When You Start Playing, Start Listening!

The Use of Composed and Pre-Composed Music in Video Games

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Abstract

In the early years of video games their musical soundtracks were mainly composed of classical music, adapted to the medium on which it was programmed. With the evolution of these media, it became possible to compose music specifically for the video game. This does not mean, however, that only composed music is used for video games since then. This thesis analyses two video games: *Assassin's Creed II*, which uses composed music, and *Grand Theft Auto: Vice City*, which uses pre-composed music. These video games are analysed on their uses of music and the effects these different uses have. The literature review particularly builds on previous research on this subject, conducted by Karen Collins, combined with several theories from ludomusicology as well as film studies.

Both uses of music were found to act as a soundscape. The pre-composed music was used in a different way than the composed music: composed music could be adapted more effectively to the style and feeling of play than pre-composed music, whereas pre-composed music can more easily be used for sales purposes.

When You Start Playing, Start Listening!

Introduction

The videogame industry has a lot of common ground with the film industry: video games have become more and more cinematic and they have a global revenue to match. The soundtrack plays a big part in this cinematic feeling, as some games have music compiled from existing songs,[1] while others have a lead composer for a completely original score,[2] whether that be orchestral or electronic.

The first ever electronic video games did not use any sound at all. One of the first and most famous electronic video games that used sounds to a very limited extent, was the arcade game *Pong* (Atari, 1972).[3] Composing music for arcade games was hard, because only a limited amount of memory was available in addition to the memory occupied by the game itself. Continuous music began being included in games from around 1980, with the invention of sound chips, which made it easier to include background music and elaborate sound effects.[4] Composing music was difficult, though, because it had to be written in code.[5] This is why game developers began using pre-composed music like classical music,[6] which was not copyrighted as carefully during that time. Copyright and licensing began gaining importance in the late 1980s and early '90s, which made using pre-composed more complex.[7] These sound chips developed further, through the home console for example, eventually using MIDI technologies[8] to create more polyphonous music. This enabled developers to produce smaller audio files, and various instruments were compatible in a standardised format,[9] which made it easier for them to compose their own video game music. With a follow-up of this chip in the late 1980s, the 16-bit system, came the turning point from which video game music 'was no longer viewed as an afterthought'.[10] Around the 1990s, the possibilities

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[1] From now on referred to as pre-composed music.

[2] From now on referred to as composed music.

[3] Karen Collins, "Push Start Button: The Rise of Video Games," in *Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design* (Cambridge, MA: The MIT Press, 2008), 9.

[4] Ibid., 12.

[5] The programming code in which computer programs are written. Because this is unfamiliar to musicians, writing music in assembly language was (is) a difficult job.

[6] Melanie Fritsch, "History of Video Game Music," in *Music and Game: Perspectives on a Popular Alliance*, ed. Peter Moormann (Wiesbaden: Springer VS, 2013), 14.

[7] Karen Collins, "Synergy in Game Audio: Film, Popular Music, and Intellectual Property," in Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design (Cambridge, MA: The MIT Press, 2008), 114-115.

[8] Short for Musical Instrument Digital Interface. A technique that allows for computers, a wide variety of electronic musical instruments and other audio devices to connect and communicate in real-time.

[9] Karen Collins, "Insert Quarter to Continue: 16-Bit and the Death of the Arcade," in *Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design* (Cambridge, MA: The MIT Press, 2008), 50.

[10] Collins, "Synergy in Game Audio," 59.

of composing music for video games expanded with 32-bit audio. The development of surround sound also influenced the way video game music was approached: this made it possible to create a three-dimensional atmosphere for the player,[11] which increased the immersion of a video game. Today, this still seems to be the main goal of composed music in video games. With the increasing cinematic approaches in video games, the game audio has to create a certain soundscape, which enables the player to become emotionally connected to the game and the character which portrays him.[12]

Using pre-composed music still is a used practice in the field of video games, but it is not as common as using composed music. The main interest of this research came from reviews on *Grand Theft Auto: Vice City*[13] (Rockstar Games, 2002) and *Assassin's Creed II* (Ubisoft, 2009) regarding their music. This critic states the following, regarding *GTA: Vice City*:

> Suffice it to say that there are hours upon hours of recognizable radio hits from all genres of '80s music on this soundtrack, so even if you never touched the game's controls, you'd practically be getting your money's worth out of this game just by virtue of its [sic] being an excellent compilation of '80s tunes.[14]

From this excerpt it almost seems like the music is more positively received than the game itself. An important part of this is that the player knows the music beforehand, and regards it as good music, which makes him appreciate the game more.

The appreciation of *Assassin's Creed II*'s musical soundtrack seems to be on a different level than *GTA: Vice City*'s. *Assassin's Creed II* is considered a great game, and the music—and sound in general—is considered to add to its value:

> The sound represents one of the biggest upgrades [compared to *Assassin's Creed I*], due to the superior voice acting, better balance in the surrounding effects, and a slightly more effective soundtrack. (…) And while I continue to think the soundtrack should assume a more prominent role in these games, it remains fitting and superbly composed. (…) [I]t all

[11] Karen Collins, "Press Reset: Video Game Music Comes of Age," in *Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design* (Cambridge, MA: The MIT Press, 2008), 64.
[12] Kristine Jørgensen, "Left 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), 171.
[13] From now on referred to as *GTA: Vice City*.
[14] Greg Kasavin, "Grand Theft Auto: Vice City Review," Gamespot, last modified May 23, 2003, accessed July 4, 2017, url: https://www.gamespot.com/reviews/grand-theft-auto-vice-city-review/1900-6028854/.

gels to provide us with a truly believable environment. The sound has a lot to do with atmosphere.[15]

These reviews created a discussion: which is better for the player's experience of the game? What differences do pre-composed and composed music cause in the player's experience or in the game overall? The main research question of this essay will therefore be the following: in what way do the functions of pre-composed music and composed music differ during gameplay?

This research will use the two games mentioned above as case studies to outline differences in the use of composed and pre-composed music in video games, being *GTA: Vice City* and *Assassin's Creed II*. It looks further into what Karen Collins started in her book *Game Sound: An Introduction to the History, Theory and Practice of Video Game Music and Sound Design*. This will therefore be the main starting point of this research. Where Collins only mentions composed and pre-composed music in relation to the history of video game music and the functions of game music separately, these will be combined in this research. This thesis will be a more in-depth research of the use of composed and pre-composed music and their functions in video games. Because the field of game studies is a relatively new academic discipline, scholars, as well as game developers, could profit from this research and use it to better understand the possibilities of using pre-composed and composed music in their video games, as well as the influence of both on players.

This research will be conducted using a literature review, using film and video game music theories. First, theories from within film studies and game studies—ludomusicology specifically—will be introduced, as well as a short history of game music. The analysis of two case studies using pre-composed and composed music will follow.

At first sight, the use of pre-composed music in contemporary video games seems to be mostly genre-defined. It seems to be mostly the video game genre of sandboxes[16] that uses pre-composed music. Composed music does not seem to be genre-defined. Therefore, case studies from the same genre will be researched, to keep the differences of the case studies to a minimum.

The case studies that will be used to compare, are the video game *GTA: Vice City* and *Assassin's Creed II*. These video games are both based in an open world and can both be seen as action-adventure games. The games are thus as similar as possible in genre. Furthermore, they were selected because both of them had an official soundtrack released alongside the videogame on a CD or digitally, which makes the exact audio files used in the game more accessible. The key difference is that *GTA: Vice City* takes place in a fictionalised version of an American city in the 1980s, and

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[15] Ben Dutka, "Assassin's Creed II Review," PSXExtreme, last modified November 18, 2009, accessed July 4, 2017, url: http://www.psxextreme.com/ps3-reviews/315.html.

[16] Open-world video games in which the player can freely roam and can do whatever they please.

you can hear songs from that era in the environment. *Assassin's Creed II* takes place in fifteenth-century Italy and uses an original orchestral score. These case studies will be analysed on the use of their music during gameplay. The main purposes of the music will be considered, and the results will be discussed.

Video Game Music and Film Music

Video games are very different from other forms of cultural media. Few other media allow the user to interact directly and influence the story and gameplay. The player can also advance the game to their own liking—they can spend their desired amount of time in each area, for example.[17] This is why many scholars[18] warn us to act cautiously when it comes to theoretical imperialism and the 'colonisation of game studies by theories from other fields'.[19] Although games are indeed very different from other cultural media, there are some similarities with films in particular. Cinematics, full motion video (FMV),[20] and non-interactive sequences[21] are elements from films often used in video games as well.[22] This is why theories on film music will be applied in this research, combined with several theories derived from ludomusicology. These theories will be mentioned and explained below.

Because the use of pre-composed music in film has been around for more than fifty years now, many various forms of research in this field have been conducted. Because the field of ludomusicology is very young, a lot of these theories have not been researched in relation to video game music.

Film Music Theories

Film studies include plenty of theories concerning film music. Film music is used to fulfil several functions.[23] To some extent, these functions are also applicable to video games. The reasons why

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[17] This is the case with the analysed case studies, which are open-world games. Not every game allows the player to be equally as free.

[18] Gonzalo Frasca and Espen Aarseth for example.

[19] Aphra Kerr, *The Business and Culture of Digital Games: Gamework/Gameplay* (London: Sage, 2006), 33.

[20] FMV refers to a technique that relies on scenes that are recorded beforehand, using actors. The actor's movements are later used to animate video game characters. This technique is used for cutscenes in particular.

[21] Scenes in which the player cannot influence the video game, like cutscenes.

[22] Karen Collins, "Games Are Not Films! But…," in *Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design* (Cambridge, MA: The MIT Press, 2008), 5.

[23] Traditionally, to convey (1) setting; (2) psychology; (3) as a background filler; (4) structure; (5) continuity, and; (6) directionality. Aaron Copland, "Tip to Moviegoers: Take off Those Ear-Muffs," in *Aaron Copland: A Reader: Selected Writings 1923-1972* (New York [etc.]: Routledge, 2004), 104-111.

directors began using pre-composed music in their movies around the 1960s could be applicable to video games as well.[24]

Anahid Kassabian describes film music soundtracks as either compiled or composed. Compiled soundtracks consist of pre-composed music, while composed soundtracks consist of only composed music. Kassabian assigns different forms of identifications to these two types of soundtracks.[25] Compiled soundtracks offer affiliating identifications.[26] Because songs used on compiled soundtracks have possibly been heard before by the perceivers, their external associations will be brought into play.[27] These affiliating identifications can also result in consumers buying or playing a video game because of the pre-composed music it uses as its soundtrack.

Composed soundtracks offer assimilating identifications.[28] With these assimilating identifications 'perceivers can easily find themselves positioned anywhere'.[29] There is no relationship between these perceivers, their histories and the identity positions they take in.[30]

Ludomusicology

The relationship between music and play is nowadays commonly referred to as "ludomusicology".[31] The term is not universally embraced yet, but that is a discussion too large for this research. The term will be used to analyse the relationship between video game music and gameplay.

Ludomusicologist Isabella van Elferen describes the importance of music in computer game immersion in her book *Gothic Music: The Sounds of the Uncanny*.[32] Game music combines several elements of television music and film music. Television music elements are mostly extra-diegetic sounds[33] in the surroundings of the game narrative. These extra-diegetic sounds are mostly used to signal the start or ending of a chapter, a victory or a death.[34] The film music elements are leitmotifs

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[24] An economic reason; to sell more records and to draw a larger audience; to appeal to a certain audience; average age of producers, directors and other movie-creating staff goes up, while the audiences get younger. Movie-creating staff easily give into hypes and fashion to try and keep up with their audience. David Raksin, "Raksin on Film Music" in *Journal of the University Film Association* 26 (1974).

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

[26] Anahid Kassabian, "5: Opening Scores," in *Hearing Film: Tracking Identifications in Contemporary Hollywood Film Music* (New York, NY: Routledge, 2001), 139.

[27] Anahid Kassabian, "Listening for Identifications - A Prologue," in *Hearing Film: Tracking Identifications in Contemporary Hollywood Film Music* (New York, NY: Routledge, 2001), 3.

[28] Anahid Kassabian, "Tracking Identifications - An Epilogue," in *Hearing Film: Tracking Identifications in Contemporary Hollywood Film Music* (New York, NY: Routledge, 2001), 141.

[29] Kassabian, "Listening for Identifications," 2.

[30] Ibid.

[31] Michiel Kamp, Tim Summers and Mark Sweeney, "Introduction," in *Ludomusicology: Approaches to Video Game Music* (Sheffield, UK ; Bristol, CT : Equinox Publishing, 2016), 1.

[32] Isabella van Elferen, "Gothic Game Music: Hyperreality Haunted," in *Gothic Music: The Sounds of the Uncanny* (Cardiff: University of Wales Press, 2012), 105.

[33] Sounds that are only audible for the player and not for the in-game character.

[34] Van Elferen, "Gothic Game Music," 105.

and Mickey Mousing,[35] anchorage to the screen and a 'suturing together of jump cuts, scene changes and fast edits'.[36] All this results in an immersive experience for the player into both the game plot and play.[37]

Music in video games is often location-specific and within these locations the music is mostly played in loops.[38] This is one of the key differences from television music. Because the length of a track cannot be matched to the time a player moves through a location or the game itself, composers often avoid cadences that musically suggest closure. These are only heard when missions are accomplished or when specific chapters end. The music the player hears during gameplay depends on the game's progress, therefore 'the music has to be dynamic and flexible enough to underscore or even anticipate the constant changes in the game narrative'.[39]

Karen Collins explains that games can be used to promote and sell music, which is the most common reason why pre-composed music is used in video games.[40] She also supports Kassabian's film music theory of compiled soundtracks having affiliating identifications, by explaining the semiotic implications the use of pre-composed music brings.[41] Collins mentions the issues of using pre-composed music in video games as well, as they cannot be adapted to gameplay, limiting their use to cinematics such as cut-scenes, title themes and credits.[42] She explains that the genres in which pre-composed music can be used appropriately are also limited.[43] Collins says she thinks it is a big mistake to think that people will be buying a game just because a certain band has contributed to it, because they will buy it for the quality. Songs applied in an incorrect way, creatively, will lessen the appeal of the game.[44]

Soundscapes versus soundtracks

The term soundscape was introduced by R. Murray Schafer, a Canadian composer and environmentalist. He described three elements of soundscapes: soundmarks, sound signals and keynote sounds.[45] Wang and Deng go into detail, linking soundscapes with music. They say that, in relation to music, a soundscape can be defined as a piece of music that emphasises local, temporal,

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[35] A way of synchronising music with movements on screen.
[36] Van Elferen, "Gothic Game Music", 105, and Claudia Gorbman, *Unheard Melodies: Narrative Film Music* (Bloomington, IN: Indiana University Press, 1987).
[37] Van Elferen, "Gothic Game Music," 105.
[38] Ibid., 105-106.
[39] Ibid., 107-108.
[40] Collins, "Synergy in Game Audio," 111.
[41] Ibid., 118.
[42] Ibid., 119.
[43] Ibid.
[44] Ibid., 122.
[45] Yun Wang and Zhiyong Deng, "Soundscape: In the View of Music" (paper presented at Internoise conference, Osaka, Japan, September 4-7, 2011): 1, accessed May 2, 2017, url: https://www.researchgate.net/publication/267323524_Soundscape_In_the_View_of_Music.

eco-environmental or culture environmental aspects. The use of environmental sounds alone is no criterium for a soundscape.[46]

Soundscape music can be divided into three categories: music as soundscape,[47] soundscape samples in music[48] and raw soundscape as music.[49] As such, the term soundscape differs from a soundtrack in several key ways. It is important to note the two terms signify vastly different things, even though clear definition of either term is sometimes missing.

The ultimate goal of soundscape music remains the same through all of the three categories described above: 'to relax, energize and expand the soul with this rich mix of new age, atmospheric, and world-positive music, and to enhance listeners' sensitive [sic] to sounds.'[50]

The word soundtrack is an ambiguous one: mainly film music scholars use it to either address all sounds, vocals and music that appear in movies or to just refer to the music that is used in the medium that is concerned. In this research, however, only the music that is used in the game will be addressed. To prevent confusion, the term musical soundtrack will be used in this research.

Especially with regard to video games, the term soundtrack is used quite often. 'Soundtrack' often refers to music that is pre-composed, whereas composed music is referred to as being the score of the video game.

Composed Music in *Assassin's Creed II*

Assassin's Creed II's music mainly seems to serve to convey the time period in which the game is set, as well as differences in quest lines and time pressure. The score consists of vastly differing tracks, consisting of sounds and elements from different time periods. There is a main theme that can be heard several times throughout the tracks in different arrangements (Figure 1), but other specific riffs or leitmotifs appear to be absent.

Figure 1: Returning (main) theme.

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[46] Ibid.

[47] Music as soundscape is focused on musicality: unique sound effects and instrumentation are considered important to achieve a sense of localisation and time identifiability. Wang and Deng, "Soundscapes In the View of Music," 3.

[48] Musicality is considered less important in this case. Unique sound materials to emphasise time identifiability and localisation are considered the most vital. It differs from 'music as soundscape' in a very minimal way: the focus of this category is on identifiability and localisation, instead of musicality. Wang and Deng, "Soundscapes In the View of Music," 3.

[49] The focus lies entirely on localisation and time identifiability, by applying 'natural sound and voice (…) into composition'. Wang and Deng, "Soundscapes In the View of Music," 3.

[50] Wang and Deng, "Soundscapes In the View of Music," 4.

Assassin's Creed II's musical soundtrack is a mix of certain medieval-sounding elements and Arabic influences, combined with electronic sounds like electric guitars. These portrays the story of the game. At the start of the game, the player[51] is introduced to Desmond Miles, who lives in the twenty-first century and who eventually relives memories of his ancestor Ezio Auditore da Firenze through an advanced piece of technology called an Animus. These memories take place in Italy and follow the century-old struggle between the Knights Templars and the Assassins, which is only partly fictional. The music underlines the travel through time that Desmond experiences, through the contrast between the medieval music and instrumentation and the electric sounds: both portray a different time period portrayed in the game. The Arabic sounds, on the other hand, refer to the Knights Templar, who were based in Jerusalem.

The focus of the music is to give players a sense of time and place and to underline the conflicts going on at that time. *Assassin's Creed II*'s score can therefore be seen as a soundscape as described by Wang and Deng and can be classified in the second category: soundscape samples in music. Musicality is a focal point in the music: it is composed using contemporary instrumentation, combined with electronic sounds to achieve an unconventional sound that emphasises the setting of the video game. Musicality does not seem to be the main focus: the music is used to convey a sense of time to the player.[52] This can be achieved because of players' assimilating identifications considering a composed score, according to Kassabian.[53] Assimilating identifications allow the listener to 'find themselves positioned anywhere',[54] which made it possible to compose music that makes the player feel like it is positioned in fifteenth-century Italy, in either a dangerous or a safe situation.

Several tracks of *Assassin's Creed II*'s score are more neutral. Electronic sounds and influences from the Arabic and middle ages are not as apparent. These tracks seem to be bound to specific quests, places or events. This feeling started during gameplay and was confirmed by titles like 'Approaching Target 1' and 'Florence Escape'.[55]

Open World Gameplay[56]
While playing in the open world, and just walking around or climbing, music is location-based. This location-theme is a relatively long piece that is played in its entirety, but not in a loop: after the

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[51] From this point on, the player's experiences will be my own.
[52] Copland, "Tip to Moviegoers," 104-111.
[53] Kassabian, "Tracking Identifications," 141.
[54] Kassabian, "Listening for Identifications," 2.
[55] Full tracklist of *Assassin's Creed II* listed in the appendix.
[56] Based on open-world gameplay set in Florence.

piece ends, there is no music at all for a while, until event-based music—like battle music—is triggered or until the location theme starts again.

The music that is triggered by events, like becoming notorious or starting a battle, does play in a loop. This coincides with van Elferen's description about how video game music is applied during gameplay: it plays in a loop, because the player is free to roam and spend time in whatever location the player decides.[57]

The location-based music changes once Ezio upsets the guards and becomes notorious: it uses cinematic elements like stingers[58] to change to the 'Notorious'-theme. This theme plays in a loop and aims to set a tense atmosphere. The plucked guitar strings are accompanied by percussion and later on strings are added to further emphasise the mystery and suspense. The dissonance of the strings also serves the purpose of creating an uneasy feeling for the player.

This piece is composed in D and plays a continuous, droning D in the bass. It uses an unresolved chord progression with four chords total in this short piece of music, which adds to the
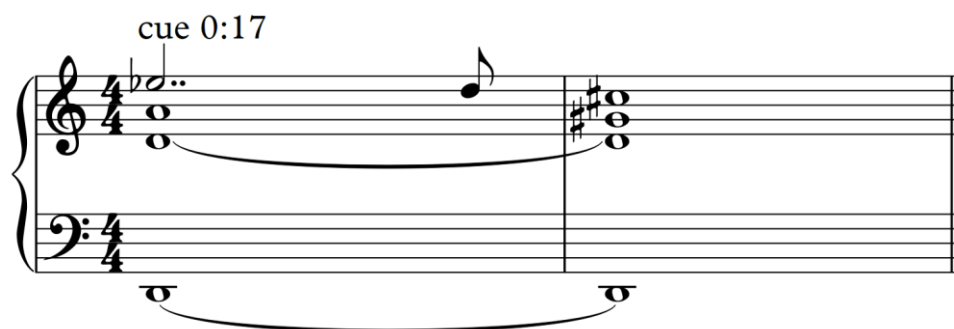

Figure 2: First string part in 'Notorious'.

feeling of tension. The first two chords of the piece, starting at 17 seconds in, can be seen in Figure 2. The first chord can be identified as a major ninth without the third.[59] The omission of the third creates uncertainty for the listener as to whether this is a major or minor chord. From this chord, the fifth and ninth lower to create a diminished major seventh chord. This creates a very dissonant harmony, as it creates a tritone on top of the D with the Ab and a seventh with the C#, which both sound very dissonant and thus reinforce the feeling of unease and tension the music tries to convey.

In Figure 3[60] the last two chords, starting at 30 seconds in, are transcribed. As can be seen, this chord progression goes from a half-diminished seventh to an augmented triad with an added ninth. As both of these chords are composed of dissonant intervals again, these chords also increase the feeling of tension, coinciding with the idea that the player is being hunted.

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[57] Van Elferen, "Gothic Game Music," 105.
[58] Sudden, sharp and short audio signals to get the attention of the viewer/player.
[59] Because of this, it is unclear if this is supposed to be a major or minor chord. This could have been done on purpose by the composer, to once again create a feeling of tension.
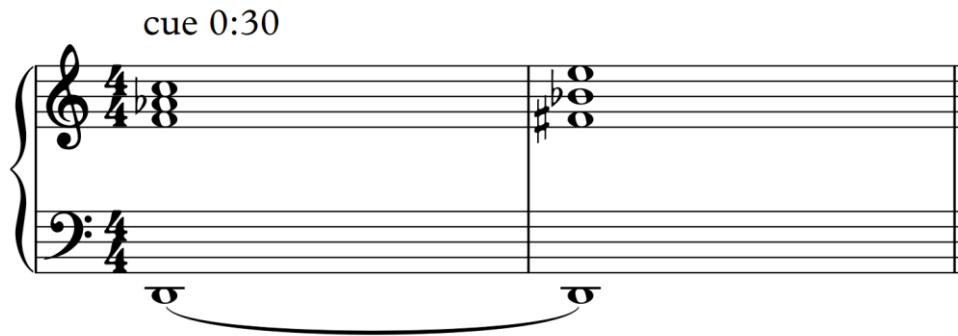[60] Thanks to Manuel Gutierrez Rojas for transcribing 'Notorious'.

Figure 3: Second string part in 'Notorious'.

Because of the unconventional—but still tonal—chords and the droning D in the bass, the feeling of tonality is maintained. This allows for the piece to sound exciting, because our ears are used to the tonal system and are expecting resolution here. Because these chords remain unresolved, and because of the use of ostinato, this music can be played in a loop. The used chords are all variations of the D chord, the main key, not using an apparent cadence, coinciding with van Elferen's description of game music played in loops.[61] Neither the sound nor the rhythm of this piece changes, which is also a reason that this can easily be looped.

When Ezio escapes and becomes anonymous again, the music changes back to its original location-theme: 'Home in Florence' fades in and takes over. This fade-in is possible because both pieces use the D as a drone in the bass. 'Home in Florence' starts with an ambient sound of several keyboard parts playing in seemingly random loops. Harps and strings follow and soothe the piece with a choral pad. When this theme comes to an end, there is no music until a new theme is triggered through gameplay, or if no such trigger happens, the same theme starts five minutes later. The changes in rhythm and instrumentation could be the reason that the piece is not played in a loop. It could also be a decision from the producers based on gameplay, for example the thought that the player has to go a long time without triggering a music-linked event, which is nearly impossible.

Fight Scene Gameplay[62]

The adaptiveness of the music also applies when Ezio joins a fight: the location-based music changes to the battle theme, which is a more on-edge composition that makes the player more aware of the danger Ezio is in. While in Florence, the location theme that is played is 'Home in Florence' and the battle theme is 'Back in Venice'. The location theme fades out and simultaneously the battle theme fades in. They fade seamlessly because they share a tonal center around D. The tranquillity

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[61] Van Elferen, "Gothic Game Music," 107-108.
[62] Based on a fight scene set in Florence.

of the location theme makes the battle theme stand out even more. The more up-beat composition and quick plucking of strings of the battle theme makes the player feel more alert.

When the battle ends, the battle theme does not change back to the location theme, as would be expected. Instead, the music remains absent for a while, until it eventually fades back in to the location theme while simply roaming, or to the theme music corresponding to certain events.[63]

Pre-Composed Music in *Grand Theft Auto: Vice City*

GTA: Vice City takes place in 1986 in Vice City, a fictional town based on Miami, Florida. The player plays as Tommy Vercetti, a member of the Mafia who needs to act as a buyer for several cocaine deals. *GTA: Vice City* mainly uses pre-composed music, except for the main theme that was composed specifically for the game. This theme is only used in the opening intro and following menu. During gameplay, music in *GTA: Vice City* is completely diegetic, and thus is audible to the in-game character. This approach deviates from the music in most video games, which is mostly non-diegetic.[64] The soundscape consists of traffic noise and talking passers-by, and music playing in shops. When in a car or otherwise having access to a radio, the player can choose to play his own choice of music from several fictional radio stations, which play different tracks from the 1980s.[65] The music is mainly used to set a certain time period, and not to adapt to the player's play or quests the player activates. *GTA: Vice City*'s music is used as a kind of soundscape, and can be classified in the first category: music as soundscape. Musicality is important because the recognisable '80s-sound is used to create a feeling of time and place.

Using pre-composed music or a compiled musical soundtrack offers affiliating identifications.[66] Players have likely heard the song before, and thus bring their own associations into play.[67] These affiliating identifications can be used to attract song or artist enthusiasts to buy the game, for example, which was also the case when film makers started using pre-composed music in their movies.[68] Consumers who have negative connotations to the pre-composed tracks used in the video game, however, will bring these negative connotations with them while playing the game.[69]

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[63] Although this deserves an analysis on its own, this will have to be done in a different paper.
[64] Kiri Miller, "Jacking the Dial: Radio, Race, and Place in San Andreas," in *Playing Along: Digital Games, YouTube, and Virtual Performance* (New York: Oxford University Press, 2012), 55.
[65] Full list of *GTA: Vice City*'s radio stations and musical soundtrack listed in the appendix. Radio Espantoso, the Spanish radio station, is the only one playing music from other eras besides the '80s.
[66] Kassabian, "5: Opening Scores," 139.
[67] Kassabian, "Listening for Identifications," 3.
[68] Raksin, "Raksin on Film Music."
[69] Collins, "Synergy in Game Audio," 118.

Open World Gameplay

During open world gameplay, there is no music at all in *GTA: Vice City*. Diegetic sounds are present, like a police communication radio, people talking and cars driving by. Music is only played when the player chooses to play the radio when the player's character, Tommy, is in a car and thus has access to the car radio, when walking by a store that plays music or in various cutscenes while the player advances the story.

Fight Scene Gameplay

When engaging in a fight in *GTA: Vice City*, there is still no music being played: the player only hears diegetic sounds from the environment, like screaming bystanders, and the actions they take as a player, like firing a gun. There is no extra emotional layer apparent, induced by musical or other extra-diegetic sounds.

On occasion, there is music playing during a fight. For example, when there are shops around that play music. This way, the music can alter the experience of a fight for the player, depending on which music is playing and the player's identification with that music. It is not possible for the player to choose his own music during a fight, for the music played on the car radio stops the moment the player steps out of the car and engages in the fight.

Discussion: Comparing Goals

The two selected video games provide interesting yet difficult to compare case studies. Both were selected on the basis of being action-oriented and based in an open world which does allow for some comparison, because the gameplay doesn't differ too much, and a lot of comparable situations can be created.

As seen in the analysis, the use of music in both case studies was very different. *GTA: Vice City*'s music is primarily used as a soundscape, to emphasise the feeling of being in the '80s. Pre-composed music is not easily adaptable, which results in one of the biggest differences between the two case studies: music in *Assassin's Creed II* is looped, which is impossible in *GTA: Vice City*. The composed music of *Assassin's Creed II* generally has no climax, but *GTA: Vice City*'s pre-composed music adheres to common pop standards and has sections like verse, chorus and bridge. The climax that comes naturally when using such standards prevents it from being adaptable to the player's actions.[70] Pre-composed music can still be used to fit the situation, and the game developers draw attention to the influence the music can have on the player's experience by giving

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[70] Van Elferen, "Gothic Game Music," 107-108.

them the possibility to control the music.[71] The player can choose music he is comfortable with while casually driving around town, and more up-beat music while in a car-chase, choosing music that matches their own emotions.[72] But because of the unpredictability of a radio station, music and gameplay can clash sometimes, altering the experience of the player. This has also to do with the affiliating identifications players have with pre-composed music. Because of these, the same track can evoke different emotions in individuals, making their experience of the gameplay unique. Some players would normally not listen to the provided music in the video game, but because this is made the only possibility for them, they do. Some reasons for this could be the argument "the avatar would listen to this music," [73] thus heightening the immersion for the player.

Both the music and the fact that the player can influence it is well appreciated by both critics and users, while aspects like graphics and gameplay are often criticised.[74] Sometimes, the musical soundtrack is enough for people to make them like the entire game better. [75] This implies *GTA: Vice City*'s musical soundtrack could be considered a main reason for buying the game, something producers should be wary of, according to Collins. She argues that the music of a game should not be considered a stimulating factor for consumers to buy a video game.[76] She grounds her statement on theories regarding films using pre-composed music but lacks a certain amount of depth in the foundation of her argument. She does not consider video games solely based on music, for example. Sales of musical games like *Singstar* (London Studio, 2004-2014) and the *Guitar Hero* series (2005-2015) are greatly influenced by their musical soundtracks and to what extent it appeals to the target group. That this approach should not be taken by games like *GTA: Vice City*, seems unreasonable. The direct musical interaction in *GTA* that is created by enabling the player to choose music to their liking is comparable to the use of music in *Guitar Hero*, and this aspect is part of the reason for its popularity.[77] Using popular music is an efficient sales mechanic, but it is also used as a form of cultural appropriation of the time.[78] Tim Summers states:

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[71] Miller, "Jacking the Dial," 55.
[72] Ibid., 56.
[73] Kiri Miller, "Chapter 2," in *Playing Along: Digital Games, YouTube, and Virtual Performance* (New York: Oxford University Press, 2012).
[74] Based on critic and player reviews found on http://www.metacritic.com/.
[75] Kasavin, "Grand Theft Auto: Vice City Review."
[76] Collins, "Synergy in Game Audio," 121.
[77] 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, UK; Bristol, CT: Equinox Publishing, 2016), 38.
[78] Tim Summers, "4| Music and Virtual Game Worlds," in *Understanding Video Game Music* (Cambridge: Cambridge University Press, 2016), 94.

"In many cases, the musical selections in games are chosen, or written, to imply that the fictional universe projected by the game has some connection to actual world history, adding weight to an otherwise impermanent world that normally ceases to exist whenever the game application is closed."[79]

The music in *GTA: Vice City* is used to make the fictional setting of Vice City feel more real, by using the music we all know from our real world. The fact that the player can directly interact adds to this immersion into the virtual world as well, making it almost feel more reachable or touchable. The interactivity and ability to choose his own music, makes the player feel freer: he is not "told" what to do by the music.[80]

Assassin's Creed II uses its music to create an extra emotional layer on top of the soundscape it creates. It clarifies what happens on screen: when you are notorious and guards are looking for you, the music brings this to your attention, in combination with a few visual cues that could be interpreted differently were the music absent. This coincides with the guiding function music can have in video games, found by Tim Summers as well as Isabella van Elferen.[81] Video game music is used as a form of communication about the game play, to tell the player when his avatar is in danger, when he's pressed for time or when everything's safe. Compared to the interactivity *GTA* allows their players to have with the music, composed and "guiding" music leaves the player less free to do what they want: he is always advised or coaxed into a certain direction by the intent of the music.

Composed music allows for this emotional layer to be created because it can be adapted to the gameplay: when in a fight, the music is different from when the player is just roaming.[82] This composed music also allows for the music to be played in a loop, although this only seems to be the case with the notorious and battle music. Because there is no musical climax or conventional cadence in the musical piece and it uses a constant rhythm, this music can be played in a loop. The location theme, however, does have a change in rhythm, instrumentation and ambience, which does not allow for it to be played in a seamless loop, which is why the producers added a 5-minute pause after the end of the location theme. It does, however, create a feeling of movement and progress.

What has been considered the main goal of *Assassin's Creed II*'s music—creating a soundscape in order to improve localisation and time identifiability—seems to have been achieved

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[79] Ibid., 95.
[80] Ibid., 105.
[81] Tim Summers, "5| Communication for Play," in *Understanding Video Game Music* (Cambridge: Cambridge University Press, 2016), 132, and Isabella van Elferen, "¡Un Forastero! Issues of Virtuality and Diegesis in Videogame Music," *Music and the Moving Image* 4, no. 2 (Summer 2011): 33.
[82] This is also found and analysed with regards to *Tom Clancy's Splinter Cell* (2002) by Tim Summers, "5| Communication for Play," in *Understanding Video Game Music* (Cambridge: Cambridge University Press, 2016)".

successfully. Sometimes, the music blends in so well the player does not even notice it. This can create a situation where the player is suddenly made aware, for example by stopping the music suddenly, which will make them retrospectively realise the music achieved its goal of fitting in with the game's setting perfectly.

Conclusion

"[M]usic can be said to quite literally represent a dimension of video games."[83] This is the sentence Tim Summers ends his fourth chapter of *Understanding Video Games* with. And I agree. Music can have many different functions in a video game: it acts as a soundscape, but can also be a very powerful sales tool, whether that be intentional or not.

Whereas music reviewers are often specialised in a certain repertoire and have little credibility when reviewing another, video game music critics generally review all sorts of video game music. If music can be seen as an entire different dimension, wouldn't it be better to study this dimension on its own as well, instead of solely in relation to the other aspects of a game? There are no critics or academics specialised in video games that use classical music, not even ones that will only review composed music, for example. By introducing such a system in the field of video game music, there could be even more in-depth analyses of specific video game music genres, which will make our understanding of the use and influences of different kinds of music even bigger than what it is now.

The two analysed case studies provide good examples of efficient and strong uses of music. Their music works in the video game itself, but also on its own, in my opinion. *GTA: Vice City*'s musical soundtrack of pre-composed music can be used for sales purposes, more than the composed music of *Assassin's Creed II* can. *Assassin's Creed II*'s music can, because of its adaptability, be used to underscore the player's actions more effectively. But while *Assassins Creed II*'s music takes the player by the hand, more or less, to lead him in his quests and accomplishments, the variability and the player's ability to influence the played music in *GTA: Vice City* allows him to experience the game on another level, mostly because of his affiliating identifications with the pre-composed music.

This research will hopefully prompt further studies according to the use of pre-composed and composed music in video games. Video game producers and composers should be involved in research regarding the intended goals of the video game music and the extent to which these goals are achieved, to continue making the music in video games a great influence and to further explore the possibilities music in video games can have.

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[83] Summers, "4| Music and Virtual Game Worlds," 113.

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Appendix I: *Assassin's Creed II* OST Tracks

Disc 1	1	Earth
	2	Venice Rooftops
	3	Ezio's Family
	4	Florence Tarantella
	5	Home in Florence
	6	Approaching Target 1
	7	Approaching Target 2
	8	Venice Fight
	9	Florence Escape
	10	Tour of Venice
	11	Flight over Venice 1
	12	Back in Venice
	13	Dreams of Venice
	14	Home of the Brotherhood
	15	Leonardo's Inventions, Pt. 1
	16	Venice Combat Low
	17	Venice Escape

Disc 2	1	Darkness Falls In Florence
	2	Sanctuary
	3	The Madam
	4	Approaching Target 3
	5	Flight Over Venice 2
	6	Ezio In Florence
	7	Venice Industry
	8	Stealth
	9	Venice Combat
	10	Notorious
	11	Night Mission In Venice
	12	Chariot Chase
	13	The Plague
	14	Wetlands Combat
	15	Wetlands Escape
	16	Leonardo's Inventions, Pt. 2
	17	Hideout
	18	The Animus 2.0

Appendix II: Radio stations and songs in *Grand Theft Auto: Vice City*

Wildstyle

Wildstyle is hosted by Mr. Magic and plays contemporary hip hop and electro music.

Trouble Funk - Pump Me Up (1982)

Davy DMX - One for the Treble (1984)

Cybotron - Clear (1983)

Hashim - Al-Naafiysh (The Soul) (1983)

Herbie Hancock - Rockit (1983)*

Afrika Bambaataa and Soul Sonic Force - Looking for the Perfect Beat (1982)*

2 Live Crew - Get It Girl (1986)

Run D.M.C - Rock Box (1984)

Mantronix - Bassline (1985)

Tyrone Brunson - The Smurf (1983)*

Whodini - Magic's Wand (1983)

Zapp & Roger - More Bounce to the Ounce (1980)

Grandmaster Flash and the Furious Five - The Message (1982)

Kurtis Blow - The Breaks (1980)

Man Parrish - Hip Hop, Bee Bop (Don't Stop) (Techno Remix) (1982)

Flash FM

Flash FM is hosted by Toni (voiced by Maria Chambers), and plays contemporary pop music.

Hall & Oates - Out of Touch (1984)

Wang Chung - Dance Hall Days (1984)

Michael Jackson - Billie Jean (1983)*

Laura Branigan - Self Control (1984)

Go West - Call Me (1984)

INXS - Kiss the Dirt (Falling Down the Mountain) (1986)

Bryan Adams - Run to You (1984)

Electric Light Orchestra - Four Little Diamonds (1983)

Yes - Owner of a Lonely Heart (1983)

The Buggles - Video Killed the Radio Star (1979)

Aneka - Japanese Boy (1981)

Talk Talk - Life's What You Make It (1986)

The Outfield - Your Love (1986)

Joe Jackson - Steppin' Out (1982)

The Fixx - One Thing Leads to Another (1983)

Lionel Richie - Running with the Night (1983) (PS2 version only)

Fever 105

Fever 105 is hosted by Oliver "Ladykiller" Biscuit (voiced by Julius Dyson) and plays soul, disco, quiet storm, funk and R&B.

The Whispers - And the Beat Goes On (1980)

Fat Larry's Band - Act Like You Know (1982)

Oliver Cheatham - Get Down Saturday Night (1983)

Pointer Sisters - Automatic (1983)

René & Angela - I'll Be Good (1985)

Mary Jane Girls - All Night Long (1983)

Rick James - Ghetto Life (1981)

Michael Jackson - Wanna Be Startin' Somethin' (1983)*

Evelyn "Champagne" King - Shame (1978)

Teena Marie - Behind the Groove (1980)

Mtume - Juicy Fruit (1983)

Kool & the Gang - Summer Madness (1975)

Indeep - Last Night a D.J. Saved My Life (1982)

V-Rock

V-Rock is hosted by Lazlow and plays hard rock and heavy metal.

Twisted Sister - I Wanna Rock (1984)

Mötley Crüe - Too Young to Fall in Love (1983)

Quiet Riot - Cum On Feel the Noize (1983)

The Cult - She Sells Sanctuary (1985)

Ozzy Osbourne - Bark at the Moon (1983)*

Love Fist - Dangerous Bastard (Unknown)

Iron Maiden - 2 Minutes to Midnight (1984)

Loverboy - Working for the Weekend (1981)

Alcatrazz - God Blessed Video (1985)

Tesla - Cumin' Atcha Live (1986)

Autograph - Turn Up the Radio (1984)

Megadeth - Peace Sells (1986)

Anthrax - Madhouse (1985)

Slayer - Raining Blood (1986)

Judas Priest - You've Got Another Thing Comin' (1982)

Love Fist - Fist Fury (Unknown)

David Lee Roth - Yankee Rose (1986)

Radio Espantoso

Radio Espantoso is a Spanish-language radio station hosted by Pepe (voiced by Tony Chiroldes) and plays Latin music.

Cachao - A Gozar Con Mi Combo (Let's Rejoice With My Combo) (1994)

Alpha Banditos - The Bull is Wrong (2002)

Tres Apenas Como Eso - Yo Te Miré (I Saw You) (2002)

Deodato - Latin Flute (1973)

Mongo Santamaría - Mama Papa Tú (Mom, Dad, You) (1969)

Mongo Santamaría - Me and You Baby (Picao y Tostao) (Chopped and Toasted) (1969)

Machito and his Afro-Cuban Orchestra - Mambo Mucho Mambo (Mambo Much Mambo) (1952)

Unaesta - La Vida Es Una Lenteja (Life Is A Lentil) (2002)

Lonnie Liston Smith - Expansions (1974)

Irakere - Añunga Ñunga (1980)

Deodato - Super Strut (1973)

Xavier Cugat and his Orchestra - Jamay (Nahuatl word, means 'adobe crafting place') (1955)

Benny Moré - Maracaibo Oriental (Eastern Maracaibo) (1957)

Tito Puente - Mambo Gozón (Enjoyable Mambo) (1958)

Emotion 98.3

Emotion 98.3 is hosted by Fernando Martinez (voiced by Frank Chavez) and features power ballads.

Foreigner - Waiting for a Girl Like You (1981)

Kate Bush - Wow (1979)*

Squeeze - Tempted (1981)

REO Speedwagon - Keep On Loving You (1980)

Cutting Crew - (I Just) Died in Your Arms (1986)

Roxy Music - More Than This (1982)

Toto - Africa (1982)

Mr. Mister - Broken Wings (1985)

John Waite - Missing You (1984)

Jan Hammer - Crockett's Theme (1984)

Night Ranger - Sister Christian (1984)

Luther Vandross - Never Too Much (1981)

Wave 103

Wave 103 is hosted by Adam First (voiced by Jamie Canfield), and features New Wave, pop and Synthpop music.

Frankie Goes to Hollywood - Two Tribes (1984)

Sigue Sigue Sputnik - Love Missile F1-11 (1986)

Gary Numan - Cars (1979)

The Human League - (Keep Feeling) Fascination (1983)

Blondie - Atomic (1980)

Nena - 99 Luftballons (1983)

Kim Wilde - Kids in America (1981)

Tears for Fears - Pale Shelter (1982)

Corey Hart - Sunglasses at Night (1984)

ABC - Poison Arrow (1982)

A Flock of Seagulls - I Ran (So Far Away) (1982)

The Psychedelic Furs - Love My Way (1982)

Animotion - Obsession (1985)

Spandau Ballet - Gold (1983)

Thomas Dolby - Hyperactive! (1984)

Romeo Void - Never Say Never (1982)

K-Chat

K-Chat is celebrity talk station hosted by Amy Sheckenhausen (voiced by Leyna Weber).

The following persons are interviewed:

Jezz Torrent

Michaela Carapadis

Pat "Mr. Zoo" Flannerdy

Gethsemanee Starhawk Moonmaker

BJ Smith

Claude Maginot

Thor

VCPR

Vice City Public Radio, abbreviated as VCPR, is hosted by Jonathan Freeloader (Patrick Olsen) and Michelle Montanius (Kelly Guest). The station's only program is called Pressing Issues, and is hosted by Maurice Chavez (voiced by Philip Anthony Rodriguez). Each segment focuses on a particular issue, with Chavez chairing a discussion between several guests on the issue.

Three such issues are broadcast within the game. They are:

> Morality
>
> Perception and Positive Thinking
>
> Public Safety

Other songs

During mission cutscenes some songs can be heard that are not featured on any of the radio stations:

> Modern English - I Melt with You (featured during the third Back Alley Brawl cutscene)
>
> Los Super Seven - Compay Gato (featured during the Naval Engagement cutscene)
>
> Los Super Seven - Campesino (featured during the Trojan Voodoo cutscene)
>
> Al Di Meola - Ritmo De La Noche (featured during the Bar Brawl scene)
>
> Big Country - In a Big Country (featured during the first cutscene of The Driver). Original PS2 version only, replaced by "The Message" by Grandmaster Flash and the Furious Five in all subsequent versions.
>
> Whodini - The Freaks Come Out at Night (featured during The Job cutscene, and also appears on Fresh FM in *Grand Theft Auto: Vice City Stories*).
>
> Blue Öyster Cult - Burnin' for You (featured during the Boomshine Saigon cutscene)