Annotated Bibliography

Date of Research	Sources of Information Author surname, and initial(s). (Year published). Title (in italics and with minimal capitalisation). Publisher: place of publication. *OR* Author surname, and initial(s). (Year published). Title (in italics and with minimal capitalisation) [online video]. Available at: URL (Accessed on date of research)	Key Area/Terms you were searching Keywords: Microphone, Recording Techniques etc…	Your findings from this source and how useful you found it Brief Outline of what you have found and how it was useful. Please try to give detail about how this research will aid the development of your project. **Key:** **1 = Less relevant** **10 = Most relevant**
08 October 2024	Cicada. S (2019) *5 tips for making video game melodies || Shady Cicada*. Available at: [5 Tips for Making Video Game Melodies || Shady Cicada - YouTube](#) (accessed on 08 October).	How to write music for a video game	The creator begins by discussing the importance of the five key aspects to remember when writing music for video games. "Rhythm and Repetition" The creator begins this section by highlighting the importance of structure throughout video game music by suggesting, "there's a certain structure to some melodies that make them memorable." This may imply that having an order to each tune may intrigue the listener through each section of the game, as the music changes throughout. This may make the melody easier to remember. The creator uses the example of, "Megalovania" as the music is repetitive with only slight changes to the rhythm. The creator further highlights the importance of simplicity within the music by stating, "throwing around random notes and putting them on every beat without any room to breathe can turn bad real fast." The creator gives examples

			highlighting the improvement of the track with gaps compared to that without. This further illustrates the need for simplicity within music, however, there is a possibility that a track with no gaps can be successful. "Don't toss your lesser ideas in the trash" The creator gives the suggestion of potentially keeping tracks to add them in the background of the final piece. This may work well with the final piece and can be adapted to work with it better. They use the example of, "The Legend of Zelda," track, highlighting the difference between having gaps and no gaps, like the previous aspect. The soundtrack sounds improved when it has spaces to breathe, whereas it does not sound to a high quality without.
			"Let the Melody Sing"
			The creator begins this section by discussing the importance of the melody within the piece, and how the, "rhythm notes are just as important." Regardless of the success of the melody, the rhythm still contributes to the ultimate result within the piece and is still required to be heard, or the track would have a lower quality. The creator further states, "the rhythm is what carries the song first. The melody comes after," which overall highlights the vitality of the rhythm. They illustrate a variety of examples, including that of an over powering melody and rhythm. The creator implies that creating a rhythm progression first, and building a melody from the tune, may help to create a successful track for a video game.
			"Variations"

The creator begins this section by discussing the importance of having variation within each track, as it adds further interest within the piece. They give a clear example by playing a relatively repetitive track, that contains a slight difference in the fourth bar, with a further example of, "You Will Know Our Names," from the Xenoblade Chronicles. Both sections of the melody begin the same, but finish differently from that of the last, becoming a perfect example for a song with variation.

"Reel 'em in with that Harmony / Solo"

The creator begins by giving an example from the previous song without a harmony included. This ultimately does not sound as professional as the previous example, as it adds an increase of interest within the piece, becoming more successful. If the track did not contain a harmony, it may not be of a high quality it does with it.

The creator discusses the importance of the melody within each tune, as this, depending on the track, may be enough to create a successful song and may not require a harmony. This can vary depending on the style of the song, the composer or the general rhythm and melody.

"Experiment"

In this final section, the creator discusses the overall importance of experimenting when creating music, as it helps the composer see what is suitable for the piece. This

			could be a variety of things including: instruments, key changes, harmonies, texture and more. Experimenting is one of the most important aspects when creating music, as it allows the composer to choose aspects that are required within the piece and see what is ultimately needed to create the best possible piece. Relevance = 10
08 October 2024	Landes. R (2020) *100 games – The evolution of game music | 1972 – 2019*. Available at: 100 GAMES - The Evolution of Game Music | 1972-2019 (youtube.com) (accessed on 08 October).	Evolution of video game music	This source begins by introducing the evolution of songs from the years 1972 – 2019. There is a drastic development between these years as highlighted throughout the video. The creator of this source performs 100 songs, each on the violin with a demonstration of each game throughout. The first song performed by the creator is the 1972 game, 'Pong'. This consists of two notes, that are played when the ball is bounced back and forth between players. The simplicity of this song is illustrated throughout this section of the video, with a rough demonstration of the game. The next few songs consist of, 'Space Invaders' (1978) and 'Pac Man' (1980) which are significantly more detailed than that of the first song performed, specifically Pac Man, as it contains a melodic tune played throughout the game. This song is well known amongst many and is easily identifiable when hearing the song. With there being less than a decade between these songs, there is a clear improvement of video game music, as they have become increasingly more complex over a short period of time.

The next songs that are evoked within the video include the 1981 game, 'Galaga,' which includes a simple computer-based song, as the player shoots the enemies and, 'Tetris.' This song highlights the enhancement of technology, as this is a more detailed soundtrack to that of a decade earlier. One of the most memorable songs performed by the creator is the, 'Super Mario Bros' theme, as this song has been praised world-wide. This is one of the most successful tunes within video game music and is popular amongst many.

Moving onto the next decade, the 1990's, many tunes became more advanced, including that of, the 1991 game, 'Sonic.' This game has a faster tempo, like that of the character within the game. The similarity of the song and the game imply the development of video game music, as songs are becoming more suitable to the game, as illustrated by the tempo of the song. More examples within this decade are, 'Street Fighter II.' This song has an upbeat melody, which may resemble the game as a whole, motivating the player to fight. The drumbeat is also very powerful, possibly resembling the fighting aspect of the game, like punches between each player. Another example is through the game, 'Doom,' (1993.) This game has an extremely dramatic soundtrack, which may motivate the player as they defeat the enemies. The heavy soundtrack of this game evokes the overall gameplay, due to it's harsh atmosphere.

So far, the difference between the 1972 game, 'Pong' and 1991 game, 'Doom' is significant, as the instruments have

| | | changed from computer – based to using instruments and orchestras. Older tunes were very repetitive and basic, whereas in the modern day, they are full soundtracks, with different songs throughout, changing depending on what the player is doing.

The next decade, the 2000's also significantly develops to the previous years as highlighted through games such as, 'Battlefield 1942.' This soundtrack is dramatic, using an orchestra, to highlight the war – like feel to the game. The soundtrack continuously becomes increasingly more nerve – inducing, as if the player is about to go to war. Another example is through 'Grand Theft Auto,' (2004.) This game contains a very upbeat soundtrack, which may resemble the intensity of the heists within the game. This will motivate the player further to perform to the best of their ability. Another example is through the 2006 game, 'Wii Sports.' This soundtrack consists of the use of an orchestra, alongside a computer – based them. There are a variety of tunes within this game, motivating the player through each game they play. Next, another example includes the 2009 game, 'Plants vs Zombies.' This game consists of a variety of tunes, each with a relatively mysterious sense brought within each song. This may resemble the intensity within the game, as the zombies gain on the plants, motivating the player to protect them. Finally, another example is through the 2009 game, 'Minecraft.' This game altogether has a relaxing soundtrack, unlike the others previously mentioned, due to the peace of the game, and freedom of the player. This game mainly uses a piano for the soundtrack, strongly evoking the sense of calmness. |
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| | | | Finally, the most recent decade contains more developed tunes from games such as, 'The Last of Us,' (2013.) This game contains a suspenseful soundtrack, which resembles the intense feeling in the game. The apocalyptic nature of the game is highlighted through the mysterious soundtrack, as the player ventures through different areas of the game. Finally, another example within this decade is the 2014 horror game, 'Five Nights at Freddy's.' This game contains an unsettling soundtrack throughout, resembling the unnerving sense that the player feels when roaming around the game. This could further illustrate the evil that the animatronics radiate.

This source is useful, as the creator successfully highlights the evolution of video game music, and how songs have developed to suit the games more. The video begins with basic arcade game, 'Pong,' that is represented through the demonstration of the creator. This game's soundtrack is simple and to the point, but not detailed, unlike the soundtracks from the modern day. As the video continues, there are a variety of more complex examples throughout, including the previously mentioned, 'Doom,' released in 1993. As the creator covers the more recent decades, it is clear how music has increasingly developed over the years, through the use of real instruments, like bands and orchestras, and the development of more software. The source finishes by describing some of the most detailed soundtracks within video games, including the 2013 game, 'The Last of Us,' and the 2014 game, 'Five Nights at Freddy's.' |
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			Relevance = 10
08 October 2024	Newsdesk (2024) *What makes a great video game soundtrack?* Available at: [What makes a great video game soundtrack? - Music News	Music-News.com](#) (accessed on 08 October).	How to write a successful soundtrack for video games	This source begins by introducing three key aspects in which soundtracks alter games. 'Atmosphere and association' In 'Open World games' such as Zelda: Breath of the Wild and Tears of the Kingdom maintains a calm and atmospheric soundtrack, which evoke the game designers' intentions of freedom throughout the game. Another example of a game that uses this tactic is Minecraft, with the use of a piano to also highlight the freedom of the player. Online Casino games may also use this tactic throughout, as the games with specific characters or themes may include a 'bouncy' soundtrack, with some using more 'dramatic' tune, to make each song memorable for the player. This may also intrigue the player to come back for more games if the player gains an interest in the soundtracks. 'It's all about the hook' One example of a soundtrack with a memorable hook is Super Mario Bros. This piece, composed by Koji Kondo, was the first video game composition to be added to the 'U.S. National Recording Registry.' Hooks make the game more memorable, as that specific soundtrack will be linked to the game, which may intrigue players to return. Some people

			may return to the game mainly due to the pure enjoyment of the songs. 'Creating focus and tension' As well as building an atmosphere in games, many Horror games such as the Resident Evil franchise use soundtracks to help 'drive focus.' This may further motivate the player to continue their journey, whether it be through an abandoned building, through a forest, or escaping evil creatures. This also strengthens the tension throughout the game. RPG games also use this tactic, to successfully push the player to win the game. This source is useful, as the author describes three key aspects that are vital in composing a piece of music within video games. This includes 'Atmosphere and association,' 'It's all about the hook,' 'Creating focus and tension.' These key points are highlighted through a variety of examples, such as: Zelda: Breath of the Wild and Tears of the Kingdom an online Casino games (Atmosphere and association), Super Mario bros (It's all about the hook) and the Resident Evil Franchise (Creating focus and tension). The descriptive aspects of this source ultimately influence this to be useful for the project. Relevance = 8
08 October 2024	Porter. J (2023) *Video game music with the actual instruments!* Available at: [Video Game Music](#)	Video game music that involves instruments	This source highlights a variety of songs that are composed using real instruments. This highlights the development of music within games, through the use of a variety of

	with the Actual Instruments! - YouTube (accessed on 08 October).		instruments, including: A Drum Kit, Boom whackers, Keyboard, Marimba, Guitar and Vibraphone. 1) "Dwumrohl" - My Singing Monsters 2) "Graze the Roof" – Plants vs Zombies 3) "Tiawa" – My Singing Monsters 4) "Gerudo Valley" – The Legend of Zelda: The Ocarina of Time 5) "Left Bank Two" (The Novel Tones) – Little Big Planet Regardless of the source being short, it is useful, as it highlights five songs that use completely different instruments: The first song is a drum solo that only requires a Drum Kit to perform, the second song uses Boom Whackers and keyboards with different sound effects, the third uses a Marimba, the fourth uses a Guitar, with hand claps in the background, with the final song uses a Vibraphone, with a snare drum, and a brush. I find this source interesting, as the games all share similarities, but use a wide range of instruments. Relevance = 7
14 October 2024	Saksena. S (2022) *Who is C418? The German composer behind Minecraft, the world's most popular video game*. Available at: Who is C418? The German Composer Behind Minecraft, the World's Most Popular Video Game (ign.com) (accessed on 14 October).	Examples of memorable video game music	This source tells its readers about one of the most well-known video game composers. This being the composer of Minecraft: Daniel Rosenfeld (C418). The music within the game contributes to the success of the game, as it creates an immersive experience for the player. Furthermore, the sound effects juxtapose the calmness of the game, due to

| | | | the eeriness of the different dimensions, as well as the hostile mobs that roam around.

This source highlights the importance of the soundtrack within a game, as it can be the 'difference between a good game and a great game.' This also works for sound effects that are used within the game. The composer was given 'complete' creativity and freedom when composing the music and sound effects for the game, allowing for a unique sound within the music. Rosenfeld has also released albums related to the game: "Minecraft – Volume Alpha" and "Minecraft – Volume Beta." Both tracks contain the work that the composer released for the game, becoming popular amongst many. Rosenfeld's 'Volume Alpha' consists of 24 tracks, whereas 'Volume Beta' consists of 30 tracks. This highlights the success of the composer, allowing the increase of popularity towards the game and its music.

This source is useful, as the author describes the importance of music within video games, specifically through Minecraft. The composer's freedom within the soundtrack is illustrated through the uniqueness of the music and sound effects. The use of instruments, such as piano for the main theme, foreshadows the peace and creativity within the game, further building the immersive experience for players.

Relevance = 7 |
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| 14 October 2024 | Shearon. A (2023) *The super Mario bros. Theme is the first video game music enshrined in the* | Most popular music in video games | This source specifically covers the composer of Super Mario bros, alongside the theme itself. The author highlights the |

| | *national recording registry*. Available at: The Super Mario Bros. Theme Is the First Video Game Music Enshrined in the National Recording Registry - IGN (accessed on 14 October). | | overall memorability of the theme tune, while also evoking the success of composer, Koji Kondo.

The source begins by illustrating the ultimate success of the Super Mario bros theme, through discussing, "Nintendo's Super Mario bros theme to be the first video game track enshrined in the National Recording Registry," as selected by the, "Library of Congress." This statement overall implies that the tune was so popular worldwide, that it holds a place in the largest library in the world. This library contains millions of books, films, audio recordings, photographs, maps, newspapers and more. The Super Mario bros theme is known to be, "one of its 25 to showcase and preserve within its National Recording Registry." This highlights the sheer success of the tune, as it is preserved in the Library, to never be forgotten, as this iconic piece inspired many video game composers across the globe.

The source continues to use quotes from Librarian of Congress, Carla Hayden, that explains the, "selection process". She describes that the recordings are to be, "preserved for generations to come." This could evoke that this piece will be treasured to inspire younger generations to build their knowledge on the subject, or to create compositions inspired by it.

The author then continues to illustrate the origin of the theme, as in 1985, composer, Koji Kondo created, "one of the most memorable video game tunes ever." This may imply that, regardless of limited resources, and simplicity of the tune, almost 40 years later, it is still one of the most |

			well-known pieces in video game history to exist. The author finally describes Kondo's success in composing the music for The Legend Of Zelda shortly after creating the Super Mario bros tune. Both, in which, are highly successful and inspiring pieces. This source is useful, as the author highlights one of the most successful compositions in history. This being the Super Mario bros theme, composed by Koji Kondo. The success of this is illustrated through the composition being the first piece to enter the Library of Congress, being a major turning point for video game composers. The author lightly touches on another piece by Kondo, The Legend Of Zelda, as this has also created success for the composer. These iconic pieces have been great inspirations for many across the globe, whether it be to play games or write music for them. Relevance = 8
14 October 2024	Staff. C (2024) *Gaming soundtracks: Which genres are most common in video games?* Available at: [Gaming Soundtracks: Which Genres Are Most Common in Video Games?	CULTR](#) (accessed on 14 October).	Which genres are most common in video game music?	This source includes three genres of music that are highly involved in the creation of music for video games. The first genre is 'Rock and Metal'. This section discusses the introduction of Rock and metal music in video games through the game 'Doom' (1993). This soundtrack consists of multiple songs by artists such as Pantera, that were mixed to suit the game. This further helps the game to maintain a tense atmosphere, which relates to the overall gory setting that is portrayed

| | | | throughout the game. This inspired more composers in similar games to adapt to this genre, as it is strongly sets the scene for violent or faster paced games.

The next genre is 'Rap and Hip-Hop'.

This section discusses games that highlight the use of Rap or Hip-Hop music, such as 'Tony Hawk's Underground'. This music would suit this game well, as it is based around skateboarding. The high energy that these genres portray, match well with the sport, and the overall atmosphere of the game. Soon after, more popular games such as the 'Grand theft Auto' franchise adapted these genres into the game, as it perfectly fit with the games' theme, whether it be in a car, in a mission of just roaming around.

The final genre is 'Orchestra'.

Music made within an Orchestra is very well known amongst various games, as it is included in games such as: Zelda, Halo, Skyrim and many more. Orchestral music may be anywhere from a few woodwind instruments to portray a calm, peaceful atmosphere, to a whole orchestra, (strings, brass, percussion and woodwind) which may highlight a more intense, vicious atmosphere. This can be used in a wide range of games, as it is possible to create a variety of different sounds for different atmospheres.

This source is useful, as the author clearly illustrates three main genres used for video game music. Firstly, they discuss 'Rock and Metal' music within games, and how it impacts |

			games such as 'Doom,' creating an eerie atmosphere for players. Secondly, the author describes a further genre, 'Rap and Hip – Hop.' They discuss how the genre fits with various games such as the 'Grand Theft Auto' franchise and 'Tony Hawk's Underground.' The author finally discusses 'Orchestra' music, which is widely used for various types of games, being able to create a variety of atmospheres for the listener. Each segment comes with a selection of examples that relate to each theme, which successfully explains how and why each particular song is chosen for each game. Relevance = 9
16 October 2024	Unknown name (2008) *The evolution of video game music*. Available at: The Evolution of Video Game Music : NPR (accessed on 16 October).	How video game music grew	This source begins by discussing the popularity of video game music, through the 'riot' that was caused due to tickets selling out for the Final Fantasy live performance in 2004. This strong statement highlights the beauty of video game music, and how it has developed so drastically from basic sounds to full soundtracks, including orchestras, bands and various types of software. The author then continues to backtrack to the origin of video game music through the game: Pong (1972), where the only sounds featured in the game were 'onomatopoeic sounds'. The author then continues to discuss composer, John Wall, who further illustrates the simplicity of video game music. However, these sounds are said to, "kind of invade your brain", meaning the basic sounds in the game are memorable, and will become recognisable to those who are familiar with these noises. Players may associate this with the game, whether they are playing it or not.

			The function of video game music
			Composer Tommy Tallarico discusses the significance of sound and music within games through the example of Space Invaders (1978). The music within this specific game is designed to make the player, "panic" as the aliens get, "closer and closer." The composer continues to discuss the difference of having music, compared to not having music in the game, as this would mean, "people wouldn't panic as much". However, the music was made to create an uneasy atmosphere for the player, as this may further intrigue them further into the game.

The source then highlights the influence of music in video games through the example of the 'Russian folk song' that is featured in Tetris (2008). This was a stepping stone for composers, as it illustrated the uniqueness and the potential for music.

Music enters the design

This section is less relevant to that of the rest of the source. However, there are some aspects that relate to the source. This includes a variety of quotes from musicians and video game composers. They discuss whether Beethoven would be a successful video game composer, "If Beethoven were alive today, he'd be a video game composer," due to the previous success of this composer. However, this debate resulted in them doubting the original statement, as they begin to realise the unlikeliness of this. "Beethoven changed |

		the world as we know it, and I doubt he would have done that through video games." Finally, they highlight the unpredictability of video games and the music within them through suggesting, "one doesn't know what's going to happen in a video game." This ultimately evokes the uniqueness that the music may hold within video games. Video Games hit the concert stage Wall and Tallarico launched, "Video Games Live" in 2005, which included, "Some of the world's finest orchestras," who performed a selection of the most popular video game tracks. This helped gain publicity of video game music, as it became increasingly popular worldwide. This may have further persuaded the development of video game compositions, as more people would have taken inspiration from performances like this. This source is useful, as the author discusses the development of video game music, with examples starting from: Pong and Space Invaders, to performances that include whole orchestras. The author further discusses two composers who were inspired by older arcade games, like Space Invaders, and who continued to create well – known compositions worldwide. Overall, this source highlights the development of video game music, and ways in which music has significantly improved over the decades. Relevance = 9

| 16 October 2024 | Unknown name (2023) *The history of video game music*. Available at: [The history of video game music (blips.fm)](#) (accessed on 16 October). | The history of video games | This source discusses the history of video game music, and how it has improved since the early 1970's in arcade games.

What was the first video game soundtrack?

One of the first video games to include music was 'Space Invaders' (1978). The song consisted of 'four descending chromatic bass notes,' which is now viewed as the 'first video game soundtrack'. As enemies gained on the player, the song was programmed to increase the tempo to build tension within the game. However, the first game to include a melodic soundtrack was 'Rally X' (1980).

Interactivity

Interactive music was adapted to change with the 'player's actions' and 'gameplay events.' One of the first known examples of interactive music in a video game was through 'Frogger' (1981). However, as previously mentioned, Space Invaders is said to be the very first, as the music adapts to its surroundings, with the tempo increasing until the danger has gone.

The 8 - Bit Era

This era began with the release of new consoles such as the 'Nintendo Entertainment System' and the 'Sega Master System'.
The introduction of 'Improved sound chips' was a key aspect of the '8 – bit era'. This meant that the soundtracks had the capability of becoming more detailed. Developers |

were now able to produce more creative soundtracks using 'Sophisticated programme sound generators' (PSGs).

Chiptune

A new style of music was introduced with the evolution of the '8 – bit era' This became known as 'Chiptune,' which connects to the technology used at the time of this era. Indie developers continue to use this sound within new projects and games.

16 – Bit Era

This era introduced 'additional improvements' to sound chips. This allowed for: 'Increased number of audio channels,' 'recorded samples' and 'realistic sound effects.' This led to the improvement of soundtracks, persuading the evolution of music to grow. One example of this is through 'Donkey Kong Country' (1994), which included samples using instruments, which may make the game feel 'lifelike.'

32 – Bit Era

This era introduced drastic change to video games, as well as the music that comes with it. This era improved from basic 2D graphics to higher quality 3D graphics. This included new consoles such as: 'Sony PlayStation, Sega Saturn and Nintendo 64.' The introduction of CD's allowed for more data storage within soundtracks, allowing for the production of larger games. Music within games gained a

			'CD quality – sound,' allowing composers to have more freedom with their music.
			Computer game music
			Consoles have always been a popular way of playing games, making it more difficult for developers adapt to every unique console. In the 1980's computers were only limited to 'three of four voice sounds.' Soon after, in the late 1980's, the 'first PC sound cards' were released, which allowed to the improvement of audio within video games.
			Composers
			In the early days of video game music, composers were limited with the technology available at the time. Instead, they used a range of techniques such as arpeggios and pitch bending to 'enhance the music.' This did not prevent composers from creating iconic pieces, like the Super Mario Bros composer, Koji Kondo.
			Examples
			8 Bit
			'Super Mario Bros' Composer = Koji Kondo 'Catchy' 'Upbeat' 'Cheerful' 'Colourful'
			'Alex Kidd in Miracle World' Composer = Tokuhiko Uwabo

		'Catchy' 'Upbeat' 'The Legend of Zelda' Composer = Koji Kondo 'Adventurous' 'Atmospheric' 'Wonder' 'Excitement' 16 Bit Super Mario World Composer = Koji Kondo 'Upbeat' 'Adventurous' 'Sonic the Hedgehog' Composer = Masato Nakamura 'Catchy bass driven tunes' 'High speed action' Street Fighter II Composer = Yoko Shimomura 'Energetic' 'Memorable' 32 Bit Super Mario 64 Composer = Koji Kondo 'Catchy' 'Upbeat' 'Soothing Melodies' Final Fantasy VII Composer = Nobuo Uematsu 'Orchestral' 'Electronic' 'Best of all time' Castlevania: Symphony of the Night

			Composer = Michiru Yamane 'Gothic aesthetic' 'Vampire - themed storyline' 'chilling' 'eerie atmosphere'
			Today's game music
			In the modern day, computers have taken a large role in in the production of music. There has been an increase of music Software, also known as 'Digital Audio Workstations' (DAWs), which has strongly contributed to the improvement of video game music. They provide 'modern synthesizers, powerful sound effects and samplers.' They allow the composer to imitate nearly every instrument, with complete freedom and no limitations. It is also still possible to use sounds from past generations 'from chiptune to everything in between.'
			Video game music concerts
			Video game music concerts have gained mass popularity over the recent years. This attracts audiences ranging from those who are fans of video games, to music, to both. An example of this is through the 'Video Games Live' tour in 2005. Over 500 shows were performed internationally. A variety of games were involved in this, including 'classics from arcades, consoles and PC's.' These performances highlight the impact of music within video games around the world, and how it has changed music, as a whole.
			Conclusion

| | | | Music within video games has enhanced drastically since the creation. It has developed from 'simple bleeps and bloops' to 'complex' and 'immersive' soundtracks. The improvement of technology contributed to the further development of music in games, as there is a wider variety of available software, which is able to produce 'even more immersive and dynamic soundtracks.' The increase of popularity amongst video games continues to persuade the need for music within them, as it plays an 'essential role' within the world of video games.

This source is useful, as the author clearly highlights the history of music in video games, with clear examples, including 8 – Bit, 16 – Bit and 32 – Bit. They also describe the increase of popularity amongst listeners and players through 'video game music concerts,' which are performed very frequently internationally. Next, they describe the enhancement of technology, and ways in which it has contributed to the development of music within video games. Finally, the author completes the source with a conclusion, that highlights the overall summary of the history of music within video games.

Relevance = 10 |
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| 16 October 2024 | Wain. S (2022) *Everything you need to know about composing video game music*. Available at: [A Beginner's Guide To Composing Game Music In 2023 | GameMaker](#) (accessed on 16 October). | How to compose a song for video games | This source begins by the author discussing the overall importance of video game music, and how it is, "fundamental to your experience." This means that music is vital within video games, as it contributes towards the immersive nature within them. |

| | | | "What's the difference between composing for video games and visual media?"

The author begins this section by discussing the key points that make video game music stand out from that of visual media. One example is that it is, "non-linear," meaning the music is always changing due to the story line. Another example mentioned is that music is always, "interactive," meaning that it changes depending on the players' actions or current atmosphere. The author then discusses that it is important to create a composition that relates to each aspect within the game, but it cannot 'distract' the player from the gameplay.

There are a range of characteristics that should be considered when composing music for video games. This includes:

"Dialogue:"
The dialogue within the game has to be heard above the soundtrack and has to be heard clearly by the player. However, it cannot fully overpower the music, as it still has to be heard.

"Sound effects:"
This has to relate to the games' setting and match the actions of the player. For example, if the player is surrounded by zombies, sounds could include growls or grunts with footsteps that get increasingly louder as they approach the player. |
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"Music composition:"
The music within the game has to relate to the atmosphere of the game. For example, in the game 'Minecraft,' the music is calm and peaceful due to the freedom that the game highlights. The music is perfectly suitable in the game, as it allows the player to maintain positive emotions.

What is interactive music?

The author uses the example of the 1978 arcade game, "Space Invaders," as the music adapts to the enemy getting increasingly closer to the player. The tempo increase creates tension for the player, highlighting the importance of interactivity within video game music.

The author further discusses the two different ways in which it is possible to compose interactive music. This being Vertical remixing and Horizontal re-sequencing.

What is Vertical remixing?

Vertical remixing is when the composer uses a variety of layers with different intensity levels that work together to create a piece. The author uses an example of a four layered piece explaining the different layers.

"Layer one: Low Intensity."
   This layer will consist of a simple, slow rhythm to start the composition.

| | | "Layer two: Medium Intensity."
This layer will consist of something to help build the piece. The author uses the example of "some hand percussion."

"Layer three: High Intensity."
This layer will become more intense, using more powerful instruments to further build the composition. The author uses the example of a potential "lead synth line."

Layer four: Special Instance."
This layer could consist of extra little pieces within the music to make it stand out to the player. The author uses the example of adding a "musical sting."

Two example of games that include this technique within their soundtracks are: Red Dead Redemption and Pokémon Sword and Sheild.

Challenges of using Vertical mixing:

This technique can be difficult to implement into some games, specifically if there is a lot of action within the game, or if the setting is changing rapidly. Longer games struggle with this, as it has to change from layer to layer to suit each possible aspect within the game. However, it is possible to avoid this by using Horizontal re-sequencing alongside Vertical mixing.

What is Horizontal re-sequencing? |
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Horizontal re-sequencing is when each section is capable of being looped, rather than having, "specific instrumental layer." This is seen to be significantly smoother and is easier to transition to other sections when required. Some examples of games that include this are: God of War and Assassins Creed III Liberation.

Challenges with Horizontal re-sequencing:

There are some challenges when composing video game music with this technique, as games tend to change unexpectedly. This means that when composing a song with a time signature of 4/4 and a sudden change occurs, the music will not sound smooth and may have a negative impact on the overall soundtrack. To avoid this, composers may need to use, "risers, faders and effects," so the music has natural - sounding transitions.

Making music fun, always and forever:

Using both the previously mentioned techniques allow for a better, higher quality sounding soundtrack, as it helps the music successfully transition between each aspect of the game. Using both allows the composer more creativity, as they have full potential with how the music transitions from each section of the game to the next.

Game Audio implementing Software:

| | | | There are a variety of useful resources that can be used to create video game compositions, such as: FMOD and WWise. These types of software are useful, as they make it easier for musicians to create interactive soundtracks.

FMOD was created to have the appearance of a Digital Audio Workstation (DAW), which, makes it easier to use for anybody who has an interest in creating music. Whereas WWise is used by more popular companies as this software is not free, unlike FMOD, which is commonly used for smaller indie games.

Tips on how to compose music for video games:

The following are examples of what to consider when creating music for video games.

How to choose what instruments to use:

The instruments used within the game have to suit the overall setting of the game. The author uses the example of, "The Wild West." If a game maintained this setting, it would be likely that the music contained instruments like a banjo or harmonica. It has to give the player context to the story and the upcoming events, being more mellow if the game is peaceful, or being heavier if the game is violent.

Tell a story with sound:

The composer has to consider how the, "characters' journey," will be, when creating the music for the game. For |
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| | | | example, if the character is alone, they could hum or whistle a basic melody, whereas if they were fighting there would be a dramatic soundtrack, with potential screams or shouting to further highlight the violence. The author uses the example of, Red Dead Redemption 2, as it has a calming soundtrack, due to the game being free roam.

Test out different music before you start:

Experimenting with different instruments or genres will help the composer to fully understand the suitable aspects that the game requires, to make the soundtrack successful. By doing so, it will allow the composer to identify characteristics that should be included in the soundtrack, and some that should not.

Compare your music at the end:

By comparing your music to that of another artist or game will allow the composer to identify sections that require improvement. This could be done by recognising more successful parts of the music, alongside the less successful parts.

Audio mixing in Video Games:

It is important that there are not too many sound effects when creating a piece for a video game, as it may not sound as smooth as it could if it did not. By adding too many effects, it could negatively affect the atmosphere within the game. To avoid this, it should be noted that not much is |

			needed to create a masterpiece, and can fit the games' setting perfectly.
			What sound file types are better for games?
			What is a good DAW for game music?
			Digital Audio Workstations are capable of manipulating any instrument digitally. They are a vital aspect when composing music, as they help improve soundtracks. Some examples that the author uses of DAW's include:
			GarageBand Cakewalk Audiotool Reaper Ableton Logic Nuendo Cubase Pro Pro Tools
			It is possible to use multiple DAW's to create a piece, to improve the sound quality.
			Plugins for composers:
			It is possible to also download a plugin synth, as the author uses the examples of:
			Free Synths

		Massive X Serum With these it is possible to improve any soundtrack, as it allows for a clean sound. What game engine should you use? It is impossible to create a game without a game engine. There are many game engines that are possible to use when composing video game music. However, this may vary depending on what style the composer choose, as some may be more suitable for others. One example of a game engine is GameMaker, which specialises in 2D games. How to start composing video game music: Firstly, the to compose music, it is important to become familiar with a variety of DAW's, and gain as much knowledge possible with them, as it helps when creating different styles of music. There are sources available that will help any musician that needs advice, such as a book by Winifred Philips, called, "A Composer's Guide to game Music," which has been highly recommended by professionals. Finding Video game composition jobs: There are many available jobs when it comes to composing for video games. For example, AAA game studios hire many people to compose music for their games, usually consisting

		of a, "whole team." However, smaller Indie game developers do not require as many people to compose their soundtrack. They also sometimes take on other roles. How to become a game composer with GameMaker: Many composers, beginner or professional, use this game engine, as it is free and has been known to have been the engine used for games such as: Undertale, Hotline Miami and Chicory: A Colourful Tale. This engine gained further popularity through these games. Relevance = 10