a lapse in maintaining this approach would contradict its coherent foundation and purpose. This connects with a second reason, which is the environment of multiplayer activity. Zagal suggests that playing a game may extend to participation in social and communicational practices, and cites MMO player language as an example. However, these communication elements stem from Zagal's discussion centring on playing a game, rather than studying its gameworld. As temporarily achronological

foreign agents, other players in GTA Online present certain obstacles to this kind of field research.

The free playground nature of GTA Online is well-suited to the sandbox gameworld. Emergent and surprise interactions with other players are common in this online environment, and while this makes for enjoyable gameplay, it means that this multiplayer mode is not conducive to methodical, structured fieldwork. In spite of software measures discouraging experienced players from unmitigated ‘bullying’, an avatar’s sudden and unexpected death at the hands of another player’s rocket, bullet or bonnet is to be expected, and a gameplay session can be interrupted in these ways. Players invest considerable time in advancing their avatar’s abilities and available weaponry, the better to target other players perniciously. This is the third reason for omitting GTA Online here. While this behaviour is an acceptable exploitation of the game rules, NPC interactions in *GTA V*’s single-player mode can be more controlled. Zwiezen goes so far as to say that the main problem with GTA Online is, in fact, the many players who compel other players to change their network and Internet settings, in attempts to avoid adversarial players.⁶³⁴

Software errors, screen freezing and crashes can occur in single-player mode, but software safety measures implemented in GTA Online are a fourth reason for excluding it. A software glitch called ‘wall breaching’ involves a character being able to ‘clip’ through a surface, such as hiding inside a wall. This flaw in a digital surface’s structural integrity means that a player can attack other players, but remain invisible and impervious to counter-attack, hiding in the erroneous and unanticipated space. To mitigate this, *GTA V*’s developers have identified areas in GTA Online prone to this glitch, and turned them into ‘death spots’, causing players who approach them to die instantly. As they are unmarked, multitudinous and easily encountered, players not seeking to exploit the glitch die instantly as well,⁶³⁵ which is undesirable in virtual ethnography (and ethnography in general).

Intermittent, weaker connections and fluctuating server speeds can cause online connectivity to suffer from information sharing latency.⁶³⁶ One such issue is lag, ‘the effect a user perceives when there are long delays between the time a command is executed and

⁶³⁴ Zack Zwiezen, ‘GTA Online’s Biggest Problem Is Other Players’, *Kotaku*, 14 September 2018, accessed 29 September, <https://www.kotaku.com.au/2018/09/gta-onlines-biggest-problem-is-other-players/>.

⁶³⁵ Zack Zwiezen, ‘GTA Online Is Full Of Places Where You’ll Automatically Die’, *Kotaku*, 16 August 2018, accessed September 20 2018, <https://www.kotaku.com.au/2018/08/igta-online-is-full-of-places-where-youll-automatically-dieemem/>.

⁶³⁶ Salen and Zimmerman, *Rules of Play*, 453.

the time its effects appear'.⁶³⁷ If a player presses a button commanding their avatar to move left, and the avatar moves several seconds later, whatever the player sought to pursue is likely gone. Online connectivity problems may also result in the client/server connection being closed down until it can be reestablished.⁶³⁸ This is frustrating for recreational play, but it makes effective fieldwork in virtual ethnography studies much more difficult, breaking the research process through a failing of the hypermediated construct.⁶³⁹

It is for these philosophical, functional and technical reasons that GTA Online does not feature in the Virtual Ethnography phase of the proposed model's application. To maintain a consistent approach, it is not mentioned significantly in the Game Music Design phase, but Rockstar Games' use of GTA Online to promote *GTA V*'s music, musicians, and musical culture receives attention in the Music in Culture phase. This section has outlined a justification of the adaptations made to virtual ethnography methods to suit the gameworld of *GTA V*, in order to achieve the research aims of this study. With this task complete, the present chapter turns to a final discussion of the proposed model's third phase of research.

II.IV Brand Identity and Culture of Connectivity

Video games are the nucleus of advertising and licensing practice synergies, which are nested within contemporary popular culture. Reflexive property franchising sees in-game content reentering a game,⁶⁴⁰ after playing roles in actual world marketing campaigns, promotional events, and cross-media tie-in products. This means that game music rarely functions solely within a gameworld. The economics governing market society managers and smooth capital circulation,⁶⁴¹ however, do not stop sovereign consumers from ignoring well-planned and executed marketing strategies. If players don't find games to be enjoyable or stimulating enough, they will not purchase them. If a game developer is perceived as failing to honour the commitment shown to them by players, their games will receive negative reviews and poor sale results. With gamer communities connected so extensively online, fan discourse spreads highly influential assessments of games with rapidity.

⁶³⁷ Edward Castronova, *Synthetic Worlds: The Business and Culture of Online Games* (Chicago, IL: The University of Chicago Press, 2005), 83.

⁶³⁸ Castronova, *Synthetic Worlds*, 83.

⁶³⁹ Salen and Zimmerman, *Rules of Play*, 453.

⁶⁴⁰ Kline et al., *Digital Play*, 21.

⁶⁴¹ Kline et al., *Digital Play*, 38.

Whereas the Xbox and PlayStation versions were popular when the open-world game *Batman: Arkham Knight* was released for PC, its release was met with significant criticism.⁶⁴² The PC port suffered from numerous technical and gameplay issues, such as constant software crashes, unpredictable frame rates and poor computer memory utilisation.⁶⁴³ These caused gameplay interruptions that inhibited a flourishing of the narrative. Such was the level of negative consumer response that the game's publisher Warner Bros. withdrew it from sale temporarily, and offered a refund for the unsatisfactory experience.⁶⁴⁴ Rather than succumbing to franchise obsessions, it would seem that gamers have few qualms in divesting themselves of a sub-par product.

The participation in mass consumerism does not define the discerning player community entirely as collective lemmings bedazzled by the magic of new technologies. To wit, 'videogame producers cannot rely on technology alone to provide future success; technology alone is insufficient to impress gamers'.⁶⁴⁵ Newman points to the esteem in which players held the original Pokémon games, which possessed music and sound resembling consoles of the 1970s, featured little animation, and were rendered in four shades of 2D grey. The high sales figures accrued by the series speak to the 'way in which the experience transcends the apparent limitations of the host platform'.⁶⁴⁶ In the case of *Arkham Knight*, no publicity campaign budget or established Batman lore fandom would have assuaged fans' dissatisfaction at game developers breaking the covenant of publisher and consumer.

In an age of near-instantaneous communication and a plethora of modes of transmission by which a product may be advertised and promoted, gameplay now forms but one way in which players can experience video game music. The role of music within the cultural equation of consumer and publisher has developed from that of mediation, and musicians becoming an integral component. A subsequent Culture of Connectivity capitulates to commercial imperatives, but also transcends mere wealth creation. A brief introduction to early uses of music in game promotion provides a context for this, and prefaces a more detailed discussion below.

⁶⁴² Rocksteady Studios, 2015.

⁶⁴³ Fraser Brown, 'Batman: Arkham Knight PC Port Review', *PCGamesN*, 29 October 2015, accessed 9 September 2018, <https://www.pcgamesn.com/batman-arkham-knight/batman-arkham-knight-pc-port-review>.

⁶⁴⁴ Dan Crawley, 'Warner Bros. Suspends PC Sales of Batman: Arkham Knight, Retail Stores Pulling it From Shelves', *VentureBeat*, 25 June 2015, accessed 9 September 2018, <https://venturebeat.com/2015/06/25/warner-bros-suspends-pc-sales-of-batman-arkham-knight-retail-stores-pulling-it-from-shelves/>.

⁶⁴⁵ Newman, *Videogames*, 164.

⁶⁴⁶ Newman, *Videogames*, 164.

Developments of Music Promotion Through Video Games

Like the two hands of a master ceramicist, popular music and video games have long coexisted, developing to shape an ever-spinning crucible of global popular culture. Fourteenth-century France was the environment in which the emancipation of rhythmic modes in developing Ars Nova music could occur,⁶⁴⁷ while entertainment and communication were changed forever by the controlled amplitude and frequency modulation of radio waves. Reminiscent of these past creative and technological manoeuvres, the video game has been a crucible of musical interaction, and experimentation.

‘For almost as long as there has been modern rock music, there has [sic] been video games’,⁶⁴⁸ and there are many examples of modern and classic rock music coexisting with video games. World Video Game Hall of Fame inductee *The Oregon Trail*⁶⁴⁹ shares a release date with ‘American Pie’ by Don McLean, and The Rolling Stones’ ‘Brown Sugar.’ Prior to this, 1962 saw both the creation of *Spacewar!* and release of Elvis Presley’s ‘Return to Sender’, and three months after Nirvana’s *Nevermind* album was released, *Sonic the Hedgehog*⁶⁵⁰ was launched.⁶⁵¹ *The Sims*⁶⁵² and U2’s ‘Beautiful Day’ share release dates, as do *Dead Space*⁶⁵³ and Coldplay’s ‘Viva la Vida’, and Lorde’s ‘Royals’ and *GTA V* in 2013. Many ‘early coin-operated arcade games included classical music’⁶⁵⁴ and traditional popular songs as musical drawcards. As composer Mark Cooksey explains, the oblique element during this incipient phase of game production was that ‘copyright law was a bit of a grey area as far as computer music was concerned’.⁶⁵⁵ Many games used pre-composed music, but copyright clearance was not sought for the bulk of this content.

There were exceptions, and a number of games from this era licensed music because the game’s narrative centred around popular bands and artists. Mechanical construction

⁶⁴⁷ Lawrence Earp, ‘Ars Nova’, in *Medieval France: An Encyclopedia*, ed. William W. Kibler, Grover A. Zinn, Lawrence Earp, John Bell Henneman, Jr., (New York & London: Garland Publishing, 1995; e-Library ed., 2006), 134–136, at 135.

⁶⁴⁸ Brendan Keogh, ‘You Can’t Ignore the Cultural Power of Video Games Any Longer’, *ABC*, 5 April 2016, accessed 28 November 2016, <https://www.abc.net.au/news/2016-04-06/keogh-why-you-should-care-about-video-games/7303744>.

⁶⁴⁹ Rawitsch et al., 1971.

⁶⁵⁰ Sonic Team, 1991.

⁶⁵¹ Keogh, ‘You Can’t Ignore’.

⁶⁵² Maxis, 2000.

⁶⁵³ EA Redwood Shores, 2008.

⁶⁵⁴ Collins, ‘Grand Theft Audio?’ 40.

⁶⁵⁵ Neil Carr, ‘An Interview with Mark Cooksey’, *Remix64*, 17 May 2001, accessed 21 January 2019, <https://www.remix64.com/interviews/interview-mark-cooksey.html>.

techniques were developed in order to realise the potential commercial benefits of these endeavours, and it was often a game's sound requirements that drove innovation in hardware technology.⁶⁵⁶ An example is the arcade game *Journey*,⁶⁵⁷ released during the heightened popularity of that band during the early 1980s. In the game, players controlled the Journey band members in order to recover musical instruments, dodge LP albums, and jump around piano keys and drums.⁶⁵⁸ Of note is the mechanical process that facilitated musical accompaniment during the reaching of a bonus level. An onboard tape deck fastened to the arcade cabinet's internal frame was set with the play button depressed. When triggered by an internal control, the cassette player would receive electrical power from the machine's circuitry, begin an endless loop cassette housed inside, and play the band's song 'Separate Ways (Worlds Apart)'.⁶⁵⁹

As a tool of brand recognition and marketing, the inclusion of this song in a Journey game was adroit musical advertising, and the significance should not be overlooked. Pains were taken to circumnavigate the technical constraints of low-bit memory storage to include this song during gameplay. Ludically, the song functions as a reward for the player's efforts in completing the game and is unique, as no other contemporaneous game was able to play an actual music soundtrack in this way.⁶⁶⁰ Reaching this point in the game was a time-consuming process, but at an economical US\$0.25 per session, the player could curate a personalised listening experience and enjoy Journey's recently released single from the 1983 *Frontiers* album.⁶⁶¹ With the arrival of the late 1980s and early 1990s, the increased sound fidelity of 16-bit machines made musical pieces comparatively more recognisable, and this necessitated greater diligence regarding copyright.⁶⁶² It was at this time that Sega began to employ cross-marketing strategies involving *Michael Jackson's Moonwalker*,⁶⁶³ which introduced the singer's music and dance moves and was based on a film of the same name.⁶⁶⁴

⁶⁵⁶ Collins, *Game Sound*, 9.

⁶⁵⁷ Bally Midway, 1983.

⁶⁵⁸ 'Journey [Model 358]', Database, Arcade-History, last modified 2019, <https://www.arcade-history.com/?n=journey-upright-model-no.-358&page=detail&id=1227>.

⁶⁵⁹ TNT Amusements, '#695 Bally Midway JOURNEY Arcade Video Game - RARE! TNT Amusements', video, 14:26, 17 July 2014, posted by TNT Amusements, <https://www.youtube.com/watch?v=INiky11q5U>.

⁶⁶⁰ TNT Amusements, '#695 Bally Midway JOURNEY'.

⁶⁶¹ Journey, 1983.

⁶⁶² Collins, 'Grand Theft Audio?' 11.

⁶⁶³ Sega, 1990.

⁶⁶⁴ Fritsch, 'History of Video Game Music', 23.

Modes of Experience

The satellite sources listed in Chapter I received brief explanations to place them within the context of the proposed Culture of Connectivity as modes of experience. The remainder of this chapter elaborates on these modes by highlighting their value as ‘interesting stimuli for critical-interpretive investigations into a game’s music’.⁶⁶⁵

Soundtracks

A separate release was not necessary in early games soundtrack examples, as games were shipped on a mixed-mode CD, a compact disc format containing data and audio. This meant that the game disc would run on a PC, but if inserted into a CD tray in a stereo system, the same disc would play the in-game music track by track. *Quake* and *AOE* are two games of the era that offered this experience, but the 1994 game *Myst* was the first to have a CD soundtrack released with it,⁶⁶⁶ with the score composed by the game’s designer and programmer, Robyn Miller.⁶⁶⁷ The release of game soundtracks as CDs separate from the game disc grew in popularity, and games such as *Wipeout XL* featured licensed pre-composed tracks from acts including Daft Punk, Prodigy and the Chemical Brothers.⁶⁶⁸ This coincided with the widespread introduction of Redbook Audio in the mid-1990s,⁶⁶⁹ and this CD-quality audio brought with it a dichotomy within game music design. Redbook offered musical experiences of a higher quality, but the uncompressed audio data required significant disc space, and competed for that space with all the other game data.⁶⁷⁰ The dynamic adapting techniques offered by MIDI music were abandoned, to a large extent, in favour of linear tracks possessing higher audio fidelity. This proved to be a significant design feature that distinguished Sony’s PlayStation console from the Nintendo 64 of its corporate competitor.

The 32-bit PlayStation was capable of providing twenty-four audio channels of CD quality as well as MIDI, whereas Nintendo’s contemporaneous console signalled a bypassing of the 32-bit era altogether.⁶⁷¹ Named after its internal 64-bit processor, the

⁶⁶⁵ Summers, *Understanding*, 44.

⁶⁶⁶ Cyan, 1994.

⁶⁶⁷ Hoffert, *Music for New Media*, 149.

⁶⁶⁸ Psygnosis, 1996.

⁶⁶⁹ Collins, ‘Grand Theft Audio?’ 38.

⁶⁷⁰ Collins, *Game Sound*, 63.

⁶⁷¹ Collins, *Game Sound*, 69.

Nintendo 64's use of MIDI meant that audio of the Redbook level was sacrificed in favour of more dynamic activity within its games' music, a characteristic that remains fundamental to open-world game music today.

'Using games to sell soundtracks and music accelerated in the late 1990s and has continued until today',⁶⁷² although the ways in which game music can be heard outside of gameplay have outgrown *Myst*'s precedent. Predominant factors include the increasing speed of Internet connections, media player software like iTunes and Winamp, devices such as the iPod and smartphone, video streaming sites such as Vimeo and YouTube, and the advent of online social media platforms.

Licensed songs released on a film's soundtrack have proved as popular as their use as storytelling aids in film is effective. This is highlighted by the soundtrack released for *Forrest Gump*,⁶⁷³ which is essentially an anthology of American pop, rock and folk classics of the mid-twentieth century. Recordings by Elvis Presley, The Beach Boys and Aretha Franklin shed light on why this film soundtrack reached second place on the Billboard album chart.⁶⁷⁴ It also features a suite from composer Alan Silvestri's score, which affiliated it with open-world game soundtrack releases featuring licensed songs and nondiegetic music, such as *Mafia III*. As well as a standard soundtrack released for the game, consumers could purchase a Collectors' Edition that included licensed rock music from the game on one LP, and excerpts from composer Jesse Harlin's score in linear song form on another LP. This release of in-game musical content mirrors that of *Forrest Gump*, with popular music and original score comprising the one purchasable entity. Kamp proposes that encounters with game soundtracks' popular music in actual world activities contribute to the success of this model.⁶⁷⁵ In the hypermediated digital age, the popularity of compiled song and score works persists thanks to histories forged outside of the film scene, and beyond gameplay.⁶⁷⁶

Trailers

A coalescing of two theories might suggest the significance of music in game trailers. These are Pfeiffer et al.'s presupposition that background music plays a pivotal role in conveying

⁶⁷² Collins, 'Grand Theft Audio?' 41.

⁶⁷³ Zemeckis, 1994.

⁶⁷⁴ Lynette Rice, 'Songs set the mood for 'Gump'', *The Gainesville Sun*, 14 August 1994, 60.

⁶⁷⁵ Kamp, 'Suture and Peritexts', 76.

⁶⁷⁶ Anahid Kassabian, *Hearing Film: Tracking Identifications in Contemporary Hollywood Film Music* (New York, NY: Routledge, 2001), 3.

emotional thrill⁶⁷⁷ and Wishart's stipulation that people encounter the environment through a multimedia sensory experience.⁶⁷⁸ Despite the ease of replaying a trailer, first impressions formed regarding its content remain as psychologically relevant today as the *mise-en-scène* was in Harry George Selfridge's twentieth-century window displays. Van Elferen takes this argument further, to suggest that music is unique in its ability to 'expand the magic circle, as far as musical associativity goes: almost infinitely'.⁶⁷⁹ Such a claim must contend with game music's broad divergence of types, which may succeed or fail in encouraging the forming of associations.⁶⁸⁰ The roles of advocating for cultural participation and consumption of commodities place the individual player at the nucleus of this concept. Game trailer music offers an aural keyhole through which the player can form their first associations with music that will, potentially, be experienced much more once the game has been released. Despite this, trailer music may never be heard in the eventual game. Stock music is often licensed for this purpose, perhaps due to creative reasons, or scheduling and budgetary constraints. This means that trailer music is 'likely to pertain to the marketing and public relations efforts of the publisher rather than the development work of the [development] team'.⁶⁸¹ Such pre-composed music exploits musical tropes based on the genre and thematic content of the promoted game.

An alternative process is a studio's use of in-house or commissioned composers, already writing music for a game, to record or license pre-composed music for a trailer. As the composer for racing simulation game *Project Cars*,⁶⁸² Stephen Baysted's commitment extended to providing music for the game's trailer,⁶⁸³ for which part of Beethoven's Symphony No. 7 was recorded on piano. The recursive and dynamic growth of the main melody was deemed supportive of the slow panning and action shots of captured gameplay within the trailer. The original symphony has no defining relationship with the game's ludic content.

⁶⁷⁷ Silvar Pfeiffer, et al., 'Abstracting Digital Moves Automatically', *Journal of Visual Communication and Image Representation* 7, no. 4 (1996): 345–353.

⁶⁷⁸ Trevor Wishart, 'Sound Symbols and Landscapes', in *The Language of Electroacoustic Music*, ed. Simon Emmerson (Basingstoke: Macmillan, 1986), 41–60, at 49.

⁶⁷⁹ Isabella van Elferen, '¡Un Forastero! Issues of Virtuality and Diegesis in Videogame Music', *Music and the Moving Image* 4, no. 2 (2011): 30–39, at 35.

⁶⁸⁰ Liebe, 'Interactivity and Music in Computer Games', 46.

⁶⁸¹ Phillips, *A Composer's Guide*, 154.

⁶⁸² Slightly Mad Studios, 2015.

⁶⁸³ GameSpot, 'Project CARS - Gamescom 2014 Trailer', video, 2:03, 15 August 2014, posted by GameSpot, <https://www.youtube.com/watch?v=p6n3xNdBvJ8>.

Interviews, Videos and Performances

These modes are discussed together as their format and content often overlap. For instance, interviews might exist as structured conversations that are typed and posted as articles on any number of gaming, music, industry and culture websites. Whether historical conversations, journalistic discourse or a soundtrack review, the same content may also be produced in video or audio-only formats. Both established and newer composers are involved in creative projects beyond game music, such as authoring, composition in other media, and public speaking in lecture and conference circuits. Game developers and console manufacturers populate their YouTube channels regularly with video material showcasing composers and audio development personnel. The utility of these interviews, documentaries and ‘behind-the-scenes’ videos is the scope they provide for including music as a focal point of discussion, rather than simply one of many game design components. The player or scholar engaging in these sources is able to garner valuable insight into the creative motivations driving a game’s audio development team, and the construction of its music. Research conducted within this open-source data is a mode of experience separate from, but linked with, experiencing music in-game.

Information of a statistical analysis type, such as a game company’s internal structures and marketplace position, is also available through these modes. In the case of *GTA V*, an abundance of interviews with music creators and audio development staff offers commercial and artistic perspectives relevant to the study of its music. In addition to game developer and publisher studios, information relating to the financial and commercial concerns of the game industry is available through similar means.

Industry recognition of video game music has increased as the perception of its cultural value has flourished. From Christopher Tin’s Africana/pop Swahili translation of The Lord’s Prayer in *Baba Yetu* to Jason Graves’ depiction of post-apocalyptic horror for *Dead Space*, the early decades of the twenty-first-century saw game composers receiving Grammy and BAFTA awards and nominations reserved previously for film score compositions. As with interviews, these professional acknowledgements can be read about in prose or viewed in live and pre-recorded videos, and ceremonies feature live music performances regularly.

The live performance of video game music predates these award ceremonies by several decades, with the first game music concert recognised as the pioneering work of Koichi

Sugiyama in Tokyo, 1987.⁶⁸⁴ The gimmicky stigma that was once associated with the convergence of orchestral austerity and video game commerciality has given way to recognition of this music's integrity and relevance.⁶⁸⁵ As music director of the Colorado Symphony and the New York City Ballet Orchestra, Andrew Litten elaborated on the benefits of regularly programming game music performances.⁶⁸⁶ Such concerts were also a significant part of the Nashville Symphony's solvency. Touring outfits such as The Legend of Zelda, Symphony of the Goddesses and Video Games Live are introducing non-gamers to a hybrid form of symphonic entertainment. The latter touring outfit has seen the most success globally, including the awarding of multiple Guinness World Records.⁶⁸⁷ This mode of experience is encountered most authentically when attending a live performance. Nevertheless, commercially sold concert audio recordings and consumer-produced video content uploaded to the Internet provide other modes of experience through which the same content can be accessed.

The availability of score arrangements and lead sheets means that game music can be subjected to the same analytical methods that are applied to film music, transcribed jazz solos, operatic works and popular music. Game music is purchasable in a range of keys, levels of difficulty and arrangements. Beginner piano charts, choral arrangements and symphonic scores are making music that existed solely within a gameworld accessible to wider audiences of all musicianship levels.

The connections between player and game soundtrack discussed here demonstrate the important contribution of musical interaction to activities within gaming culture.⁶⁸⁸ They are the capillaries through which the lore and culture of gameworlds travel, offering insights into in-game music that cannot be formed through gameplay alone. Zagal professes a similar position by alluding to the language, music, and aesthetics elements that are understood and valued by members of the broader culture or subculture.⁶⁸⁹ Satellite sources are valuable

⁶⁸⁴ Classic FM, 'The Story of Video Game Music Concerts', *ClassicFM*, accessed 10 April 2017, <https://www.classicfm.com/discover-music/periods-genres/video-game/concerts/>.

⁶⁸⁵ Sarah E. Needleman, 'How Video Games Are Saving The Symphony Orchestra', *Wall Street Journal*, 12 October 2015, accessed 14 December 2015, <https://www.wsj.com/articles/how-video-games-are-saving-the-symphony-orchestra-1444696737>.

⁶⁸⁶ Needleman, 'Video Games Are Saving The Symphony'.

⁶⁸⁷ Rachel Swatman, 'Video Games Live creator Tommy Tallarico receives certificates at record-breaking concert', *Guinness World Records*, 22 March 2016, accessed 14 November 2016, <http://www.guinnessworldrecords.com/news/2016/3/video-games-live-creator-tommy-tallarico-receives-certificates-at-record-breaking-421744>.

⁶⁸⁸ van Elferen, 'Analysing Game Musical Immersion', 39.

⁶⁸⁹ Zagal, *Ludoliteracy*, 26–27.

repositories of information that have assisted in the formulation of this study's Culture of Connectivity concept research phases. It is hoped that by approaching them as modes of experience, the proposed model theoretically buttresses the practicalities of playing, recording, listening, reading and viewing research methods necessary in ludomusicological scholarship.

II.V Summary

This chapter has extended a discussion of the proposed research model beyond an introduction of its design, to focus on considerations causal to its successful application. It has sought to define the parameters that, once explored, govern the model's theoretical principles. Necessary or desirable attributes of open-world games have been outlined as part of the text selection process, which ties into an examination of technological componentry. The taxonomy of music types established in Chapter I is elaborated upon, illuminating its application to *GTA V*. A process of suggesting praxis adaptations when conducting virtual ethnography fieldwork in *GTA V* prefaces a similar discussion of research methods constituting the model's third phase. The following chapter sees the proposed model brought out of the conceptual realm and into the empirical, beginning with an application of its Game Music Design methodology to *GTA V*'s diegetic music.

CHAPTER III: DIEGETIC MUSIC

GAME MUSIC DESIGN

This chapter commences an application of the proposed model to *GTA V* in accordance with the research phase sequence argued above. The process begins with the identification of the game's diegetic music content, which is investigated through approaches to its technical implementation, narratological meanings and ludic roles within the gameworld.

III.I Radio Music

Over 200 songs permeating eighteen non-customisable stations constitute the predominant source of diegetic music in *GTA V*, and are accessible via an in-game vehicle radio mechanism by pressing the required control button. Upon making this selection, the player is presented with a dark but transparent circle overlay that resembles an analogue clock face and displays radio station names and logos. Songs playing currently on those stations are listed so that the player may select a station to listen to while driving any number of land, sea and air vehicles. These are licensed pre-composed songs and a mixture of well-known classics by celebrity musicians and tracks commissioned for the game. The vast quantity and variety of virtual music radio stations and talkback stations in *GTA V* simulate the actual-world experience of listening to the radio while driving, a concept that has remained a distinct and popular gameplay element of the *GTA* series.

GTA V's gameworld consists of the city of Los Santos set within the state of San Andreas, a satirical pastiche of contemporary Los Angeles and parts of southern California, respectively. The in-game radio music is designed to be experienced as an axiomatic reality concomitant with conventional driving entertainment, instantiated within a world of persistent realities. As the game was released in 2013, the radio music therein acts as one of many cultural indicators aiming to represent a romanticised mimesis of modern day L.A., and a digital environment possessing a narrative imbued with musical verisimilitude.

In-vehicle Audio Programming and Equalisation

The radio can be turned off, leaving the player's aural reception to be filled with engine revving and traffic noises; however, there is evidence to suggest that the game's developers

encourage the player to experience this music. One reason supporting this is that, apart from a very few isolated instances that the game is programmed to facilitate, no vehicle entered into in *GTA V* has its radio turned off; the game engine dictates this automatically. This would not be so in the actual world, in which drivers may listen to the radio, their personal music collection, audio books and podcasts, or no audial stimulus at all. Such is the rigid consistency of exposure to radio music that the player is encouraged, if not forced, to experience this diegetic content. Audio-visual contexts often give ‘the impression that the use of audio is merely ornamental and present only for the purpose of supporting a specific atmosphere’.⁶⁹⁰ Jørgensen counters this, stating ‘in the context of computer games, audio has clear usability functions in addition to supporting a specific mood and a sense of presence in the game environment’.⁶⁹¹ By deploying ‘strategically chosen musical signifiers in order to furnish the games’ fictional construct’,⁶⁹² the radio content informs the player’s comprehension of both the *GTA V* gameworld and its rules. *GTA V*’s radio music can be characterised as a narrative nucleus because of its decidedly unrealistic audio equalisation (EQ). For video game vehicles to be believable, they require audio elements such as car engine and tyre noises, as well as atmospheric sounds such as rain falling, all of which must be combined with radio music in a single audio mix.⁶⁹³

GTA V’s unrealistic radio equalisation is an aspect of audio design found in many games featuring in-vehicle radio content. Marshall has probed the design aspect using a spectral analysis of game audio from *Forza Horizon 3*. This investigation produced results suggesting that car engine sounds heard during gameplay subtly change when the ‘camera’, the viewing angle that the player uses to perceive gameplay, is positioned at different angles by the player. The most obvious change is when the camera is positioned behind the vehicle looking forward,⁶⁹⁴ meaning that these sounds are relative to the camera, not the player. However, when the same camera movements were made and the subject focus was diegetic radio content and not engine noises, results differed. It was proven that the music had been implemented aurally to exist alongside, but separately from, the sound effects.⁶⁹⁵ This is

⁶⁹⁰ Kristin Jørgensen, ‘Let in the Dark: Playing Computer Games with the Sound Turned Off’, in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins (Aldershot: Ashgate, 2008), 163–167, at 163.

⁶⁹¹ Jørgensen, ‘Let in the Dark’, 163.

⁶⁹² Summers, *Understanding*, 59.

⁶⁹³ Greeves, ‘Allan Walker & Craig Connor’.

⁶⁹⁴ George Marshall, ‘Audio Fidelity and Diegesis in the Music of *Forza Horizon 3*’ (presentation, Ludo2017 Sixth Annual Conference on Video Game Music and Sound, Bath, 22 April 2017).

⁶⁹⁵ Marshall, ‘Audio Fidelity and Diegesis’.

because, despite an expected change in the music's aural texture and panning, the player moving the camera made negligible difference to the music. What is signified by the game as in-vehicle radio music is coded to act more like a nondiegetic score than diegetic radio tracks, responding realistically to spatiotemporal shifts in the camera. Different activities and locations in the gameworld were also found to affect the music's action, which was changed using a series of crossfades, looping, reverb and delay techniques.⁶⁹⁶

The single frequency range means that music and sound effects are compelled to share, or rather to avoid each other within, the same audio spectrum, and mixing vehicle sounds and music presents particular audio design challenges. The 'sheer sonic brutality of the real racing cars [,] their wide frequency ranges and in particular 50hz and below into the subsonic realm'⁶⁹⁷ cannot be reproduced for consumer-level audio systems. Some games, such as *F-1 World Grand Prix*,⁶⁹⁸ aim to emulate actual world motorsports events;⁶⁹⁹ however, 'in games that present racing in a less formalised context, music can articulate the careful negotiation between artistic realism and the less realistic aspects of the game'.⁷⁰⁰ A part of this experience is the incorporation of popular, dance, rock and electronic music styles music during races, whether controlled by the player or not. These styles are usually built on a foundation of bass and drum parts that are prominent in the audio mix. Moulton suggests that the bass guitar's fundamental tones and some overtones range from approximately 60 Hz to 1 kHz, while the kick drum's initial attack and pitchless decay might range from 100 Hz to 15 kHz, and 20 Hz to 100 Hz respectively.⁷⁰¹ Clearly, the overlapping of car sound and music frequency ranges⁷⁰² presents substantial difficulties for sound designers in balancing audio.

GTA V is not a racing simulator, and MacGregor recounts the mindset espoused during production: 'we also take advantage of the fact that we're not making a simulation game ...

⁶⁹⁶ Marshall, 'Audio Fidelity and Diegesis'.

⁶⁹⁷ Cormac Donnelly, 'Vehicle Engine Design — Project CARS, Forza Motorsport 5 and REV'. *Designing Sound*, 11 August 2014, accessed 26 September 2017, <http://designingsound.org/2014/08/11/vehicle-engine-design-project-cars-forza-motorsport-5-and-rev/>.

⁶⁹⁸ Paradigm Entertainment, 1998.

⁶⁹⁹ Summers, *Understanding*, 89.

⁷⁰⁰ Summers, *Understanding*, 90.

⁷⁰¹ David Moulton, 'Principles of Multitrack Mixing: The Kick Drum/Bass Relationship', *Moulton Laboratories*, 1993, accessed 4 December 2018, http://www.moultonlabs.com/more/principles_of_multitrack_mixing_the_kick_drum_bass_relationship/.

⁷⁰² Stephen Baysted, 'Palimpsest, Pragmatism and the Aesthetics of Genre Transformation: Composing the Hybrid Score to Electronic Arts' Need for Speed Shift 2: Unleashed', in *Ludomusicology: Approaches to Video Game Music*, ed. Michiel Kamp, Tim Summers and Mark Sweeney (Sheffield: Equinox, 2016), 152–171, at 157.

we have complete creative control over what a car should sound like'.⁷⁰³ Nevertheless, *GTA V*'s gameplay contends with these significant frequency overlaps of the bass and drums (and other instruments) of licensed music, vehicle engine noises and score music. A solution was found in the granular engine system that superseded *GTA IV*'s looped-based system. It facilitates the flexible arrangement of intake induction, transmission, exhaust and tyre sounds constituting individual audio vehicle audio in *GTA V*.⁷⁰⁴

Protagonist Reinforcement

The diegetic in-game radio music of *GTA V* implies a more significant role in the game's narrative than can be explained via audio equalisation techniques. Most stations act dynamically so that songs and adverts are randomised and spaced apart to minimise their rapidity for the player, aiming to conjure a more realistic 'radio' experience.⁷⁰⁵ A finding of the close-play analysis research conducted during this study is that the game engine yokes specific radio stations to its protagonists. Whenever Michael, Trevor or Franklin enter their own vehicles, there is an increased likelihood of certain stations being tuned to in their cars. In-game locations such as the characters' homes also have music from these stations playing, which is discussed in more detail below. Through repetitions of this action, the station/character connections have been established with the most likely and second most likely stations for each character.

- Michael: Los Santos Rock Radio, Vinewood Boulevard Radio, Radio Mirror Park, The Lowdown (playing in home), Space 102.3 (this choice is less likely, but an in-game animation of Michael nodding his head in time with the music of this station suggests his appreciation).
- Trevor: Channel X, Los Santos Rock Radio.
- Franklin: Radio Los Santos, West Coast Classics, The Lab.

Direct associations can be made between the style of music of these stations, and the proclivity to enjoy them shown by the protagonists. A nostalgic love of bygone eras, and the faded 'golden age of Vinewood' (*GTA V*'s mimetic Hollywood) in particular, pervades Michael's psyche. An example of this is a cut-scene of Michael watching a film noiresque

⁷⁰³ GDC, 'The Sound of Grand Theft Auto V', video, 57:32, 18 May 2016, posted by GDC, <https://www.youtube.com/watch?v=L4GuM15QOFE>.

⁷⁰⁴ GDC, 'The Sound of Grand Theft Auto V'.

⁷⁰⁵ GDC, 'The Sound of Grand Theft Auto V'.

movie prefacing gameplay in a mission. The most significant is a portion of the game's plot is based solely on Michael's foray into the movie industry by collaborating with Solomon Richards. This NPC owns Richard's Majestic Productions, a fictional production studio in Los Santos that has lost its once prestigious reputation.

Michael's involvement with the studio provides his long-desired opportunity to revivify local cinema, tapping into his love of classic movies. A quote from one of the studio's films called *Arthur Penny's Sanatorium* is paraphrased by Michael during the game's main story – 'You forget a thousand things every day, make sure this is one of them.' The original wording of this *Arthur Penny's Sanatorium* quote is listed on the in-game website classicvinewood.com as 'We forget a thousand things every day, can't we just make this one of them?' This triggers a significant twist in the narrative whereby the protagonist Trevor is introduced to the player. Los Santos Rock Radio features a catalogue of songs from the 1970s and 1980s such as 'If You Leave me Now' by Chicago, 'I Don't Care Anymore' by Phil Collins, and 'Circle in the Sand' by Belinda Carlisle, and is well placed to reflect Michael's reminiscent disposition. Moreover, station host Kenny Loggins often introduces songs with language indicative of longing and memories, such as his axiom, 'ah yes, the 80s'. Contrastingly, Channel X features abrasive, bombastic and distorted sounds characteristic of hardcore and punk rock songs. With interests in illicit substance manufacturing, selling and consumption, and as the protagonist who displays by far the most disturbingly violent psychosis, Trevor is almost a personification of Channel X's sonic aberrations. Of the three protagonists it is Trevor who is most often depicted engaging in acts of extreme violence, and inflicting death.

In many ways, Franklin is something of a spiritual recapitulation of *GTA: SA*'s Carl Johnson protagonist, who sought to break through boundaries of a ghetto milieu and entrenched gang lifestyle. The plot of *GTA V* sees Franklin succeed in this endeavour, to some measure, relocating from the impoverished southern suburbs of Los Santos to a more well-to-do Vinewood Hills street called Whispymound Drive. His roots remain embedded in his adolescent musical inculcation, and this manifests in his penchant for the recent and contemporary rap music of Radio Los Santos, and the canon of classic hip-hop songs on West Coast Classics. It is this selection of music that is most often cued when Franklin enters his vehicle and plays from a stereo at his home.

The concept itself of linking music with a character is nothing new, and can be found in multiple types of games. Summers notes that music characterises each fighter in *Street*

*Fighter II*⁷⁰⁶ ‘beyond the limited visual aspect in a perceptually salient and cognitively impactful way’,⁷⁰⁷ while the music’s mix, timbre and volume signify a textural depth of the characters. Phillips also proposes that ‘musical themes can be used as symbols to help establish and reaffirm ... the identities of people ... directing the player’s attention toward something we want the player to notice’.⁷⁰⁸ An open-world game example is the motivic construction of ‘Bloodlines’,⁷⁰⁹ the main theme for *Assassin’s Creed Syndicate*. Two main themes signify the game’s two protagonists individually, with a solo violin part associated with Jacob Frye, and the same association with his twin sister Evie found in a solo cello part. These two melodic themes differentiate the siblings by playing in separate missions, depending on which sibling the player is controlling. In missions requiring the player to switch between the two protagonists, the game engine utilises musical passages Wintory composed to transition between each part, so that ‘players will have different experience[s] throughout the game musically based on who they’re playing’.⁷¹⁰

The key difference in *GTA V*’s approach is the use of licensed, pre-composed, diegetic music to maintain musical associations with each protagonist, and not a nondiegetic score as is used more commonly. Munday has already approached music in games as featuring the notion of leitmotif, albeit a particularly cinematic interpretation of Wagner’s technique.⁷¹¹ Donnelly’s reference to a ‘signpost’ is also likely a befitting description of this function.⁷¹² Preference for a specific term is not given here; however, this study has proven that diegetic popular music holds narrative meaning in *GTA V* via unrealistic audio equalisation techniques, and links between protagonists and their preferred radio stations, a connection reserved most often for nondiegetic score passages.

Perpetuating Environment and Series Lore

GTA V’s sophisticated animation, physics engineering, motion-captured performances and rendered assets create a highly detailed and authentic gameworld in which a storyline plays out. Rockstar Games director of music and audio Ivan Pavlovich conceptualises that ‘the

⁷⁰⁶ Capcom, 1991.

⁷⁰⁷ Summers, *Understanding*, 62.

⁷⁰⁸ GameMediaPR, ‘Assassin’s Creed Liberation: How to Write Thematic Music for Games’, video, 43:03, 14 November 2013, posted by GameMediaPR, <https://www.youtube.com/watch?v=-CS3Nc2qFOo>.

⁷⁰⁹ Wintory, 2015.

⁷¹⁰ Graphic Policy, ‘Interview with Austin Wintory (Composer of Assassin’s Creed Syndicate)’. *Graphic Policy*, 19 October 2015. Accessed 5 December 2016. <https://graphicpolicy.com/2015/10/19/interview-with-austin-wintory-composer-of-assassins-creed-syndicate/>.

⁷¹¹ Munday, ‘Music in Video Games’, 62.

⁷¹² K. J. Donnelly, *The Spectre of Sound: Music in Film and Television* (London: BFI, 2005), 58.

radio is another layer in this world to make it living and breathing. The radio is incredibly detailed; it reflects the environment in which the game is set'.⁷¹³ Miller has described this authenticity by characterising the *GTA: SA* designers as 'the curators of this virtual museum'.⁷¹⁴ This game is particularly relevant to *GTA V* as it takes place within much of the same virtual environment, but is set in 1992. The 'extensive fieldwork and ... prestigious native informants'⁷¹⁵ employed in researching of *GTA: SA*'s setting were reprised for *GTA V*'s, as evidenced in the collaboration with the producer and rapper known as DJ Pooh. Few hip-hop industry figures are as iconic or influential as DJ Pooh, who was a screenwriter for the ghetto comedy *Friday*,⁷¹⁶ producer for Snoop Dogg, 2Pac and Da Lench Mob, among many others, and collaborates frequently with Ice Cube.⁷¹⁷ One of only three credited writers for *GTA: SA*, Pooh was a creative consultant on *GTA V*, instrumental in building an authentic collection of hip-hop music for the game,⁷¹⁸ and hosts the in-game station West Coast Classics. DJ Pooh constitutes an exemplary prestigious native informant, to use Miller's term, but other consultative collaborations were also part of formulating *GTA V*'s diegetic radio music collection.

As a snapshot of 2013 California, *GTA V*'s radio content seeks to narrate the contemporaneous musical diversity and social settings of the state. On an implicit macro level, this manifested in station genre and catalogue. Pavlovich explains that Vinewood Boulevard Radio 'is a modern rock station, the embodiment of the young Los Angeles rock scene', while East Los FM signifies the significant Mexican culture in Los Angeles.⁷¹⁹ This station was curated and mixed by Mexico City-based DJ and producer Camilo Lara, while hosts such as Bootsy Collins, Pam Grier and Kenny Loggins symbolise cultural recognition in L.A. and surrounding areas.⁷²⁰ There is significant commentary in the literature discussing criticisms levelled at depictions in GTA games of race, violence, African-American males, discriminatory stereotypes, and the authorial integrity of Rockstar's white, Scottish developers. Salient contributions to this discussion are found in Garrelts' edited volumes,

⁷¹³ Stutz, 'Rockstar Music Head'.

⁷¹⁴ Kiri Miller, 'Grove Street Grimm: Grand Theft Auto and Digital Folklore', *Journal of American Folklore* 121, no. 481 (2008): 255–285, 268.

⁷¹⁵ Miller, 'Grove Street Grimm', 269.

⁷¹⁶ Gray, 1995.

⁷¹⁷ Miller, 'Jacking the Dial', 431.

⁷¹⁸ Evan Shamoon, 'Inside the 'Grand Theft Auto' Soundtrack', *Rolling Stone*, 28 August 2013, accessed 11 December 2015, <https://www.rollingstone.com/music/music-news/inside-the-grand-theft-auto-v-soundtrack-75495/>.

⁷¹⁹ Shamoon, 'Inside the 'Grand Theft Auto' Soundtrack'.

⁷²⁰ Shamoon, 'Inside the 'Grand Theft Auto' Soundtrack'.

the work of DeVane and Squire, Barrett, and Hutchinson’s research in Malkowski and Russworm. The present study does not pursue race as a specific object of focus; however, given the collaborative research that Rockstar has engaged in, and the authorial calibre of their consultative personnel, it seems clear that music is portrayed as an accurate signifier of place in the romanticised California of *GTA V*.

On a micro level, this music includes songs with a title, artist, lyrical content, or a combination of these that are associated with the state of California, city of Los Angeles or the medium of radio. The relevant songs identified by this research and their connection(s) with the gameworld are depicted in Figure 3. This initial point of analytical contact may be obvious when viewed in list form, but when experienced during gameplay the effect is more like a subliminal musical reinforcement of environment. The music is presented sonically through the in-game radio, and visually through song name and recording artist displayed when changing stations, while its selection requires the player’s coordinated interaction with the radio mechanism.

- ‘California Grrls’ – Shark? (song shares title name with actual world inspiration)
- ‘California Soul’ – Marlena Shaw (song shares title name with actual world inspiration)
- ‘California’ – E-40 feat. Dâm-Funk, Ariel Pink (song shares title with actual world inspiration)
- ‘Los Angeles’ – X (song shares title name with actual world inspiration, and an onomastic link with the station it plays on, Channel X)
- ‘El Rey Y Yo’ – Los Ángeles Negros (artist shares name with actual world inspiration)
- ‘West End Girls’ – Pet Shop Boys (song shares name with geography of Californian state)
- ‘Bow Down’ – West Side Connection (artist shares name with actual world inspiration)
- ‘Hollywood Nights’ – Bob Seger & The Silver Bullet Band (song shares title name with actual world inspiration)
- ‘Last Night Hype’ – Compton’s Most Wanted (artist shares name with actual world inspiration)
- ‘Days Go By’ – Dirty Vegas (artist shares name with actual world Californian city Las Vegas)
- ‘Living in America’ – Dom (song shares title name with actual world inspiration country and narrative theme)
- ‘Welcome to Los Santos’ – MC Eiht and Freddie Gibbs feat. Kokane (song title references in-game fictional city)
- ‘Radio Ga Ga’ – Queen (song shares title name with a core gameplay mechanic)
- ‘Radio Capital’ – La Vida Bohème (song shares title name with a core gameplay mechanic)
- ‘Vinewood Blues’ – Tale of Us (song title references the in-game parody of ‘Hollywood’)

Figure 3: Music-Environment Connections

The references in this music begin to reside in the player's subconscious through hours of gameplay. The songs and artists support the substantiation of a virtual L.A. through these songs and artists, but this extends to the range of radio station identities too. Just as *GTA IV*'s song palette sought to provide a 'spiritual tourist guide' of New York's music scene,⁷²¹ station genres in *GTA V* flesh out the gameworld musically. Radio stations range in genre from mainstream styles including rap, hip-hop, rock, popular, country and reggae, as well as more modern subgenres such as acid house, glitch-hop, chillwave and deep house. The canonical use of variegated music genres to populate the gameworld's soundscape realistically also evokes perceptions of scale and diversity through their strategic dissemination throughout the gameworld. Most radio stations are available anywhere in *GTA V*, but some remain location-oriented, isographic to geographical regions and unavailable in other gameworld regions. Drawing on the game designers' conceptual intent, Miller describes how distinctions between in-game radio stations 'correspond closely to different parts of the gameworld'⁷²² and serve to define internal sociocultural boundaries.

For instance, a player might choose to listen to the techno music station Soulwax FM while driving a vehicle in the dense city network of highways, towering skyscrapers, and ebullient nightlife of Los Santos. If the player then proceeds out past the city limits, a short burst of audio static is followed immediately by conversations from Blaine County Radio, a public talkback station sharing the same broadcasting frequency as Soulwax, and only available in rural areas. This highlights the way in which diegetic radio music is integrated into the fabric of *GTA V*'s virtual societies. Blaine County Radio is named eponymously after a region that occupies approximately half of San Andreas, encompassing settlements, rolling desert, extensive farming and irrigation land, and forested mountains. It's a region of copious American flags fluttering in front yards, traffic dominated by trucks and tractors, passers-by dressed in work boots, faded jeans, plaid shirts, and overalls, wide open skies, cougars, coyotes and deer. Another popular local station is Rebel Radio, playing country music hits from Hank Thompson and Jerry Reed to Waylon Jennings and Willie Nelson. This geographically induced Soulwax/Blaine County musical demarcation accompanies these visual elements within the gameworld to signify to the player a transition from 'town to country'.

⁷²¹ Logan Hill, 'Rockstar Games' Dan Houser on Grand Theft Auto IV and Digitally Degentrifying New York', *Vulture*, 2 May 2008, accessed 8 March 2016, https://www.vulture.com/2008/05/rockstar_games_dan_houser.html.

⁷²² Miller, 'Jacking the Dial', 423.

The same can be said of inner-city areas, as the game engine powering *GTA V*'s software uses coded taxonomies that codify cultural indicators within the gameworld. The heterogeneous simulacra of archetypal citizen NPCs in their social milieu are identified through their choice of music, vehicle choice, clothing, and their attitude towards the player's avatar. If the player enters a vehicle in lower socioeconomic regions of Los Santos, depicted with run-down council houses, poorly maintained roads, and distant gunfire-siren duets, the already-tuned station will likely be a rap or hip-hop one. This might be West Coast Classics or Radio Los Santos, or in suburbs with a higher Hispanic population the Mexican pop and electronic station East Los FM. Diametric opposites are the Radio Mirror Park and Vinewood Boulevard Radio stations, both named after affluent neighbourhoods on the northern fringes of Los Santos. The aloof nature of privileged Mirror Park residents is highlighted in an activity wherein the player interacts with an NPC chatting on their mobile phone, called a 'post-ironic hipster', and its radio station plays what might be described with the portmanteau 'indietronica' to suit this identity. To further reinforce characters and social delineations of the gameworld, these links are maintained visually throughout the environment. NPCs driving upmarket sport and luxury cars are more likely to listen to the mainstream Non-Stop-Pop FM, while beat-up hippie van drivers prefer the smooth soul music of The Lowdown 91.1, or chilled reggae from The Blue Ark.

Such representations indicate what is understood in the actual world to be quintessential, and perhaps garishly presented, stereotype personalities, but a more sophisticated level of narrative at play. Through impressive graphic fidelity, reactive environment, dynamic NPC behaviour and strategically chosen music, the player is presented with believable characters existing validly within the gameworld. Cultural complexities of geographical contiguity are delineated, with urban-oriented hip-hop and Mexican pop stations emblematic of metropolitan areas and complemented by the rock and country musical palette endemic to rural locales.

The styles available are broadened through other stations, such as Space 103.2 offering electro funk music, Los Santos Rock Radio's classic canon, and jazz-funk-infused world music from WorldWide FM. By integrating the radio stations and their catalogues into highly detailed visual and physical constructs of cultural identity, the reality of gameplay experiences is enhanced and underscored by the diegetic radio music. In this sense, *GTA V* draws the player into the gameworld subtly by fusing its virtual environment with a familiarity of actual world memory icons.

Specific musical artefacts coexist with the clothing, architecture, advertising, signage and agent interactions that define the milieu of Los Santos and San Andreas. The game bears an additional responsibility, however, and one that is underpinned by Unger et al.'s assertion that 'semiotic mediation becomes crucial for success or failure'.⁷²³ As part of a well-established series narrative, it is incumbent upon *GTA V*'s music and other content to connote successfully the demanding storytelling burdens of a continuing chronology. As soon as it is released, and perhaps prior, a title like *GTA V* is subject to the critical evaluation of every reviewer, fan, critic and scholar, all sharing knowledge of the GTA series' lore to varying degrees of depth. *GTA V* is linked most closely with West Coast-inspired game *GTA: SA*'s 1992 virtual California, and the San Andreas city in the original *GTA* modelled on San Francisco, with references made throughout the series to cities in other games in the fiction. As well as a musical accompaniment to gameplay in Rockstar Games' early twenty-first century Los Angeles parody, the radio music maintains a consistent series-wide narrative.

Intertextuality

For players with experience in multiple GTA series games, the licensed music of *GTA V* culminates in manifestations of musical intertextuality that can be traced throughout the series. Music is but one component of the in-game assets developers can use to imbue a digital world with character. It is the total sum of 'all the cultural references, characters, music, fashion, media, art and pop culture that they tap into for each title that makes GTA what it is'.⁷²⁴ The most comprehensive study of the cultural references and interconnected environmental assets of *GTA: SA* can be found in Miller's ethnomusicological and folkloric articles published in the late 2010s. *GTA III* and *GTA: VC* have also received focus, with the cornucopia of hip-hop songs, radio station culture and the corresponding links with digital artefacts constituting the protagonists' perceived domain explored in detail. *GTA: SA* built a level of authenticity in its presentation of early 1990s hip-hop culture by featuring a researched, consistent musical canon, not only of music from the period, but also the original songs from which riffs were sampled. Many 1970s funk tracks heard on the station Master Sounds by artists such as Charles Wright, Lyn Collins and James Brown are sampled in

⁷²³ Unger, et al., 'Signs, Symbols, and Perceptions', 97.

⁷²⁴ GamesTM, '20 years at Rockstar Games with Craig Conner'. *GamesTM.*, 2015, accessed 22 February 2016, original URL: <http://www.gamestm.co.uk/interviews/20-years-at-rockstar-games-with-craig-conner/>, archived at <http://www.solidaudioworks.com/downloads/gamestm.pdf>. GamesTM is now defunct but the article is archived

songs by N.W.A., Public Enemy and Slick Ric on hip-hop stations such as Radio Los Santos and Playback FM. *GTA V* maintains links with this earlier iteration of Los Santos by keeping the Radio Los Santos station and a significant hop-hop influence, and manages to forge intertextual links with the radio music of almost the entire *GTA* series. In what might be likened to an iterative employment of canonical works in succeeding nondiegetic scores, *GTA V* utilises songs, radio stations, NPCs, avatars and a miscellany of audio assets as interconnecting tendrils that perpetuate a series-wide musical lore. Recurring radio hosts also play a significant role in congealing the series' musical narratives, such as the fictional characters Lazlow and Fernando Martinez, who are reprised over several games in the series, including in *GTA V*. The researched connections that manifest in *GTA V*'s radio music are identified in Figure 4, with brief explanations of their relevance.

The links shared between songs and artists across games should not be mistaken for coincidence. The mixing and mastering hundreds of songs to ensure that recordings from different eras and styles share common EQ and aesthetic⁷²⁵ requires significant manpower. The financial costs of licensing so much music from such well-known artists are a significant burden on a game's development budget. This tactic can prove useful in easing marketing costs and bringing more consumers to purchase a game.⁷²⁶ In the case of *GTA V*, five years of development and a US\$265 million development and marketing budget go a little way to indicating the risks involved in producing the game.⁷²⁷ If a song is included in the game, it was chosen with care to be there.

Programmed into the Story

Licensed music in *GTA V*'s missions and activities is used in a fashion aligned with uses of licensed song during a film scene. A constructive example is a montage sequence in the film *Scarface*, which depicts the iniquitous activities propelling Tony Montana's Pyrrhic cocaine-fuelled victory as a Miami drug lord.⁷²⁸ Paul Engmann's vocal performance of 'Scarface (Push it to the Limit)', and an up-tempo rock style mirror Montana's own limit-pushing, as extravagant sums of money are earned, spent and squirrelled away.

⁷²⁵ Greeves, 'Allan Walker & Craig Connor'.

⁷²⁶ Collins, *Game Sound*, 122.

⁷²⁷ Eric Bleeker, 'GTA 5 Sales Hit \$1 Billion, Will Outsell Entire Global Music Industry', *The Motley Fool*, 28 September 2013, accessed 9 February 2016, <https://www.fool.com/investing/general/2013/09/28/gta-5-sales-hit-1-billion.aspx>.

⁷²⁸ De Palma, 1983.

Songs and Samples

- ‘Knucklehead’ by Grover Washington Band in *GTA IV* is sampled in ‘Played Like a Piano’ by King Tee which is featured in *GTA V*
- ‘The Edge’ by David McCallum in *GTA IV* is sampled in ‘The Next Episode’ by Dr Dre featured in *GTA V*
- ‘La Raza’ by Kid Frost is feature on Radio Los Santos in *GTA: SA*, and samples the main rhythm section riff of ‘Viva Tirado’ by El Chicano on The Lowdown 91.1
- The title of Imagination’s *Flashback* on *GTA V*’s Space 103.2 has long been associated with GTA radio stations, beginning with *GTA III*’s Flashback 95.6 FM that exclusively played music from the 1983 film *Scarface*, and then *GTA: VC*’s Flash suggesting the station’s progenitor by playing music popular in the 1980s to fit the *GTA: VC* 1986 setting

Bands and Artists

- The Chakachas’ ‘Jungle Fever’ in *GTA: SA* and ‘Stories’ in *GTA V*
- Boston has ‘Smokin’ in *GTA: SA* and ‘Peace of Mind’ in *GTA V*
- Bob Seger’s ‘Night Moves’ and ‘Hollywood Nights’ in *GTA V*, and ‘Her Strut’ in *GTA IV* on Liberty Rock Radio
- Queen’s ‘Radio Ga-Ga’ in *GTA V*, ‘One Vision’ in *GTA IV* also on Liberty Rock Radio
- Elton John’s ‘Saturday Night’s Alright (for fighting)’ in *GTA V* and ‘Street Kids’ in *GTA IV* on Liberty Rock Radio
- The ZZ Top song ‘Thug’ in *GTA IV* on Liberty Rock Radio and ‘Gimme All Your Lovin’ in *GTA V*
- Jefferson Starship has ‘Jane’ in *GTA IV* on Liberty Rock Radio (EFLC) and Starship has ‘We Built This City’ in *GTA V*
- Creedence Clearwater Revival had ‘Green River’ in *GTA: SA* on K-DST and ‘Fortunate Son’ in *GTA V*
- Doobie Brothers’ ‘China Groove’ in *GTA IV* on Liberty Rock Radio and ‘What A Fool Believes’ in *GTA V* on Los Santos Rock Radio
- Aphex Twin has ‘Windowlicker’ in *GTA V* on FlyLo FM and ‘Z Twig’ in *GTA IV* on The Journey

Stations

- *GTA V* continues Channel X and Radio Los Santos from *GTA: SA*, and features a country music stations as the former did (this is unusual in the series)

Ringtone

- Franklin’s default mobile phone ringtone is a repeated riff excerpt from the song ‘Bump to the Music’ by Fatamarse, featured on the *GTA III* radio station Lips 106.

Figure 4: Intertextual Connections Through Music

The song in this sequence is a nondiegetic music element that could just as likely have been a passage of the film's score, although the lyrical content offers a useful scene commentary. A series of missions in *GTA V* use specific songs queued by the game engine in the same way, so that the player hears them at key moments. A mission called The Third Way requires Trevor to kidnap an NPC enemy named Devon Weston by subduing him and forcing him into the boot of a car. The song that plays upon entering the car is 'I Wouldn't Want to Be Like You' by the Alan Parsons Project, featured on Los Santos Rock Radio. This will occur irrespective of what station may have been tuned to previously in the vehicle, indicating its use as a narrative tool to provide lyrical commentary on the impending demise of Weston.

A similar instance is encountered during the mission Monkey Business, in which a research facility is broken into and a chemical weapon stolen. Juxtaposed with this violent and hazardous activity is the final mission task requiring a reluctant Trevor to return another kidnap victim, a middle-aged woman, to her abusive husband. The pathos here is that the normally mendacious and aggressive Trevor has fallen for her, and she in turn has succumbed, apparently, to neo-Stockholm syndrome pathology. Once more, the song initiated at this mission point operates as a cue to the player in their understanding of the story. Chicago's soft rock/yacht rock ballad 'If You Leave Me Now' is so incongruent with Trevor's personality that the music, and his blubbing dialogue, provides a brief comic relief sequence through a narrative irony.

This depiction of a protagonist embroiled both tragically and comically with life is well-established in narratives,⁷²⁹ and akin to the archetypal 'vulnerable hero moment'. It is significant that a diegetic song licensed for the game underscores this moment of irony in Trevor's personality, not a passage from an underscore. It can also be disregarded if the radio station is changed, meaning that the conveyance of emotion during this sequence is, at once, both in the hands of the developers, and under the control of the player. These examples can be validated as occurring consistently during these missions, tested via multiple play-throughs as part of this study's research.

This is replicated in activities that can be undertaken that are not part of a mission, such as a series of races. The electropop and dance music of Radio Mirror Park cued when the player begins a Jet Ski race is a sonic accelerant that supports the fast-paced mood of this

⁷²⁹ Henry James, *The Art of the Novel* (New York, NY: Charles Scribner's Sons, 1934), 63.

activity. The selection of music differs depending on the kind of race too, with dirt bike races adopting a rock style with Los Santos Rock Radio. Instead of playing on player's emotions through musical irony, this is an employment of music that is associated conventionally with a racing activity, which has also been tested by playing as multiple protagonists. Summers draws connections between racing games' use of music genres such as rock, techno, hip-hop, and dance, and television broadcast coverage of actual world events that were likely inspirations.⁷³⁰ The races in *GTA V* are optional auxiliary activities, but subscribe to this music/sport aesthetic.

Gameworld Buildings Interior and Exterior

A priority in designing *GTA V* was the mapping out of radio stations based on their role of supporting the player's ability to make sense of the gameworld.⁷³¹ Summers surmises this as music texturing a game, to represent 'a core part of how the game (its characters, worlds and actions) are understood by players'.⁷³² Listening while driving is one way of experiencing *GTA V*'s catalogue of radio music, but it is available in the protagonists' dwellings as well.

These homes are safe houses in which the player can save the game progress by avatars sleeping, change avatar clothing, access saved vehicles and interact with NPCs. They also present an opportunity to reinforce protagonist personalities through location, décor furnishings and musical taste. Michael's Spanish Renaissance mansion boasts two storeys, a swimming pool, tennis court, two-car garage and views of the Los Santos CBD. The Rockford Hills location's opulence is mirrored in fine internal furnishings, and the soul/funk radio music playing throughout areas of the house is regularly the same as that in his car. The main story of *GTA V* sees Franklin move from his Auntie's modest home south of Los Santos to a large multi-storey house in Vinewood with skyline views eclipsing Michael's. Franklin's transition from occupying a single bedroom to a mansion includes upgrades in furniture, with a single vinyl player and small stereo system in the former replaced with a dual DJ mixing deck, studio monitor speakers, and an extensive vinyl collection. Despite the change in dwelling and its representation of Franklin's journey out of the gang life, an inextricable attachment to his former life sees the hip-hop and rap music that accompanies

⁷³⁰ Summers, *Understanding*, 89.

⁷³¹ Stutz, 'Rockstar Music Head'.

⁷³² Summers, *Understanding*, 77.

his driving also playing in his new home. Even in its state of filthy dilapidation, Trevor's stationary caravan still has rock music from Los Santos Rock Radio playing inside. The visceral audio feedback provided via these musical associations individualises each character⁷³³ and complements their appearance, skill sets and dialogue cues.

Diegetic radio music playing in building interiors is more ubiquitous in *GTA V* than the protagonists' homes, although the effect of substantiating an environment's reality is the same. Businesses offering services throughout the gameworld feature music playing inside just as they might in the actual world. Tattoo parlours and outlets of the firearm sales chain Ammu-Nation have Channel X's metal playing, for example. Los Santos Customs vehicle customisation and repair shops play the hip-hop station Radio Los Santos while the player selects services, while hairdressing salons play a selection of stations, from Rebel Radio in Sandy Shores, to The Lowdown 91.1 in Mirror Park.

The constant reiteration of music in these chain outlets serves to congeal the gameworld's musical environment and fortify the player's belief in its reality, while other independent business play music that is emblematic of their patronage. Rebel Radio's country music plays in a bar called the Yellow Jack Inn, an archetypal roadhouse/motel establishment that sits on the rural highway Route 66 at the edge of the Grand Senora Desert. The gentleman's club (strip club) The Vanilla Unicorn in downtown Los Santos draws on a palette of popular music from Non-Stop-Pop FM. Clothing store chains feature music that speaks to the lifestyle ideologies of their customers. The prestigious Ponsonbys, playing music from Non-Stop-Pop FM, might connote a superficiality of high-end clothing brands and generic popular music. Discount store Binco and trendy Sub Urban opt for Radio Mirror Park, connecting their brand focus of urban gentrification with a radio station focused heavily on embracing progressive hipster subculture.

To reprise a point made in the Introduction, the pairing of music and its conventional visual indicators is critical in establishing and maintaining cultural identities in a gameworld. As *GTA V*'s virtual establishments take their musical selections from a finite repository, the songs playing in their interiors often repeat. This limited selection of music might convince players of the gameworld's stipulated reality less than a larger selection, but the randomisation in track choices and variety of business services mitigates this. In fact, the consistency with which certain radio station music plays in certain store interiors is, perhaps,

⁷³³ Schell, *The Art of Game Design*, 390.

more convincing through its repetition, and reinforcement of individual territories within the open-world environment.⁷³⁴

This concept of musical territories is present in building exteriors in *GTA V* as well, such as the visual representation of its radio stations' broadcasting headquarters. These buildings can be encountered by the player throughout the gameworld and are identifiable by the station name and/or logo emblazoned across the edifice. Music from the station's catalogue emanates from within the building to support this visual identification with an audial form, equalised to provide realistic interaction. The Rebel Radio headquarters is one of the clearest examples of this. Situated amidst agricultural land and undulating hills on the outskirts of the Grand Senora Desert, the modest building can be recognised by its large, uppercase, bright red 'REBEL' sign, and American flag flying prominently. The imposing steer skull with wide-antlered horns adorning the roof bears down upon visitors, and replicates the station's logo of a white steer skull on a red circle in three-dimensional form. Muffled country songs can be heard emanating from the building as the player approaches, through an avatar, demonstrating 'real-time panning, equalisation and reverb techniques' to simulate actual world sonic interactions.⁷³⁵ These spatial dynamic and audio design processes orient the player sonically in relation to the building. Through a ludic lens, the substantiation of Rebel Radio as an actual station within the state of San Andreas is buttressed by taking a primarily audial entity out of a vehicles' radio, and into physical form.

This is a design trope of the series used most effectively for the first time in *GTA III*, which featured a four-bar looping waltz in the Momma's Restaurante Mafioso eatery, and a soft, looping II-V-I-VII jazz piano riff in Salvatore Gentlemen's Club. This music was featured in cut-scenes that prefaced missions, a practice continued in *GTA: VC*, *GTA: SA*, and *GTA IV*. The use of music in and around buildings in *GTA V* is significant because the realm of nondiegetic accompaniment during linear gameplay sequences has been reassigned to exist as diegetic music that can be experienced through free exploration. Some buildings, such as The Hen House in the isolated coastal town of Paleto Bay, emit throbbing, bass-heavy pulses during night and early morning hours, suggesting a bar/nightclub environment more by implication.

Radio music can be heard coming from NPC-driven vehicles, and even these fleeting instances of the player's musical exposure are designed to be sonically convincing.

⁷³⁴ Munday, 'Music in Video Games', 54.

⁷³⁵ Sweet, *Writing Interactive Music*, 24.

Depending on the vehicle, perhaps a large family car with bass-heavy speakers or a convertible with its roof down, different reverb and audio filtering layers are applied to the music.⁷³⁶ This is most obvious when the player's avatar is on foot and near vehicles. Encountering music in this way occurs in missions as well, such as Non-Stop-Pop FM music emanating from a yacht on which Michael's daughter Tracy is partying, or Channel X blaring in Tequi-la-la, a club accessible only to Trevor during a side mission. Therefore, exposure to diegetic radio music outside of, and within, buildings and vehicles is consistent across the gameplay states of free exploration, and structured missions.

Music Players

The proposed model offers a useful tool when approaching the music players in *GTA V*, such as stereo systems, by employing the diegetic theory principle of discernibility outlined in Chapter I. This is because the existence of diegetic music within the gameworld may be recognised audibly, but its origin cannot be seen. Music playing around building exteriors often demonstrates this, such as the amusement ride complex on Del Perro Pier. Despite extensive exploration in close-play analysis and field research, the physical locations of speakers from which The Lowdown's music emanates remain undiscovered.

A research technique employed involved the isolation of in-game music by muting all sound effects, raising the overall game audio volume, and searching via an avatar through the zoomed-in first-person perspective. This process revealed spatial spheres in which the music could be heard, but even at its clearest and loudest point, no speakers or playing devices were found. This observation is congruent with the design insight MacGregor provides, which is that *GTA V*'s gameworld construct is populated with audio 'zones', 949 of them, sequenced to appear as 'round the corner or one block away.'⁷³⁷ The other component corroborating this verisimilitude is the placement of diegetic music zones in areas of aesthetic congruency, such as the groovy soul music playing at the sun and surf-oriented Del Perro Pier. The aim is to present a locale with music that suits its appearance and internal components, and acts according to actual world principles of physics and sound wave, for the player to accept axiomatically.

Less ambiguous in their diegetic nature are the music players that can be seen as well as heard throughout the gameworld. These are found in the protagonists' homes, and through

⁷³⁶ GDC, 'The Sound of Grand Theft Auto V'.

⁷³⁷ GDC, 'The Sound of Grand Theft Auto V'.

random encounters with NPCs congregating recreationally around a boombox of some sort. These occur most often in picnic sites, rural valleys or a beach, with NPCs standing, sitting, dancing, drinking and talking with each other. It should be mentioned that there are additional music player interactions available in GTA Online but, as part of a multiplayer component, these are not included here. Through an avatar, the player can approach and interact with these NPCs by engaging in a pre-recorded dialogue set. Once more, the music featured is from the game's radio station and, once again, the apparent absence of any music other than a radio station's has the potential to fracture the environment's reality. The RAGE's sophistication attenuates this by allowing 3000 sounds to be playing simultaneously through modular sound hierarchies,⁷³⁸ so that music blends in real time with many other sounds. This is made more convincing by the treble-heavy sonic quality produced by small (virtual) transducers, and spatially accurate panning and fading in response to the player's movements. These cement the music players within their environment, but they can also be turned off by the player, which leads to dynamic reactions from the NPCs who were enjoying the songs.

III.II Environmental Music

Rockstar's intention with *GTA V* was to create a realistic version of L.A., in which environmental musical elements are one of many threads woven to form the fabric of San Andreas and Los Santos. *GTA V*'s designers use the term 'ambient' to describe natural world audio;⁷³⁹ however, this becomes problematic when approaching game music from a theoretical position, as it is here. Ambient is sometimes used as an antonym of diegetic, as per Crathorne's suggestion that ambient sound refers to 'sounds that appear to be diegetic but whose source can never be found in-game', like distant church bells tolling or wind blowing.⁷⁴⁰ If these are classed as ambient because of their undefined source, ephemerality can be inferred. The problem is that open-world games offer vast ranges of sights and sounds as part of their rich, persistent worlds, often to be experienced by the player only briefly or subconsciously.

This should not be causal to their invalidity as substantive elements supporting the gameworld's reality. In the case of *GTA V*, the sounds experienced by the player were

⁷³⁸ GDC, 'The Sound of Grand Theft Auto V'.

⁷³⁹ GDC, 'The Sound of Grand Theft Auto V'.

⁷⁴⁰ Crathorne, 'Video Game Genres', 15.

implemented so as to be conceivably plausible.⁷⁴¹ Songs heard within the environment can be attributed to a radio station, but other musical elements such as NPC ringtones, performers, in-game media and non-radio station music exist only in the instance during which they are heard, and are not necessarily seen. It is imperative to the game's verisimilitude that these elements are considered to be occurring naturally within the environment, and they are therefore considered environmental forms of diegetic music, not ambient music.

Street Performers

NPCs performing with musical instruments throughout the gameworld have become a common feature of open-world games.⁷⁴² The first example in an HD GTA game was a saxophonist in *GTA IV*, and *GTA V* expanded the number of musicians and instruments. These buskers are found most commonly around the Vespucci Beach district, where pedestrian traffic and tourist storefronts attract more would-be patrons. A busker who doubles on bongos and acoustic guitar often takes up residence during the day at the western end of the beach, on the footpath that adjoins the Del Perro Pier walkway, while another guitarist can be found at the pier's end. These NPCs are animated to appear as playing an instrument accurately, and the player can interact with them through avatar and NPC dialogue. A combination of high-pass filtering, reverb, and low-pass filtering audio effects applied to this music⁷⁴³ mean that the distance between avatar and busker affects the music's sonic quality. This approximates the way a busker's music changes from indistinct sounds to a clear melody as the listener approaches them in the actual world. A sophisticated spatial audio design adapting to the player's proximal distance from the NPCs' performing location culminates in a virtual but accurate depiction of L.A.'s Santa Monica Pier street performers,⁷⁴⁴ the actual world environment that *GTA V* imitates.

Ring Tones and Horns

Telecommunication tools often feature in open-world games set in urban environments, such as *Saints Row: The Third*, and are an integral gameplay component in Ubisoft Montreal's

⁷⁴¹ GDC, 'The Sound of Grand Theft Auto V'.

⁷⁴² Smith, 'London Murders'.

⁷⁴³ GDC, 'The Sound of Grand Theft Auto V'.

⁷⁴⁴ Dave Tamkin, 'How to Perform on the Santa Monica Pier'. *Head Above Music*, 23 June 2017, accessed 4 July 2018, <http://www.headabovemusic.com/perform-santa-monica-pier>.

*Watch Dogs*⁷⁴⁵ and *Watch Dogs 2*.⁷⁴⁶ The first GTA game communicated instructions via payphones, while *GTA III*'s pager was useful in a game with a silent protagonist, and *GTA: VC*'s talking main character offered interpersonal conversation options. Niko Bellic used a mobile phone in *GTA IV*, but with three different protagonists using phones in *GTA V*, music was used again to distinguish between their personalities.

Michael's device features a major/pentatonic ringtone with a marimba-like quality characteristic of Apple's iPhone default ringtones. The player can view the phone screen in detail, and its icons and screen layout suggest a pastiche of quintessential iPhone design to go with the ringtone.⁷⁴⁷ Likewise, the form factor of rounded corners and interface of Franklin's mobile phone are akin to older Samsung devices.⁷⁴⁸ With the two dominant actual world operating systems of Apple's iOS and Google's Android represented, it is perhaps fitting that outlier Trevor uses a device resembling the Windows Mobile, which was discontinued in 2017.⁷⁴⁹ A slightly distorted and reverb-heavy four note major triad phrase, centred somewhere between concert F and F#, alerts the player to Trevor's phone ringing. As a narrative tool, these ringtones offer another distinction between each protagonist and their smartphones, but other ringtones can be heard throughout the gameworld as well. NPCs are often using their phones for conversation, messaging and taking photos, and the buzzing of ringtones, whether from a discernible NPC phone or not, is another example of pervasive diegetic music in the gameworld.

Vehicle horns can be customised at Los Santos Customs premises, and many are brief musical excerpts. The selection of horns discussed here are available in the single-player mode of the PC version of the game, although additional options are available in *GTA Online*. Supplementing several conventional and comical horn sounds are a series of enumerated jazz horn, classical horn and looped horn sounds. Connotations of military history are presented through a selection of bugle call passages, including 'Assembly', 'Reveille' and 'First Call'. These are fused with Confederate patriotism and American South

⁷⁴⁵ Ubisoft Montreal, 2014.

⁷⁴⁶ Ubisoft Montreal, 2016.

⁷⁴⁷ Paul Briden, 'GTA 5's In-Game Smartphones: A Showcase'. *Know Your Mobile*, 17 September 2013, accessed 4 July 2018, <https://www.knowyourmobile.com/mobile-phones/gta-5/21232/gta-5s-game-smartphones-showcase>.

⁷⁴⁸ Briden, 'GTA 5's In-Game Smartphones'.

⁷⁴⁹ Claire Reilly, 'Windows 10 Mobile Gets its Final Death Sentence', *CNET*, 8 October 2017, accessed 24 August 2018, <https://www.cnet.com/news/windows-10-mobile-features-hardware-death-sentence-microsoft/>.

folkloric influences through excerpts from ‘I Wish I Was in Dixie’s Land’⁷⁵⁰ and ‘La Cucaracha’.⁷⁵¹ Four separate horns reinforce these themes by featuring a melodic excerpt each that, if perused in order by the player, culminate in the first eight bars of ‘The Star-Spangled Banner’, with an anacrusis.

Classical horn selections include the opening ‘Allegro’ movement from Mozart’s *Eine kleine Nachtmusik*, the opening trombone melody of Wagner’s ‘Ride of the Valkyries’, and melodic excerpts from Tchaikovsky’s ‘Dance of the Sugar Plum Fairy’ and Prokofiev’s ‘Montagues and Capulets’. Beethoven, Bach and Rimsky-Korsakov provide other entries from this broad classical canon, while eight individual tone horns form each of the movable do solfège scale degrees. Jazz horn choices feature passing blues notes that texture brief melodies, some of which even include limited homophonic parallelism. The military and nationalistic character underpinning some of this music is an extension of the same themes found elsewhere in *GTA V*’s narrative. The total sum of traditional, folk, canonic classical music and nondescript jazz phrases form an eclectic, if not discursive, catalogue of vehicle horns. As part of a customisable musical experience, the variety of styles affords a relative freedom to the player in furnishing their avatars’ identities. As part of *GTA V*’s gameworld, the vehicle horns are a *volte-face* on the pop, rock, funk and electro style-heavy radio song catalogue.

In-Game Media

Like the discarded disposable coffee cups that litter footpaths and the radio music accessible while driving, television shows and websites contribute to the granularity and depth of *GTA V*’s stipulated suburbia. The in-game television features shows and advertisements of various genres that can be viewed by the player, and these, naturally, contain music in the same way that they do in the actual world. This music is diegetic as it is attributable to the broadcast, even if the television or radio system speakers cannot be seen. *GTA*’s developers didn’t plan to have DJs originally, and commercials and indents were implemented properly until *Grand Theft Auto 2 (GTA 2)*.⁷⁵² Advertisements on in-game radio stations have accompanied musical catalogues and talkback dialogues in every 3D *GTA* title. *GTA IV* was the first to

⁷⁵⁰ Daniel Decatur Emmett, *I Wish I Was in Dixie’s Land* (New York: Firth, Pond & Co, 1860), accessed 23 February 2019, <https://library.duke.edu/rubenstein/scriptorium/sheetmusic/n/n08/n0807/>.

⁷⁵¹ Traditional Spanish folk song.

⁷⁵² GamesTM, ‘20 years at Rockstar Games with Craig Conner’.

feature fictional television programs and commercials, while *GTA V* keeps some of these, and introduces new shows.

Weazel News is an intertextual news service corporation that airs on the Weazel television network in *GTA IV* and across radio stations in *GTA V*. News bulletins satirise examples of extreme pop cultural fanaticism, nationalism and consumerism, or comment on NPCs and businesses within the gameworld. A number of news bulletins are scripted to play after the player has completed certain mission objectives, so that the player's actions are presented as having consequential ramifications within the gameworld.

A broadcast opens with a fleeting but prominent horn (or synth horn) part, a reverse whoosh white noise effect that crescendos, and a rhythmic pulse established with crotchet bass and drum accents at circa 146 beats per minute. Sixteenth-note tom-tom drum fills and cymbal accents bookend four-bar sections to create forward movement, while a treble piano line consisting of tetrachord and major second intervallic leaps plays. This section transitions into a slower, recursive groove that is highlighted by sixteenth-note hi-hat and synthesiser patterns, centred by crotchet kick-drum notes and a bass groove built around tonic, subdominant, dominant, and flat seven passing notes. A tonality is established only after another whoosh signals an ending stinger, and a piano line emphasising a major third via a subdominant neighbour tone is supported with syncopated cymbal, drum and bass hits.

These beginning and ending 'franchise stingers' and medial 'bumper' tracks inhabit the realm of archetypal station news themes through their commonalities of instrumentation choices, and harmonic character. These include harmony regularly based on first inversions, tetrachord note choices and predominance of diatonic notes one, four and five in both the melody and harmony; sixteenth-notes in percussive or tonal form; use of brass to provide emphasis to phrases; implied or obvious suspended chords, passing notes and smooth voice leading; and cymbal swells. Many of *GTA V*'s Weazel News music attributes are shared with music of other fictional news broadcasts, such as San Diego's KVWN Channel 4 News in *Anchorman*⁷⁵³ and News Night on the Atlantis Cable News channel in *The Newsroom*.⁷⁵⁴ Weazel's theme lacks the austerity of News Night's timpani strikes and string passages, although piano is used in Thomas Newman's quixotic theme for *The Newsroom*, as in *GTA V*'s Weazel News.

⁷⁵³ McKay, 2004.

⁷⁵⁴ Mottola, 2012.

A range of shows featured in the game satirise genres popular among North American audiences, and across the globe, such as reality television and cartoon serials. *Republican Space Rangers* is an animated show that follows the adventures of a band of men in comical spacesuits, as they dispense unmerited ‘justice’. The show ridicules rampant patriotism, homophobia and a domineering US foreign policy in its caricatures, with music underpinning every theme. A heavy metal opening theme indicative of the action genre gives way to uplifting fanfare strings as the episode’s story is introduced, which begins with the characters visiting the White House to strains of a faux ‘Hail to the Chief’ rendition. Combat sequences with profuse firearm discharges are accompanied by the same metal rock-driven sound as the show’s theme, and even a love scene receives its own sultry guitar piece. Another cartoon called *Kung Fu Rainbow Lazerforce* is based on a similar narrative, with a handful of protagonists fighting crime. The rock beat behind characters singing during the show theme in individually coloured suits resembles themes from actual world cartoons such as *Captain Planet* and *Mighty Morphin Power Rangers*. *Fame or Shame*, a ‘live action’ (captured in-game footage) reality show, is a pastiche of talent competition series, and features an intentionally excruciating performance by Tracey, in-game protagonist Michael’s daughter. Tracey wrote the bland and generic pop song, and her embarrassing vocal performance ties into a mission in which the player rescues Tracey from a *Fame or Shame* audition.

Commercials between and during television shows follow the same creative pattern, matching music styles associated conventionally with the product advertised, or target audience profile. A country-rock track underscores an advertisement for Pißwasser, a discount German export lager, while the weapons, foodstuffs and water purifier in an Apocalypse Kit from armament retailer Ammu-Nation are promoted with a flapping American flag, a gruff male voice and a Sousa-style march. These overt examples of reinforced stereotypes such as the beer-swilling yokel and trigger-happy/pathological eschatologist contrast with the minimalist music of other advertisements. A commercial for the Grand Senora Desert eschews the Rebel Radio music usually employed to indicate the region. Instead, a nondescript ethnic woodwind instrument provides an ethereal sound layer upon a hand-drum part and resonant bass notes. There is irony in the wistful elegance of the music and the true nature of the desert it’s advertising, which is home to methamphetamine addicts and failed tourist industries.

A series of other television and radio commercials advertise television programs that are never available to view, such as the matchmaking reality show *Serious Cougar*, and a program requiring contestants to harvest organs illegally, called *Organ Farm*. A radio election spot for Jock Cranley, a Governor aspirant and NPC featured in the game's main story, uses a grandiose formula found in actual world politician adverts. A peaceful piano tune in a major tonality plays behind Jock as he announces his bona fides, while ominous drones and cymbal clashes underscore a pillorying of his gubernatorial opponent, Sue Murry. The music of films viewable in *GTA V*'s virtual theatres and its in-game website music are discussed in Chapter IV's Theoretical Recapitulation of the Virtual Fieldsite, and Score, respectively.

Diegetic music is even included in a fictional video game parodying contemporary violent FPS games, called *Righteous Slaughter*. Michael's son Jimmy can be watched while he plays the game, which is presented through a FPS view, and features copious death and bloodletting through rapid firearm and melee battles. Of interest here is that Rockstar deviates from the realistic musical compositions found in the game's television shows and radio commercials. The music accompanying gameplay echoes entrenched language tropes of Hollywood action music,⁷⁵⁵ such as bombastic percussion, fortissimo brass and rapid string bariolage passages. The incongruity here is that the game series *Righteous Slaughter* parodies, such as *CoD*, *Battlefield* and *Counter-Strike*, do not feature music during competitive multiplayer gameplay. Music may be present during menu screens and a round's commencement or conclusion, but success in core competitive play hinges heavily on players detecting their opponents' noises. In this theatre of critical sonic clarity, music of any kind, let alone the raucous kind in *Righteous Slaughter*, would distract players from crucial gameplay sounds, as noted by Grimshaw⁷⁵⁶ and, later, by Wharton and Collins.⁷⁵⁷

Accurate virtual portrayals of actual world media music, it would seem, are reserved for cinema features, television shows, television and radio commercials, and, to an extent, websites. The video game is where diegetic music is presented truly as a burlesque of overtly violent and generically designed FPS games. As with most GTA game-satirised content, this is likely a humorous pursuit rather than a pejorative jab. It also aligns with the tenor of a

⁷⁵⁵ Summers, *Understanding*, 156.

⁷⁵⁶ Grimshaw, 'Acoustic Ecology of the First-Person Shooter', 226.

⁷⁵⁷ Alexander Wharton and Karen Collins, 'Subjective Measures of the Influence of Music Customization on the Video Game Play Experience: A Pilot Study', *Game Studies* 11, no. 2 (2011), http://gamestudies.org/1102/articles/wharton_collins.

traditional Rockstar Games ethos of ‘intentionally avoiding the first-person shooter genre because it too closely reflects what their competition is doing’.⁷⁵⁸ The hyperbolic shooting violence in *Righteous Slaughter* is matched with music of parallel ridiculousness, but portrayed so as to be perceivable to only the most incisive players. Another game present in the series and reprised in *GTA V* is *QUB3D*, a puzzle game resembling Tetris⁷⁵⁹ but housed in an upright arcade machine. It too cannot be played in *GTA V*, but electronic beeping sounds can be heard emanating from the arcade box if the player is near it.

GTA V’s in-game media contains music that subscribes to conventional genre and format design models. The Weazel News theme deviates little from patterns geared to wrest the listener’s attention, and to counter an intimated emotive seriousness with an energetic groove.⁷⁶⁰ Television show music taps into culturally understood norms of action music cues, adolescent cartoon themes songs and rudimentary correlative consumer-product advertising theory. The gameplay of *Righteous Slaughter* is an exception to this collection of predictable music because of its singularly unrealistic composition style, but is still driven by *GTA*’s signature penchant for satire. The significance lies in the depth to which music substantiates the gameworld’s reality through transitory but pragmatic musical content, with its portrayal executed in such an unadorned manner so as to appear entirely natural.

III.III Summary

The licensed pre-composed music in *GTA V*’s radio stations forms a substantial body of in-game music, substantiates the gameworld’s reality through in-vehicle programming, genre, title and lyrical content, and maintains a series-wide musical lore. Narrative cohesion is achieved through its unrealistic equalisation, associations with protagonists and in-game locations, coding within mission structures, and permeating the gameworld through music players. A plethora of other musical elements also contribute to *GTA V*’s verisimilitude, including NPCs busking performances, mobile phone ringtones, vehicle horns and the accompaniment to in-game media such as film, television, website and video game properties. Music’s role in convincing the player of the gameworld’s reality is significant, and is now approached via the methods of the proposed model’s second research phase.

⁷⁵⁸ Anthony Taormina, ‘Rockstar Games Purposefully Avoiding First Person Shooters’, *Game Rant*, 2011, accessed 21 May 2016, <https://gamerant.com/rockstar-games-avoiding-first-person-shooters/>.

⁷⁵⁹ Pajitnov, 1984.

⁷⁶⁰ John Richards, ‘How to Write Music For the News’, *The Outland Institute*, 17 December 2008, accessed 7 February 2019, <https://outlandinstitute.wordpress.com/2008/12/17/how-to-write-music-for-the-news/>.

VIRTUAL ETHNOGRAPHY

III.IV An Account of Musical Culture in San Andreas

San Andreas is an island state off the western coast of the United States of America. Towering cliffs, wave-lashed inlets and idyllic sandy beaches encircle a diverse topography of arid desert, dense pine forest, mountain ranges and inland water systems. The most populous dwelling is the city of Los Santos, located in the south of Los Santos County. Surrounded by water, oilfields and mountains, Los Santos International Airport and the Port of South Los Santos extend the sprawling metropolis into the Pacific Ocean. Beyond the CBD's towering skyscrapers, extended residential districts, and industrial regions, the county opens into vast livestock farming and viticulture land, deep canyons and the sparsely populated Blaine County. This county incorporates the Grand Senora Desert, isolated township dwellings, and an inland lake called the Alamo Sea. With an elevation of 2,744 metres, according to the plaque on a nearby rural walking trail, Mount Chilliad dominates the surrounding pine forests, heavy industry, farmland and townships.

Los Santos

My investigation began in Los Santos' district of Vinewood, a metonymy based on the city's cinema industry. 'Guided tour[s] of the landmarks and homes of the rich and famous',⁷⁶¹ theatres, and the Vinewood Walk of Fame were some of the many tourist attractions offered on Vinewood Boulevard. The footpath here was always full of pedestrians, usually tourists taking photos of landmarks, and posing with street artists dressed as pop-culture characters from series such as *Kung Fu Rainbow Lazerforce* and *Impotent Rage*. Mingled with the engine and exhaust noises of dozens of passing cars were the beats of songs listened to by the drivers, some bass-heavy, others audible via an open window. Other music could be heard emanating from buildings and establishments as I walked past them. Popular and easy listening-sounding music could be heard while walking past the chic Haute Restaurant on the corner of Eclipse and Las Lagunas Boulevards in West Vinewood. The same can be said of the Clappers nightclub and restaurant located in the Von Crastenburg Hotel lobby, further down the eastern end of Vinewood Boulevard. The music playing in Clappers was not the popular kind heard in Haute, but smooth funk and soul flavoured, catering to a more urbane

⁷⁶¹ Rockstar Games, 'Sightseeing & Celebrity!' *Rockstar Games*, 13 September 2013, accessed 1 November 2018, <https://www.rockstargames.com/V/lbcb/sightseeing-and-celebrity>.

and perhaps *à la mode* patronage, in line with the debonair façade of this neo-Spanish Colonial Revival building. Many other tourism establishments along Vinewood Boulevard used music to broadcast their brand, such as the curiosity museum called Bishop's WTF?! playing an eerie repeated theremin track to draw in passers-by. Nearby, the Blazing Tattoo body art parlour blasted heavy metal music, and on one occasion I entered the premises to find out more. The Caucasian male artist working there was eager to show me different patterns and designs, offering not only original ink work, but a 'cover up' service for hiding poor tattoos as well. I discovered that the tracks were on Channel X, a local punk rock station, and the music's aggression belied this proprietor's congeniality. Vinewood Boulevard's music never seemed to cease, whereas it fluctuated in other parts of the city between daytime and evening.

The Day Life

Recorded observations from ambulating trips show that music accompanied daily activities in the city, enticed patrons and created enjoyable atmospheres. In the north of the city, The Pink Sandwich restaurant played funk and popular music, whereas the Fish Net Restaurant usually opted for classic soul tunes. The modernist art gallery Oeuvre played music exclusively from the Soulwax FM radio station, and Vinewood Music, a music store whose signage proclaimed it to be the 'Home of Rock', played rock music 24/7 at its entrance. Open shopping precincts created entertaining atmospheres through music too, such as Simmet Alley in the eastern suburb of Textile City. As people perused carpet, electronic, apparel and souvenir stores under multicoloured bunting, Mexican popular songs and upbeat piano accordion tunes reverberated off the street market's partial glass ceiling. In fact, the Hispanic history and cultural influence in Los Santos is ubiquitous, and often demonstrated through music. El Café Rojo de Madera, which translates to The Red Coffee of Wood in English, was an eatery in the CBD fringe suburb of Alta, and often had music similar to Simmet Alley's playing in its open courtyard. The confluence of traditional Mexican instruments and contemporary musical subgenres was musically emblematic of El Café's gentrified warehouse, exposed brick, and other appurtenances of rustic colonialism.

On some of my visits to this place, a venerable African-American gentleman would be playing an acoustic guitar in the courtyard, and I discovered the city's busker tradition. I encountered the same man performing in a foyer of Little Seoul Station, an underground Los Santos Transit station in the city centre. A more centralised area for busking was the Del

Perro Pier in the city's west, where street performers' music could be heard during the day as they capitalised on the large volume of passers-by. They would regularly take up residence either at the far end of the pier next to a public telescope aimed out at the ocean, or beside the pier's entrance on Vespucci Beach. I began to recognise a couple of regular performers, whose guitar and percussion pieces usefully negated the need for electrical amplification and at any one time attracted a crowd of at least half-a-dozen onlookers.

The pier was another open-air space in which music never ceased to play, like the unremitting waves crashing against its load-bearing poles and the creaking of its perpetually revolving Ferris wheel. Hundreds of joggers, bikini-clad swimmers and sun-soaked fisherman frequented the eateries and tourist attractions by day, while the bright, flashing, multicoloured lights of Pleasure Pier's amusement rides lit up the night sky. Like the upbeat music swarming around the cafes, restaurants, clothing outlets, gymnasium and prescription marijuana pharmacy on the adjacent Vespucci Beach, music played all over the pier. I spent extended periods of time observing and recording the comings and goings of people. Throughout it all, a stream of classic soul and funk songs, like Marlena Shaw's 'California Soul', The Five Stairsteps' 'O-o-h- Child', War's 'The Cisco Kid', and the Jackson Sisters' 'I Believe in Miracles', provided a soundtrack for tourists and proprietors alike.

The Nightlife

Nighttime brings pockets of the city to life as the bars and clubs that make up Los Santos' nightlife open, and cues of eager patrons and clipboard-wielding bouncers illuminated in neon light would take over from daytime pedestrian traffic. I would find places by following the throbbing low frequencies escaping the establishments' walls, which could usually be heard from a street or two away. On separate evenings, I visited the Bahama Mamas West nightclub on Marathon Avenue in Rockford Hills, a 'gay bar' called Pitchers just off Vinewood Boulevard, and The Vault nightclub in the downtown district. All would stay open into the early hours, rattling windows with pulsing techno and dance music until about five o'clock in the morning. One such evening in particular highlighted the disparity between citizens of Los Santos for me.

Located in the central neighbourhood of Strawberry, the Vault is housed in a large stone neoclassical building, likely an old bank, with rounded Ionic pilasters, and a carved relief in an isosceles pediment. As the people inside danced and drank, I observed those waiting in line at the front entrance while they smoked and perused their mobile phones. In

a small recess at the building's rear, members of the city's indigent population were gathered, sheltering between the tall buildings, and generating warmth from burning matter in oil drums. As I walked around the building, I realised that the deep and consistent throbs of techno music could be heard with greater clarity at the rear of the building than at its front. There was a stark dichotomy presented, whereby the people waiting in line, but never making the entry list, had a feebler musical experience than the destitute individuals huddling in the filthy rear alcove, who could never afford to enter. It was a poignant reminder of the stark realities immanent in the big city, and was reprised in various rundown city areas in which night does not bring music, but rather the soft chattering of the homeless and drug-addicted.

It also articulated a nighttime culture. Evening for Los Santos residents is a time to fill the air with pad-based synthesiser riffs, pulsing dance beats and rock music. Weekend or weeknight, the night heralded music booming from apartment blocks in the inner-city suburbs of Alta, Burton and Hawick, and houses in the western suburbs of Mirror Park and West Vinewood.

Urban Musical Maps

This was most pronounced in the south-central suburbs of Rancho, Davis and Chamberlain Hills. African-Americans and Latinos made up the predominant populations here, and another environmental schism presented itself. The poorly maintained street asphalt, unending surface graffiti and abandoned bungalows could not have been more different from the manicured gardens, three-car garages and palatial mansions of West Vinewood, Downtown Vinewood and Rockford Hills. Exploring this part of the city was one of the more precarious points of my field research, as there were unspoken cultural codes that I was not privy to, and which governed the permissible interaction with outsiders. The observing and interviewing that I could undertake showed me that the local citizenry were fiercely proud of music endemic to matrices of urbanised oppression. For example, hip-hop, freestyle rap and DJing were the predominant musical tastes in Davis, followed by punk and conventional rock.

This could be heard from apartment blocks and garages on almost every street at night, and every second car that passed would have the radio dial tuned to stations like West Coast Classics and Radio Los Santos. Canonic Dr. Dre, N.W.A, Ice Cube and Geto Boys hip-hop songs were celebrated as experiential anthems, as were contemporary recordings by Jay

Rock, Freddie Gibbs, and A\$AP Rocky. Rancho residents of Hispanic and Caucasian heritage alike were inspired by a range of Mexican electronica, ska and banda genres, a trend that I found extended across the Los Santos River and into the suburbs of Cypress Flats and Murrieta Heights. Once again, this was in contrast to the popular, contemporary rock, funk and techno music that I found to be favourite genres in central and northern Los Santos, although not exclusively. My recorded data shows that reggae, ska and punk rock tended to be the musical genres with the most crossovers, particularly between Downtown Vinewood, Burton and Rancho. Similar fieldwork conducted in the Murrieta Oil Field of El Burro Heights and the Port of Los Santos in the Elysian Island and Terminal precincts demonstrated that regions of high industrialisation saw less abundant music than cultural hubs closer to the city. That said, mobile phone ringtones, booming car radios and incessant emergency vehicle sirens formed a persistent cacophony of musical static. It pervaded all regions, including the Los Santos Golf Club University of San Andreas, Los Santos campus in Richman and Los Santos International Airport. Fieldwork conducted in the settlements and regional areas of Los Santos and Blaine Counties contrasted with Los Santos at times, and remained congruent with it at others.

Love of Music and the Ocean

San Andreas' coastal circumference offers competitive watersports, fishing, swimming, long stretches of sand crowded with beachgoers, and small inlets used by people wanting to get away. It seems that its citizens' love affair with the beach is mirrored in their love of music. Even when I participated in a series of water races on the Los Santos River, Alamo Sea, and remote waters around the remote El Gordo Lighthouse, upbeat techno music would always be tuned to on my provided Seashark watercraft. Almost every activity or congregation near water involves car radios, an establishment's house music or a portable stereo player. The latter is usually to be found in the centre of deck chairs, beach umbrellas and eskies, and I encountered numerous pop-up parties on beaches.

I came across several large groups of people in their late 20s dancing and chatting one evening on a beach near the northwestern Paleto Cove region. On a bricolage bench made with an old oil barrel and two nailed two-by-four lengths of wood sat a portable stereo player blasting dance and electronica music from a popular radio station hosted by two European musicians, called Soulwax FM. The tinny, treble-heavy sound produced by the stereo's small speakers competed with chirping crickets, crackling flames and the consistent legato swishes

of waves lapping gently against the shoreline. In fact, evening brought people out onto Vespucci Beach, and in front of the raised sand dune houses stretching along the western Chumash, Banham Canyon, and Tongva Hills coastline. Their campfires were like miniature lighthouses peppering the beach, illuminating my path between congregations of people smoking, drinking, talking, and usually happy enough for me to participate in their conversation.

One evening on the beach took me on a particularly meandering musical journey, starting with hip-hop, then classic rock, contemporary rock and indietronica. I found the latter singularly quixotic, as the beachfront backdrop to the partygoers' campfire was highly similar to the oceanic setting in the video clip for Miami Horror's 'Sometimes', to which we were listening. Not every nocturnal party had music, either having stereos nearby that were switched off or having no music player at all. Whether with tents pitched on the beach or on the northern slopes of Mount Gordo, I found that campers tended not to play music either. The inland regions in which they were camping, however, offered rich musical histories and tastes.

From the Ocean to the Desert, and From Town to Country

Blaine County's local inhabitants and visitors may have arid desert and mountains between them, but they are as devoted to country music, rock subgenres and talkback radio as the residents in south Los Santos are to hip-hop and rap. WCTR is a talkback station oriented towards a metropolis listenership, and my fieldwork records indicate that this station was most popular in inner and northern suburbs of Los Santos. The other talkback station, Blaine County Radio, is available only outside of the city limits. When driving north out of the city with the car radio tuned to the acid techno of Soulwax FM, a bout of aural static would interrupt the signal before tuning to Blaine County Radio, which shared the same 96.5 FM frequency. This station was popular with local residents of Sandy Shores, farmers working around the Alamo Sea and day-trippers in the eastern mountain ranges. Even more popular than talkback radio was country music, such Rebel Radio, headquartered on Route 68, and featuring an imposing steer-skull sculpture looking out over the Grand Senora Desert.

Isolated nightclubs such as The Hen House in the northern town of Paletto Bay provided bass-heavy dance music in the evening, but it was the music of Willie Nelson, Waylon Jennings, Tammy Wynette and Johnny Cash that could be found most easily. Sitting between Bolingbroke Penitentiary, a Satellite Relay Station and Sandy Shores Airfield, The

Yellow Jack Inn was the archetypal highway bar and roadhouse, and only ever had Rebel Radio playing. Patrons could play darts, chat with the barkeeper and admire the Inn's pet snake to a range of classic country and rockabilly songs. I encountered the same taste across the county, whether by hitching a ride in the picturesque Raton Canyon, participating in a low-key hoedown on the Alamo Sea shore or interviewing drivers passing through the isolated townships of Harmony. One on occasion, I surveyed ten random truck drivers hauling freight or lumber along San Andreas' northern coast highway, and all but two were listening to country music in their massive MTL Packer, Jobuilt Phantom and Jobuilt Hauler semi-trailers.

Even so, extended periods of time spent with people in the county challenged the apparent dominance of country music. I once happened upon a photo-shoot just off the Great Ocean Highway in North Chumash, while the final minutes of sunset transformed into twilight. As the photographer pointed a telephoto lens at a woman posing in front a massive cab-over flat-nose truck, I took the opportunity to inquire into the convivial bystanders' musical tastes, and recorded the song, artist and radio station tuned to in each of their trucks. The results surprised me, as their preferences included modern sub-genre song catalogues of Radio Mirror Park and Vinewood Boulevard Radio, and the punk station Channel X hosted by Keith Morris. The burly, road-weary North Chumash truckies' taste for Swedish indietronica trio Niki and the Dove, indie rock band Shark?, and synth-wave artist Twin Shadow reminded me to keep an open investigative mind. Interviews I conducted in the central farming town of Grapeseed produced results of a similarly eclectic nature, where people enjoyed popular, house, techno and hip-hop.

Other regional hubs played music softly to generate a desired atmosphere. The undulating hills to the north of Los Santos benefit from copious sunshine, and the Marlowe Vineyards in Tongva Hills has harnessed both the elevation and Mediterranean microclimate. I visited the main building a number of times, and came to regard it as a popular destination with Europeans. I spoke with a number of French people in particular, and it was not lost on me that the music playing there was from a single source, the radio station WorldWide FM. This station did not play commercials and was hosted by DJ of British, French and Swedish heritage. Patrons seemed to be eased into a comfortable winetasting mood by the jazz-funk, world and neo-soul music bouncing softly throughout the stone courtyards of Marlowe's statuesque Tuscan villa. I had a very different experience at a roadhouse on the Great Ocean Highway called Hookies Seafood Diner. Its encircling

palm trees, rustic porch façade and faded sky-blue paint harkened back to the surfing 60s, but a closer inspection revealed discarded and filthy armchairs in the car park, a graffiti-covered outdoor toilet and several people watching me. They were members of the Lost Motorcycle Club, which is active in parts of rural San Andreas and notorious for violent and drug-related crime. I noted the 1970s Bob Seger and Creedence Clearwater Revival rock playing, purchased a soft drink and decided to be on my way.

III.V Summary of Fieldsite Research

The variation of musical uses and tastes in Los Santos is emblematic of the diversity of ethnic backgrounds and historical influences. I once encountered a Hasidic Jew, African-American, Caucasian and hipster on one footpath, while also hearing nearby phone ringtones, police sirens, a helicopter overhead, and synthpop tracks playing in the discount clothing store Benco. The city's shops, restaurants, cafes and tourist attractions use music that complements their brand to entice patrons of all backgrounds, while bars and nightclubs rumble footpaths with muffled, rhythmic and thumping dance tracks. Through all of the sounds produced through the quotidian activity of buskers, shoppers, and commuters, there remain distinct loyalties to specific genres, styles and artists. So consistent was the musical delineation of stratified social and economic boundaries that, if one closed one's eyes, Los Santos could likely be navigated using its musical geography alone. Further north, cultural complexities of geographical contiguity were presented through endemic country, rockabilly and rural talkback radio stations.

My fieldnotes show that most of the nighttime beach parties that I visited took place on the west coast. The inclement weather of San Andreas' northern Paletto Bay, Procopio Beach and Mount Gordo beaches can be factored into this, as can the geographical orientation of the west coast beaches that enjoy long golden sunsets that begin a little after three. Indeed, there was something mesmerising in driving west through Banham canyon, listening to Curtis Mayfield on the contemporary R&B station Blonded Los Santos 97.8 FM, with a vast, glistening, amber ocean opening up to me. From European-influenced vineyards, to roadhouse bars, through to quiet desert townships, the people of San Andreas incorporate many kinds of music into their cultural practices of shopping, travelling, partying, dancing, drinking and eating. Nevertheless, the breadth of genre tastes in Blaine County was still subordinate to predominant country music playing in cars, bars and dances. This extended to the highly commercialised popular music pervading Vinewood Boulevard restaurants and

upmarket Ponsonby's clothing stores, and the modified lowriders blasting Mexican hip-hop as they cruised through Rancho. By observing, recording and participating in cultural practices throughout San Andreas, I formed a view that the music permeating this state told me more about the people listening to it than they could ever express.

MUSIC IN CULTURE

III.VI When Music Transcends the Gameworld

As a commodity, *GTA V* has performed with a success that is difficult to countenance. In 2013 it became the fastest-selling entertainment product ever made,⁷⁶² later to become the highest-grossing entertainment product in history.⁷⁶³ Within the first two months of its release the game outsold the global music industry,⁷⁶⁴ and at the time of this study's publication, players have listened to an estimated 75 billion minutes of music during gameplay.⁷⁶⁵ As substantial as these figures are, the initial point of contact consumers had with *GTA V*'s music was via a series of trailers.

Promotional Trailers

The music playing in these trailers would be included as diegetic radio music once the game was released, but when accompanying the linear video trailers it functioned nondiegetically. Sharing the name of its album,⁷⁶⁶ 'Odgens' Nut Gone Flake' played during the first 'Grand Theft Auto V Trailer'.⁷⁶⁷ This trailer was released almost two years in advance of the game's sale, and, as the only trailer for approximately a year, it allowed Rockstar some leeway in development time. This is unsurprising, as the company's tendency to postpone titles' release is well documented, with *GTA III*'s release pushed back by three weeks, *GTA IV*'s scheduled release of October 2007 becoming January 2008, and *GTA V* released several months later than first indicated.⁷⁶⁸ The extended period of time also encouraged a build-up

⁷⁶² Fogel, '75 Billion Minutes'.

⁷⁶³ Goldberg, 'How the West was Digitized'.

⁷⁶⁴ Bleeker, 'GTA 5 Sales Hit \$1 Billion'.

⁷⁶⁵ Fogel, '75 Billion Minutes'.

⁷⁶⁶ Small Faces, 1968.

⁷⁶⁷ Rockstar Games, 'Grand Theft Auto V Trailer', video, 1:24, 2 November 2011, posted by Rockstar Games, <https://www.youtube.com/watch?v=QkkoHAzjnUs>.

⁷⁶⁸ Frank, Allegra, 'Rockstar Games' 15-Plus Years of Delays, Revisited', *Polygon*, 23 May 2017, accessed 7 December 2018, <https://www.polygon.com/2017/5/23/15677612/rockstar-games-delayed-red-dead-redemption-2>.

of enthusiasm among prospective players in what some might call a strategic delay. The second trailer titled 'Grand Theft Auto V - Trailer 2' was released in November of 2012,⁷⁶⁹ and featured 'Skeletons'.⁷⁷⁰ This trailer introduced the game's three protagonists and their dichotomous lifestyles. Scenes of business enterprises and wealthy homes were presented as facades, juxtaposed with scenes of graphic violence, murder and vandalism. In effect, this trailer offered a visual preview of the skeletons in their metaphorical closets, set eponymously to the Stevie Wonder song that would later be included in the game on Bounce FM.

Several other trailers followed, released simultaneously, but dedicated to one of the three protagonists each. 'Radio Ga Ga'⁷⁷¹ was the licensed song that accompanied scenes of gameplay for Michael's trailer. Its lyrics lament the fading influence of radio in the 1980s, linking with Michael's propensity for nostalgia, and focuses on the medium of radio that iconises the GTA series. The lyrics of 'Hood Gone Love It'⁷⁷² describing the milieu of the hood, and the stories created by those who live there, resemble Franklin's own journey of soul searching. It also plants the sonic seed of hip-hop that identifies Franklin, Los Santos, and much of the score. Trevor's reprobate personality was not accompanied by the distorted punk rock found in-game, but by the country song 'Are You Sure Hank Done it This Way'⁷⁷³ that would be heard on Rebel Radio. The song reiterates this question with incredulity, as Jennings asks rhetorically if Hank Williams Sr. would have approved of the glamour that characterised 1970s country music stars. Country music is linked tangentially to Trevor as his trailer/home is parked permanently on a plot of land in the barren Grand Senora Desert, which is where Rebel Radio is also headquartered. The theme of questioning modern life's perceived shallowness and superficiality resonates deeply with Trevor, a resolute anti-establishment eccentric.

Rockstar Games used the diegetic music licensed for *GTA V* as nondiegetic music in trailers that promoted it prior to release, and these songs captured the personalities of Michael, Trevor and Franklin through precise lyrical phrases and thematic motifs. More subtle are the conduits established between popular music and story elements within *GTA*

⁷⁶⁹ GameTrailers, 'Grand Theft Auto V - Trailer 2', video, 2:00, 14 November 2012, posted by GameTrailers, <https://www.youtube.com/watch?v=Ro7HAWV7wh4>.

⁷⁷⁰ Stevie Wonder, 1987.

⁷⁷¹ Queen, 1984.

⁷⁷² Jay Rock and Kendrick Lamar, 2011.

⁷⁷³ Waylon Jennings, 1975.

V's narrative, such as regretted pasts, failed enterprises and achieving an existence once aspired to but now disenfranchised from.

A final pre-release trailer to feature what would turn out to be in-game diegetic music was released in the month before *GTA V* launched, called 'Grand Theft Auto V: The Official Trailer'.⁷⁷⁴ The title suggests that the preceding trailers introducing the main characters, plot themes and setting of the game were a kind of exposition of the narrative; a staggered introduction of the official narrative, with music establishing associations between consumers and the world of *GTA V*. The song used in this trailer did not have decades of cultural recognition behind it, and was the yet to be released 'Sleepwalking'.⁷⁷⁵ It was not released on an album until *Daydream Forever* in 2014, but by that time it had already received significant exposure through its use in the trailer and its inclusion in the in-game station Radio Mirror Park.

The financial benefits of licensing popular music my help in recouping significant development and marketing costs, but Rockstar demonstrates a genuine desire to invest in musical artistic integrity, at least at the publicity level. Rockstar's open company ethos involves finding artists and musical sounds that meld with the brand and providing a platform for them. Pavlovich claims that 'everyone in the company has a passion for music ... we live this music. We go out all of the time. We're constantly following people, watching, listening to sounds at clubs'.⁷⁷⁶ 'Sleepwalking' was contributing to the music scene of Los Santos even before players could enter the city, and heard for countless hours later during gameplay.

Soundtracks and Albums

Along with 17 other tracks, 'Sleepwalking' was featured on *The Music of Grand Theft Auto V, Vol. 1: Original Music*.⁷⁷⁷ Other songs on this volume were included in Radio Mirror Park's catalogue, such as the electronica tracks 'Change of Coast' by Neon Indian and 'High Pressure Dave' by HEALTH. Tracks of other genres feature on other in-game stations, such

⁷⁷⁴ Rockstar Games, 'Grand Theft Auto V: The Official Trailer', video, 1:00, 29 August 2013, posted by Rockstar Games, <https://www.youtube.com/watch?v=hvoD7ehZPcM&t=1s>.

⁷⁷⁵ The Chain Gang of 1974, 2014.

⁷⁷⁶ Brian Crecente, 'How 'Grand Theft Auto' is Changing the Way the World Experiences Music', *Rolling Stone*, 25 August 2018, accessed 24 October 2018, <https://www.rollingstone.com/music/music-features/rockstar-games-gta-online-mode-music-streaming-black-madonna-715665/>.

⁷⁷⁷ Various Artists, *The Music of Grand Theft Auto V (Original Music, Score and Soundtrack)*, 2014.

as 100s' hip-hop influenced 'Life of a Mack' on Radio Los Santos, while 'Welcome to Los Santos', the game's main theme, is also on this volume. Rockstar has released soundtracks of past GTA games and other titles, and merging of commodities has proved to be a profitable form of cross-media synergy.⁷⁷⁸ The digital download era may have impacted this negatively, but contemporary streaming services are beginning to offset the online piracy so deleterious to the music industry.⁷⁷⁹ Like *Mafia III*, *GTA V*'s soundtrack was released in multiple formats. Rockstar's collaboration with Mass Appeal saw the release of a 'deluxe edition soundtrack' on CD and LP, meaning that the digital audio files of *Vol. 1* could be listened to in uncompressed form on CD and LP. With fewer than 5000 units of each produced, this edition broadened the appeal to include audiophiles, collectors, and enthusiasts who might be less inclined to play *GTA V*, but recognise the cultural renown of the series' music.

The other two soundtrack volumes released were *The Music of Grand Theft Auto V, Vol. 2: The Score*, which featured the game's nondiegetic score, and *The Music of Grand Theft Auto V, Vol. 3: The Soundtrack*. The 19 songs on *Vol. 3* make up 12–13% of the licensed music in *GTA V*, and the nondiegetic music on *Vol. 2* is discussed comprehensively in Chapter IV. These soundtrack volumes form a part of the marketing synergies that are central to Rockstar Games' business strategy,⁷⁸⁰ and to that of many other media content publishers. It also means that music heard initially in promotional trailers and recapitulated *ad infinitum* as diegetic music during gameplay has been experienced in multiple actual world environments. *GTA V*'s composers released an album two years after the game launched that was separate from these volumes, but connected with its score, marking a step towards the Culture of Connectivity articulated above. The Rockstar Newswire website posted an article stating that new music would be coming to the game early in 2015,⁷⁸¹ and that the featured artists were The Alchemist and Oh No.⁷⁸² A picture in this post revealed the title *Welcome to Los Santos* and album artwork resembling the game's map of Los Santos, overlaid with a multicoloured tessellated pattern of various polygonal shapes. The

⁷⁷⁸ Zehnder and Lipscomb, 'Role of Music in Video Games', 249.

⁷⁷⁹ Marie Boran, 'Online Music Piracy on the Decline', *The Irish Times*, 9 August 2018, accessed 7 December 2018, <https://www.irishtimes.com/business/technology/online-music-piracy-on-the-decline-1.3588833>.

⁷⁸⁰ Kline et al., *Digital Play*, 234.

⁷⁸¹ The Alchemist and Oh No, 2015.

⁷⁸² Rockstar Games, 'New Music Coming to GTA V: The Alchemist and Oh No Present Welcome to Los Santos', *Rockstar Games*, 6 March 2015, accessed 18 January 2016, <https://www.rockstargames.com/newswire/article/52399/new-music-coming-to-gtav-the-alchemist-and-oh-no-present>.

post described ‘fresh tracks inspired by GTAV’s original score, composed by The Alchemist and Oh No in partnership with Woody Jackson and Tangerine Dream to create a uniquely ambitious album’.⁷⁸³ Reminiscent of the hip-hop style foundations and instrumentation of *GTA V*’s nondiegetic music, the album’s 14 tracks are like a musical palimpsest of the game’s score. Looping sequences are condensed, and aberrational electronic effects are exchanged for vocal parts. Lyrical content centres on the fast-paced and dangerous aspects of criminal gang life so integral to *GTA V*’s narrative, with ‘California’ by E-40 extending the literal connection with San Andreas’ actual world inspiration.

The Alchemist explains that collaborations with Earl Sweatshirt had already existed, whereas this project was their first collaboration with Samuel T. Herring of the synthpop band Future Islands.⁷⁸⁴ This is salient, as Oh No and The Alchemist were given freedom to collaborate with artists possessing styles deemed to suit the project, meaning that corporate incentives were secondary to the integrity of the music. Artists included Phantogram, King Avriel, Tunde Adebimpe, and Little Dragon, all established within hip-hop, indie rock and electro scenes. Tunde Adebimpe, for instance, is the lead singer of TV on the Radio, a Brooklyn-based band whose non-band member contributors include David Bowie and Trent Reznor.

The release of this soundtrack was unique in that its songs were debuted for the PC version of *GTA V* through an additional in-game radio station called The Lab, later to be introduced to the Xbox One and PS4 versions of the game. The Alchemist and Oh No play in-game station hosts Dr No and the Chemical Bro, whose dialogue is the only interruption of music on a station without commercials. By debuting the music in-game as part of a free update prior to retailing on MP3, CD, and vinyl, players were prioritised over all other consumers by having access to the music at no extra cost. This was Rockstar Games’ investment in the dedicated enthusiasm of players, engendering a sense of ownership that could only be experienced by those participating within the game’s cultural matrices. Moreover, the exclusive release for PC before console versions suggests the company’s extension of goodwill to the PC gaming community, whose members had to wait until 2015 for *GTA V* to release on their platform. Strategic manoeuvring by the company in fostering

⁷⁸³ Rockstar Games, ‘New Music Coming to GTA V’.

⁷⁸⁴ Makarechi, Kia, ‘Future Islands, Earl Sweatshirt, The Alchemist and On No Team for ‘Play It Cool’’, *Vanity Fair*, 6 March 2015, accessed 8 December 2018, <https://www.vanityfair.com/culture/2015/03/play-it-cool-welcome-to-los-santos>.

the musical connections through *Welcome to Los Santos* also took place via livestreaming, another mode of experience.

Livestream Events

The watching of people playing video games through live broadcast platforms constitutes a significant quotidian activity. It has been documented that 140 million monthly unique viewers watch 2.2 million monthly broadcasters on Twitch,⁷⁸⁵ a live-streaming video platform allowing players to broadcast gameplay and webcam footage. YouTube Gaming channel offers a similar service, and it is through Rockstar Games' YouTube channel that livestreaming events have been conducted. These are scheduled gameplay sessions in which players, usually *GTA V*'s development personnel, contributing musicians and associated acts, log onto GTA Online to have their gameplay streamed. The events offer a viewing experience for other players, but Rockstar has co-opted the platform to be a platform of communication integral to the cultivation of the symbolic field surrounding GTA's brand.⁷⁸⁶

The Alchemist and Oh No were joined by Joel Williams and Nathan Williams of the band WAVVES during one of these 'Grand Theft Auto Online Sessions'. Nathan Williams hosts Vinewood Boulevard Radio with bassist Stephen Pope, WAVVES' music features on Vinewood Boulevard Radio, and the Williams brothers collaborated on *Welcome to Los Santos*. As the musicians competed in-game in Team Deathmatch mode, they discussed The Lab, their host alter egos, approaches taken, musical inspirations and discoveries made while creating the album. As musicians and song sections from *Welcome to Los Santos* were mentioned, the relevant tracks would be introduced and played under the ongoing discussion. This event coalesced forms of communication and interaction to become part interview, part showcase, part listening session and part broadcasted gameplay session. The relaxed and informal dialogue provided players viewing the streaming video with a live window into the musicians' personalities, extemporaneous musings and creative processes. Rockstar used the livestream event as a mode of experience to foster a culture in which artists and consumers could engage with the common element of *GTA V*'s music.

The company has repeated this venture, and another session featured a selection of the game's developers Oh No, Flying Lotus, and Thundercat, whose music plays on in-game

⁷⁸⁵ Craig Smith, '55 Amazing Twitch Stats and Facts (December 2018) | By the Numbers', *DMR*, (updated) 15 January 2019, accessed 8 December 2018, <https://expandedramblings.com/index.php/twitch-stats/>.

⁷⁸⁶ Kline et al., *Digital Play*, 234.

station FlyLo FM. During this livestream event Flying Lotus announced that 30 minutes of new music would be added to FlyLo FM exclusively for the PS4, Xbox One and PC versions of *GTA V*. To supplement online press statement posts announcing new musical content, this update of significant interest to players was announced through Rockstar's livestream event, perpetuating connections between musicians and players through music. Flying Lotus also discussed a new album that had released several weeks prior, *You're Dead*, with music from the album playing during the streamed video. The track 'Never Catch Me' went on to earn a Grammy nomination in the category of best dance recording.⁷⁸⁷

A similar session featured The Chain Gang of 1974, aka Kamtin Mohager, in what was more of an interview than a gameplay session. While driving, running and competing in the *GTA V* gameworld, Mohager discussed his creative projects since 'Sleeping' featuring in the game, including his (then) latest band project called Teenage Wrist. The song playing under Mohager, 'Afterglow', had no connection with *GTA V*, but was a new single from Teenage Wrist to be released later on the EP *DAZED*. Through the shared element of *GTA V*'s gameworld, players familiar with Mohager's work from its inclusion in the game's official trailer and Radio Mirror Park were given a preview of new music.

With 'Afterglow' never entering the gameworld, this event can be viewed as Rockstar promoting a valued member of its musical community, irrespective of the game, for players to engage with. Other *GTA V* artists have participated in these sessions, such as FlyLo FM's Tyler the Creator, and talk station WCTR host Dr. Ray D'Angelo Harris, aka actor J.B. Smooth. The community extends beyond the latest GTA title, with other sessions including Joell Ortiz, whose music featured in *GTA IV* on the station Beat 102.7, major league gaming caster Chris Puckett, and guests from IGN.com. While the multiplayer mode *GTA Online* does not form a part of this study's focus, it should be mentioned that updates to the music of this mode have also been promoted during livestreaming events. An example is Rockstar's 2015 collaboration with Curren\$y, and a livestream event featuring the in-game musician that allowed players to view the rapper playing the new *GTA Online: Lowriders* DLC (downloadable content) missions. Players watching the livestream could listen to the artist's latest album *Canal Street Confidential*, released that week in the actual world, via the in-game radio in the gameworld.

⁷⁸⁷ Andy Gensler, Andy, 'Why the Grammys Are Getting Cooler: FlyLo May Have Screened Your Submission', *Billboard*, 14 February 2016, accessed 8 December 2018, <https://www.billboard.com/articles/news/grammys/6875216/grammys-getting-cooler-flying-lotus>.

Players livestreaming their own gameplay is common, but it is unique for a game publisher to hold scheduled live sessions in the way that Rockstar Games does. As outlined above in Chapter II, the live performance of gaming is a far more established mode of experience, and another avenue for studios to distribute knowledge through gaming communities.⁷⁸⁸ As the GTA series has not used nondiegetic scores traditionally, and as orchestral-rhythm section combinations predominate game music performance, a fit between the two has remained elusive. The dynamic score of *GTA V* allowed Rockstar to enter into this popular realm of game music experience.

Live Performance

At what would turn out to be the final Spike Video Game Awards, rebranded as VGX for the 17 December 2013 ceremony, a collaboration between the organisers and Rockstar Games produced a performance of music from *GTA V*. Parts of the score were performed, as discussed in Chapter IV, but a selection of the game's diegetic music was also programmed. Jay Rock performed his own song 'Hood Gone Love It' with an expanded rhythm section that included Woody Jackson on electric guitar, percussion, a horn section comprising doubling trumpets and baritone euphonium, trombone and saxophones, and DJ mixer turntables. This was set to clips of captured gameplay, and as the significance of this song lies in Franklin's promotion trailer, plot line, and in-game lifestyle, the protagonist featured prominently among other clips of the gameworld. The same format was used for a Radio Los Santos song 'Ali Bomaye',⁷⁸⁹ which was performed by The Game, aka Jayceon Terrell Taylor. Tyler the Creator's 'Garbage' featuring Earl Sweatshirt followed, which is distinct as this was an original song included in *Vol. 1*, not a released song that had been licensed subsequently for the game. The song's lilting lyrical delivery characteristic of hip-hop songs meant that this style, associated so closely with GTA, was instilled within the concert. The direction changed with a performance of 'Sleepwalking', which is more in line with electro and synthpop styles.

After conducting research in online video collections, YouTube channels and band profiles, it appears that the VGX awards heralded the inaugural live performances of 'Garbage' and 'Sleepwalking'. More recent performances have followed, but to have a song premiered live as part of a game music programme is singular within the spheres of both

⁷⁸⁸ Unger et al, 'Signs, Symbols, and Perceptions', 104.

⁷⁸⁹ The Game, 2014.

album promotion tours and game music concerts. This can be said of the most successful outfits such as Video Games Live, recognised with accolades such as ‘most videogame concerts performed’ and ‘largest audience for a live videogame music concert’.⁷⁹⁰ New game music is added continually to a repertoire of stalwarts from the ‘bleeps and bloops’ era,⁷⁹¹ but most are linear sections of nondiegetic scores rather than diegetic songs commissioned for a specific game.

III.VII Summary

It is easy to downplay the activities investigated here as being driven solely by profit, and with Rockstar’s parent company Take-Two Interactive a closely watched, publicly traded company, it is naïve to ignore the sizeable commercial imperatives at play. Even in this sense, though, the quality of gaming remains a priority. When a Thomson Reuters consensus estimate projected higher revenue than expected for Take-Two, the company’s CEO Strauss Zelnick argued that the balance of creativity and commerciality is not one-sided. This was described as a culture tasked with giving consumers opportunities ‘to be a part of iterating and improving ... the gaming experience’.⁷⁹² Beyond the corporate necessity of ensuring consumer confidence, it seems that this is genuinely the case with *GTA*. For example, while other AAA studios might employ stock music in promotional video material,⁷⁹³ every *GTA V* trailer featured tracks that are in the game, often used to underscore the theme and content of the videos. From the initial point of contact, therefore, players were introduced to the music of *GTA V* with the same immediacy as they were to its other narrative components.

The game’s series of soundtrack releases serve to boost revenue and engage with other consumer bases, supported by an abundance of open-source interview material. In part, *GTA V*’s sustained popularity has been achieved through the repeated introduction of new music to its in-game radio palette. Rockstar has adopted the livestream event to announce, discuss and showcase music of the game’s musicians. This has promoted upcoming music content

⁷⁹⁰ Swatman, ‘Video Games Live’.

⁷⁹¹ Barnabas Smith, ‘Video Games Live A Gamer’s Holy Grail of Live Entertainment’, *Gamasutra*, 29 April 2016, accessed 19 November 2017, https://www.gamasutra.com/blogs/BarnabasSmith/20160429/271654/Video_Games_Live__A_Gamers_Holy_Grail_of_Live_Entertainment.php.

⁷⁹² Richard Washington, ‘Shares of Take-Two Interactive are up; CEO Explains Next Steps’, *CNBC*, 5 August 2016, accessed 9 August 2016, <https://www.cnbc.com/2016/08/05/shares-of-take-two-interactive-are-up-ceo-explains-next-steps.html>.

⁷⁹³ Phillips, *A Composer’s Guide*, 154.

for the game, but, with distinctly non-GTA music also promoted, a respect for the musicians' other projects emerges. This game also marks the significant first foray into live music, with the licensed and original music of *GTA V* preformed, recorded by consumers and uploaded to the Internet for sharing. It is through these modes of experiences that players have accessed this musical content in the gameworld, and the actual world, beginning with the first trailer in 2011. The interactions highlighted between the publisher Rockstar Games, its community of *GTA V* musicians, and consumers of the game, are argued as fostering a unidirectional Culture of Connectivity, with music as its nucleus.

This chapter has demonstrated an application of the proposed model's three research phases to *GTA V*'s diegetic music content. Through this process the in-game radio catalogue has been found to accompany the core gameplay mechanic of vehicle driving, reinforce the game's setting, maintain intertextual links with preceding games, and fulfil an intrinsic narrative role through its unrealistic auidial equalisation. This, together with mobile phone ring tones, street performers, and restaurant and club house music, has shed new light on the diverse population within the city of Los Santos, and the state of San Andreas. Agents' musical proclivities have been found to align with other indicators of their cultural milieu, stratifying socioeconomic boundaries, and delineating geographical contiguity. The game's licensed radio content is a predominant component of marketing and publicity activities through its use in promotional trailers, soundtracks, livestream gaming events and live music performances. Rockstar Games' commercial imperatives are not the sole governing principle here, and this music has facilitated shared experiences as part of a Culture of Connectivity between publisher, musician, and consumer. To continue the proposed model's application, the following chapter applies the methodology found here to the nondiegetic music of *GTA V*.

CHAPTER IV: NONDIEGETIC MUSIC

GAME MUSIC DESIGN

With a focus on completion of *GTA V*'s diegetic music complete, this chapter interrogates the game's nondiegetic musical content. The process begins by describing the inspiration, composition, and technical implementation of the game's score, analysing the 'Welcome to Los Santos' theme, and examining the use of stingers in the game.

IV.I Score

The largest body of nondiegetic music in *GTA V* is the game's dynamic score. This is a first for the series, and distinguishes *GTA V* significantly from its predecessors. Another point of difference is the score's use of electronic, sequenced and synthesised instrumental sounds, in lieu of a traditional orchestral sound opted for in other open-world games. To understand this, the composers and their backgrounds should be examined.

The instrumental score was composed collaboratively by Tangerine Dream, Woody Jackson, The Alchemist, Oh No and DJ Shadow. Tangerine Dream's pioneering electronic music acumen was combined with the hip-hop background of producers The Alchemist and Oh No⁷⁹⁴ to manifest in a style of synthesised pads, looping instrumental parts and driving hip-hop beats showing rock pattern inspiration. Jackson's collaboration with Rockstar Games began with earlier titles, and the composer's influence can be heard in the layering of parts throughout score tracks. DJ Shadow's composition and arrangement signature completes the aesthetic of the score.⁷⁹⁵ The process of composing this score was a segmented, sequential and organic process of sharing musical ideas, coordinated largely by Jackson. Rockstar's Pavlovich explains that Tangerine Dream's parts were recorded in Austria, while Oh No and the Alchemist recorded most of their instrumental parts in Jackson's own studio, Vox Recordings. The individual composers then worked on these

⁷⁹⁴ Stutz, 'Rockstar Music Head'.

⁷⁹⁵ Rosenburg, 'DJ Shadow Mixes Up'.

parts separately, sharing recordings of their ideas to one another and adding their individual artist flavours, gradually, to a growing body of music tracks.⁷⁹⁶

With so much of the diegetic in-game radio music sitting firmly in popular and urban genres, a challenge was ‘how to make the hip-hop and rock score not sound like they were instrumentals of songs on the radio, but rather something unique to the score’.⁷⁹⁷ These styles needed to be formulated into a single recognisable sound. Upon receiving new musical content in New York, Pavlovich would create an audio mix down which was then sent to the other score co-composers.⁷⁹⁸ Through a process of continual appraisals and editing of the score tracks, cohesion of sound and style could be achieved⁷⁹⁹ despite the logistical and creative divides. During gameplay, the cues of *GTA V*’s score are experienced when the player is undertaking one of the story ‘heists’.

These are structured missions that must be completed in order to progress the game’s story. They often require the player to procure specific equipment, such as a specific getaway vehicle or costume, stake out a location, and decide which NPCs will be a part of the heist. The player must collect an objective during the missions, usually cash or precious metals, navigate security and law-enforcement adversaries, and reach checkpoints within specified time limits. A layer of storytelling complexity is added when the player is required to control one, two or all three of the game’s avatar protagonists. Furthermore, the extent to which the heist is a success or failure has ramifications in succeeding heists and gameplay, usually in the form of greater or lesser amounts of wealth and assets, and availability of NPC henchmen.

These missions feature a high degree of nonlinearity and player-driven actions, but they are still reminiscent of an established ‘LA crime’ musical style of storytelling. Van Elferen comments on the kinds of connections found in *GTA V*’s score:

Through intertextual references to audio-visual idioms from other media, game soundtracks deploy player literacy for their immersive effect: it is because gamers recognise certain composing styles that they are able to interpret gaming events and feel involved in gameplay, game worlds and game plots.⁸⁰⁰

⁷⁹⁶ Stutz, ‘Rockstar Music Head’.

⁷⁹⁷ Jonathan Hatchman, ‘Know The Score: The Music of Grand Theft Auto V’, *Clash*, 26 November 2013, accessed 21 July 2016, <https://www.clashmusic.com/features/know-the-score-the-music-of-grand-theft-auto-v>.

⁷⁹⁸ Hatchman, ‘Know The Score’.

⁷⁹⁹ Stutz, ‘Rockstar Music Head’.

⁸⁰⁰ Van Elferen, ‘Analysing Game Musical Immersion’.

Examples of this in *GTA V*'s score are the electric guitars, sustained electro/synth chords, and recursive ostinati that resemble parts of Elliot Goldenthal's score for *Heat*.⁸⁰¹ For this crime thriller set in Los Angeles, Goldenthal formed a type of 'guitar orchestra' that involved half a dozen or so electric guitars playing simultaneously with different tunings. These were stacked upon each other and supplemented with mixed metre percussion parts, creating an 'atmospheric situation' envisioned by Goldenthal and director Michael Mann.⁸⁰² An earlier example that employs up-tempo drum parts more akin to those in *GTA V*'s score is *To Live and Die in L.A.*,⁸⁰³ directed by William Friedkin. New wave band Wang Chung composed music for the film, and while the self-titled main theme features vocals, other tracks such 'City of the Angels' bear some close resemblances to Jackson et al.'s score. As a sonic time capsule of its era, this track features a reverb-heavy, 'fat snare' drum kit, and synthesised shaker sounds. It extends the musical form through repetitive chordal movements behind comparatively sparse melodic motifs. The track 'North Yankton Memories' from the *GTA V*'s score contains all of these elements, including a nostalgically equalised kit sound. One would not say that Wang Chung's soundtrack is identical to *GTA V*'s score, but the latter is certainly redolent of Wang Chung's linear compositions. An alternative pathway for this genre is evidenced in the soundtrack to *True Crime: Streets of LA*.⁸⁰⁴ This game opted for a selection of West Coast hip-hop songs, which could be connected with *GTA V*'s score, but are more aligned with the game's radio content.

Dynamic

The heist mission score music maintains a quasi-canon of LA Crime-themed soundtracks that can be found across other media. Unlike the film soundtracks mentioned above, *GTA V*'s score also changes during these missions, depending on what action the player is taking. The technical construction of this nondiegetic music is in step with normative game scoring practice and echoes Jackson's earlier work.

Instead of the modern day, *RDR* saw Jackson create a score using traditional period instruments to vivify its dying Western frontier setting musically.⁸⁰⁵ Inspiration was drawn

⁸⁰¹ Mann, 1995.

⁸⁰² Dan Goldwasser, 'The Sweet Revenge of Elliot Goldenthal', *Soundtrack.net*, 21 January 2000, accessed 29 November 2018, <https://www.soundtrack.net/content/article/?id=51>.

⁸⁰³ Friedkin, 1985.

⁸⁰⁴ Luxoflux, 2003.

⁸⁰⁵ GamerSpawn, 'Red Dead Redemption – Soundtrack Behind the Scenes', video, 4:33, 29 July 2010, posted by GamerSpawn, <https://www.youtube.com/watch?v=vEsknPy5rvq>.

from Spaghetti Western masters such as Ennio Morricone, Francis Lai and Bruno Nicolai, both digital and analogue recording techniques were used, and film score legend Tommy Morgan provided the quintessential Western harmonica sound. The score also needed to adapt to the player's actions in real time, not by swapping to different tracks, but by modifying whatever music might already be playing. Jackson opted for stem-based cues of music that could be layered based on gameplay events.⁸⁰⁶ So that those stems could be used throughout gameplay and interact with other musical elements, all stems were recorded at 130 beats per minute, and in the key of A minor.⁸⁰⁷ This meant that as gameplay changed, the score pursued action dynamically. Pavlovich provides an example by explaining, 'if you jump on a horse, a bass line kicks in. When you start getting chased, timpanis roll in and big fuzz guitars roll in when there's a shoot out'.⁸⁰⁸ Similar principles of construction were employed in *GTA V*, and this process of implementing music into the game software allowed the nondiegetic score to react to gameplay.

The amount of musical content was substantial; each stem Froese provided to Pavlovich for mixing could be made of 'up to 62 wav files, each five-minutes long', producing 'a total amount of 67 hours of music and special sounds'.⁸⁰⁹ Pavlovich's mix down of eight stems would form the basis for inclusion in a mission, which would be coded into the game engine so as to be defined by mood. These 'moods', MacGregor details, are activated by a computer script, and 'can contain multiple stem mixes so over time we [sic] can keep it interesting by transitioning between variation'.⁸¹⁰

GTA V's version of the RAGE included modular asset design and flexible routing audio features. These enabled audio assets such as score stems to be modular, built with multiple, malleable and smaller components instead of a single sound. Voices – that is, pathways that carry sounds and effects in an audio editing or performance environment – are chosen by the RAGE depending on what is occurring during unpredictable and emergent gameplay sequences.⁸¹¹ While most players won't and needn't contemplate such details, it is these digital audio features, active within the technological game music design matrix, that enable *GTA V*'s nondiegetic score to accompany gameplay dynamically. This needs to

⁸⁰⁶ Phillips, *A Composer's Guide*, 187.

⁸⁰⁷ GamerSpawn, 'Red Dead Redemption'.

⁸⁰⁸ GamerSpawn, 'Red Dead Redemption'.

⁸⁰⁹ Hatchman, 'Know the Score'.

⁸¹⁰ GDC, 'The Sound of Grand Theft Auto V'.

⁸¹¹ GDC, 'The Sound of Grand Theft Auto V'.

borne out stylistically too, and to this point Oh No claims ‘the music sets a tone for the player’.⁸¹² Heist missions often contain at least one chase sequence in which the player must catch up with an NPC, or evade them rapidly. In these fast-paced sequences requiring swift reflexes, the drum and percussion elements become more active and horn stems are introduced into the score. Other mission sections, such as a clandestine robbery sequence, require precision and patience, and electric guitars and walking bass lines might accompany these.⁸¹³

As a component supporting narrative, this nondiegetic music is designed to maintain a consistent approach to musical instrumentation, theme and style, while still offering real-time accompaniment during the pivotal story heist missions. The augmentation and diminishment of instruments, adjustment to an alternative arrangement section, and variances in dynamic level, mean that the emotion and action of gameplay is tracked as closely as possible. Complicating this even further are the numerous transitions between the radio music and score. Rockstar North lead audio programmer Alastair MacGregor’s philosophy is that when approaching this, ‘the user should never really notice the music starting or stopping ... they should just feel the emotional effect’.⁸¹⁴ Digital controllers are used to mitigate this, so as to digitally ‘blur the boundaries of what would have traditionally been front end radio or radio positioning in the car versus what’s not score’.⁸¹⁵

This is achieved through a series of audio fades providing soft transitions between the score, the immediate cuing of specific radio music bearing musical similarities, or spoken DJ banter.⁸¹⁶ If dialogue takes place in a gameplay sequence, it will be brought forward in the audio mix above radio music. This music will be reminiscent of the score and is brought forward in the mix once the dialogue is complete. Unlike the extemporaneous score fluctuations during most of a heist mission, these dialogue instances are blocked out as major events during the game’s development phases. MacGregor likens this to dynamic mixing, but it ultimately means that the level design and music/audio requirements for it are agreed upon by all the development personnel.⁸¹⁷

⁸¹² Hatchman, ‘Know the Score’.

⁸¹³ Hatchman, ‘Know the Score’.

⁸¹⁴ GDC, ‘The Sound of Grand Theft Auto V’.

⁸¹⁵ GDC, ‘The Sound of Grand Theft Auto V’.

⁸¹⁶ GDC, ‘The Sound of Grand Theft Auto V’.

⁸¹⁷ GDC, ‘The Sound of Grand Theft Auto V’.

Other examples of the score acting dynamically can be found in the limited QTE sequences in the game. A mission called 'By the Book' sees the player alternating between avatars. Michael is planning a sniper assignment of a target, and Trevor is torturing an informant to solicit information on the target. As Trevor, the player is presented with several means of information extraction, such as a pliers, a wrench and a live electrical circuit. It is once these utensils are chosen variously, and the player depresses a button repeatedly to cue Trevor's actions, the QTE aspect, that nondiegetic music is faded in. Pensive, highly pitched string sounds are contrasted against a low, ominously amorphous electric bass tone. The music's rise in dynamic level carries an emotion that is heightened by the increasingly rapid beeping of a heart rate monitor attached to the subject, and nondiegetic 'clash' sounds.

The score reacts dynamically to the player's actions; however, these are highly restricted to the few movements required in Trevor's QTE. It is the repetition and dynamic growth that is most active here. This links into a number of Bruner's conventional responses to music, such as low sounds being interpreted as serious, and both crescendos and rising pitches conveying a growth in intensity.⁸¹⁸ There is a subtle interplay here between the score and sound effects, as the heart rate monitor provides the rising pitch element, unrealistically, as well as increasing in sonic 'beep' rapidity.

Side Missions and Websites

The score of *GTA V* accompanies side missions, cut-scenes, and non-mission activities as well as the heist missions pivotal to the story. The official game guide lists a series of Strangers and Freaks, who are NPCs that provide side missions triggered by the avatar interacting with them. One such NPC is Barry, a middle-aged marijuana legalisation advocate, who offers three side missions, beginning with Michael sampling some of Barry's product. This cues a gameplay sequence requiring Michael to shoot a minigun into oncoming waves of alien beings bent on abducting him, clearly while under the influence of concentrated tetrahydrocannabinol. Staggered movements overlaid with a red-green-blue filter that contrasts the colours of conventional gameplay demonstrate the absurdity of this sequence visually, as do the alien beings. Theremin-like sounds, white noise and groans accentuate a marching drum rhythm that has phasing and other audio effects applied. In this instance, the score employs a battle/conflict drum pattern apparatus to underscore Michael's

⁸¹⁸ George C. Bruner II, 'Music, Mood and Marketing'. *Journal of Marketing* 54, no. 4 (1990): 94–104, at 94.

actions. During Trevor's Barry-instigated mission, this time with clowns instead of aliens, a similar drum approach is supplemented with distorted synthesised harmony parts, more in line with the psychedelic rock aesthetic often used to indicate a 'trip'.

Another series of sequenced side missions are based on the fictional Epsilon Program. Ostensibly a self-journey enterprise, it is really a religious cult based on a doctrine of different reality paradigms and a tenet-proclaiming deity called Kifflo, which is the word also used as a salutation by members. A canary-blue branding colour, in-game celebrity affiliations, and mansion headquarters denote the Epsilon Program as a parody of the Church of Scientology, possibly laced with elements of Raëlism. A musical association with Epsilon is established by the music playing during the cut-scenes within missions, which are linear and continue during the core gameplay of the missions themselves. The soft, synthesised and looped motif in harmonic ambiguity accompanies Michael, whose cult-assigned name is Zondar, as he undertakes the Epsilon Program tasks. Some of these tasks require Michael to access the in-game Epsilon website with his mobile phone browser. The same Epsilon music plays while viewing and navigating its fictional website, and in this way it transitions from a nondiegetic state during gameworld activities, to act as a diegetic musical component as part of the Epsilon website. In different missions and specific stages of missions, the same eerie music plays in both diegetic and nondiegetic ways, continually reinforcing the eerie musical identity of the Epsilon cult. In one of *GTA V*'s few departures from avoiding nondiegetic music playing during open exploration, the Epsilon music can be heard if the player is located in spatial proximity to its headquarters building. This austere, turreted mansion in Rockford Hills, Los Santos, is modelled architecturally on the Scientology Celebrity Centre in Los Angeles, formally the Château Élyés. Tangentially, the spelling and phonetic similarities between 'Élyés' and 'Epsilon' suggest another possible point of inspiration.

The player does not enter the edifice properly during story-mode missions, but when approaching from adjacent streets, the Epsilon music emanates from within the building. It is right to say that the building emanates these sounds, as there is no discernible source of the music, ruling out a diegetic state. The only adaptive element active is the volume at which this music plays, depending on the distance between avatar and building. The music functions nondiegetically here, but stands out as one of the few non-mission ambient musical components experienced in the game. The result is something akin to Homer's sirens attempting to draw Odysseus to them, and to his doom, with song. The almost mystical

infiltration of the player's auditory perception engenders a sense of allure that, as the game's narrative divulges, should be treated with caution. The 'striking musical semiotics' that Summers articulates as engaging the player by signifying in-game characters is applicable here.⁸¹⁹ Instead of an avatar or NPC, it is the Epsilon Program, its internal constituents and its agents that become the character.

Ambient

The gameplay activities of flying and parachuting present another instance of nondiegetic music playing during mission and non-mission gameplay. Upon entering an aircraft and turning on the ignition system, the harmonic bedding of a score track titled 'We Were Set Up' fades in. The slightly lower noise level of helicopter rotor blades allows this music to be heard more clearly, but it emerges in aeroplanes as well. Drum kit parts and brass melody lines are omitted, leaving only a soft looping section of the piece. The same process occurs when an avatar parachutes out of an aircraft either during free exploration or as part of an in-game activity, this time with a reduced version of the score track 'No Happy Endings'.

The reasons behind this are unclear, as these are isolated uses of score in *GTA V* not to underscore a mission sequence but as ambient nondiegetic music. When piloting aircraft, the player can ignore this by selecting any of the in-game radio stations, but returning to the 'Radio Off' icon in the station selection interface reintroduces the ambient music. This is quite different from the 'aggressive beats ... destructive sound ... [and] electronic atmospheres' of ambient music that Mernagh describes in *Quake*,⁸²⁰ or Mick Gordon's corrupted sine waves and noise for *DOOM*.⁸²¹ A series of 'Rampage' side missions available to Trevor in *GTA V* are accompanied by up-tempo grunge rock cues that fade in as he gives in to unadulterated rage. The difference here is that these are structured activities, while parachuting out of an aircraft while inflight can be performed by all three avatars, and outside of structured missions.

Another example of ambient music connected with a specific narrative element may provide insight here. When 'wanted' during gameplay, and evading law-enforcement officers, nondiegetic music fades in as the players confronts or evades their pursuers. There are a variety of wanted music cues that play throughout different generations of *GTA V*. Most

⁸¹⁹ Summers, *Understanding*, 62.

⁸²⁰ Mernagh, 'Video Games Saved the Radio Star'.

⁸²¹ Gordon, 'DOOM: Behind the Music Part 2'.

are linked musically with the rest of the game score, based on a series of looped sections with distorted guitars, synthesised harmony and percussive effects providing rhythmic drive. A loud and rhythmically dense musical accompaniment heightens the already exhilarating and frightening activities of escaping or confronting armed police officers, irrespective of the diegetic state. Programmer at the New York Film Festival Matt Bolish has commented that ‘Rockstar Games has proven with *GTA V* that they are simply the best when it comes to creating narrative, cinematic experiences in games’.⁸²² Bolish’s non-gaming perspective is a useful reminder that game music can be codified critically in game studies but remains fundamentally a vehicle of conveying emotion. This nondiegetic score fulfils a narrative-support role by underscoring structured missions and intensifying non-mission gameplay. It may take ambient, linear and dynamic forms, but one ubiquitous piece of music in *GTA V*’s musicscape, the main theme for the game called ‘Welcome to Los Santos’ (‘WtLS’), almost takes the form of all three.

IV.II ‘Welcome to Los Santos’

The main theme ‘serves as a game’s musical signature’,⁸²³ and *GTA V*’s ‘WtLS’ plays during a cinematic that is cued once the prologue mission is complete, playing under the game’s opening credits. This cinematic introduces the player to the city of Los Santos through a montage of clips depicting its landmarks, architecture, inhabitants and quotidian activity. From highways clogged with traffic, to beachgoers tanning themselves, this cinematic depicts Los Santos as a place rife with exploration possibilities. Named eponymously after the city, ‘WtLS’ is itself an exposition tool, signifying through its style and instrumentation a musical identity that can be attributed to the city thenceforth. A reduced and partial transcription of the ‘WtLS’ version heard during this cinematic can be found as Appendix 2. Suggestions have been made where precise instruments or sounds could not be identified formally, such as a genuine Rhodes instrument possibly being a sampled sound.

The recursive, syncopated bass part on which harmony rests suggests an aeolian mode in a tonal centre of A minor, which is supported and extended to a minor 9 chord in melodically-based phrases later in the piece. The drum-kit part is mildly syncopated, with the snare supplemented with handclap sounds, and a kick drum part, or electronic equivalent

⁸²² Pete Haas, ‘GTA 5 Invades New York Film Festival’, *Cinema Blend*, 27 September 2013, accessed 2 December 2015, <https://www.cinemablend.com/games/GTA-5-Invades-York-Film-Festival-59455.html>.

⁸²³ Phillips, *A Composer’s Guide*, 149.

thereof, which often doesn't match the bass rhythmically. The two elements are asynchronous by a sixteenth or quaver triplet note at various times, depending on minimal changes in their parts, and this results in a slightly but consistently staggered beat foundation. The rhythm section as a whole constitutes a kind of funk-infused hip-hop beat, in which the guitar stab chords seem more ornamental than rhythmically fundamental. A line in a pseudo melody role is found in the piano part – pseudo, because the line remains unchanged throughout, and is also doubling a bass part established earlier in the piece. Introduced simultaneously with the piano is a high-pitched fortissimo horn line, which could also be thought of as melodically driven. Other horns playing staccato stabs and sustained chords introduced earlier fill out the sound with repeated harmonic parallelism lines, and then stabs with falloffs. Percussive effects such as hand-clap sounds, shakers, roto toms and bar chimes complete the arrangement to lock in the beat, accentuate repeated bars and provide additional textual layers.

The overall impression is of a laid back hip-hop groove, moderate in tempo, changing little, and *Oh No* offers some commentary that substantiates this characterisation: [in this opening cinematic] 'where it's presenting the lush Los Santos beaches and environments, I wanted to create a smooth West Coast vibe that embodied Los Santos'.⁸²⁴ This 'smooth vibe' is signifying not only Los Santos, but its actual world inspiration of Los Angeles as well. The subtly staggered foundation produced by the bass and drums playing ever so slightly around the same beat is also indicative of *Oh No*'s work in hip-hop.

Similar groove patterns can be found throughout hip-hop, in which the bass and drums elements are, if not in strict rhythmic alignment on strong beats, populated with syncopated notes in their parts, and often with percussion. Evidence of this can be found by examining the licensed track list of *GTA V*'s West Coast Classics station. 'Gangsta Gangsta' by N.W.A has multiple percussive and electronic sounds filling almost every sixteenth-note placement;⁸²⁵ the prominent arpeggiated chord riff in Dr Dre's 'Still D.R.E.' seems to sit variously both on and behind the beat;⁸²⁶ and straight quaver shaker/bell sounds contrast with a slightly swung slap bass in 'Late Night Hype' by Compton's Most Wanted.⁸²⁷

GTA V's main theme introduces more than the city alone, and reprises a musical tradition that existing fans would be highly mindful of. This fundamental groove and other

⁸²⁴ Hatchman, 'Know the Score'.

⁸²⁵ N.W.A, 1988.

⁸²⁶ Dr. Dre and Snoop Dogg, 1999.

⁸²⁷ Compton's Most Wanted, 1990.

shared musical connections links ‘WtLS’ intertextually with the main theme from *GTA: SA*, which is set in parts of the same gameworld. Both feature a bass-heavy groove with synthesised instrument melodic parts, filled out with electric guitar and/or keyboard chords, and congealed with multiple percussive effects. The introductions to each theme share a common high-pitched bell or wind chime-sounding instrument bringing in the main groove. In a folkloric investigation of *GTA: SA*, Miller makes the point that San Andreas resembles the US West Coast ‘in terms of its geography, architecture, climate, demographics, and popular culture’.⁸²⁸ The same iconography is present and updated in *GTA V*, and the timbral aesthetic connecting the two game’s themes means that ‘WtLS’ could be thought of as something of a spiritual successor to *GTA: SA*’s theme; a developed version of greater complexity and broader instrumentation that mirrors the development and growth of 1992 Los Santos into a 2013 version of the same city. ‘WtLS’ heralds the prevalent in-game hip-hop and rap-based radio stations, and the player is given control of Franklin at the end of the cinematic. His plotline within *GTA V*’s narrative is instantiated most viscerally in archetypal hip-hop themes, such as the quandary of escape aspirations conflicting with loyalty to a family and community.

IV.III Stingers

The close relationship between stingers and sound effects has been discussed above, but merits a brief mention here as *GTA V*’s stingers bear more resemblance to atonal noises than music. Previous *GTA* games feature musical stingers in abundance, most commonly employed as an indication to the player that a mission has concluded. They were also excerpts of, or inspired by, the game’s main theme, sometimes including melodic and harmonic patterns from the theme, and sometimes merely borrowing its instrumentation and style. Therefore, it is singularly distinguishing that Rockstar North developers eschewed the use of stingers in *GTA V* but maintained a unified sonic aesthetic across the game’s sound effects.

A brief sound occurs when an avatar dies, or is ‘wasted’, the colloquial and informal parlance denoting a crime-related death. This sound comprises a distorted firearm discharge noise, nonabrasive white noise and a staccato bell-like sound almost akin to a vintage computer error sound. The ‘mission failed’ effect is different only in that it omits the bell

⁸²⁸ Miller, ‘Grove Street Grimm’, 256.

sound and extends white noise into more of a descending and ominous howling sound. Both are about seven to eight seconds in length, but even shorter is the ‘mission passed’ sound effect, lasting about four to five seconds. A similar bell-like noise sounds in unison with a ‘clang’, followed by a brief echo of this sound, thence fading to silence.

These sounds all follow a similar sonic construction of an initial loud and short noise followed by an echo/reverb sound that fades. With little tonal quality perceived, they should be classed as sound effects rather than stingers, and several angles of approach can be taken in the search for clarity regarding this creative divergence. From an engagement perspective, it could be argued that the ‘clang’ noises of these sound effects exist in conspicuous discordance within an otherwise hermetic sonic pane. With the other musical elements of the game redolent of creative tenacity, the clang’s design can be seen as lacking finesse. It is unlikely that these sounds ‘slipped under the radar’, so to speak, as all assets within the game undergo intense creative and technical attention.

That being the case, the reasoning is likely to be a direct creative decision to favour a sound effect over a musical phrase. The sequence of a mission ending and transitioning into free exploration could feasibly require no audio element, as ‘mission passed’ text is displayed broadly on the screen in unison with the sound effect. The metallic sound that plays when the player is wasted is very similar to when they are ‘busted’, which is apprehension by law enforcement resulting in a monetary fine. The sound conjures a sonic resemblance to the quintessential ‘cell door slam’ noises employed ubiquitously in other media to indicate incarceration; the majority of *GTA V*’s missions do, after all, revolve around criminal activities. The much shorter ‘mission passed’ sound effect has less reverb, and there is a potential indication of positivity in this sound accompanying successful mission completions. Whalen points to similar instances in older GTA games, describing GTA’s predominant diegetic music as supplemented with very brief nondiegetic music to signify the completion of missions.⁸²⁹ Another effect is the conscious detachment from ‘WtLS’. By playing during the game’s introduction cinematic exclusively, and omitting additional recapitulation snippets in stingers, the game’s main theme is ascribed a more cinematic nuance, in a film sense. Phillips argues this from a compositional standpoint, whereby a game’s main theme is a seminal musical signature and is not used often in multiple states of gameplay as a result.⁸³⁰

⁸²⁹ Whalen, ‘Film Music vs. Video-Game Music’, 72.

⁸³⁰ Phillips, *A Composer’s Guide*, 149.

The omission of musical stingers also goes to the verisimilitude of *GTA V*'s gameworld, designed to resemble actual world geography and human constructs realistically. The land of Mario is engaged with through a brightly coloured and playful representation system⁸³¹ and, as such, brief musical flurries in the form of stingers and sound effects accentuate most of Mario's physical movements (jumping). These kinds of sounds may create an undesirable schism of musical reality and meaning in the state of San Andreas, and research on earlier GTA games can provide insight into this concept. Whalen posits GTA games as defining 'a world which creates the illusion of being autonomous', and while mission completion is heralded by a stinger, 'smaller, non-discrete mission states ... go unadorned by musical signifiers'.⁸³² It is the 'high degree of spatial granularity' that is causal to difficulties in using music tie-ins to other events, Whalen suggests.⁸³³ By almost any scale, the density of *GTA V*'s gameworld is several orders of magnitude above that of *GTA III* or *GTA: SA*, two definitive titles released by the publication date of Whalen's chapter. If Whalen's correlation is extended, therefore, the dearth of stingers acting as reward music in *GTA V* can be interpreted as in line with the gameworld's design.

Game developers often pursue and abandon concepts, hiding the associated software code or data files in the final game, as it is no longer needed. This means that players with the tools and knowledge have the potential to search for, and to find, this unused material. Software code uncovered by players via hacking, modding and reverse-engineering processes should be treated with intellectual caution, as the validity and integrity of this information is difficult to discern. There is evidence to suggest that stingers were included in pre-release versions of *GTA V*, but these investigative leads have not been pursued in the present study due to potentially illegal conduct. Legal action has been taken by Rockstar Games' parent company Take Two Interactive against alleged creators of modding software that alters (hacks) *GTA V* code. This has seen individuals' assets frozen and equipment seized, and other companies such as Epic Games and Blizzard have taken similar actions.⁸³⁴

Galloway raises this point by posing that Huizinga and Caillois would argue cheats and hacks as threatening play, and, through an epistemological lens, questions whether

⁸³¹ Lerner, 'Mario's Dynamic Leaps', 12.

⁸³² Whalen, 'Film Music vs. Video-Game Music', 73.

⁸³³ Whalen, 'Film Music vs. Video-Game Music', 73.

⁸³⁴ Ariel Bogle, and Livia Albeck-Ripka, 'When the Makers of Grand Theft Auto Raid Your House: Inside the Global Video Game Crackdown', *ABC*, 8 November 2018, accessed 14 November 2018, <https://www.abc.net.au/news/science/2018-11-08/grand-theft-auto-cheat-crackdown-house-raid/10472358>.

‘hacks and cheats are not part of what it means to play a video game?’⁸³⁵ Galloway’s research has sought to develop conceptual algorithms within the formal medium of video games, and so the inclusion of aspects other than those resembling play and games directly might be argued for inclusion. The ‘vast detail of the medium in general’⁸³⁶ is acknowledged here, including agents and processes of hacking. The primary focus of the present study is the music in the final PC version of *GTA V*, and its construction and meaning can be analysed without the need for acts of impropriety. Music stingers, therefore, may have existed in early iterations of *GTA V*, but they did not survive the cyclical development processes that preceded its release. The task of confirming this through open-source information channels has proven difficult. However, as both the final product first released in September 2013 and the more recently released PC version of the game include the sound effects analysed above, it is sufficient to contend for their existence.

With the nondiegetic music of *GTA V* investigated using the proposed Game Music Design phase methodology, it will now be interrogated according to the principles of virtual ethnography.

VIRTUAL ETHNOGRAPHY

IV.IV Theoretical Recapitulation of the Virtual Fieldsite

It is prudent to reiterate the theoretical position of the present study, which argues that nondiegetic music has no discernible source of origin in the gameworld and is usually employed for emotive and narrative purposes. This presents a distinct dichotomy between the understanding of musical functionality and the philosophical side-step required in adopting a gameworld as a virtual fieldsite. Observing phenomena and participating within fieldsite activities through an avatar is the necessary and unavoidable interface that permits the methodology proposed in this study. In the actual world, however, no sweeping orchestral strains or fast-tempo action track accompany the activities undertaken by people ‘from the æther’, as a score does in games.

At the commencement of fieldwork in *GTA V*, the hypothesised outcome of this research phase analysis was an incompatibility of nondiegetic music and ethnographic investigation. However, a structured exploration of Los Santos’ mid-eastern suburbs

⁸³⁵ Galloway, *Algorithmic Culture*, 21.

⁸³⁶ Galloway, *Algorithmic Culture*, 21.

produced findings suggesting that this is not necessarily the case. The account below details an experience of visiting a cinema in Los Santos, recounted through the grammatical first person, and followed by further analysis.

Capolavoro

After spending the night investigating the recreation activities of nightclub patrons, I wanted to see what other entertainment the inhabitants of Los Santos indulged in. A little further North along Sinner Street was the Ten Cent Theatre, a grand old cinema showing signs of time and neglect, but still possessing an architectural charm reminiscent of Art Deco symmetry and rounded corners. A film advertised as playing was *Capolavoro*, and I purchased a \$20.00 ticket and entered the plush interior of the theatre screening room. The opening welcome video provided housekeeping messages about not using mobile phones and respecting other patrons, through a comical stick figure cartoon set to peppy swing music, which was effective in the hushed theatre.

Capolavoro was a disconcerting product of avant-garde European cinema, subtitled and black-and-white, directed by an Italian and starring male and female leads speaking Spanish and French respectively. I am not sufficiently familiar with the genre, and common tropes or esoteric cultural references contained within the film were lost on me. The macabre visual semiotic constructs did resonate, typically in the form of dead or dying livestock animals, masked figures and a recurring image of a giant ladder reaching into the sky. With a relentless dialogue of accusation and conflict, and continual jump-cuts to contrasting scenes, the overall effect of the film was one of mournful attrition, reinforced in no small part by the accompanying score.

The score seemed an amalgam of different schools, part film noir, part horror, part thriller, and even part romance. Much of the piano part was a solo, and through the unanticipated rhythms and obtuse harmonic basis emerged passages evoking plaintive reflection, and repeated patterns growing in dynamic and tempo. At other times a more pleasant mood was created through rolled pentatonic cluster chords in a major tonality. As the plot became more abstract through its visual depictions of inner torment, an operatic choral refrain heightened the drama only to give way to a brief excerpt of swing dance music. Much of the remainder of the score revolved around minimalist lines such as those described of the piano, with strings playing low pizzicato notes bleeding into pensive trills, later used as a more legato presence.

Through waking from sleep to rebuking voices in his head, Antonio (male lead) was accompanied by an even atonal throb mimicking a heartbeat. The uneasy sound was made more perverse with sustained moaning sounds and choral stabs cut in time with flashing images of masked faces. Warped tubular bell sounds and echoing calls exuded dissonance over sections that were otherwise instrumentally subdued. Finally, long, melancholic strings section phrases accentuated the ambiguous but seemingly despondent ending in which Antonio reaches the top of the ladder, to find nothing but air. There was a subdued feeling as the closing credits played a reprised opening piano theme. With muted shuffling noises, and one or two pensive coughs, the audience members and I exited the cinema.

Far from obscurity, this film is a part of the fabric of Los Santos society and entertainment industry. The website Classic Vinewood, which has the logline ‘Everything looks good through the lens of nostalgia, even the 1980s’, has a page dedicated to *Capolavoro*. Released in 1964 by European Art Haus, the film’s blurb explains director Emmanuelle Pasorelli’s style of actor narration, used by him in several other films. A film poster shows Antonio climbing up a ladder as depicted in the film, and two awards listed state that *Capolavoro* won Best Foreign Film at the Algonquin Film Festival, and was nominated for Best Marketing Campaign, both in 1962. This timeline is perhaps a result of industry awards preceding commercial releases, and the film has enjoyed critical acclaim.

Cinemas still operate across the city, but the glow of Los Santos’ film-making industry seems to fading, meaning that this film likely represents a heyday era of Vinewood movie production. Pasorelli has a star on the Vinewood Walk of Fame on the northern side of Vinewood Boulevard, between La Lagunas Boulevard and Alta Street. It rests in front of the Vinewood Wax Haven and Vinewood Star Maps, the outlet where patrons can wait in line for the Vinewood Star Tours bus. As hundreds of tourists walk over Pasorelli’s star every day, taking photos of the bright lights impulsively on their mobile phones, it is uncertain whether or not they are cognisant of the role he played in propelling the city’s cultural identity as an entertainment hub in what appears to have been a golden age of Los Santos cinema.

Analysis

The discussion returns now to analysis of a game’s nondiegetic music, and the revelation that the score to the fictional film *Capolavoro* had been investigated as a different diegetic state. While participating in this documented activity, opportunities were taken to absorb the

surrounding décor of the theatre and observe the fellow movie-goers. While they could not be identified visually, there were no doubt speakers located somewhere behind the curtained walls of the darkened theatre. With sound from the film emanating from unseen but inferred speakers, and therefore a discernible source, the film's score falls into the diegetic music category. This is a conclusion that concurs with the methods of the Game Music Design research phase, in which the player studies a gameworld as a game. It is important in this instance to remember that, while the source of the music can be inferred, it is fulfilling – from the viewpoint of the avatar/virtual ethnographer – a nondiegetic role, as the underscore to a film being viewed.

Scrutiny of the score by applying music theory principles to its construction, and linking its sonic aesthetic to the film's narrative, are the same processes an analyst might pursue in the actual world. The other data that provided a context for *Capolavoro* in Los Santos' history, such as the Classic Vinewood website and Vinewood Walk of Fame star, were all researched in-game – the virtual fieldsite. The gameworld of *GTA V* is replete with iconography, geographies, realistic social agents and a vast network of interconnected articles to support the stipulated verisimilitude. Forming appreciations of its social structures and culture based on recorded observations and participating in its customary activities is made possible by the depth of this integrated data body. According to the methodology argued here, the music of *Capolavoro* was not encountered through a digital imitation of an actual world movie screening experience – viewing *Capolavoro* was the real experience.

Ramifications and Principles

With this transformation of diegetic to nondiegetic states identified through an application of two research phases within the proposed model, the potential for similar experiences can be assessed. The television programs written and produced for *GTA V* present experiences akin to the recounted story here, while other open-world games that feature films, television shows, and live theatre and vaudeville performances offer similar research opportunities.

The diegetic states of music are shown to be changing, but a terminology that describes these musical elements as always in a potential state of flux is still discouraged here. If *Capolavoro*'s score were to be termed transdiegetic, for example, it could at any one time be diegetic or nondiegetic, or another determined state. This would identify the transition of its properties, but it also means that it can no longer be recognised as acting in a single diegetic state. That is, if it is diegetic, but also transdiegetic, can it not be simultaneously

nondiegetic? By employing the proposed model's methodology, and approaching the same music through three different phases of research, musical content like *Capolavoro*'s score can possess an identified diegetic state specific to each phase. This field research constitutes an example of an alternate mode of musical experience, accessible only through the systematic application of different analytical approaches, as supported by the proposed model.

Stingers

It is not appropriate to include stingers within the form of virtual ethnography in the proposed research model for ontological reasons. Hart summarises the video game as 'binary-encoded sets of mathematical instructions that allow electronic machines to be used as human-operated tools'.⁸³⁷ Stingers are yoked to structures in a game's software, such as a death stinger. This would be an aural tool used during gameplay to alert the player of an avatar's death, but in the actual world, of course, no brief musical excerpt signals the passing of a person.

It is hoped that the tripartite form of the proposed model offers a resolution on the point of stingers. While not relevant during this phase of research, they have been analysed according to methods of Game Music Design above, so that their meaning and function with *GTA V* may still be recognised. There is also scope for unexpected findings around stingers in the Music in Culture research phase, but the present study turns first to analysing *GTA V*'s nondiegetic music through the same phase.

MUSIC IN CULTURE

IV.V Introducing Nondiegetic Music to the Actual World

Nondiegetic music from GTA games had limited exposure in the actual world prior to *GTA V*. For example, *GTA IV*'s opening credits montage piece 'Soviet Connection' featured on the game's official soundtrack album⁸³⁸ and on the London Philharmonic Orchestra's *The Greatest Video Game Music* homage album. *GTA V* was, however, the first in the series to feature a nondiegetic score that was designed to accompany gameplay in the traditional score-picture sense. As investigated earlier in this chapter, the score is composed and

⁸³⁷ Hart, 'Hard Boiled', 7.

⁸³⁸ Hunter, 2008.

implemented into the game to act dynamically by adapting to changes in gameplay, whether directed by the player or the game engine. This can be considered its original form, and one that is idiosyncratic to games, separating it from the more linear, fixed playback of film and television mediums.⁸³⁹

As a basic characterisation, this study agrees with van Elferen's argument that 'like improvised music, game music's very presence requires interaction'.⁸⁴⁰ To wit, a recording or performance of this music in almost any other space should be considered an adapted version. As the intricacies of different modes of experience have been explained already, this section is smaller than its counterpart in Chapter III. The metamorphosis of *GTA V*'s nonlinear score becoming linear, and examples of its showcasing separate diegetic music, offer additional avenues of enquiry.

Soundtracks, Livestreams and Projects

As with the other two volumes, *The Music of Grand Theft Auto V, Vol. 2: The Score*, was released for mp3, compact disc and vinyl; however, the extemporal score elements required segmentation and organisation into individual tracks. The official Rockstar page states 'the stems of the game's interactive score are layered, mixed and arranged into an album of songs by acclaimed producer and DJ, DJ Shadow'.⁸⁴¹ In this way, *Vol. 2* is like an abridged version of the in-game score, keeping the most engaging sections and most memorable motifs. The names of tracks on the album correspond directly and indirectly with the heist missions and gameplay sequences they feature in. A direct example is a track called 'Chop the Dog', referring to the pet Rottweiler Franklin owns, who is introduced to the player via a cut-scene as part of a mission called 'Chop'. At a specific point in the mission, when the player is forced to chase an NPC while driving a vehicle, the 'Chop The Dog' track is cued automatically. The heavy drum beat and harsh brass parts underscore this rapid chase sequence, by ascribing a power, aggression and determination to Chop, who is every bit the pack leader typical of his breed's temperament.⁸⁴² An indirect example is the track 'North Yankton Memories', which is a part of the score heard during the game's prologue. If this

⁸³⁹ Collins, *Game Sound*, 4.

⁸⁴⁰ Van Elferen, 'Analysing Game Musical Immersion', 39.

⁸⁴¹ Rockstar Games, 'Dynamic Score'. *Rockstar Games*, accessed 9 July 2016, <https://www.rockstargames.com/V/music/score>.

⁸⁴² American Rottweiler Club, 'About the Rottweiler', *American Rottweiler Club*, accessed 8 December 2018, <https://www.amrottclub.org/about-the-rottweiler/>.

hasn't been played, a listener of this track would not understand its narrative connection. Other tracks such as 'Fresh Meat', 'The Agency Heist' and 'Rich Man's Plaything' are all three- or four-minute-long, linear versions of the score sections that play during related missions.

As outlined above, Oh No and The Alchemist's *Welcome to Los Santos* project was inspired by their work on *GTA V*'s score with Tangerine Dream and Woody Jackson. The livestream event offered insight into collaborations with musicians and vocalists on the album. As these tracks are recorded and fixed, as are the tracks for *Vol 2* of the soundtrack, the *Welcome to Los Santos* songs are almost more relatable to the volume's score excerpts than the score itself, by virtue of their construct. The track 'Lock & Load' by MNDR feat. Killer Mike goes a step further, sampling the bass, drum and harmony parts from a score track on *Vol. 2* called 'The Grip'. Vocal parts take prominence in the audio mix, singing lyrics heavy with gang violence and firearm nomenclature.

'Welcome to Los Santos' Development

'Welcome to Los Santos' ('WtLS') indicates a meandering evolution of composition that can be traced from an in-game sequence, to soundtracks, through to live performance. The final track on the score volume is called 'Welcome To Los Santos (Outro)' and is almost identical to the in-game opening credit montage version. With most instruments recapitulating their in-game version parts, and a minor nine horn stab chord ending the track, this outro version is like a musical punctuation mark at the end of album. Like its in-game equivalent it is an instrumental piece. On Oh No and The Alchemist's inspiration album, however, there is a track called 'Welcome to Los Santos (feat. Kokane)' that is credited officially to MC Eiht & Freddie Gibbs. This version has lyrics elucidating the geographical locations, social phenomena and unforgiving environment of the city. A lyric line, 'That grand theft and robbery mask draped on my face,' references the game, but it could also describe one of the main artwork pieces used in promoting *GTA V*. This image depicts four members of Franklin's Grove Street Families, adorned with mask bandanas in the gang's racing green-colour and aiming submachine guns out of the windows. An auxiliary observation is the vehicle's purple hue, which could be attributed to the immediate rivals to the Grove Street Families gang, the Ballas, suggesting it has been stolen from the latter gang members. The iconography of Franklin's gang affiliation and illegal activities in this image is narrated through this vocalised version of the game's main theme.

Both released in 2013, the in-game and *Vol. 2* versions of the song were instrumental, while the 2015 version on *Welcome to Los Santos* is based on the original but with a new arrangement and vocal parts. During this investigation, it was revealed that an intervening version of ‘WtLS’, performed live at the VGX Spike Awards ceremony, also features vocals.⁸⁴³ ‘WtLS’ was the first piece of the set, followed by ‘Hood Gone Love It’ as discussed in Chapter III, and the vocal parts were performed by MC Eiht, Freddie Gibbs and Kokane. The official score soundtrack volume version of ‘WtLS’ was instrumental, but the version performed during the 2013 VGX awards had the same lyrics and musical form as the version on *Welcome to Los Santos*, released in 2015.

This suggests that the vocal performances may have been intended originally to be included in the game-opening version but were omitted. Another possibility is that the project that would become *Welcome to Los Santos* was developed not only after the game’s launch but also in tandem with its development, with a vocal version perhaps a future ambition of the composers. It is difficult to verify these hypotheses, but by chronicling the chain of events and song versions, an evolution of vocal and instrumental composition elements can be discerned.

This case of nondiegetic music inspiring diegetic music, which then mutated between soundtrack, live performance, and soundtrack again, crossing several modes of experience, is a highly individual case for video game music. ‘WtLS’ and other parts of the score were featured in another actual world performance shortly after the game’s release as well.

Live Performance

As mentioned above, in late September of 2013 the New York Film Festival held a series of events featuring *GTAV*. These included performances of the game’s nondiegetic music and panel discussions (free to the public) in which the score composers aired their approach to dynamic scoring. The ambition behind this endeavour, as explained by programmer Matt Bolish, was ‘to examine GTAV [sic] from multiple angles, giving our audience multiple ways to explore what has already become one of the most compelling works in the genre’.⁸⁴⁴ The panel discussion topics aimed to delve into the game’s music and its impacts on the

⁸⁴³ Rockstar Mag!, ‘The Music of Grand Theft Auto V-Concert VGX 2013 En Entier’, video, 24:18, 11 December 2013, posted by Rockstar Mag!, https://www.youtube.com/watch?v=lspmcE_Mu2U.

⁸⁴⁴ Brian Brooks, ‘Grand Theft Auto V to Burn Rubber at NYFF Convergence’, *Film Society Lincoln Center*, 26 September 2013, accessed 7 December 2015, <https://www.filmlinc.org/daily/grand-theft-auto-v-rockstar-games-nyff-convergence/>.

gameworld environment, as well as challenges intrinsic to interactive game scoring. This is a key point in relation to the current study, too, as music that was composed originally to be experienced dynamically had to become linear, reversing the process.

The task of orchestrating this live demonstration of the score fell to Grammy Award-winning producer and composer Om'Mas Keith. Keith explains, '[t]he challenge was to play along with the pre-edited scenes from the game, real gameplay',⁸⁴⁵ and Keith worked with arranger Rob Lewis to prepare over a three-day rehearsal period. The contribution of Edgar Froese of Tangerine Dream was made a priority, but it wasn't until the third day of rehearsals that all of the score composers and other musicians played the orchestrations for the first time. Rehearsing to televisions playing the gameplay provided visual timescale cues by which pieces could be performed, commenced, and cut.⁸⁴⁶ An unlikely venue, the large performance stage in Manhattan's Church of St. Paul the Apostle, accommodated the composers and a supporting ensemble comprising twenty string, brass, woodwind, percussion, rhythm section and synthesiser players.⁸⁴⁷

The 'Live From Los Santos: The Music of Grand Theft Auto V' concert marked a consequent development of the GTA brand, and for Rockstar Games. It was not the first, as 'Far Away' from *Red Dead Redemption* was performed live by composer José González at an earlier Spike (VGX) awards ceremony.⁸⁴⁸ This was an isolated example, however, and the New York Film Festival performance seems a belated venture for a publisher 'always ... known for the music in its games'.⁸⁴⁹ However, this music has traditionally been diegetic, licensed, pre-composed music, and there is recognition to be given to *GTA V*'s storytelling for its score to be exhibited in the film festival.

The practices of scoring for the dynamic, emergent and unpredictable sequences of video games were expressed at the New York Film Festival, an environment with more traditional, score-to-picture roots. With tickets available to Rockstar's events, an opportunity was open to players and professionals alike to examine the score through first-hand accounts of its composers. Publicity and video documentary material aid in broadening an account of

⁸⁴⁵ Itsbongoboy, 'Behind the Music of GTAV with Om'Mas Keith Alchemist Tangerine Dream', video, 4:29, 4 December 2013, posted by itsbongoboy, <https://www.youtube.com/watch?v=dhoCuv8pzaI>.

⁸⁴⁶ Itsbongoboy, 'Behind the Music of GTAV'.

⁸⁴⁷ Brooks, 'Burn Rubber'.

⁸⁴⁸ Rockstar Games, 'In Case You Missed It: Watch Jose Gonzalez' Performance of 'Far Away' from the Spike Video Game Awards', *Rockstar Games*, 28 January 2011, accessed 8 December 2018, <http://www.rockstargames.com/reddeadredemption/news/article/13191/in-case-you-missed-it-watch-jose-gonzalez-performance-of-far-awa.html>.

⁸⁴⁹ Stutz, 'Rockstar Music Head'.

these events, while video recordings capturing the 2013 VGX concert serve the same purpose for those not in attendance.

In keeping with the parameters set for this study regarding GTA Online, the promotion trailer that advertised this multiplayer mode will receive a brief mention here.⁸⁵⁰ Clips of gameplay cut together to illustrate the mode's gameplay possibilities are narrated with dialogue explaining the in-game interactions for players, set to a series of passages from *GTA V*'s nondiegetic score.

IV.VI Summary

Rockstar Games has harnessed the nondiegetic music of *GTA V* to act in a myriad of publicity and creative projects. From introducing the game's multiplayer mode, to its commercial soundtrack release, through to the side projects and live performances it has spawned, the series' first score has been used extensively. The research conducted here has found that the Culture of Connectivity described in this study can be imposed successfully over these activities. It also shows that *GTA V*'s nondiegetic music has fulfilled commercial and creative roles similar to its diegetic content.

Through the methodology executed in this chapter, the dynamic score of *GTA V* has been found to complement the musical construction and aesthetic qualities of nondiegetic music found in similar media. The main 'WtLS' theme acts as a storytelling tool as much as it signifies the hip-hop style and themes within *GTA V*'s main story. An unexpected finding was the conceptual metamorphosis of music defined as diegetic within the first research phase that, through virtual fieldwork, became nondiegetic music. *GTA V*'s stingers have little correlation with the game's nondiegetic score, acting in commercial ventures. The cultural value this nondiegetic score has outside of gameplay is similar to the diegetic music. The inclusion of a score during this GTA was a first for the series, as were the examples of its live performance. With this process concluded, this study now applies the proposed model to the final music type, U.I. music.

⁸⁵⁰ Rockstar Games, 'Grand Theft Auto Online: Official Gameplay Video', video, 3:03, 15 August 2013, posted by Rockstar Games, https://www.youtube.com/watch?v=olEGtoYs_8A&t=2s.

CHAPTER V: USER INTERFACE MUSIC

GAME MUSIC DESIGN

As the final research phase, this chapter continues the sequential approach established above to focus on *GTA V*'s music falling into the U.I. music category. It has been determined that a video game consists of an 'electronic computational device and a game simulated in software',⁸⁵¹ with data loading processes and game settings available through a menu interface. It is likely that U.I. music is most relevant to the present Game Music Design research phase of this study due to its presence in software running processes.

V.I. Main Menu and Loading

Upon opening the *GTA V* application, an intermediary window opens to indicate that the game is beginning to load. A brief video, 15 seconds or so in length, plays and it is here that game audio is experienced for the first time. Blurred colours splash across a black screen, accompanied by sequenced sounds of a window being smashed, a vehicle door opening, an engine's ignition turning on and a vehicle driving away. Red and blue colours flash in tandem with emergency service sirens, and off-white colours are triggered with separate reports of pistol and automatic gunfire. With the succession of sirens, car driving noises and gunfire, small flashing white star symbols that have accumulated in a corner of the screen swoop into the centre. As red and blue lights glimmer behind, the star grows to become the 'star' part of Rockstar Games' logo, 'R★', followed by the similar logo of Rockstar North. With several soft and deep hum-like sound effects the logos disappear, the screen fades to black, and the sound of a distant engine departing signals the video's end. In a matter of seconds, the player is introduced to the game's themes of car theft and law-enforcement conflict, as indicated by *GTA*'s 'wanted stars' imagery, and its publisher and developer. It cannot be skipped, as depressing buttons and triggers on the controller or keyboard have no effect. Music is heard for the first time during the subsequent licensing, trademark, copyright and save icon message text that fades in and out. It continues during menu navigation and as the player

⁸⁵¹ Galloway, *Algorithmic Culture*, 1

selects a game mode to commence, playing during a series of loading screens that appear before fading to silence once core gameplay is loaded and begins.

The U.I. music accompanying this early state of play is based on looping sequences that introduce new themes and motifs throughout its seven-minute duration. This is more time than the game requires to load, meaning that much of the track will never be heard unless the player refrains from selecting a game mode to begin play. The basis for instrumentation is a collection of synthesised and electronic sounds, various ‘hissing’ white noise sounds, and ‘clacking’ effects that seem to fulfil the role of percussion. These instrument sounds, fading entrances, and the absence of driving rhythm section and vocal part, suggest a compositional signature more like that of Tangerine Dream than other collaborative composers of *GTA V*’s score, such as Oh No and The Alchemist.

Musical Construction and Analysis

A repeated chord progression leads consistently to a resolution key of E; however, while the root pitch remains continuous, it alternates between major and minor tonalities. The discursive layering of parts on this progression and its fluctuations between tonality provide a consistent harmony, but an ambiguous sense of tonal centre. There is a tangible sonic link between this overlaying of sustained chords with gradual part introduction, and Tangerine Dream’s ‘Birth of Liquid Plejades’ on the album *Zeit*,⁸⁵² made less tense by omitting the latter’s microtonal clashes. A reverb-heavy hiss noise accentuates a part providing diatonic thirds and root notes within the harmony during the loading track.

This is similar to sounds in ‘Nebulous Dawn’, also on *Zeit*, although the shared harmonic centre of concert E can likely be seen as coincidence. The hiss noise also replaces the descending glissando siren bleeps popular during 1970s progressive and dark ambient music. It also bears sonic similarity to the vocal interjections in ‘Midnight in a Perfect World,’ by fellow score collaborator DJ Shadow. Reverb and phaser effects in the loading music echo those in DJ Shadow’s music and Tangerine Dream’s use of sequencers and the Moog synthesiser to produce liquid textures.⁸⁵³ There is little melodic involvement other than the top note of sustained chords providing something approximating a melody simply by standing out.

⁸⁵² Tangerine Dream, 1972.

⁸⁵³ John Diliberto, ‘Totally Wired with Tangerine Dream’, *Electronic Musician*, 16 March 2006, accessed 29 October 2018, <https://www.emusician.com/artists/totally-wired-with-tangerine-dream>.

Within the Style of *GTA V*

There is cohesion to the design of U.I. and nondiegetic music in *GTA V*. For instance, a score piece called ‘You Forget a Thousand Things’ shares the static harmony, repeated bass patterns with subtle timbre alterations, and sustained synthesiser pads found in the U.I. music. The increased rhythmic activity, forward propulsion and increased levels of intensity within the cue make emotive sense, as this particular track is cued during ‘Mission #16 The Jewel Store Job’, the first fully fledged heist in the game’s story that includes a fast-paced vehicle chase. A number of other score tracks are constructed similarly, with recursive bass line and, once established, static harmony. Tracks such as ‘North Yankton Memories’, ‘Rich Man’s Plaything’ and ‘Hillbilly Crank Dealers’ Blues’ build through vamped passages with parts suspended and reintroduced.

U.I. music in *GTA IV* featured soft, looping bed track sounds for the first time in the series, and *GTA V* has continued in this vein. When gameplay is paused, and the game menu is accessed, the music activated comprises pad-based synthesiser sounds. With slow note attacks in the reverb-heavy main melody line and atonal ‘breathy’ wind-like effects the sound produced is that of calm indifference. A descending chord movement of Cm-Bb5-Ab^A-F5, sometimes harmonically explicit and sometimes as a dyad, loops in yoked perpetuity to the duration of time spent navigating the menu. Arpeggiated sixteenth-note patterns fade in and out during repetitions of the main progression, providing harmonic solidity. The whole passage is underpinned intermittently by a synthesiser bass sound stating root notes softly, which fades in and out in the same way that all of the other parts do.

V.II Game Menu

Game menu navigation, selection and de-selection of options serve predominantly to improve the display and auidial fidelity during gameplay via customisable setting changes. Open-world PC games tend to offer a larger array of options through this menu than console versions of the same game. The primary purpose of this menu and its customisation properties is the facilitation of a bespoke core gameplay experience and, in this sense, it is separated distinctly from gameplay. Noticeably absent in *GTA V*’s game menu music is the rhythmic propulsion found throughout the nondiegetic score and much of the diegetic music. Rhythmic activity is almost entirely found in legato note movement within the confines of a common time metre, with no solo percussion instrument to anchor the beat and pulse. There is comparatively more activity in the main menu/loading U.I. music, which, at circa 130

beats per minute, is brisker than the approximate 116 beats per minute of the game menu music. The semiquaver ‘clacking’ sound mentioned above provides rhythm that is common to musical genres such as synthwave.

Before the drum part enters in ‘Escape from Midwich Valley’, a track by French composer Carpenter Brut,⁸⁵⁴ a percussive sound akin to a hi-hat playing sixteenth notes functions in a similar way. Canadian synthwave composer Dana Jean Phoenix’s ‘Synth City’ uses the technique as well,⁸⁵⁵ morphing an initially atonal rhythm part into a sixteenth-note harmony part with hard-note attacks. These two examples also feature a drum-kit part that is brought to the front of the tracks’ audio mix, and a hypothesis for the avoidance of such parts in the U.I. music might involve *GTA V*’s core gameplay style.

Gameplay can be quiet and subdued, but *GTA V*’s radio music content features upbeat tempi in the predominant styles of rock, pop and funk. Just as this sonic timbre complements the fast-paced and adrenaline-producing speed of core gameplay, the menu music distinguishes itself from other states of gameplay. The soft and fading synthesised sounds heard during menu navigation provide a musical antithesis to the typically upbeat, invasive music experienced while navigating the state of San Andreas. Tone and instrumentation connect this menu music with similar indicators throughout the game’s nondiegetic score, but a deeper narrative connection may be authored as well.

Reminiscent of Heist Planning

The missions within *GTA V*’s main story plot are punctuated by a number of larger pivotal missions called heists. Prior to executing these extended missions, the player is presented with planning options that determine their approach to the ensuing acts of criminal burglary or property damage. The player, or rather a protagonist, is presented with pin boards laden with mug shots, maps and diagrams, statistics, blueprints and other planning material. This is prepared by an NPC named Lester Crest, a rotund, bespectacled and malady-ridden accomplice with expertise in cyber espionage. Lester provides options for the player to peruse and select, depending on whether they wish to undertake a heist mission with ‘all guns blazing’ or a stealth-based approach. These affect the player’s ‘take’, the in-game pecuniary return from crime, and often the heist’s success. The planning sequences and selection mechanisms are measured and quiet, allowing the player to concentrate on making

⁸⁵⁴ Carpenter Brut, 2015.

⁸⁵⁵ Phoenix, 2017.

in-game choices that will have ramifications for the game's subsequent narrative. They are, in effect, the calm before the storm.

The same could be said of menu navigation, which requires the player to pause gameplay and explore game settings. These momentary breaks punctuate the generally chaotic action of core gameplay by providing a calm gameplay state. If this menu music took the form of rhythm section-heavy rock beats, the nature of this connection would be quite different, or nonexistent. There is a theoretical basis to this hypothesis. The 'internal mixers of music' Liebe refers to 'allow for a meta-method of actively intervening with the soundscape of computer games [and] are integrated into the game options'.⁸⁵⁶ Michel Chion's observation that audio elements in the form of tonal music and narrative in film enter into 'a simultaneous vertical relationship'⁸⁵⁷ can apply to gameplay states, both linear and dynamic. Further to this, Jørgensen perceives menu music as separated from the gameworld but still 'part of the frame that surrounds the game space [that] presents the game as a software product',⁸⁵⁸ and an entity that requires loading processes out of necessity.

On one level, the inclusion of this music within *GTA V*'s game menu indicates the aural sustaining of players' interest while navigating a state other than core gameplay, a practice common to open-world games. On a level of greater profundity, however, the incorporation of user interface tonal audio, through its soft, synthesised, looping composition, mimetically parallels the heist planning state encountered during gameplay. What seems to be the case in *GTA V* is a musicscape aesthetic, shared by nondiegetic score and U.I. musical elements. It provides an aural backdrop encouraging methodical contemplation during menu navigation, thereby alleviating the energetic friction of core gameplay. This reflects the calming atmosphere of heist planning sequences during which the player investigates options of future ludic significance. In this way, the heist story component integral to *GTA V*'s narrative is reflected musically in U.I. music of the game's intrinsic game menu.

With an investigation of *GTA V*'s U.I. music according to the first research phase's outlined principles complete, this chapter continues by studying the same music via methods of virtual ethnography.

⁸⁵⁶ Liebe, 'Interactivity and Music in Computer Games', 48.

⁸⁵⁷ Michel Chion, *Audio-Vision: Sound on Screen*, trans. Claudia Gorbman (New York: Columbia UP, 1994), 40.

⁸⁵⁸ Jørgensen, 'Transdiegetic Sounds', 109.

VIRTUAL ETHNOGRAPHY

V.III Concerned with Software, and Not the Gameworld's Verisimilitude

Menus and loading sequences are idiosyncratic to most forms of digital device interaction, from video games to airline check-in kiosks, and from home computers to Blu-ray disc players. As video game U.I. music does not play in the gameworld *per se*, it is less concerned with the substantiation of a gameworld's reality than diegetic and nondiegetic music. One can imagine developers hoping to one day dispense with loading screens, and players would probably concur. It is the interface of a game accessed and navigated by the user that ties these states of play to video games, in a relationship as dichotomous as it is beneficial. This can be explained as a syllogism – increasingly realistic gameworlds require more processing capacity; more processing capacity requires longer loading periods; therefore more realistic gameworlds require longer loading periods.

The cueing of codified textures and assets during loading sequences, and the menu's temporary suspension of gameplay, are technically necessitated aspects of gaming. Therefore, it is difficult to approach this music through the lens of virtual ethnography. In the actual world, there are no menus that provide settings to change the brightness of ambient light, or that lower the difficulty level of existence. If the gameworld must be perceived as a substantiated reality, and U.I. music is not a natural part of the gameworld, the merit of this discussion can be questioned.

However, consistency of approach calls for the proposed model's analytical integrity to be maintained through a consistent application. The modus operandi of deconstructing a chosen text in order to extract greater meaning from its reconstructed form requires the inclusion of the text in its entirety. As outlined in Chapters I and II, the scholar's discretion is also required. The inclusion or exclusion of extraneous, inappropriate or complicating objects of study should be validated through an explanation, such as that above. There will be peaks and troughs of findings within such a model, which is evidenced in the Game Music Design phase's extended U.I. music discussion, versus the comparatively brief discussion here. The variances in compatible content should be viewed as a natural facet of the proposed model, which is another reason for this discussion. It is hoped that this model will offer new and useful perspectives in the study of contemporary open-world game music, while contending with the complexities of changing gameworld designs.

Beyond This Study

Just as the diegetic subcategory of RADIO is employed in this study due to its relevance to *GTA V*, so too might subcategories of U.I. music be of value in studies of other open-world games. The historically informed Ptolemaic Egypt in *A.C. Origins*' vast gameworld of its series at release⁸⁵⁹ is a prime candidate for enquiry via the proposed model. Once *Origins*' initial developer logo sequence concludes after opening the game, the main menu becomes available to the player. An ethereal vocal line, raw string-bowing, and semitonal harmonic movement accompany the menu, and are variously recapitulated within the score during gameplay. The visual and auidial narrative elements of the *A.C. Origins* gameworld have intrinsic links with the U.I. music that plays during its loading screens, and this might merit a reassessment of U.I. music subcategories.

Another methodological adaptation might be instigating a change in U.I. music's identity. Cheng's study of in-game player performances *LoTRO* involved fieldwork methods such as protracted close-play analysis and recorded gameplay documentation processes,⁸⁶⁰ both of which are supported in the present research phase. As a mechanic involving core gameplay and menu navigation, the elaborate systems of making music⁸⁶¹ meant that players could craft musical performances involving diegetic and U.I. music components. Cheng offers a 'starting point for conversations about how the means and effects of music-making are rapidly transforming alongside innovations in video games'.⁸⁶² To that end, the definition of U.I. music could be reinterpreted to accommodate the music-making in *LoTRO*.

V.IV Summary

The U.I. music of *GTA V* is determined to be inappropriate material for investigation via virtual ethnography methods. This is because the very nature of menus and loading screens is inextricably technological, rather than an agent promoting a gameworld's verisimilitude. It is discussed, nonetheless, so as to maintain a consistent analytical and sequential approach throughout the proposed model. There is also possible scope for the meaning or U.I. music

⁸⁵⁹ Blake Hester, 'Assassin's Creed Origins' Will Have the Series' Biggest Map to Date', *Rolling Stone*, 22 August 2017, accessed 4 June 2018, <https://www.rollingstone.com/glixel/news/assassins-creed-origins-will-have-the-series-largest-map-w498914>.

⁸⁶⁰ Cheng, *Sound Play*, 12–14.

⁸⁶¹ Cheng, *Sound Play*, 114.

⁸⁶² Cheng, *Sound Play*, 137.

to undergo reassessment, and to be separated into further subcategories, depending on the design of other open-world games.

MUSIC IN CULTURE

V.V Indirect but Consistent Connections

It is found here, as it was in the Virtual Ethnography phase above, that *GTA V*'s U.I. music is investigated most successfully through the proposed Game Music Design methodology. It provides musical interest during loading, and a sonic calm during menu navigation that resembles heist mission planning sequences. This music does not feature explicitly in soundtrack albums, live performances, promotional trailers or livestream events. However, its musical construction aligns with that of *GTA V*'s nondiegetic score and, as this music does feature in the identified modes of experience, it is here that connections can be formed.

Rockstar Games is an entrepreneurial company that has correlated video game marketing strategies with underground trends, incipient ventures and mainstream popular culture. Kline et al. articulate this as a concentration 'on forming alliances with subcultural practices that are part of very specific taste cultures'.⁸⁶³ The company builds and owns highly commoditised proprietary game engine and game software, seemingly defying the new economy axiom of a 'world in which innovation is more important than mass production'⁸⁶⁴ by satisfying both. By the early 2000s, music was already established as a significant component of this process, manifesting in the licensing of music material from hip-hop artists and DJs, to the sponsoring of events at New York and London's leading clubs.⁸⁶⁵

Musical niche cultivation can be adumbrated using *GTA V*'s Radio Mirror Park radio station as an example. Radio Mirror Park caters to an urbane youth familiar with memes and musical microgenres, highlighted in its 'Indie modern rock from the underground'⁸⁶⁶ positioning statement found on the official *GTA V* website. This laconic phrase encompasses the grassroots facet of independent music production, the appeal of chic modernity and relevance, the stylistic progenitor of rock and the attraction of clandestine 'underground' subcultural movements. *GTA V*'s U.I. music does not feature the rock-inspired beats, vocal

⁸⁶³ Kline et al., *Digital Play*, 234.

⁸⁶⁴ Kline et al., *Digital Play*, 10.

⁸⁶⁵ Kline et al., *Digital Play*, 234.

⁸⁶⁶ Rockstar Games, 'Music & Radio', *Rockstar Games*, accessed 1 November 2018, <https://www.rockstargames.com/V/>.

lead lines and popular song forms in Radio Mirror Park's music. However, its synthesised hisses, consistent harmony, arpeggiated chords and electronic instruments place it within the same sonic realm as the station's synthpop, chillwave, dance-punk and dream pop subgenres. It is worth reiterating that the U.I. music is highly indicative of Tangerine Dream's compositional style, which creates a unified sound across gameplay states. Both the game's nondiegetic score and a selection of songs from Radio Mirror Park's catalogue are prevalent in multiple actual world modes of experience. *GTA V*'s U.I. music remains confined internally to the gameworld. However, by sharing style, genre, and design commonalities with the game's other musical elements, U.I. music contributes indirectly to Rockstar's ambition to 'cultivate a symbolic field around their brand's games'.⁸⁶⁷

Other Open-World Texts

To argue the merit of this research phase's methodology, it should be pointed out that U.I. music from other gaming and computing platforms has seen more extensive actual world exposure. There are non-open-world game examples of this as well, such as a London Philharmonia Orchestra concert with Rainer Hersch which featured performances of the Windows XP operating system startup, error and closedown sounds.⁸⁶⁸ Summers points to a similar example in Frank Ocean's *Channel Orange* album,⁸⁶⁹ which opens with a track that samples the original PlayStation console system start cue.⁸⁷⁰

U.I. music from other contemporary open-world games has also fared differently within actual world consumer groups. For instance, approximately six months after the release of action/adventure game *Just Cause 2*,⁸⁷¹ its publisher, Eidos Interactive, made a soundtrack for the game available free. The collection of songs was posted on the game's official website,⁸⁷² which also hosts the official Square Enix forums. The soundtrack's approximate listening time of 14 minutes⁸⁷³ reflects the sparse musical offerings in this open-world game. Nonetheless, it includes the gameworld's diegetic music, the nondiegetic music

⁸⁶⁷ Kline et al., *Digital Play*, 234.

⁸⁶⁸ Hass Staartjes, 'Classic Relief', *Timeout London*, 2009, accessed 25 February 2019, <https://www.timeout.com/london/things-to-do/classic-relief>.

⁸⁶⁹ Ocean, 2012.

⁸⁷⁰ Summers, *Understanding*, 16.

⁸⁷¹ Avalanche Studios, 2010.

⁸⁷² Andy Chalk, 'Eidos Unveils Just Cause 2: Music to Blow S**t Up By', *The Escapist*, 27 October 2010, accessed 19 June 2018, <http://www.escapistmagazine.com/news/view/104760-Eidos-Unveils-Just-Cause-2-Music-to-Blow-S-t-Up-By>.

⁸⁷³ Chalk, 'Eidos Unveils Just Cause 2: Music'.

featured throughout story missions, and the game's main theme. The 'Just Cause 2 Theme' track is a variation on U.I. music heard shortly after loading the game, and triggered by the player pressing the start button to access the main menu. A direct line can be drawn here, in that a developed form of *Just Cause 2*'s in-game U.I. music was released as an actual world soundtrack, and it extends the game's lore musically by virtue of its placement on Square Enix forums.

A more concerted effort of similar intent revolves around the main music theme for *Skyrim*, called 'Dragonborn' after the game's protagonist. A prominent entry in the contemporary game music canon, this iconic theme is heard once the game has loaded and the main menu may be accessed, as in *Just Cause 2*. This places it in the U.I. music category, especially as it plays during both a main menu, and a loading screen. Before any sales of the game, this piece featured as musical accompaniment in *Skyrim*'s Official Gameplay Trailer.⁸⁷⁴ Since then, it has been released on the original game soundtrack⁸⁷⁵, analysed in a behind-the-scenes documentary, and recorded as part of the Greatest Video Game Music series. It has been a focus within the game music composition and ludomusicology critical literature, and acclaimed in Classic FM Hall of Fame charts.⁸⁷⁶ Finally, it has been performed by the award-winning Video Games Live touring orchestra, UCLA's Game Music Ensemble, and numerous other professional and amateur orchestras and choirs. Where the U.I. music in *GTA V* offers less cultural meaning to consumers than the game's diegetic and nondiegetic content, *Skyrim*'s equivalent has performed in almost all modes of experience identified here.

V.VI Summary

This chapter has demonstrated an application of the proposed model to the U.I. music of *GTA V* according to a sequential methodology of Game Music Design, Virtual Ethnography, and Music in Culture. Findings suggest that the soft, synthesised tracks of extended length resemble parts of the game's nondiegetic score and highlight composition techniques of Tangerine Dream and DJ Shadow, the score co-composers. It has been determined inappropriate to investigate *GTA V*'s U.I. music using virtual ethnography principles. While

⁸⁷⁴ IGN, 'Elder Scrolls V Skyrim: Official Gameplay Trailer', video, 2:53, 24 February 2011, posted by IGN, www.youtube.com/watch?v=PjqsYzBrP-M.

⁸⁷⁵ Soule, 2011.

⁸⁷⁶ Matt Kamen, 'Video Games Storm Classic FM's 2015 'Hall of Fame'', *Wired*, 7 April 2016, accessed 9 February 2016, <https://www.wired.co.uk/article/game-music-classic-fm>.

the U.I. music of other open-world games can be experienced in the actual world, and outside of gameplay, *GTA V*'s musical content accompanying menu and loading systems seem most related to the initial research phase of this model. The U.I. music has little direct involvement in the marketing of and publicity for the game. It contributes to the symbolic field of musical culture surrounding *GTA V* through implied connections of electronic music styles, rather than through its explicit promotion.

As the final game music type to be researched via the proposed tripartite model, the summary of this chapter also marks the end of this model's application to the music of *GTA V*. In accordance with the thesis outline stipulated above, the following section is a conclusion to both the proposed model's application, and to this study. Therefore, this study now presents critical theoretical findings arising from the research conducted, an evaluation of the proposed model's accuracy and utility, and a discussion of how this study has met its Project Aims and Research Questions.

CONCLUSION

The genesis of this study was the identification of a gap in ludomusicology scholarship concerning open-world games, which is articulated in the literature review. Key principles have been established as the variation and scope of the field's critical approaches to game music have grown, including understandings of musical nonlinearity, diegetic theory, scholar-game interactions and music implementation methods. Concomitant with the natural course of field maturation, these principles can be distilled and adapted to become mechanisms of narrower focus. As a single game type, open-world games are germane to open-ended exploration, and their music is required to stimulate players of diverse cultural and ethnic backgrounds during prolonged gameplay. It is composed to match the aesthetic, production value and authenticity of a gameworld's other design elements. Its popularity, sophistication of construction, and ubiquitous use in actual world marketing and cultural practices culminate in a rationale for investing the sociocultural significance of this music.

Meeting Project Aims and Answering Research Questions

As a response to the identified theoretical gap within the locus of ludomusicology, this study has aimed to develop a mechanism by which open-world game music may be understood comprehensively in all of its forms. To enable this, the theoretical basis for every nomenclature and categorisation choice has been rationalised through contemplations of alternative interpretations, and a considered critique of the relevant literature.

This is a reification of Peterson's parameterisation mantra, which has been a guiding principle through this study,⁸⁷⁷ and out of which has emerged an original tripartite research model. Three distinct but related phases of research, Game Music Design, Virtual Ethnography, and Music in Culture, interrogate a game's musical content sequentially. Within these phases, a taxonomy of diegetic music types, adapted virtual ethnography research methods, and Culture of Connectivity concept provide theoretical scaffolding. The resulting methodology is designed to offer the framework and tools to investigate this music by approaching it as music in a game, music in an ethnographer's fieldsite, and music in

⁸⁷⁷ Harris, 'Waking UP With Sam Harris #62'.

actual world culture. It enables the establishment of connections between the technical, narrative and commercial functionality of this music.

The proposed model is designed to facilitate an inside-out perspective that is aspired to within this study, and demonstrated through a case study application to *GTA V*. The reasoning behind this game choice, outlined in Chapter I, is that it provides an exemplar of the text selection criteria and process offered to support scholars when applying this model. In turn, these criteria are a distilled recapitulation of the discussions on game music perceptions and contemporary open-world game constructs provided in the Introduction.

Adaptations have been developed to mitigate unfavourable and problematic gameplay circumstances as conventional virtual ethnography praxis is extended beyond studies of MMOs and into the open-world game realm. The most profound is the intellectual acquiescence required to perceive the gameworld not as a virtual setting, but as a substantiated reality. As well as Chapter II's rationale for excluding *GTA Online*, this study discusses embracing haptic interaction, avatar choices, HUD interface removal and PoV selections. These are recommended as efficacious measures that the scholar may consider in transitioning the focus of fieldwork from player communication to a gameworld's musical elements, and as improving the process of fieldsite data accrual through an avatar. The proposed methodology does not intend to shirk the complex agency and objectivity questions regarding avatar control. Rather, it aims to detail pragmatic virtual ethnography research methods that are rooted in the theory of its actual world progenitor.

In a similar fashion, the taxonomy of diegetic music types established in the proposed model is an open-world-based approach to a theoretical discussion likely to continue *ad infinitum*. The three fundamental types of diegetic, nondiegetic and user interface are based on conventional contemporary open-world game musical components, but remain open to subcategory modification, as might be necessitated by a specific game.

In addition to a series of in-game functions, most of *GTA V*'s music has played roles outside of gameplay. As nondiegetic music in a series of promotional trailers, songs licensed for the game accompanied consumers' first introductions. These songs introduced themes, characters, and settings that would later be reiterated and expanded in the game's narrative. *GTA V*'s diegetic in-game radio music perpetuates a signature design trope of the GTA series, and saw song, artist and genre selections establish a contemporary US west coast location, maintain intertextual links within the series and enhance the core mechanic of vehicle control. These songs are also employed as environmental music and supplemented

by other diegetic music such as ringtones, in-game media, music players and NPC performances. This dynamically equalised music delineates geographical contiguity and stratified social structures, and substantiates musical culture within the neighbourhoods and regions of San Andreas.

The series' inaugural original dynamic score marks a foray into nondiegetic accompaniment that heightens the emotional content of structured missions, adapts to gameplay changes in real time, and provides discordantly ambient musical interactions. *GTA V*'s score bears characteristics of 'LA crime music' patterns, and is a collaboratively composed fusion of hip-hop traditions, rock beats and electro-synth elements. Some of these characteristics are recapitulated in the game's user interface music. This comprises looping menu and loading tracks that are some of the few in-game musical elements confined solely to the gameworld, and which provide a sonic counterpoint to the combative sounds of core gameplay.

Diegetic radio songs and nondiegetic score form the bulk of musical material that Rockstar Games has used to promote, celebrate and update *GTA V*'s gameplay experience. Two soundtrack volumes available on several platforms showcased songs commissioned and licensed for the game, while modifications to the score's technological construct produced linear excerpt passages on a third volume. Projects such as the score composers' tangential *Welcome to Los Santos* album have also been woven back into the game's musicscape. Through an adroit harnessing of the livestream event, Rockstar publicised this album and other music, showcased artists connected directly and indirectly with the game, and introduced players to music never to be included in-game. Experiences with *GTA V*'s in-game music have extended to the live performance of score, main theme, commissioned songs and licensed music. The commercial imperatives underpinning Rockstar's corporate motivations are tempered by nurturing a Culture of Connectivity that respects and rewards its musician and consumer participants. This allows in-game music to transcend the *GTA V* gameworld successfully, and achieve a sociocultural significance all of its own.

Future Application

At the time of publication, this is the only extended study of open-world game music, a single GTA series game, and *GTA V*, and the research model is the only such mechanism to incorporate the three recommended phases of research. The PC version of *GTA V* was chosen as a case study text, but through its multifaceted and comprehensive design, the proposed

model operates on the hypothesis that its fundamental methodology will be applicable not only to contemporary titles, but future open-world games as well.

This is arguably unverifiable at present; however, over a dozen open-world games have been released throughout the duration of this study, and the design and nature of music in each has been incorporated. This is hoped to be an indication that the model presented here can encompass a variety of open-world game designs, including those yet to exist, while maintaining its theoretical integrity. ‘A certain set of methodologies and a certain set of theories need not always go together’,⁸⁷⁸ and future applications may challenge and expand the precise meanings within the model. Virtual ethnography might be interpreted as virtual ethnomusicology, and new modes of experience might be incorporated. Whether altered or applied verbatim, it is important to remember that this model seeks to recognise the music of new open-world games as heritage in the making, and not the repudiated that is yet to be transvalued.⁸⁷⁹

The critical theoretical findings reviewed here go some way to addressing Munday’s questioning of what ‘contemporary video-game music’ really is.⁸⁸⁰ The research conducted within this study suggests that open-world game music exists most authentically in a gameworld. It also suggests that the in-game matrix is one of many in which this music takes on significant identities, and that music may be the predominant in-game material experienced in the actual world. Reflexivity in promotion strategies and creative projects mean that music included originally in-game, and employed in actual world ventures, may return to the gameworld in an evolved form. It is by subjecting this music to the investigative rigour of all three research model phases that the extent of its ludic, musical, technological and cultural significance may be comprehended. In this way, the present study has offered a starting point in shedding further light on the meaning that open-world game music holds for scholars, theorists, musicians, stakeholders of industry, and players.

As proposed above, the digital nature of video games is immaterial when identifying them as recent entries in the millennia-old modality of storytelling. Music affords an emotionally instructive aural component to the narratives of open-world games, and will almost certainly be experienced over millions of cumulative hours, by millions of consumers globally, through gameplay and other modes of experience. As long as a game’s software

⁸⁷⁸ Egenfeldt-Nielsen et al, ‘Understanding Video Games’, 10.

⁸⁷⁹ Kirshenblatt-Gimblett, ‘Folklore’s Crisis’, 298.

⁸⁸⁰ Munday, ‘Music in Video Games’, 51.

can still be run, its musically substantiated virtual reality will be an artefact manifesting the embodied testimony of actual world sociocultural values held during its production, release and lifespan.

The potential possibilities of storytelling beckoning from the future have manifested in the creation of an original research model in the present. This model aims to close a theoretical gap as a tool for better understanding the music of contemporary and future open-world video games, and by virtue of the process, making the virtual actual.

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Appendix 1: 'Mission Complete Stinger' Transcription

Mission Complete Stinger

From *Grand Theft Auto III*

Craig Connor
Transcribed by Barnabas Smith

$\text{♩} = 100$

Harpsichord

Electric Guitar

Bass Guitar (dropped tuning)

Drum Set

$\text{♩} = 100$

Detailed description: This block contains the first four measures of the 'Mission Complete Stinger' transcription. It features four staves: Harpsichord, Electric Guitar, Bass Guitar (dropped tuning), and Drum Set. The key signature is three sharps (F#, C#, G#) and the time signature is 4/4. The tempo is marked as quarter note = 100. The Harpsichord part is mostly silent, with some notes in the bass clef. The Electric Guitar and Bass Guitar parts have a driving, rhythmic feel. The Drum Set part features a consistent pattern of eighth notes and quarter notes.

3

Hpsd.

E. Gtr.

Bass

Dr.

Detailed description: This block contains measures 5 through 8 of the transcription. It features four staves: Hpsd. (Harpsichord), E. Gtr. (Electric Guitar), Bass, and Dr. (Drum Set). The key signature and time signature remain the same. The Harpsichord part has more activity in the bass clef. The Electric Guitar and Bass parts continue their rhythmic patterns. The Drum Set part maintains its consistent pattern.

Appendix 2: Reduced 'Welcome to Los Santos' Transcription

Welcome to Los Santos
(Reduced Transcription of *Grand Theft Auto V* Opening Chromatic Version)

Tangerine Dream, Woody Jackson
The Alchemist, Oh No & DJ Shadow
Transcribed by Bernhard Stahl

The score is a reduced transcription of the opening of 'Welcome to Los Santos' from Grand Theft Auto V. It features the following instruments and parts:

- Solo muted Trumpet in Bb:** Plays a melodic line with a chromatic scale in the first measure.
- Synth Brass:** Provides harmonic support with sustained notes.
- Trumpet in Bb:** Plays a rhythmic pattern.
- Alto Saxophone:** Plays a melodic line.
- Rhodes (synth):** Provides a harmonic accompaniment.
- Piano:** Provides a harmonic accompaniment.
- Electric Guitar:** Plays a melodic line.
- Electric Bass:** Provides a rhythmic accompaniment.
- Drum Set:** Provides a rhythmic accompaniment.
- Synth Hand Clap:** Provides a rhythmic accompaniment.
- Bongo Shaker:** Provides a rhythmic accompaniment.
- West Claves:** Provides a rhythmic accompaniment.
- Koto-toms:** Provides a rhythmic accompaniment.

The score is in 4/4 time and features a chromatic scale in the first measure. The tempo is marked as 120 BPM. The score is a reduced transcription of the original recording.

71 *soft music*

Trpt

Sax Br

Trpt

Alto Sax

Rhodes

Pno

L. Gtr

L. Bass

Dr

Cmp

Striker

W/Ch

Bass

U-ee-er U-ee-er U-ee-er U-ee-er

with wah-wah

The musical score is arranged in a standard jazz ensemble format. It features a vocal line at the top, with the lyrics "U-ee-er U-ee-er U-ee-er U-ee-er" written in a stylized font. The instruments are listed on the left side of the score: Trpt (Trumpet), Sax Br (Trombone), Trpt (Trumpet), Alto Sax, Rhodes, Pno (Piano), L. Gtr (Lead Guitar), L. Bass, Dr (Drums), Cmp (Cymbal), Striker, W/Ch (Wah Pedal/Chorus), and Bass. The score includes various musical notations such as notes, rests, and dynamic markings like *soft music* and *with wah-wah*. The piece is marked with a rehearsal cue "71" and a first ending bracket.

1st

Ten 1

Ten 2

Sop Sax

Alto Sax

Bar Sax

Piano

L. Bass

L. Git

Dr

Cym

Snare

W/DB

DB

3

Appendix 3: Setup Array Description.

Personal Computer

Operating System:	Windows 8.1; Windows 10
Central Processing Unit:	Core i7 4790 3.6GHz (Intel)
Graphics Card:	XFx Radeon R9 295X2 8GB (AMD)
Motherboard:	Fatal1ty H97 Performance Motherboard (ASRock)
Memory:	Blitz 1.1 Gaming Dragon 16GB DDR3 (Avexir)
Solid-State Drive:	850 EVO 250GB (Samsung)

Peripherals

Monitor:	34UC97 34in Curved UltraWide IPS Monitor (LG)
Keyboard:	K95 RGB Mechanical Gaming Keyboard (Corsair)
Mouse (Logitech):	G502 Proteus Core Tunable Gaming Mouse
Controller (Microsoft):	Xbox One Controller & Cable for Windows
Speakers:	Z906 5.1 Surround Sound Speaker System, THX, Dolby Digital and DTS Digital Certified, 500 W RMS, Frequency Response 35 Hz–20k Hz (Logitech)