The Influence of Music on Immersion in Exploration-oriented Video Games

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Abstract

Research has outlined that immersion during gameplay in video games is heightened when music accompanies the experience. This is provided that the music is adaptive and actively reflects the game's state, controlled by the game's dynamic music system. However, there is significantly less research on what specific features of game music give it immersive qualities, especially from a musical standpoint, and whether players are more immersed in specific aspects of the game. This paper intends to provide more clarity on how and why this occurs in five specific games: *Minecraft* (2011)*, The Elder Scrolls V: Skyrim* (2011)*, Terraria* (2011)*, Rust* (2013) *and Noita* (2019). Immersion has been divided into *environmental immersion* and *gameplay immersion*, referring to whether the focus of immersion is on the player's physical surroundings or the actions that occur within them. A mixed methods approach has been used where the games' soundtracks have been examined as case studies using known sources. These findings are then compared with results from a questionnaire conducted by 42 participants. Both quantitative and qualitative data are featured to allow for both useful statistics and suitable depth. The result of the analysis and comparison demonstrates that the games have their own unique ways of enhancing immersion, though universal concepts and techniques have been used in their dynamic music systems to enable it.

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Introduction

This paper intends to provide a deeper insight into the impact that music has on immersion in games where exploring new areas is a key element of gameplay. It is known that the primary focus of existing research on audience reception and musical meaning has been on linear media (Collins, 2008), making this valuable and unique research, and an understanding of the musical choices that contribute to an immersive experience could be useful for future analysis or the composition of more soundtracks. What is presently understood is that both immersion and music composition in games are substantially different from their equivalents in other media due to nonlinearity and the element of player-interactivity. Unlike in linear media, the music must react to and reflect the actions that are occurring in the game world in real time (Sweet, 2014). Furthermore, different games can employ different methods for controlling music, which is one component of the audio analysed in the paper.

Exploratory gameplay has very little linearity due to the sheer number of choices the player has on where to venture and the worlds in these kinds of games generally have many different environments for the player to stumble upon, so typically accompanying audio is very dynamic and/or free flowing. As is also typical of exploration games, those in this study place less clearly-visible emphasis on storytelling and character development than other genres of games, meaning that immersion in the environment and gameplay can be focused on in more depth and in isolation from other factors. By combining the analysis of survey results with dedicated case studies for the games, as well as existing information on their music creation process from other sources, high quality information on *why* the music is both immersive and well-regarded by players can be ascertained, essentially why it “works”. This may be useful for those intending to create their own music for exploration games. While exploration is a key gameplay mechanic in each game, they unsurprisingly have different gameplay on a macro level, different player goals, and are part of different genres, therefore employing alternate approaches to music both stylistically and with regard to dynamicity.

According to McMahan (2004), there are three conditions that need to be met in order for players to feel immersed in a game: the game matching the player's expectations, the presence of meaningful things for them to do, and a consistent game world. While audio doesn't directly affect whether these are established, the combination of audio and visual stimulation can be seen as a prerequisite for immersion and a rewarding experience (Ermi & Mäyrä, 2005). The way in which immersive qualities in the games are analysed in the following sections of the paper involves considering immersion in the environment and immersion in gameplay separately. Since game music composition is influenced by a game's interactive and environmental genres together (Summers, 2011), it can be considered that some of the immersive qualities of the music arise from its relationship with the player's environment and surroundings, and some are the result of the complementation between it and gameplay. Therefore, understanding how the music reflects actions and the environment allows the sources of immersion to be inferred. Essentially, the focus of analysis is on *how* and *why* immersion may arise from the environments and gameplay separately. As explained, responses to separate survey questions on environmental immersion and gameplay immersion may not always be correctly answered but an analysis of the vocabulary recorded allows the categorisation and organisation of the answers.

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Literature Review

Game Scoring

Differences From Scoring in Other Media

Pine and Gilmore's (1998) paper proposes a consideration of experiences in general where they can be explained by two distinct dimensions: *participation* and *connection*. The spectrum of the former ranges between passive participation, where those participating in the experience "don't affect the performance at all", and active participation, where participants have an influence on the performance. The dimension of connection, meanwhile, can be considered a spectrum between a state of absorption and immersion. Ermi and Mäyrä (2005) summarised these as "directing attention to an experience that is brought to mind" and "becoming physically or virtually a part of the experience itself" respectively. These dimensions within an experience enable the definition of four realms of experience: *entertainment* (passive participation and absorption) *aesthetic* (passive participation and immersion), *educational* (active participation and absorption) and *escapist* (active participation and immersion) (Pine & Gilmore, 1998). It is clear to see that video games can be classified as escapist under these definitions as there is a large degree of active participation while the player is immersed in their surroundings and the events happening within them (Ermi & Mäyrä, 2005).

Many sources concur that the presence of active participation together with nonlinear gameplay differentiates music composition in video games from that of linear media, though they have some similarities (Collins, 2008; Phillips, 2014; Summers, 2011; Sweet, 2014; Wain, 2022). Sweet (2014) writes that "many techniques . . . are inherited from dramatic film scoring, including harmonic development, cadences, non-song-form-based music development, and themes", but also states that game music "differs significantly" as it must adapt to the decisions and actions of the player. Some variables mentioned that could be used to affect an adaptive score include the player's location, health, proximity to enemies and the duration the current section of the score

has been playing. Additionally, specialised skills are required for game soundtrack composition such as “creating a satisfying linear loop” and using compositional fragments to create generative audio, and these are not present anywhere else in entertainment media (Phillips, 2014). According to Summers (2011), music often changes when appropriate as it is dictated by gameplay and is especially common in the survival-horror genre. Collins (2008) states in accordance that interactivity “distinguishes games” from forms of media where the physical body is “transcended” because the body “cannot be removed from the experience”. This active role by the player means that sounds and music can be triggered by their in-game actions, unlike in linear media where the audience has no influence on the experience. It is additionally noted in Collins’ (2008) book that the player is simultaneously a receiver and a “transmitter” of the sound – while they hear sound from the game, it has the potential to be knowingly or unknowingly triggered by their actions at any given point in time. Interactivity alone, though, cannot result in truly immersive audio – Rouse (2004) states that “non-linearity gives interactivity meaning, and without non-linearity, game developers might as well be working on movies instead”. In essence, freedom of choice allows player interactions to have unique effects on the audio, and it is collectively evident that the nonlinear nature of games and their interactive elements contribute to unique compositional approaches and have a huge role in setting the tone and atmosphere of a game.

Implementation of Dynamic Music

As has been highlighted, game scores require “an unprecedented level of musical flexibility” due to player interactivity (Enns, 2015), and there are several techniques that can be used to ensure that the music always fits the current scenario. Defined in Collins’ (2008) book are the following terms: *interactive audio* is defined as “sound events that react to the player’s direct input”, while *adaptive audio* is sound that varies based on a game’s state. *Dynamic audio* encompasses both definitions. Looking at adaptive techniques specifically, some qualities of the music could be altered according to game state are tempo, pitch, rhythm and timbre (Evans, 2019), while in-game variables that could alter an adaptive score include player health, number of enemies or a time value

(Collins, 2008). In contrast to most media scoring, game music is heavily dependent on the technology at hand and whether the programming of musical ideas is feasible (Enns, 2015). Two broad methodologies for creating dynamic music are vertical layering and horizontal resequencing (Evans, 2019; Fligsten, 2022; Phillips, 2015; Wain, 2022). Vertical layering is used to “add, subtract or interchange” musical elements based on game state, and its immediate responsiveness is often picked up on by players (Evans, 2019). Additive layering describes a type of vertical layering where a foundational layer of music can play simultaneously alongside additional layers which can be added or removed based on game state (Evans, 2019; Thomas, 2015). A game score demonstrating this is that in the “Tanks!” minigame in *Wii Play*, which features numerous levels that have different enemy tanks that the player must destroy to progress. As explained in detail in Bradley’s (2022) video, the score consists of a repeating 2-bar long phrase played by a piccolo. This is based on the type number of remaining enemy tanks – different tanks have unique instrumentation such as bells and trumpets which have their own unique musical phrase. As the player destroys tanks in a level the music changes according to the tanks remaining, resulting in lots of levels having their own theme due to the tanks present, and a slightly different arrangement each time the minigame is played. This immediacy of the music changing works well for this type of game, but in other games that have less linearity and more interactivity it might suddenly interrupt an immersive section of the music since the musical progression is controlled by temporally unpredictable variables in the game. Therefore, it may be challenging to ensure the music resolves in a satisfying way (Evans, 2019). In Sweet’s (2014) book, vertical layering is mentioned as a variety of vertical remixing. Horizontal resequencing techniques instead switch out the music completely with changes in the game, stopping the current track and replacing it with a new one. This means that unlike vertical layering there are no musical ideas playing simultaneously. A typical way that this technique is carried out is by splitting a larger track into smaller sections so that a change in game state allows the music to progress into a new section (Evans, 2019). This has its own challenges, though, as the transition needs to be made on a “rhythmic boundary” to

keep the musical score coherent as a whole, and this can be tough to get right in a nonlinear environment (Whitmore, 2003).

A fundamentally different technique that is occasionally used in video game scoring is *generative music*, sometimes called procedural music. This is music that is composed algorithmically – a procedure "addresses the creation of musical content itself" (Plut and Pasquier, 2019, 2022). Due to debate on whether all game music can be considered generative, as the changes in adaptive audio are unique to each player, Plut and Pasquier (2019) propose that for a game score to be considered generative it must be produced by systemic automation that is "partially or completely independent of the gameplay". There are a few reasons why generative music is less common than adaptive scores in the game industry. In big-budget games, computational resources are used predominantly for impressive graphics and simulations, leaving less room for generative techniques. Additionally, the audio director of No Man's Sky, which features generative music, acknowledged that it may result in "worse" music than adaptive music composed by real people (Weir, 2017).

Game audio, including music, can be either *diegetic* or *non-diegetic* (also known as *extra-diegetic*) (Collins, 2008; Summers, 2011; Sweet, 2014). The former refers to music that has a sound source within the fictional game world (Summers, 2011) and would therefore be able to be heard by a character if they were actually there, so its purpose is generally to increase realism (Sweet, 2014). An iconic example of this is in *Grand Theft Auto V* (2013), where the player can choose between music on simulated radio stations while driving a vehicle. Non-diegetic music is outside of the scope of the simulated world and serves to enhance the emotional experience of the game (Sweet, 2014). It can also provide more context, through motifs or themes, to what the player is seeing (Summers, 2011). Collins (2008) notes that while the concept of diegetic and non-diegetic sounds is useful for describing and analysing game audio (having been traditionally used within film), it may be "ill-suited" to games as dynamic audio complicates the classification of sound. Indeed, even if dynamic, non-diegetic audio is not acknowledged in the virtual world whatsoever it still has a degree of integration with

it as the player of the game is shaping the experience through on-screen actions, directly or indirectly.

Flexibility of Compositional Choices

While game soundtracks started with simple sounds produced by computers, current technology means that compositional approaches can be very flexible (Carroll, 2022; Roux, 2023). Orchestral scoring is one prominent method used, which refers to a game's composer using a live orchestra to record whole sections of music, with quality on par with that of modern films. This also allows game soundtracks to be featured as live performances which can help expand the audience (Roux, 2023). According to Wall (2002), the value of live orchestras in game soundtracks comes from their sonic and dynamic benefits – using samples cannot necessarily work as a substitute. That being said, the power of modern computers makes composing in DAWs (digital audio workstations) useful for video game scoring too and make it easy to change the software synths/instruments used to play musical phrases (Fitzwater, 2023).

It has been established across sources that game genres can have an effect on these compositional choices (Munday, 2007; Phillips, 2014; Summers, 2011). As stated in Summers' (2011) paper, game genre can be split into its setting/environment and its interactive genre (the type of game), of which the game's music arises from both together. Furthermore, the paper outlines that audio composition in games with the same interactive genre has common characteristics and overlapping methodologies. Munday's (2007) explanation is from a player's perspective – game music contains "stylistic cues" to enhance a game's setting and narrative genre. Examples given include stealth games using suspense in music and jungle-themed games using stereotypical instrumentation such as tribal drums and chanting. These are examples of interactive genre and environmental genre influencing music respectively. However, genre needs to be considered as flexible when using it to analyse a game's music due to the number of ways in which games can innovate within a genre or be a fusion of multiple, despite the continuation of games often being grouped into genres with rigidity (Summers, 2011). Phillips (2014) states that it is important to understand that gameplay genres tend to

have specific styles or genres of music associated with them and why that is the case. In the paper it is signified that both specific genres of music and games attract specific personality types of users which contributes to the typical associations between gameplay genres and music styles.

Immersion

Definition

Writers have outlined different ideas of what immersion entails. Sanders & Cairns (2010) define immersion as the "sense of being 'in a game' where a person's thoughts, attention and goals are all focused in and around the game", rather than the real world. Ermi and Mäyrä's (2005) argument splits immersion into three distinct parts - sensory immersion, challenge-based interaction and imaginative immersion. The first dimension refers to the act of the player being more focused on the game due to its sensory output being more stimulating than those from the real world. The second involves the player achieving a "satisfying balance of challenges and abilities", while the third is the degree to which a player can "use [their] imagination in the game, empathise with the characters, or just enjoy the fantasy of the game." Glassner (2004) instead argues that games have several stages of immersion. This starts with a player being curious about the game and its story before they begin to align themselves with the protagonist's perspective, eventually entering a temporary state where they feel no boundary between themself and the protagonist. However, according to Salen and Zimmerman (2003), the belief that an immersive experience results in the player truly believing in the fictional reality is a common misconception, which is the "immersive fallacy". Lind (2019) uses a sequence in *Battlefield I* that is shown through a bird's-eye view to demonstrate the term, as the experience is regarded as immersive by players despite the perspective shift into third person from first person, acknowledging Salen and Zimmerman's (2003) argument that players are "well-aware of the artificiality of the play situation." This suggests that realism is not inherently immersive and that even unrealistic mechanics can create immersion, a sentiment echoed by Gabe Newell, president and co-founder of Valve Corporation, who states that a game creates enjoyment (and therefore immersion)

by responding to player actions and making them feel like they are part of the world, and not in a necessarily realistic way (Valve Corporation, 2023). This understanding of immersion can be used to explain the impact that a music score has on making players immersed – non-diegetic music is out of perspective of the player's character as it does not come from the game's world, yet it is a known contributing factor to an immersive experience (Collins, 2008), something which is backed up by studies such as that in Lipscomb & Zehnder's paper (2004). This suggests that the "immersive fallacy" is a correct observation.

Impact From Dynamic Game Scores

Several studies show that the presence of music makes players feel more immersed in the game (Lipscomb & Zehnder, 2004). Game music has a far greater purpose than simply adding "atmosphere" as it builds on the visual elements of the game using "sonic environments and musical semiotics". It "actively [communicates] with the player, who will consciously interpret the music". It is even likened to a conscious entity itself as it "knows far more than the player" – it can convey additional information that may not be able to be obtained any other way (Summers, 2011), only possible due to the nonlinear nature of games. Munday (2007) states that music can support games in three ways: the perception of the virtual world, the player's involvement, and the game narrative. In his paper, in accordance with other sources, sound is regarded as having "certain advantages over sight". It can enhance an environment in a way not possible with visuals, since sounds can change in position in a three-dimensional space and be present alongside others (Munday, 2007; Collins, 2008). Sweet's (2014) book similarly highlights music as a "useful device" for keeping players interested and lists several ways in which music can communicate with the player. The first is that the audio can provide the player with a greater understanding of their surroundings, which can be made present using specific choices in instrumentation and/or harmonic relationships. It can also signal a change in the game's state so that the player is more aware of it. According to Kilford (n.d.), vertical layering techniques "tremendously immerse" the

player. Carroll (2022) aptly summarises game music as having the ability to “bring life to imaginary worlds” and being “so intrinsic to the game experience”.

Methodology

Data Collection

This section outlines the methodological frameworks used in the research to enable detailed and sufficient analysis. A mixed methods approach was chosen, consisting of a questionnaire (providing both qualitative and quantitative data) and practice-based case studies on some of the games featured in it. Multiple methods can help provide answers to multiple questions, allowing in more in-depth analysis to be carried out (GOV.UK, 2020). The use of a questionnaire has several benefits such as being able to reach a target audience quickly and easily as well as automatically organising collected responses (Cleave, 2023). Several closed questions allowed quantitative data to be collected. This type of data is of high accuracy and is easy to understand due to the specific range of possible responses (Mander, 2022). Several open questions also allowed qualitative data to be obtained which lets participants give interpretations of the music in their own words. This method is not only ideal for exploring new areas through speculative research but also adds a degree of flexibility as participants can provide additional context not otherwise possible with solely closed questions. Open questions can also enhance participation (Ortega, 2022), though a potential disadvantage of using them is that there could be misunderstandings by participants – they could misinterpret the questions and/or their words may be hard to analyse (Cleave, 2023). Clear and simple questions should negate this as much as possible, and with a high enough quantity of participants common language between responses could be identified even if some answers are unclear or lacking detail.

The purpose of the case studies in this paper is to allow a comparison to be made between existing understandings and interpretations of how immersion qualities may be generated in the games and the results of the questionnaire, since, according to Flyvbjerg (2006), case studies in research are “useful for both generating and testing of hypotheses but [are] not limited to these research activities alone”. The case studies in this paper serve similarly to a hypothesis as they were carried out before the analysis of the questionnaire data, and the degree of similarity between them and the questionnaire

results can be compared and contrasted. Case studies also allow researchers to "immerse [themselves] in the context and gain intensive knowledge of a phenomenon" (Takahashi & Araujo, 2019).

Analysing Immersion

It is also important to understand the methodology for analysing immersion in the study. Fundamentally, games have an environmental genre and an interactive genre (even though they are often grouped more broadly than that) and the compositional style of music can take influence from both of these (Summers, 2011). Therefore, the relationship can be evaluated from an opposite point of view: components of the music intended to fit with the environmental genre and gameplay genre can be analysed separately, even if some musical choices are the result of both together. It is also important to understand why the games used were chosen for the research. While exploration and combat are important parts of gameplay in all of them, they have different gameplay genres: *Minecraft* is a survival sandbox; *Noita* is a 2D platformer and roguelike; *Terraria* is a 2D action-adventure game; *Rust* is a multiplayer survival game and *The Elder Scrolls V: Skyrim* is an action role-playing game (RPG). All have broadly similar environments and all barring Skyrim incorporate random/procedural algorithms in generating them. On a micro level, the gameplay is similar since players can or must explore new areas unknown to them and may engage in combat with enemies, but on a larger scale players operate under different assumptions and are driven by different objectives, something which will be elaborated further in the case study section. The differences in environmental and gameplay genres have led to different music styles and different implementations of dynamic audio. That being said, these games have enough commonalities to allow comparisons to be made between their approaches to music, meaning the paper can highlight both similarities and differences in how immersion arises from their music which could include shared approaches between them. Conducting a comparison of approaches to music is especially useful for research because the idea that gameplay genres tend to be associated with specific styles of

music (Phillips, 2014) which can be tested for these games with their similarities in gameplay when still falling under different interactive genres.

Case Studies

Terraria (2011)

Terraria's music is very unique stylistically, mainly as it intends to match the game's pixelated graphics. In an interview, Shelly (2013) explained that the approach when scoring the game was to combine "[paying] homage" to the retro style of graphics from the 80's with orchestral elements to fit the "huge [and magical] worlds", in order to create a style unique to the game. This is evident as the instrumentation consists of both acoustic sounds such as bowed strings and synthesised sounds, likely created from square waves or similar-sounding waveforms. Square or pulse waveforms were used in audio in a lot of early computer games as they are very easy for electronic systems to create (Hutchinson, 2020), ideal for early video game consoles and arcade machines which had very limited processing power. There is no particular pattern across tracks for which elements are acoustic and which are digital-sounding which likely keeps the tracks feeling fresh. For example, some percussion instruments seem to be real samples, like kick drums, snare drums and bongos, whereas others have a downsampling algorithm applied to create that signature bitcrush effect heard in chiptune soundtracks.

Additionally, the Terraria soundtrack is a good starting point for analysing immersive qualities as it employs dynamic music in a rather typical way for exploration games. That is, there is a specific song that plays (and loops) for almost every area in the world, boss fight, and special event (where additional enemies are encountered for a limited duration). As play time increases, the player can learn to recognise every scenario by its music. Track durations generally range from around one and a half minutes to three minutes, likely as the player's location or the state of the game (e.g. the time or current special event) will change fairly frequently, so the tracks tend not to run on repeat for very often or for very many repetitions. In order to keep the music feeling fresh to players while they are in a particular location or game state, the tracks don't have a lot of repetition in melodic lines, nor have many changes in tension and release, and instead evolve continuously throughout their runtime. These ensure that the linear

loop while the player is in one area or situation is satisfying and keeps immersion (Phillips, 2014). The track “Underground Jungle” is a good example of this, since the mode of the music changes periodically, initially changing between D harmonic minor and D# major which creates tension and uncertainty. This is important since the underground jungle is one of the most dangerous areas for a player to explore. Its instrumentation is thematically appropriate – the track starts with a small build into a dissonant flute sting warning the player of the danger ahead before there’s a booming brass stab. Other stereotypically “jungly” sounds include marimbas and bongos. Knight (2023) wrote that the soundtrack is “instrumental in creating an immersive gameplay environment” and that the first track that the player would hear is “almost innocent in nature, encouraging exploration”. This track, “Overworld Day” is written in a major scale which leads to this feeling of innocence, since major scales are generally seen as happy-sounding (Fritz, 2009). Indeed, there is little danger where this track plays in-game, and the player only has the option of venturing left or right. Meanwhile, the encouragement to explore could be suggested from the ascending melodic progression which could indicate that there is something more than what the player is initially aware of. Boss fight tracks also reflect the gameplay environment and actions that occur. “Empress of Light” bears a striking musical resemblance to the experience when trying to defeat the boss it is named after. Ascending arpeggios of detuned supersaws and fast-paced drum breaks at a high tempo accompany gameplay where the player has to frantically dodge colourful projectiles similarly to a “bullet hell” game (a subgenre of the “shoot 'em up” genre of games). These melodic lines coupled with modal shifts that enable a tense but satisfying resolution at the end of every two bars heavily re-emphasise the chaotic and tense nature of the gameplay.

Minecraft **(2011)**

Despite having some similarities in the gameplay loop as Terraria and other open-world games, the Minecraft soundtrack functions very differently but is yet still liked. Grosser’s (2024) article explores this, describing it as an “outlier among open-world games” due to its music being random, sporadic, and “inconsistently

connected with elements of the setting such as time and location". Stylistically and interestingly, the music does not match the game's pixelated graphics either and can be considered ambient music. Rosenfeld (2015), the composer, explained that the contrast was a deliberate experimentation, and despite the expectation of the music being in an "8-bit style", he wanted to make something "organic and partly electronic, partly acoustic". This is reflected in the instrumentation used such as pianos and handpans with underlying synthesised pads. While the stylistic choices may have been an experiment, the unusual approach likely works well due to Minecraft's emphasis on creativity and freedom, which are perhaps more of a focal point in gameplay than exploration. There is also the argument that lots of Minecraft's areas and biomes share more similarities than differences, unlike in other games, especially at the time when the music was composed. Therefore, there could have been a degree of redundancy had music been composed for and connected with the different environments. In fact, newer versions of the game have more biome-specific tracks (composed by a different musician) which lots of players feel play too often or that there isn't enough variation as there is nothing in place that ensures that a track doesn't play consecutively. In Terraria by contrast, the repetition is less of an issue as players are not as likely to spend a long time in one area of the world. Additionally, the game features diegetic music that is played from "music discs" that can be found around the world, which feature more of a "lo-fi" aesthetic. This is the only scenario in which players can deliberately shape the music in the world and therefore likely adds additional immersive qualities to the gameplay.

Noita **(2019)**

Noita is yet another game with pixelated graphics with a unique approach to audio, one which responds far more to player actions than the other soundtracks analysed here. Noita is a roguelike unlike the former two games, a genre describing games with procedural generation and permanent death (meaning a new "run" must be started to continue playing), which is certainly responsible for some of its execution of audio and music. It appears to have high and low intensity background music as well as

none playing by default. When the player performs certain actions, such as killing enemies and using explosives, the intensity increases a stage (and the overall loudness of the music too), meaning it is connected *heavily* to gameplay. This system of vertical layering also means that when the player retraces their steps in a cleared area there is no music present at all. Some important locations in the game don't use this variable intensity at all, such as (apparent) safe areas, which instead have a specific track that plays while the player is in them, more typical of exploration games. The genre and style of Noita's music may also seem like a bold choice, as it's often considered to be psychedelic rock with jazz influences. At face value this seems almost outlandish as real drum breaks and jazz instruments don't appear to fit the environment very well, but alongside the psychedelic elements they reflect the game's state and its actions surprisingly well. Noita is known as being difficult, chaotic, unpredictable, and sometimes frustrating, due to its extreme randomness and individual pixel simulation. Success revolves around players making the most out of what they are given and avoiding various, sometimes unforeseen, hazards. These hazards include exploding mushrooms, giant worms and pools of liquid that can transmorph the player. This kind of experience in the game is certainly reminiscent of the imagery that arose from the hallucinogens and "mind-expanding" drugs that inspired psychedelic rock (O'Brien, 2023). Some more typical instruments and percussion for natural environments, such as bongos and string instruments, help tie the music into the environments more than it otherwise would be. Similarly to Minecraft, Noita features diegetic audio that can be triggered by the player in the form of four "music machines". These can be found in specific locations around the world and each plays a unique track when kicked by the player. Notably, their collective style is more similar to the non-diegetic music in the game than in Minecraft's case.

***Rust* (2013)**

Unlike the other games analysed in this paper, Rust is a competitive PvP (player versus player) game. This undoubtedly had an impact on some of the compositional choices in the soundtrack, but that isn't to say that it doesn't fit well with the game. Similarly to Noita, the music revolves around an "intensity" system but has some

additional complexity, likely a form of vertical remixing (Wain, 2022). Each track is split up into shorter sections which each have an intensity assigned to them, and the current intensity level in the game influences which pieces of music play. This quantity is affected equally by in-game events and musical progression (since each track section influences the intensity level slightly when it finishes) (Rehberg, 2016). If the older blog posts are still accurate, even the equipment of other players could have an indirect influence on the music since flying bullets and the player having low health could adjust the intensity value used in the dynamic music algorithm (Rehberg, 2015b). An unfortunate impact the competitive nature of Rust has when it comes to the musical experience is that it means that less players will prefer to play with the music, so as to not be distracted or suffer a disadvantage during combat situations due to not being able to hear other sounds as well. That being said, Rehberg (2015a) did mention that some of the “cleaner sounds” in an early version of the track “Descent” form a contrast with in-game sounds which would help players with listening for particular sounds, as well as the goal being to make the music “ambient and spacey”, which is certainly reflected in the tracks added to the game subsequently. The arrangement of “Descent” is predominantly sparse, consisting of bells, cinematic drums, pads, and a few other background elements, and it is easy to hear where the intensity value would change when listening to the full track. For example, there is a rise in pitch of a choir in the middle, right before the density of the cinematic drums increases significantly, where the intensity value is certainly higher, though it is unclear how many elements are in one loop that has an assigned intensity. Bells, pianos and strings are used in these tracks repeatedly and appear to fit the environment of the game as they are natural, acoustic instruments. Lots of the tracks, such as “Safe Zone”, “Umbra" and “Legacy”, feature basslines that still fit in with the other acoustic elements despite being synthesised, likely due to their short decay in amplitude or possibly the downward modulation of a low-pass filter intended to emulate real pluck sounds (Baggström, 2019; Cymatics.fm, n.d.). These basslines create suspense by frequently playing the tonic (the first note in the key) and repetition of phrases is a key technique used to build tension (Beyond Music Theory,

2021). Ostinatos of both acoustic and synthesised sounds are also frequently used in the tracks, meaning harmonic progression primarily comes from an evolving arrangement where elements are added and subtracted over time rather than variation of melody and notes. “Thunder” is a good example of this, which features a repeating arpeggio driving a synthesised sound that has a rising low-pass filter applied. Overall, this sense of tension and release is heavily reminiscent of gameplay while the player is exploring – they may be uncertain of what they may encounter while they are running (or creeping) through foliage, potentially at night and/or while alone. This could be a bear, a wolf or other players, for example, and in the case of the latter they could be wielding anything ranging from a wooden spear to an assault rifle. Rust also features diegetic music in the form of a DLC (downloadable content), which allows players to craft and play several virtual musical instruments (even being controllable by MIDI devices). This likely increases immersion of players who are interested in it as they can create music themselves (albeit not for the player who is tired of hearing a cymbal crash outside their base for the tenth time in a row).

The Elder Scrolls V: Skyrim **(2011)**

Skyrim’s implementation of dynamic music is similar to *Terraria*’s as specific locations have their own music, though by contrast there is a degree of randomness as multiple tracks are assigned to shared locations and scenarios. Specifically, each track can either play while exploring during the world (with separate tracks for the day and night), in towns, in dungeons, in taverns, and in some other more niche scenarios (“Skyrim:Music”, 2023). Horizontal resequencing is the main technique used in the adaptive score, most noticeable when enemies are nearby or the player engages in combat as there is no pause between the tracks. Skyrim manages to avoid the timing and syncing issues with horizontal resequencing that are outlined in Whitmore’s (2003) article relatively well since the music that plays when out of combat is much less intense than the combat music and generally lower in volume as well. This works well in transitions as the combat tracks start with a chord stab or percussion hit and immediately shift the player’s understanding of the situation, retaining immersion

(Summers, 2011; Sweet, 2014). The style and instrumentation of the music also contribute to its enhancement of the game. Soule (2018) did not record a live orchestra to create the score (outside of a male choir used in two tracks) but it does not seem like that inhibited neither creativity when composing the soundtrack nor immersive qualities in it. All tracks feature instrumentation associated with a fantasy or medieval setting, such as flutes, bowed strings and lutes. Exploration music is serene with soft strings and has no percussive instruments whatsoever, perhaps encouraging the player to venture forth at their own pace. They all seem to be written in a minor mode but have some changes in key such as in “Distant Horizons”. As briefly mentioned earlier, combat tracks stand out compared to others with their huge drums and brass stabs that evoke feelings of anxiety and unease (Christian, 2016), as well as a clear lack of musical resolution to create tension. Tracks like “Death or Sovngarde” and “Tooth and Claw” rarely have a satisfying tonal resolution due to the tones from instruments in the upper register rarely focusing on the root note of the respective keys, instead ascending and evolving in an unending climax. Meanwhile, the elements more focused on lower frequencies like the stabs repeat far more and barely touch notes other than the root note, creating tension similarly to the basslines in the Rust soundtrack. Lastly, diegetic music is also present in the game in the form of bards who play lutes, flutes and drums, and can be told by the player to play one of a few songs. This can add to immersion as it provides the player with a direct way to change the music.

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Statement of Results

This section gives an overview of the survey results. Firstly, general statistics shown, followed by responses, statistics and quotes for each game individually. Finally, some other graphs relating to immersion across all games are displayed. Note that the results of Rust are not shown in isolation due to a small number of responses, but they are added in with the graphs that display all data. The full results can be found in Appendix A in a tabular format. For graphs recording responses with numbering instead of words, 1 indicates “not at all”, 3 indicates “somewhat” and 5 indicates “a lot” unless stated otherwise .

Figure 1

Quantity of Respondents Answering for Each Game

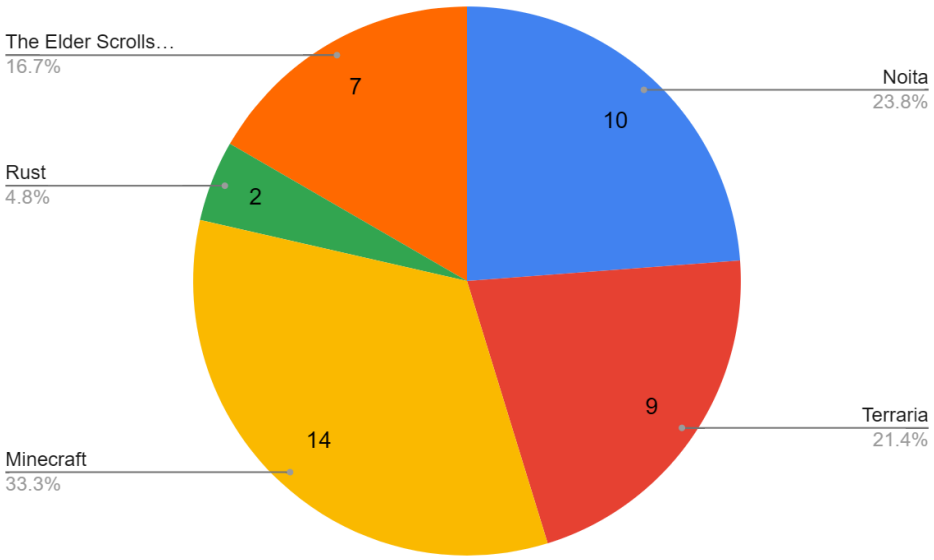
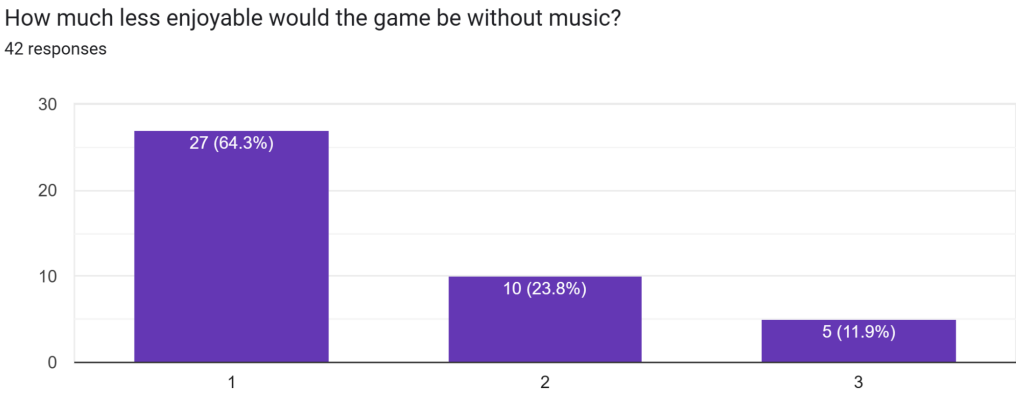
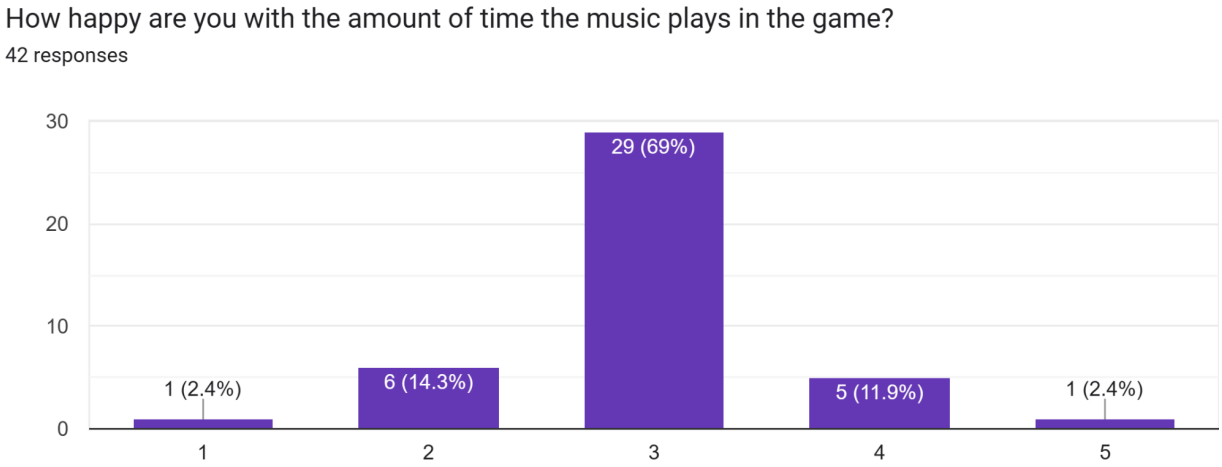


Figure 2



Note. For this graph, a value of 1 indicates that the game is a lot less enjoyable, 2 indicates that it is a bit less enjoyable and 3 indicates that it would make no difference or be more enjoyable.

Figure 3



Note. For this graph, a value of 1 indicates that it does not play nearly often enough, a value of 3 indicates that music plays at about the desired frequency, and a value of 5 indicates that music plays far too often.

Figure 4

Participants' Responses Per-game on the Degree in Which Music Fits the Game Environment and its Gameplay

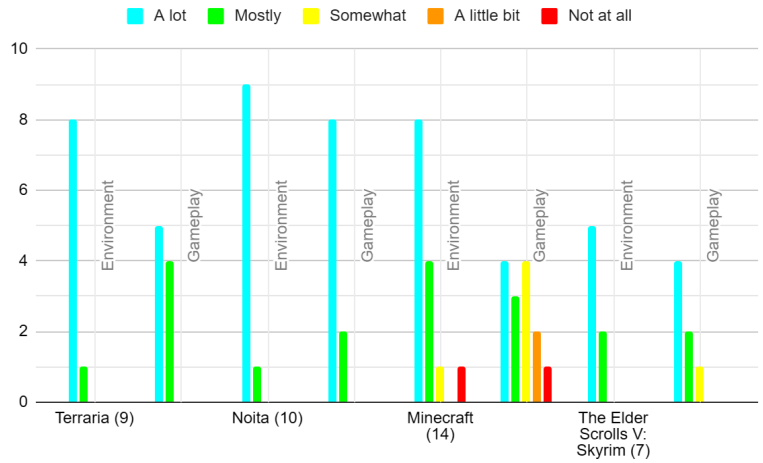


Figure 5

Per-game Responses on the Degree That Music Fits the Game Environment and its Gameplay (Normalised)

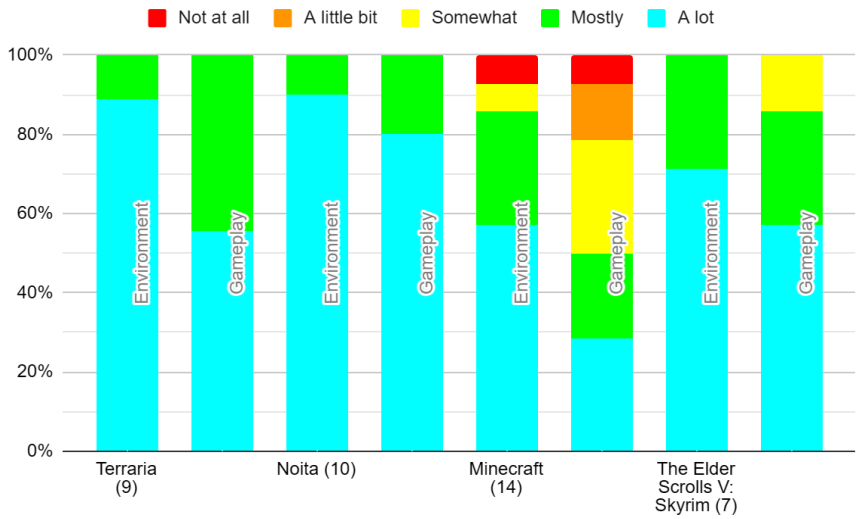
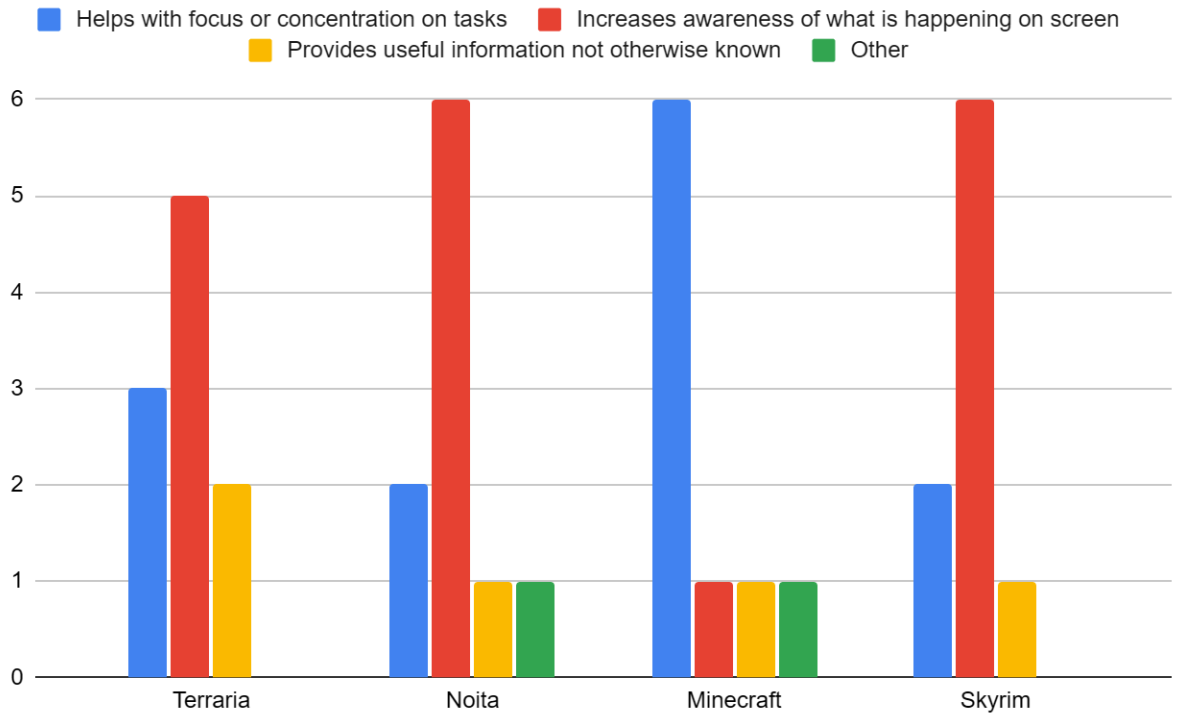


Figure 6

Per-game Responses on How Music is Helpful for Gameplay



Note. Participants could select as many options as they wanted

Figure 7

Per-game Responses on How Helpful Music is for Gameplay

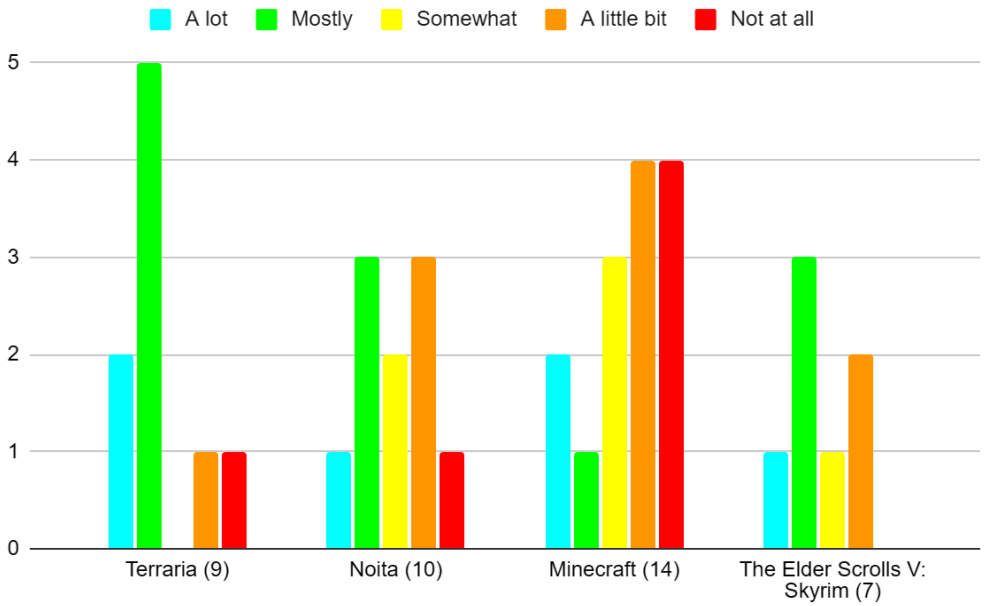


Figure 8

Per-game Responses on Music Helpfulness in Gameplay (Normalised)

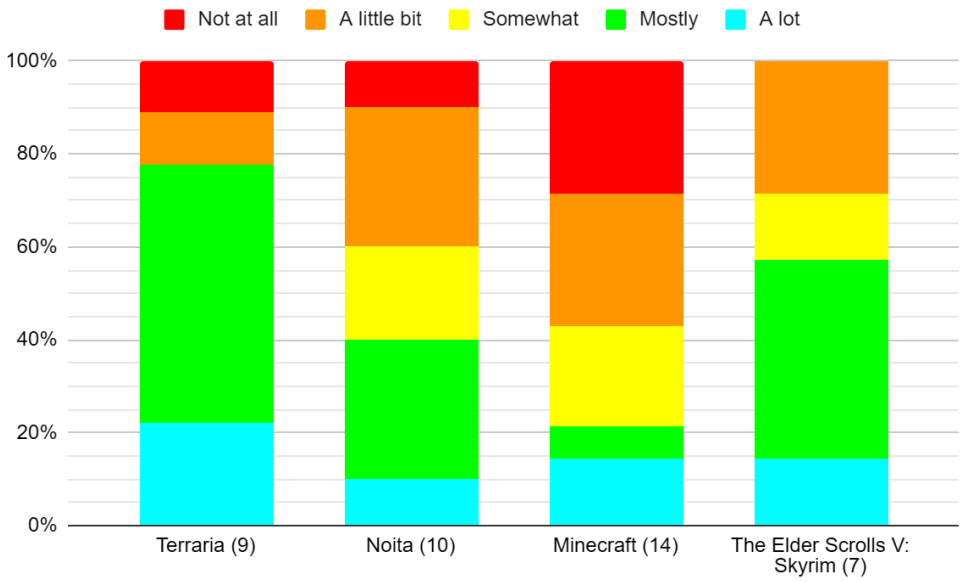


Figure 9

Per-game Responses on Immersion in Environment and Gameplay as a Result of Music

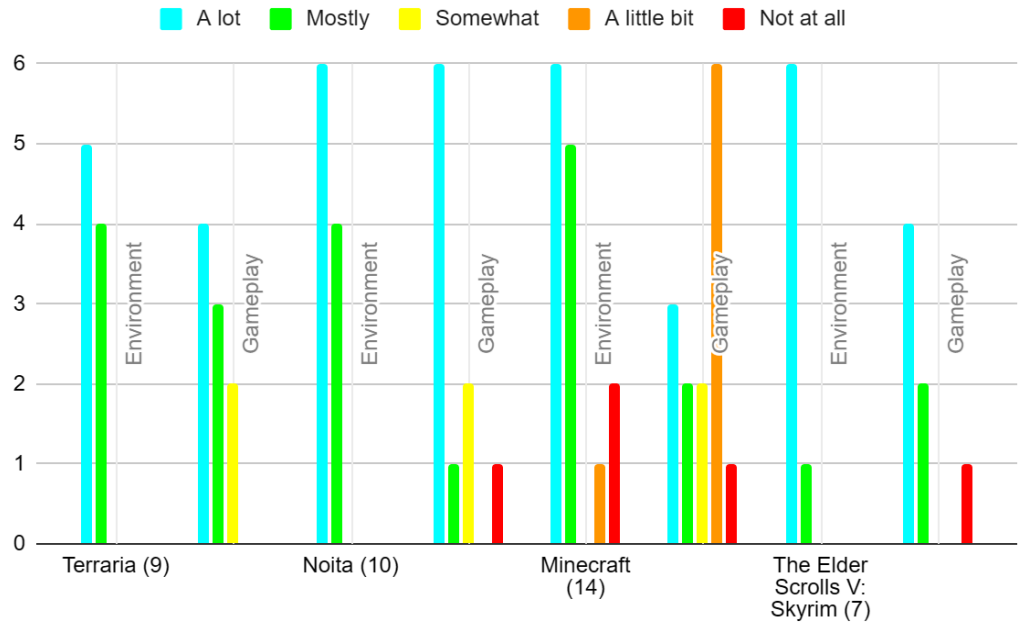
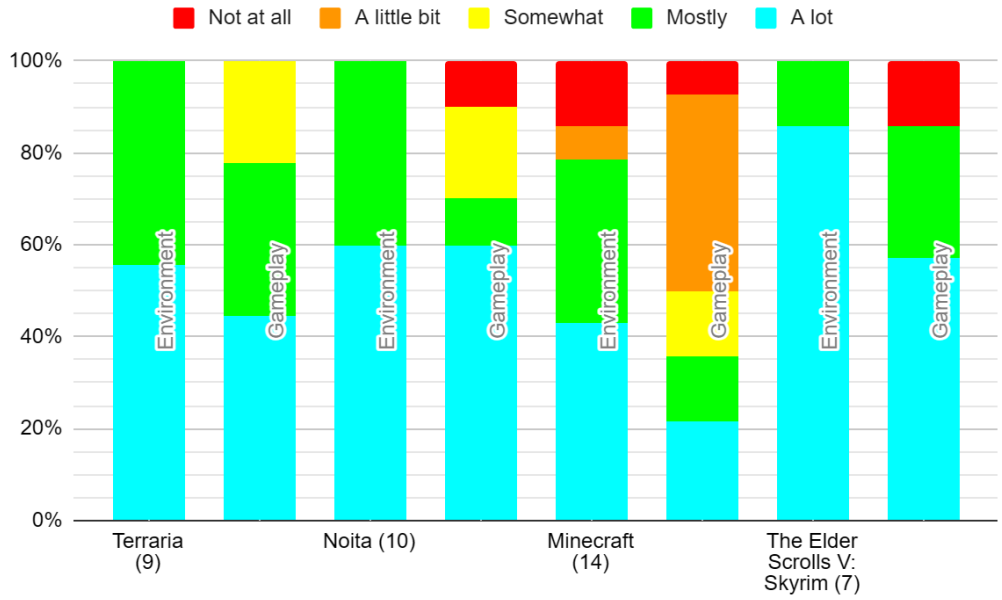


Figure 10

Per-game Responses on Immersion in Environment and Gameplay as a Result of Music (Normalised)



The process of sorting the quotes into the tables below involved sorting them based on whether they describe the suitability of the music for either the player's environment or in-game actions. Quotes were deemed appropriate if they were either heavily related to the category or the quote was featured in a response to a question aiming to gather information for that category and was lacking enough specifics to be placed in the other category. In the event where a quote was given in an answer for a question with a particular theme but was better suited to a different one, it was sorted into the table according to the latter. This means that some similar quotes are in different categories.

Table 1

Key Quotes for how Terraria's Music Fits the Player's Environment and In-game Actions

Themes	Key Quotes
Environment	"The music captures the tone of every environment really well; Nighttime is scary and ominous, the caves precarious and filled with gear and gems to be plundered and the music matches that really well" "Volume, style of music" "Each song is designed around the environment to portray the emotional feeling and appearance of where you are (for biome music)" "The chiptune music fits the overall graphical style of the game well" "Biome music makes it feel fun to explore" "Use of varied instruments" "The time of day/weather " "The music in the hallow make[s] you feel like you are in [a] fairy land, matches the vibe of the hallow and even the [creatures] that are in it like unicorns and pixies"
Actions	"Music is usually more frantic in areas that you will be fighting in and during bosses" "Many things are engineered to have the intensity in BPM or orchestral feelings to influence your emotions" "Boss fight music" "Pace of music matching boss fights" "In 'Boss 1' you can hear sirens [indicating] that a boss is in the area." "The music changes [in] each biome and during boss fights etc, the boss fight music really enhances the feel of the fighting as it highly contrasts the casual playing music"

Table 2

Key Quotes for how Minecraft's Music Fits the Player's Environment and In-game Actions

Themes	Key Quotes
Environment	"The peaceful nature of the music fits so well with the game. The music makes me feel isolated, but in a good way. The music also feels so grand. Like being alone in a huge garden. I just want to explore everything." "The mixture of piano and synth in some of the pieces makes it sound like nothing we have in the real world, and it feels curated within Minecraft. The music overall is well-suited to a lot of the different biomes, so I think the versatile nature is a strong point." "It's calm." "The Minecraft soundtrack does a great job at fitting most situations. The different soundtracks for each dimension are a nice bonus, but especially in the overworld the music is kind of lacking at times. Biome-specific music would help here a lot." "Minecraft has many songs that could be considered fairly basic, which leave them open to interpretation without being too intrusive. Each one has its own primary sound. A simple piano in the night, a low drone in the nether, a mysterious static in the end, the list goes on." "None: The music is non-diegetic and is largely divorced from its respective environment." "Ambient, chilled nature. It often goes with the weather, too."
Actions	"Sometimes [the] piano plays during stressful times." "The instrumental style helps build on the routines the player creates within the lifespan of a world, becoming part of the known and what i'm accustomed to- soft dynamic of the music generally makes it seem "everyday" as I e.g start building a house, strip mine etc." "Minecraft fails in this regard." "The music having a calmer feeling doesn't always fit the game. At night, fighting monsters, the music doesn't really match the tone. Though the End gets an exception with the dragon fight having its own music. The rest of the game, mining, building, and exploring the world, fits the tone of the music very well." "It's detachment from Minecraft as a world, which emphasises the player and their actions." "Its calmness." "There is a lack of dynamics in music for activities like combat, but the lax nature of it can pair nicely with the calming nature of building." "Things don't get too intense in the game."

Table 3

Key Quotes for how Noita's Music Fits the Player's Environment and In-game Actions

Themes	Key Quotes
Environment	"Eldritch" "The slow and melodic music is very relaxing and intriguing" "Noita has lots of environments and has lots of music that pairs with those environments. In an area with many large fungal growths, the music is slow and ethereal. In an area with lots of snow, there are some ambient noises that drone on and trail off from a high pitch to a lower pitch while the volume decreases. In an area with lots of robotic enemies, the music features a large amount of "beeps" and "boops" reminiscent of the sounds that Star Wars' robots make." "it's dynamic so it always fits the environment and it's also psychedelic . . . like the game itself" "Most of the music exists in the lower register, which pairs well with the darker atmosphere of the game and its art style."
Actions	". . . has both very chill moments and moments of tension. It is also a very odd game all things considered - going with psychedelic rock just fits it so well." "With how mysterious and chaotic Noita is, the music and its style fit really well" "Parts which are eerie sound eerie, parts which are intense sound intense but all of the music gives a looming sense of wonder and mystery as you uncover the world" "It's dynamic, when action [and] certain things happen music changes, rhythm changes and it alerts me to something around me. Think of Stevari." "There exist several one-time musical cues that play when doing specific things" "[The] game usually reacts when a fight is starting with music of appropriate tension . . . the same is true for the calmer moments - holy mountains etc." "The music often becomes more intense when something is happening in game, for example: a strong enemy is nearby, you take damage, explosions and some other things. And the ambient sounds for different biomes really helps with the atmosphere too." "Between times with high action, the music feels like it adds some tension. When dramatic actions happen (like the player taking damage or an explosion happening nearby), the music changes in an adaptive manner. The tension is like a fuse and the explosive dramatic music is like a firework." "The music is able to pick up in a pinch, and is often constantly intense in zones which share that same trait." "Almost always it reflects what's happening around when it has to and it can also be quiet and in the background when it's appropriate." "Noita's music system works such that if there is more activity happening that involves you, it will ramp itself up. If you begin attacking an enemy, or are caught in an attack yourself (i.e. projectile, explosion), the music will get much louder (or resume playing if it was not already)."

Table 4

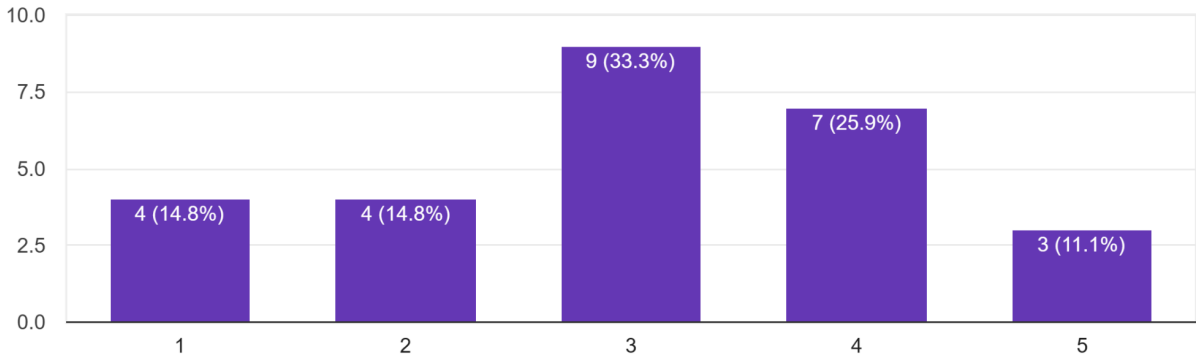
Key Quotes for how Skyrim's Music Fits the Player's Environment and In-game Actions

Themes	Key Quotes
Environment	"They reflect the emotions associated with the environment" "Skyrim's soundtrack contains a lot of male voice choirs, which reflects the setting of the game - a cold land populated with hard people. Most exploration music is sparse and light, with horns often taking solos - again evocative of vikings and hunters. " "It's calming [when] walking in the countryside"
Actions	"It has moments where it swells in response to important events and this underpins the story/plot and thus immersion" "Less the composition, more how it is used in game. With all Bethesda games since Oblivion there has been combat music and non combat music. The transition between combat music and exploration music and vice versa when encountering/defeating an enemy can be jarring. Games like Elden Ring do a far better job of identifying what fights need a musical transition and which don't." "Tempo, resonance, volume - all change as action builds" "The fight music stresses me out" "It switches to the combat tracks decently fast, even if sometimes it feels random. The ambient music is still unique and nice to listen to if given attention while the player is relaxing, but still stays background music so it doesn't crowd the mind when the player is trying to think" "You can feel the level of tension in the plot with the change in the music." ". . . the 'danger' music adds tension"

Figure 11

How much does the presence of music originating from objects in the game's environment add to your immersion? This is music that in-game charact...kip this question if this isn't present in the game.

27 responses



Analysis of Results & Discussion

Generally, the quantitative and qualitative results concur with Lipscomb & Zehnder's (2004) study as the vast majority of participants believe that the game would be less enjoyable without music and also that it enhances immersion in the environment, gameplay or both. Some patterns across all results are immediately noticeable – all game soundtracks were perceived as matching the environment better than gameplay, but for three of the four games this is seen as matching very well for both (the outlier being Minecraft where half of responses were rated 3 or below). The perception of diegetic music having a positive impact on immersion was evident by the results as well, though the average answer is between "somewhat" and a fair amount. The following subsections of this analysis primarily aim to break down the qualitative data.

Terraria

All participants answered that the in-game soundtrack increases their immersion in the environment, and they gave varying responses on how the music fits it. Five responses explicitly mentioned the biome, weather or time specific music (all changes in game state or location) as a way in which the music matches the environment, backing up the notion that signalling a change in game state can increase immersion (Sweet, 2014). It is likely that this is referring to both the fact that the score is dynamic and the musical features in each track that are unique to the location or scenario where it plays. Furthermore, the chiptune influence in the music matching the graphics of the game was picked up on in one response. It seems likely from these responses that both the timbre of the sounds in the music and the modes used in it contribute to immersion when playing the game. Evaluating how the music fits with gameplay, a recurring theme in the responses was boss music, since several participants included mention of it. It was specified in some responses that this is due to the frantic feeling of the music and its pace. Another mentioned that in general the tempo of tracks is designed to influence emotions. Indeed, the boss music often has a faster tempo than lots of the other tracks (such as "Boss 1" and "Boss 2"). Research suggests that a high tempo increases the strength of emotions being experienced (Husain et al., 2002), meaning that if players are

already feeling the tension of the moment from the boss fight and/or from other musical choices in the track, their feelings will be amplified. In the cases where tempo is not noticeably higher, the tracks tend to have a denser arrangement and a more noticeable rhythm, which culminates in faster changes of sounds. Also, all music that plays based on the biome, weather and time of day doesn't have very prominent drums whereas the boss music "Boss 3", "Plantera" and "Lunar Boss" do, despite being at a similar tempo. These musical characteristics unique to the boss music reiterate the response that the "boss fight music enhances the . . . fighting as it highly contrasts the [typical] music".

Noita

Out of all the games, Noita had the most data indicating that the score matches the environment and gameplay as well as the joint-highest number of responses listing music being helpful for increasing awareness of on-screen actions, agreeing with Munday's (2007) chapter that sound can enhance gameplay in ways not possible with visuals. Lots of respondents stated similarly that the psychedelic style of the music fits very well with the gameplay and environment due to the game's odd and chaotic elements, agreeing with the case study analysis. This is unique compared to the results of the other games, as generally the style of music and its compositional choices help ground the player in the environment and its relation to gameplay is not mentioned as often. Essentially, the games interactive genre and environmental genre result in music that creates immersion for both because of their similarly chaotic feeling (Summers, 2011). According to one response, the music's tendency to use the lower register "pairs well with the darker atmosphere of the game". Others imply that the instrumentation of the music creates a sense of mystery that makes exploration more intriguing, again linking compositional choices in the music with gameplay. It was also frequently mentioned that the music very quickly and consistently matches the actions that are happening in the world, enabled by the vertical layering system (Evans, 2019), suggesting that this positively influences immersion in the game. Lots of the responses also imply that the vertical layering creates temporally appropriate tension, which could

be achieved through the middle intensity music being a lot quieter than the high intensity music.

Skyrim

The data collected on how well the music fits Skyrim's environment and gameplay are roughly in-line with that of the results for Terraria and Noita. Proportionally, it has the highest levels of associated immersion with the environment though. The quotes from the qualitative responses outline the exploration music as being the most important for environmental immersion as it is "calming", "sparse" and "light". This suggests that the natural environment is complemented by the stylistic cues (Munday, 2007) of soft instrumentation highlighted in the case study section. Another response adds that this music doesn't "crowd the mind" and works well when the player is relaxing, likely due to the lack of percussion and rhythmic elements. The male choir in some of the tracks is also mentioned as reflecting the setting of the game and "evocative of vikings and hunters", indicating that the game's environmental genre has a large influence on its soundtrack (Summers, 2011). A question is raised by the quotes on how successful and musically satisfying the transition is into the combat music – some praise the transition while others mention it negatively, including as occasionally random and "jarring", implying that the soundtrack doesn't always fulfil Whitmore's (2003) advice on the transition occurring at an appropriate time. It can be speculated that the reason it *can* be jarring or random at times is less a reflection of the quality of the score being sub-par and more one of the algorithm driving the horizontal resequencing technique inconsistently being able to identify when the player is in combat. That being said, the fight music is still seen as being effective at reflecting gameplay as it mentioned as creating tension and a feeling of stress, something in accordance with the findings of the case study.

Minecraft

Minecraft has been analysed lastly as it is by far the greatest outlier in results. More participants answered that the music does not fit the environment or gameplay

particularly well than in all the other games, and it is the only game with responses that say that the music does not fit either aspect at all. These results align with Grosser's (2024) article that the game is an outlier due to its music being rather separate from gameplay elements and game state. The game's responses on how the music is helpful for gameplay are very different to the results of the other games. While most games' music was found to be most helpful for gameplay by increasing awareness of on-screen actions and a fair bit ahead of other reasons, Minecraft was even more heavily weighted towards the "helps with focus or concentration" option. Given the understanding that the game's music is barely adaptive, the result isn't too surprising especially considering the context given by participants in the text responses. Some interesting context is provided in the qualitative data. One response states that the instrumental style is apt for the player's routines as its softness reflects the "everyday" tasks in the game that players must do, either for survival, progression, or personal enjoyment and satisfaction. Examples given in the quote are mining underground for resources and building a house, and the latter of which is similar to another response that states that the music's "lax nature" pairs well with building. This fits with the idea that music enhances a game's narrative (Sweet, 2014), but in this case it is a player's own narrative and not one defined by the game. Additionally, these responses about normal routines seem very reminiscent of the track "Wet Hands" (Rosenfeld, 2011). Other responses suggest that the inconsistent timing of the music can also add immersion by creating or adding to this player-driven narrative, such as the quote "the frequency of the music makes the moments where it kicks in feel special". Specific musical instruments and sounds like the piano and synths are also mentioned as enhancing the environment of the overworld specifically. Furthermore, other sounds with unique timbres are mentioned as fitting the other two in-game dimensions (environments occupying a separate 3D realm), which are the drones present in the hellish environment of the Nether and the "static" present in the glitchy soundtrack of the End dimension. The results also showed that sometimes the music can feel inappropriate as fighting monsters for the player's survival do not fit the themes established by the music, and some responses even stated that the music

does not reflect both the environment and gameplay, so Grosser (2024) was right to say that players experience the music differently.

Rust

Only two responses were able to be gathered for Rust due to difficulty finding participants. However, both participants did provide useful insight since both mentioned that despite the music being enjoyable, it interferes with gameplay and the hearing advantage is more important for the game than the musical experience. In essence, even though the choice to use sparse sounds (to keep gameplay sounds audible) is well-intentioned, it seems likely that it isn't enough to keep the music setting on for most players due to the game's competitive nature. It is also possible that this nature indirectly led to less participation in the survey, since a large proportion of Rust's playerbase undoubtedly play the game solely for the competitive side and potentially have little to no interest in being immersed by other factors, resulting in less participation. This is unlike all other games in the survey and most games centred around exploration, too, but ultimately isn't particularly surprising given Rust's unique blend of genres – not every game manages to combine elements of first-person shooters, role-playing games, exploration and even building.

Conclusion & Recommendations

The analysis of the survey indeed provides a greater insight into the features of the game soundtracks that add immersive qualities, as well as backing up existing research on the effect of a soundtrack on the gaming experience. All games showed a positive association between music and immersion in gameplay and immersion in the environment, though increasing environmental immersion a bit more. Moreover, according to the findings, stylistic choices such as instrumentation, timbre and melody are predominantly associated with immersion in the environment. This supports Munday's (2007) and Sweet's (2014) explanation that non-diegetic audio provides more context to a physical environment through instrumentation and harmonic relationships. On the other hand, immersion in gameplay is mostly influenced by dynamic techniques, especially changes through vertical layering or horizontal resequencing techniques such as rhythm and volume. Some players also supported Summer's (2011) description of game audio as being able to convey new information to the player. What encompasses all of the games is that their interactive genre of exploration has a key influence on the compositional techniques used to generate immersion together with their similar environmental genres. That is, exploratory gameplay evidently requires a very diverse and adaptive score due to the range of places the player can find and the number of other events that can occur, so vertical layering and/or horizontal resequencing is almost always used to enable satisfying transitions between emotional and thematic game states.

The largest way that the research could be improved would be by having an increased sample size. This would allow for more patterns to be identified and provide more context, as with a greater number of participants there is likely to be more detailed responses. The results also provide some evidence that some participants conflated the environment and gameplay, perhaps by considering things occurring in the gameplay space as part of the environment even though the focus is on the physical environment and surroundings of the player that are not particularly entwined with the gameplay. Moreover, if participants with some level of musical experience were selected

specifically for this field of research, more in-depth results could be collected since participants would be able to better identify musical features such as instrumentation or modes used, as opposed to responses being more broad. There could also be more detailed classification of quotes by using a Venn/Carroll diagram for both environmental and gameplay immersion where each circle or box respectively can be used for key characteristics of the score that the quote may relate to (such as instrumentation, melody or dynamic audio). Further research could minimise all of these issues and provide even greater context or even categorise types of immersion in a different way.

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Appendix A

Full Table of Survey Responses

Timestamp	Please select the game you wish to complete the survey for. It is recommended that you select one in which you are familiar with the music. You can also re-do the survey for more games.	How often do you play the game with its default music enabled?	Why is this your preference?	How well do you think the music fits the environments of the game?	If any, what features of the music make it fit the environment and why?	How well do you think the music complements actions that are happening in the game world?	If any, what features of the music make it appropriate for the actions that are happening and why?	Is the music helpful during gameplay? Tick all that apply and/or add your own explanation.	How much do you feel the music is helpful to you during gameplay?	How much does the music increase your immersion in the game's environment?	How much does the music increase your immersion in gameplay?	How much does the presence of music originating from objects in the game's environment add to your immersion	How much less enjoyable would the game be without music?	How happy are you with the amount of time the music plays in the game?	If you have experience with other games, why does the music in this game stand out? If it doesn't, skip this question.	Are there any other styles of music that you think would work well for the game? This could be any music you play with that isn't the default soundtrack.
08/04/2024 20:36	Noita	5	The Noita OST bops and I want to hear the newly added tracks	5	Eldritch music - eldritch game	4	There exist several one-time musical cues that play when doing specific things, which are quite nice		1	5	3		1	3	The music is considerably more thematic and fitting compared to the average video game soundtrack, helped somewhat by the overlap in personnel between music production and development	
08/04/2024 20:44	Terraria	5	the music kicks hard and fits the game perfectly	5	the music captures the tone of every environment really well; Nighttime is scary and ominous, the caves precarious and filled with gear and gems to be plundered and the music matches that really well imo	5	See previous typed response ig	Helps with focus or concentration on tasks	4	5	5		1	3	there isn't a song that doesn't fit the current actions, and they're so memorable and nostalgic	Honestly I don't think you could accomplish with other types of music what Terraria's music accomplishes
08/04/2024 20:53	Noita	5	I feel like playing the game with the music it is supplied with usually is the way to go - someone did think of how to arrange the whole thing.	5	I think that Noita has both very chill moments and moments of tension. It is also a very odd game all things considered - going with psychodelic rock just fits it so well. The music is also a banger.	5	Game usually reacts when a fight is starting with a music of appropriate tension. Analogically the same is true for the calmer moments - holy mountains etc.	Increases awareness of what is happening on-screen	4	5	5	4	1	3	As mentioned above - psychodelic rock just fits it so well. I can only think of one other example that has a similar style of music and thats rimworld. There are probably more, but not too many I think.	
08/04/2024 21:14	Noita	1	Using other music/youtube	5	The slow and melodic music is very relaxing and intriguing	5		Helps with focus or concentration on tasks	2	5	1		3	3		More piano
08/04/2024 21:16	Noita	3	The music is often quiet and in some areas there just isnt music, so I usually like having my own stuff in the background. Recently tho i've started playing more with the games music on.	5	With how mysterious and chaotic Noita is, the music and its style fit really well in my opinion.	5	The music often becomes more intense when something is happening in game, for example. a strong enemy is nearby, you take damage, explosions and some other things. And the ambient sounds for different biomes really helps with the atmosphere too.	Increases awareness of what is happening on-screen, Enhances the atmosphere by a lot.	4	5	5		1	2	The style of the music is very unique compared to other stuff i've heard.	Personally I can't think of anything else that would fit too well.
09/04/2024 21:48	Minecraft	3	Good music score	5	Relaxing piano while building	2	Sometime piano plays during stressful times	Helps with focus or concentration on tasks	5	5	5	4	2	4		I think the relaxing style is barest for the game.
09/04/2024 01:25	Noita	5	The music is very good and adapts to the current situation.	5	Noita has lots of environments and has lots of music that pairs with those environments. In an area with many large fungal growths, the music is slow and ethereal. In an area with lots of snow, there are some ambient noises that drone on and trail off from a high pitch to a lower pitch while the volume decreases. In an area with lots of robotic enemies, the music features a large amount of "beeps" and "boops" reminiscent of the sounds that Star Wars' robots make.	5	Between times with high action, the music feels like it adds some tension. When dramatic actions happen (like the player taking damage or an explosion happening nearby), the music changes in an adaptive manner. The tension is like a fuse and the explosive dramatic music is like a firework.	Increases awareness of what is happening on-screen, Provides useful information not otherwise known, To expand on my answer, the music becomes more dramatic when there are dangerous elements near the player or just off screen.	4	4	5	3	1	3	I don't know what genre of music it is, but I don't think I've heard anything like the Noita soundtrack before or after.	It would be funny if Noita had Jungle or Breakcore (since it would add to the "Finnish games with Breakcore" list), though it likely wouldn't be fitting.
09/04/2024 02:16	Noita	2	I usually watch other content while gaming, which clashes with in-game music.	4		5		It helps with remembering which area you are in.	3	4	4	4	3	3		
09/04/2024 08:50	Rust	2	I turn it on every now and again when i want to feel nostalgic. I play normally with it off for the hearing advantage :p	5		5			1	5	5	2	2	3		
11/04/2024 05:40	Minecraft	3	I switch between in game music, and playing my own music.	5	The peaceful nature of the music fits so well with the game. The music makes me feel isolated, but in a good way. The music also feels so grand. Like being alone in a huge garden. I just want to explore everything.	4		Helps with focus or concentration on tasks	1	5	3	3	1	3		
16/04/2024 00:32	Minecraft	4	Fits the environment of the game well and is suited well to the ebb and flow of the game, keeping my immersion.	5	The mixture of piano and synth in some of the pieces makes it sound like nothing we have in the real world, and it feels curated within the Minecraft. The music overall is well-suited to a lot of the different biomes, so i think the versatile nature is a strong point.	5	The instrumental style helps build on the routines the player creates within the lifespan of a world, becoming part of the known and what i'm accustomed to- soft dynamic of the music generally makes it seem "everyday" as I e.g start building a house, strip mine etc.	Helps with focus or concentration on tasks	3	4	5	3	1	3	(if i'm understanding the question correctly) The soundtrack for Detroit: Become Human is one of my favourites. For each of the three main characters, the developers used a different producer for each character which made completely unique soundtracks and main themes during their individual scenes. I feel like I can subconsciously hear the themes of the characters whilst playing (e.g familial love is important to one of the characters, Kara, and therefore the music swells and feels warm, in ways where different characters feel cold or intense, or metallic considering they're androids.) Because of the movie-like style of the game, it felt essential to understanding the characters on a subtler level, and how they developed or felt- show, not tell.	I feel that Lo-Fi works well, and other contemporary instrumental music that flows and doesn't directly bring your attention to it.
16/04/2024 23:27	Minecraft	5	It's too quiet otherwise	4	It's calm	4	Calm	Helps with focus or concentration on tasks	3	2	2	4	1	3	It is very original and not very similar to anything else	More rock or heavy music for the fights
17/04/2024 04:29	Minecraft	1	heard it sooo much	5		3	minect	Helps with focus or concentration on tasks	2	4	3	1	2	3		
10/04/2024 07:24	The Elder Scrolls V: Skyrim	5	Because tailored artistic experiences are rare. Music in games can be such!	4	They reflect the emotions associated with the environment. They mailed me feel the cold, the wind; they make me fear the wolves howling in the night; they inspire me to battle the dragon.	4		Helps with focus or concentration on tasks, Increases awareness of what is happening on-screen	3	5	4	5	1	3	It easily blended in the background. It didn't steal the spotlight. It adds to it.	A M B I A N C E
10/04/2024 18:46	Terraria	5	music provides clues about what's happening. also, Terraria has an entire alternate soundtrack built in if one is far enough along / other factors needed to enable it.	4	most of it is pretty good, but there's one track which I'm totally not a fan of...	4		Increases awareness of what is happening on-screen, Provides useful information not otherwise known	4	4	4		2	3		

11/04/2024 00:59	Noita	5	it fits perfectly	5	its dynamic so it always fits the environment and its also like psychedelic idk just like the game itself	5		Increases awareness of what is happening on-screen	2	5	5	3	1	3	it's often quiet but always plays when it has to and it always fits perfectly for example like something exploded? suddenly the music is very loud, then everything calms down and so does the music	
09/04/2024 22:48	Minecraft	4	I don't like games without any music.	4	The Minecraft soundtrack does a great job at fitting most situations. The different soundtracks for each dimensions are a nice bonus, but especially in the overworld the music is kind of lacking at times. Biome-specific music would help here a lot.	1	Minecraft fails in this regard.	Helps with focus or concentration on tasks, Immersion and elimination of background silence (especially in creative mode)	2	5	2	1	1	2		
11/04/2024 17:36	Noita	2	I often either talk to friends or listen to my own music, but sometimes enjoy appreciating the game's soundtrack	5	Parts which are eerie sound eerie, parts which are intense sound intense but all of the music gives a looming sense of wonder and mystery as you uncover the world	4	The music is able to pick up in a pinch, and is often constantly intense in zones which share that same trait	Increases awareness of what is happening on-screen	2	4	3		2	3	It's extremely fitting at all times. As well as just being incredible, it gives this magical and mystical air which wouldn't be achieved otherwise. The game feels both under your control and totally chaotic at once, which the music reflects beautifully by being both alarming but also harmonious	
12/04/2024 00:27	Noita	5	It's part of the product, better to enjoy the whole thing and how it works or doesn't work together	5	It's dynamic, when action certain things happen music changes, rhythm changes and it alerts me to something around me. Think of Stevari.	5	Almost always it reflects what's happening around when it has to and it can also be quiet and in the background when it's appropriate	Helps with focus or concentration on tasks	5	5	5	5	1	4		Noita music is varied enough to have different themes and feelings during the right moments of gameplay, it knows how to be mellow and how to rock. What else could i want.
08/04/2024 21:48	Minecraft	5	My preference for always playing the game with its music enabled is because I believe it enhances the overall gaming experience. The music aligns well with the mood and atmosphere of the game, immersing me deeper into the world. Additionally, I appreciate the creativity of the developers and trust their design choices, which is why I consistently choose to play with music on.	5		5		Increases awareness of what is happening on-screen	4	5	5		1	3	The music in Minecraft stands out because it's not just background noise—it's part of the game. It changes with what you're doing, making everything feel more alive. Plus, its chill vibe fits perfectly with the game's vibe. It's not just memorable; it's an essential part of the whole experience.	
15/04/2024 09:22	Rust	5	makes it more immersive, though interference with gameplay sounds so its just for fun mostly	5	lost, depressive, abandoned, dominated	3	dynamic music, example: oilrig, excavator (bass complements industrial theme of places)	no, it makes game harder to play sadly, probably because it's multiplayer	1	4	2	4	3	2		
17/04/2024 04:15	Minecraft	5	Too lazy to change, also it's iconic and based	5		3		Provides useful information not otherwise known	2	4	2	2	2	3		
16/04/2024 07:09	The Elder Scrolls V: Skyrim	5	When I was younger it helped me feel immersed in the world. 10 years on, it gives a great sense of nostalgia.	5	Skyrim's soundtrack contains a lot of male voice choirs, which reflects the setting of the game - a cold land populated with hard people. Most exploration music is sparse and light, with horns often taking solos - again evocative of vikings and hunters.	4	Less the composition, more how it is used in game. With all Bethesda games since Oblivion there has been combat music and non combat music. The transition between combat music and exploration music and vice versa when encountering/defeating and enemy can be jarring. Games like Elden Ring do a far better job of identifying what fights need a musical transition and which don't.		2	5	5	4	1	3	Partly because I played it in my youth - I waited in line to get Skyrim on the day it was released after having played nothing but Oblivion, Morrowind, and Fallout 3 for the previous few years - it's very nostalgic to me. Compositionally I think it fits the tone of the game better than Oblivion or Morrowinds did (both are more eccentric high fantasy games, rather than the gritty environment of Skyrim). The music never betrays the setting, and never invokes other styles to distract you from the world or roleplaying. Games like Elden Ring have great music but some tracks subjectively don't fit the tone of the game. The only other game I've found the	No, it's a perfect soundtrack!
16/04/2024 18:55	The Elder Scrolls V: Skyrim	5	A sense of place.	5	It has moments where it swells in response to important events and this underpins the story/plot and thus immersion	5	Tempo, resonance, volume - all change as action builds	Increases awareness of what is happening on-screen	4	5	4	3	1	3	Choral/chant music is quite distinctive	Folk, perhaps, in quite locations
16/04/2024 21:33	Terraria	4	It's how the game is meant to be played	5	Volume Style of music	4	Music is usually more frantic in areas that you will be fighting in and during bosses		1	4	4		2	3	Lots of different songs with lots of variation	
16/04/2024 22:57	Terraria	5	The default sound track is very well designed to resonate the situations of which the sound track is played	5	Each song is designed around the environment to portray the emotional feeling and appearance of where you are (for biome music)	5	Many things are engineered to have the intensity in BPM or orchestral feelings to influence your emotions	Increases awareness of what is happening on-screen	4	5	5	2	1	3	The music is very well intertwined with the environment and adds more immersion to the game itself	None
17/04/2024 04:23	Minecraft	5	To me, Minecraft is a slower game. So I prefer the music being a slower pace. The atmosphere of the music greatly compliments this.	5	Minecraft has many songs that could be considered fairly basic, which leave them open to interpretation without being too intrusive. Each one has its own primary sound. A simple piano in the night, a low drone in the nether, a mysterious static in the end, the list goes on.	3	The music having a calmer feeling doesn't always fit the game. At night, fighting monsters, the music doesn't really match the tone. Though the End gets an exception with the dragon fight having its own music. The rest of the game, mining, building, and exploring the world, fits the tone of the music very well.	The frequency of the music makes the moments where it kicks in feel special, and can even pull you into the immersion.	3	5	4		1	2	Other games that I play have constant music, or music to highlight specific things. Minecraft music comes in randomly, and then waits a while to come back.	If anything, the music from "The Legend of Zelda: Breath of The Wild" would be a good fit, but honestly it would be hard to pick anything else for Minecraft.
17/04/2024 04:07	Terraria	5	because the OST is goated	5	the chiptune music fits the overall graphical style of the game well	5	I am too stupid to answer this question		5	5	5		1	3		

17/04/2024 04:08	The Elder Scrolls V: Skyrim	4	usually when I play video games it's for a brief immersion and escape from my world, so I like to play with headphones and soundtrack on	5		5	the fight music stresses me out	Helps with focus or concentration on tasks, Increases awareness of what is happening on-screen	4	5	5	3	1	3		
09/04/2024 15:44	Minecraft	1	The music is detached from gameplay that listening to other music while playing doesn't subtract from my gameplay experience	3		5	It's detachment from Minecraft as a world, which emphasises the player and their actions.		1	1	2	3	2	3	It's not all that imersive nor does it make the game the more enjoyable to play, but it still adds something so unique and memorable that without it, Minecraft wouldn't be Minecraft.	Yes, but it's no replacement.
09/04/2024 20:12	Minecraft	4	concentration	4		5			5	5	4		1	3		
17/04/2024 04:17	Nolta	5	I usually play video games with the music enabled.	5	Most of the music exists in the lower register, which pairs well with the darker atmosphere of the game and its art style.	5	Nolta's music system works such that if there is more activity happening that involves you, it will ramp itself up. If you begin attacking an enemy, or are caught in an attack yourself (i.e. projectile, explosion), the music will get much louder (or resume playing if it was not already).	Increases awareness of what is happening on-screen	3	4	5		1	4	Nolta's music system is unique in its ability to modify itself with the environment. Most of the time, when you are quietly exploring or there isn't much going on, the music is either muted or very soft. This quickly changes when entering combat or other situations where you run is at risk of ending. It's also a great stinger to get the player to be more aware of what's happening right in front of them.	
17/04/2024 04:18	Terraria	5	good music for bosses and stuff bro	5	biome music make it feel fun to explore and stuf	5	boss fight music	Increases awareness of what is happening on-screen	4	5	4	4	1	4		no
12/04/2024 16:35	Minecraft	2	Being able to listen the sound FX more clearly.	5	Nostalgia	4	It's calmness		1	4	2	1	3	3	It is simple and calming	No.
17/04/2024 04:24	The Elder Scrolls V: Skyrim	5	I played it on console and I wanted music and keeping it on the default was the easiest option	4		3	It switches to the combat tracks decently fast, even if sometimes it feels random. The ambient music is still unique and nice to listen to if given attention while the player is relaxing, but still stays background music so it doesn't crowd the mind when the player is trying to think	Increases awareness of what is happening on-screen	2	4	1	3	2	4		Certain songs from Dark Dice: Gamble with your Sanity album on Spotify. Specifically Domain of the Nameless God, The Silent Faithful Danse Sanguis, and Ilmater's Hope: Winter (Wouldn't fit Skyrim but I do recommend Elven Wood Cutting Song purely because it's sung by Jeff Goldblum) https://open.spotify.com/album/5tSh8zF5qZIAlkFy6xq1tn?si=z9nZWje8TsKB1EUbJWveaQ
17/04/2024 04:10	Minecraft	1	I am most familiar with Minecraft out of these games.	1	None: The music is non-diegetic and is largely divorced from its respective environment	2	There is a lack of dynamics in music for activities like combat, but the lax nature of it can pair nicely with the calming nature of building.		1	1	1		3	2		
17/04/2024 18:30	Terraria	3	Often talking to friends or listening to something else	5	Use of varied instruments	4	Pace of music matching bossfights	Helps with focus or concentration on tasks, Increases awareness of what is happening on-screen	4	4	3	2	1	3	Very fitting for the atmosphere, and very hyper music during bossfights	Music from some mods of the game include lyrics, so they could work well
17/04/2024 18:35	Minecraft	5	I like the music.	4	Ambient, chilled nature. It often goes with the weather, too.	3	Things don't get too intense in the game.		2	4	2		2	2	It's better than most not better than all.	Any ambient music.
18/04/2024 21:23	The Elder Scrolls V: Skyrim	5	It's really atmospheric	5		5	You can feel the level of tension in the plot with the change in the music.	Increases awareness of what is happening on-screen, Provides useful information not otherwise known	4	5	5	1	1	3	For me it stands out because I heard and sang the music before I played the game , but I guess that's not a usual reaction. I first heard the music when singing in a concert of Skyrim at the Palladium and I bought the game to understand the music better.	Once I've heard a game with one soundtrack I couldn't imagine it with any other
19/04/2024 18:13	Terraria	5	The music is so good	5	The time of day/weather	5	In 'Boss 1' you can hear sirens to indicate that a boss is in the area.	Helps with focus or concentration on tasks, Provides useful information not otherwise known	5	5	5		1	1	Because the music is so dynamic	No
20/04/2024 08:07	Terraria	5	nostalgia	5	the music changes each biome and during boss fights etc, the boss fight music really enhances the feel of the fighting as it highly contrasts the casual playing music	4	eg. the music in the hallow make you feel like you are in some fairy land, matches the vibe of the hallow and even the mobs that are in it like unicorns and pixies	Increases awareness of what is happening on-screen	2	4	3	3	1	3	so many different soundtracks for the different areas of the map, its not just some background music	
21/04/2024 14:44	The Elder Scrolls V: Skyrim	5	Better ambience	5	It's calming walking in the countryside and the 'danger' music adds tension	5	Same as before	Helps with focus or concentration on tasks, Increases awareness of what is happening on-screen	5	5	5	5	1	5		

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SUBMISSION FORM

dBs institute

PLYMOUTH MARJON UNIVERSITY

Student

Name: Tom Holland

Course: Electronic Music Production
Year: 3
Module: MFTHP1

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Declaration
I confirm that, except where other sources are acknowledged, the work contained herein is my own unless otherwise stated as a collaboration as agreed with dBs. I am aware of dBs and Plymouth Marjon University's regulations concerning academic integrity and submit this work in good faith in accordance with those regulations.

I give consent for my work to be anonymised and used as an example piece for teaching purposes only

Yes

Before submission, please take time to review your work and decide what grade **you** would give it in accordance with the Learning Outcomes and the Grade Descriptors. The ability to self-assess is important for your development and employability.

Signed (type name below):
Tom Holland

Date: 25/04/24