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Adaptive Music in Video Games and How It Impacts Player Satisfaction

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Introduction

When discussing the impact video games have had in pop culture, music is often left out of the discussion until one talks to more hardcore audiences. Music is the unsung hero of video games; without it, it would be hard for audiences to feel immersed in video games at all. Adaptive music in video games allows for the player to have conscious and unconscious control over what is heard within the game's soundtrack at any given moment. This allows for every player's experience to be unique, creating memorable moments to share with friends or think back on. Adaptive audio is one of the most essential parts that make video games a unique medium in comparison to other forms of entertainment. As games have grown to be more and more popular over time, the medium has continually evolved how the application of adaptive music is used within the context of gameplay.

Being a fairly new form of entertainment, video games have a history that must be discussed in terms of the evolution of adaptive music and how each game has continued to build off of games that have come before them. Each console generation, developers have found a way to innovate, furthering the progress of how seamless adaptive music is today in games such as *Devil May Cry 5*, *Final Fantasy VII Remake*, and *Journey*. Each of these games use a different technique for the integration of adaptive music with each having a unique way of immersing the player into the worlds that the developers carefully crafted over many years with one central thing in mind: the player. This poses the question: how does adaptive music in video games impact player satisfaction? When discussing adaptive music in video games, the history of its application should be the priority in order to understand just how far developers have pushed the industry towards what is available today.

History of Adaptive Music/Audio in Video Games

Audio in video games has continued to evolve since the 1972 Atari hit, *Pong*, leading up to most recent games on the market such as *Kena: Bridge of Spirits* (2021) and *Spider-Man: Miles Morales* (2020). It's hard not to mention *Pong* when discussing audio in video games as it is the earliest and most famous example most people point toward when looking at the origins of video game audio. The response of the ball hitting each player's paddle was revolutionary for its time: so much so that the industry started to grow with companies developing similar games around the same time as *Pong* (Collins, *Playing with Sound* 8). The next famous example of revolutionary use of game audio would be *Space Invaders* (1978). As the aliens drew closer to the player, the four-tone loop that would play as the aliens moved up would speed up. This was meant to provoke a sense of panic in the player to play better to avoid losing (Collins, *Game Sound* 12). This is one of the earliest examples of music in the context of video games. Writing music for games in this archaic period of game development was very slow because sound designers would have to "combine transistors, condensers, and resistance. And sometimes, music and sound were even created directly into the CPU port by writing 1s and 0s…so [the composer would] have to write something like '1, 0, 0, 0, 1' literally by hand" (Tanaka).

In 1983, Nintendo released the Famicom in Japan and in 1985 released its North American counterpart, the Nintendo Entertainment System (NES). Composer Yukio Kaneoka invented a new sound chip specifically designed for the NES that used a custom five-channel programmable sound generator (or PSG) chip (Collins, *Game Sound* 12). This custom PSG chip had two pulse wave channels that had a range of 8 octaves, four options to set timbre, and a noise channel capable of creating white noise, which was useful for transition noises, crescendos, and percussion (Collins, *Game Sound* 25). The final channel operated as a sampler, which was called

a delta modulation channel, otherwise shortened as DMC. The delta modulation channel was typically used for speech or sound effects (Collins, *Game Sound* 25). *Metroid* utilized multiple methods with this five-channel chip in unique ways at the time such as altering the volume and timing of the two pulse channels to produce phasing, echos, and vibrato (Tanaka). Composition was still fairly limited by today's standards with only having, at most, five channels to make music with. However, as with *Metroid*, composers were creative with the limitations of the hardware at the time.

Beating Nintendo to the punch for the 16-bit era, Sega released the Mega Drive and Genesis in 1988 and 1989 respectively. These consoles were capable of more musical and overall sound possibilities with their Frequency Modulation (FM) chips. Most FM chips had around six oscillators for each sound, which were able to simulate more realistic sounding instruments than any previous sound chip on the market. FM chips offered a wider range of timbres and sounds than what was formerly possible with earlier sound chips (Collins, *Game Sound* 38).

Around this time, LucasArts' 1991 hit, *Monkey Island 2: LeChuck's Revenge*, released for Mac OS. *Monkey Island 2* is an adventure game. The soundtrack was composed by Michael Land, Peter McConnell, and Clint Bajakian. The music heard in this game was created to react to the player's actions within the narrative in the game. For example, if the player is exiting a town and going to the docks, the music adds in some more tropical sounding instrumentation to reflect the surroundings (Yarwood). The music isn't just limited to the player exiting and entering new areas; the music also adds more instrumentation when the player finds an item necessary to push forward the narrative (Yarwood). *Monkey Island 2* used a unique engine for the music, which will be described in more detail later.

The next home console generation would see Sony stepping in with their Playstation, which was initially supposed to be an accessory developed in partnership with Nintendo for the SNES. However, the deal fell through, and Sony and Nintendo went their separate ways (Collins, *Game Sound* 69). The Playstation, released in 1994, was Sony's effort in the 32-bit market. The console played solely CD-ROM games as CDs were on the rise in the industry due to their immense upgrade in memory and sound fidelity in comparison to the cartridges of the past. One game that showed the leap in audio fidelity was Squaresoft's 1997 release *Final Fantasy VII*. The JRPG that took over the world, *Final Fantasy VII* used MIDI from the on-board synth chip and allowed for very dynamic music with smooth transitions between tracks (Collins, *Game Sound* 69). The music composed by Nobuo Uematsu seamlessly transitioned between music that would play on what is considered the overworld and fighting music for random encounters. While very basic by today's standards, at the time this transition between tracks was revolutionary.

Heading into the sixth generation of home consoles, the leaps in evolution for music become less concerned about hardware and more dependent on the talent behind engines created by developers. The Playstation 2 (PS2), released in 2000, offered support for multichannel surround sound, which includes a sound processing unit able to produce 16-bit audio with a maximum sample rate of 48 kHz, which is better than CD audio quality. The PS2 also boasts an additional 48 MIDI channels with the caveat that sound still had to be compressed in order to save space on the disk (Collins, *Game Sound* 71). In 2001, Capcom released what is considered the birth of the hack and slash genre: the game *Devil May Cry*. Composed by Masami Ueda, Masato Kohda, and Misao Senbongi, the music follows a similar formula as to *Final Fantasy VII* in which the player would enter in and out of battle and the music would promptly change between the appropriate music necessary for each situation seamlessly (Newnham).

The Playstation 3, released in 2006, boasts even more channels than the Playstation 2: 512 to be specific. The channels were able to apply different layers of audio as well as DSP filters in real time. Once again, though, audio still fights for shared system memory and CPU processing due to system priorities. Therefore, the audio must be compressed just like the previous console generations (Collins, *Game Sound* 71). Many games in this generation featured the many capabilities of adaptive game audio, however, there was one game that effectively showed off how to tailor a story through the utility of just music: *Journey*. Released in 2012 at the end of the console generation, *Journey* was crafted around the music down to instruments being mapped around whether or not a player accesses certain areas. For example, more instrumentation would be added to the music if the player proceeds to the objective, but if the player were to go all the way back to where they started, the music will procedurally deconstruct itself back to its original skeletal state (Wintory). *Journey's* soundtrack was composed by Austin Wintory, and the game was developed by Thatgamecompany and Santa Monica Studio as well as being published by Sony Computer Entertainment (Harper).

Sony released the Playstation 4 in 2013, thus entering the eighth home console generation. In this generation, two games captured the reason why adaptive music is a standard for the industry in engaging a player. In 2019, Capcom released their long-awaited return to hack and slash, *Devil May Cry 5*. *Devil May Cry 5* used a new music system that adapted to how well the player was performing in combat and would reward the player if they were constantly changing up how they were playing and weren't taking damage. Capcom wanted the choruses of the songs to be very catchy and "massive" so that the player felt rewarded when they were playing well, which will be covered further later (De Meo). In 2020, Square Enix released a long awaited game after 5 years since its first announcement: *Final Fantasy VII Remake*. The

soundtrack was composed by Masashi Hamauzu, Mitsuto Suzuki, Nobuo Uematsu and was met with universal praise by fans due to the fresh takes on classic tracks while also preserving the original melodies and original feel of how they used to sound back in 1997. The composers thought that a traditional approach to the music, much like how players would hear it in the original version of the game, felt too dated to modern casual audiences and opted for a more adaptive experience so that every player's experience is tailor made for them and them alone. The composers describe the music as if it's "a really top-class DJ performance...getting it all to flow smoothly" (Allen). These games are the pinnacle of what developers strive for when creating adaptive game music today.

In the holiday season of 2020, Sony released their newest model in the Playstation lineup, the Playstation 5. The Playstation 5 is the current generation of gaming with a library that includes games that continue to push the envelope for adaptive music such as *Devil May Cry 5 Special Edition*, *Kena: Bridge of Spirits*, *Spider-Man: Miles Morales*, and many more titles. The titles listed previously have taken advantage of knowledge from games in the past and have unique ways of utilizing adaptive music in their own right. In *Spider-Man: Miles Morales*, if the player enters free fall from a very tall building, the only thing that can be heard is the wind whizzing past Spider-man until the player decides they want use their web-shooters and then heroic music begins to play as the player swings from building to building all throughout New York. The current generation shows how far developers have come in terms of consistent innovation in regard to the application of adaptive video game music which now leads to the discussion of the techniques used for adaptive music within the context of gameplay.

Techniques Used for Adaptive Game Music

Video games are a fairly new form of entertainment as well as being one of the only interactive forms of entertainment. This means composing music for video games is an entirely different process in comparison to film and other forms of media. Film is a linear experience, meaning that a person's experience will be largely the same as everyone else. Music in film is generally planned with the director and composer in the room, watching back an edited clip from the movie while the composer and director discuss what's the best approach for scoring this section of the movie. Video games have a very different process going into composing for them and will vary even more based on genres. In order to keep the scope from becoming obtuse, emphasis in this paper will be set on three genres that use different applications of adaptive video game music with two games per genre. For each genre, one game will be an earlier application of adaptive music and another game will be a recent application of adaptive music. The three genres with emphasis will be adventure, hack and slash, and role-playing games (RPGs).

In terms of adventure games, players are meant to discover a variety of places within their virtual space, always asking questions on how to progress and taking in the world around them. Two games that highlight this are *Monkey Island 2: LeChuck's Revenge* and *Journey*. *Monkey Island 2* was released back in 1991 for the Mac OS and effectively pushed the envelope for adaptive music. As the player maneuvers the character from screen to screen, interacting with objects that push the narrative forward, layers of music will phase in to help give the player a sense of direction. The music gives feedback to the player that they're on the right track (Yarwood). The composer, Peter McConnell, used an interactive music streaming engine called iMuse, which allowed for a technique for creating adaptive music called vertical layering (Phillips). Vertical layering is a system that is commonly used by game developers in the

industry; in essence, "the music is not captured in a single audio recording…Each layer of musical sound features unique content. Each of the layers represents a certain percentage of the entire musical composition" (Phillips).

For more context with *Monkey Island 2* as a hypothetical example, say the objective is to talk to the bartender in the bar. The player promptly goes to interact with the bartender, but the bartender asks the player to go retrieve something for him before being able to divulge information to move the narrative forward. The player goes off to find said item and picks it up. When the player picks up the item, more percussion is added to the soundtrack that is currently playing, giving feedback to the player that they had found the right item to push forward the narrative. That's essentially how vertical layering works: adding more instrumentation on top of what is already playing based on the player's interactions within the virtual space (Phillips).

This idea was revolutionary for the time because most games that had come out around the late 80s and early 90s had music that would just simply change to another track if the player completed an objective, whereas the composers for *Monkey Island 2* thought to employ vertical layering instead. They found that the music being more intelligent and responsive to a player's input was better and was made possible through the use of iMuse (Yarwood). iMuse is able to recognize which measure and beat the music is on during any situation in the game and appropriately play a musical fill to bridge a transition to a separate piece as well as add and remove instrumentation from the mix depending on the player's interactions with the world (Yarwood).

The modern example of an adventure game comes with *Journey*, an indie game that sets emphasis on the music guiding the player and encouraging them to progress further through the world. *Journey'*s soundtrack is unique in the fact that it was developed alongside the game as

opposed to in post-production like most soundtracks. This is because every area in the game is mapped musically, meaning whatever path the player decides to venture down, they will experience an evolving soundtrack based solely on where they are in the level (Wintory). To give an example, the player is at the bottom of a massive temple and needs to get to the top. As the player ascends farther up in the temple, more strings and harmonies are slowly added. However, the player can decide they want to jump all the way back to the bottom of the temple and the music will respond to the player's actions by stripping away everything from the mix that was earned on the way up back to the skeletal composition they started with at the bottom of the temple (*Journey*). *Journey* doesn't use any "pervasive" system, as *Monkey Island 2* did with the use of iMuse. Instead, the music is mapped into the landscape (Wintory). This can be considered similar to vertical layering, but in essence, vertical layering is considered a type of system whereas composer Wintory doesn't consider what is being used in *Journey* to be any type of system, just hard coding the music into the environment. Vertical layering works in a similar fashion to what is employed in *Journey* by phasing in instruments and layers based on player input in the game, but is not quite the same (Phillips). In comparison to *Monkey Island 2*, *Journey* uses a custom built engine from the development team as opposed to any previously established sound system like iMUSE as an example (Wintory).

In 2001, a new sub-genre was born with the conception of Capcom's hack and slash hit *Devil May Cry*. The hack and slash genre is a subgenre of action games where the combat system is deep and rewarding to learn due to the sheer amount of combos the player can perform through practice and dedication. This is a genre that the *Devil May Cry* series conceived and perfected (Newnham). The approach to this game's soundtrack is fairly simple as the music loops until a certain objective is met and then rigidly transitions into another track; this was still

common for the era of games that *Devil May Cry* came out in (Young). If the player is finding

their way through the mansion that the game takes place in, then the game's "non-combat" music

will begin to play until the player is met with an enemy in which case the music would abruptly

change to the combat music (*Devil May Cry*).

Devil May Cry didn't set much emphasis on the music like its later sequels would. It

wasn't until *Devil May Cry 5* that the development team decided to build a music system around

how well the player is performing within the game as well as how "stylish" they are when

performing combos (Newnham). The *Devil May Cry* games have always had a ranking system

based on player performance since the very first game, so adding the music to reward the player

even more was the idea behind the combat system in the fifth entry (De Meo). With this in mind,

the composers of the battle tracks made sure that the choruses of their songs were empowering

and catchy so that the player would actually feel rewarded when they do play well within the

game (Fillari). How the system works, essentially, is when a player uses a variety of attacks

within a combat scenario their style rank will begin to increase. The range of style ranks are: D,

C, B, A, S, SS, and SSS (Newnham). With this in mind, when a combat scenario begins, the intro

of the battle theme for the character that you're playing (Nero, Dante, V, or Vergil) will be

looped until either the player or enemy makes the first strike. Then the verse of the character's

battle theme will begin. The verse chosen to be played at this moment will be random in order to

keep each combat scenario fresh. The verse will continue to loop until the player reaches an A

style rank in which the pre-chorus begins, and if the player is skilled enough to reach an S style

rank, then the chorus of the character's battle theme will begin and continue to play all the way

up to SSS style rank ("Devil May Cry 5 Dynamic Music Breakdown"). Each transition is smooth

with a musical fill to bridge each part together to feel as natural as possible. If the player isn't

consistent with changing up their attacks in a combat scenario then the style rank will decrease and the music will react in real time to this. This means if the player has an S style rank and drops to a B rank because they get hit, then the music will drop out of the chorus and transition immediately back to the verse until the player builds up their style rank once again ("Devil May Cry 5 Dynamic Music Breakdown"). The development team at Capcom Japan made sure to tell the composers that they wanted the choruses to be "huge" in order to properly reward the players who have dedicated their time to the game to get better (De Meo). The versions of the songs that are heard on streaming services are around 5+ minutes; however, those same songs in the game are twice the length due to additional material to make these tracks interactive such as transitional material or additional verses (De Meo).

Players who want to experience a world rich with lore and quests find solace in the genre of role-playing games. Role-playing games as a genre is a very wide blanket term. Typically a role-playing game is a very sizable game clocking in at around 40-60 hours on average for completion of the main quest-line with multiple branching side-quests to help immerse the player even more in the world lovingly created by the developers. *Final Fantasy* is no stranger to this genre. The first game saved Squaresoft, the development team, from going bankrupt due to their new found success in the genre (Low). It wasn't until *Final Fantasy VII* where Squaresoft created one of the most iconic and influential JRPGs of all time (Low). *Final Fantasy VII* used MIDI which allowed for more dynamic music than what was on the market at the time of its release; it also freed up space on the CPU in order to render the revolutionary 3D graphics in the game (Collins, *Game Sound* 69). Much like *Devil May Cry*, *Final Fantasy VII's* music system rigidly switches between "overworld" music and battle music depending on what is happening in the game. In a role-playing game, especially from the 90s, the player would have control of the

character in a 3D space that is called the "overworld," which is essentially the map that allows the player to travel from point A to point B (*Final Fantasy VII*). When traversing in this overworld, the player will have random encounters in which they must fight enemies that randomly appear in the world, this is a staple for role-playing games. When this happens, the overworld music will abruptly stop and be interrupted by the combat music. Once the player successfully prevails from the random encounter, a victory fanfare will play and then cycle back to the overworld music.

In 2020's remake of the same game, *Final Fantasy VII Remake*, Square Enix opted for a more adaptive approach that is much more akin to modern action games since *Final Fantasy VII Remake* is, after all, an action role-playing game (Allen). The approach here is similar to how vertical layering works, however; as opposed to phasing in and out instrumentation, the arrangement of the track will change entirely (Phillips). For example, two of the main cast, Cloud and Barret, are infiltrating a reactor in one segment of the game, and what can be heard is "Mako Reactor 1" while the player is venturing around the environment until, suddenly, the characters are met with a couple of enemies that need to be taken down. In that moment, the music will change to the battle edit of "Mako Reactor 1" no matter what measure or beat; it will be the same song but with more upbeat energy ("Inside FINAL FANTASY VII REMAKE – Episode 4: Music and Sound Effects"). The composers like to think of this method as if a professional DJ player is switching the music on the fly with seamless transitions (Allen). With this in mind, that means that each piece has multiple different arrangements to accommodate this newer approach to how the music works.

Another popular application of music in modern games comes in the form of boss phases. When starting a boss fight, the player will be fighting the first phase of the boss battle and then

after dealing enough damage the boss will enter the second phase and so on. One example from *Final Fantasy VII Remake* is the JENOVA Dreamweaver boss fight. During the first phase, the JENOVA melody can be heard but is characteristically less frantic in comparison to its original iteration in '97. Once the player has dealt enough damage to JENOVA, the fight will shift into phase 2 and so will the music to give feedback to the player that they're progressing forward. The music will seamlessly transition no matter where the first phase's music is left. Once the player does enough damage in the second phase, the fight transitions into the third and final stage of the fight. Once again, the music transitions smoothly, no matter where the music is, from the former phase. The payoff, especially for veteran players of the original game, is that the third phase is the original iconic melody and song fully recreated via orchestra as opposed to its original MIDI form. Not only did the fight push the player, but the music elevated the experience and rewarded the player for reaching the third phase (*Final Fantasy VII Remake Intergrade*). All of these techniques that are being utilized across the genres, specifically the more modern approaches, are meant to pay off in satisfaction to the player. The music and system work in tandem in order to impact player satisfaction in a positive and meaningful way.

Satisfaction from Adaptive Music

When designing games, the player should be at the center of the developer's mind since that is their target audience; everything, including adaptive music, should be consistent and cohesive so that the player's experience and immersion aren't compromised (Smith 6). There are many steps to consider when creating music, especially adaptive music, for video games. Sound designers should research what type of instrumentation would best fit the game's overall mood, find reference material, draft material, scout for composers if there aren't any in house, etc.

(Alléus et al. 18). When creating adaptive music, sound designers must take into account that if a transition is necessary in the music then they should make note that the time signature and key signature of the piece is the same (unless of course a key change is necessary for more impact in the transition) (Alléus et al. 24). If a scene in the game should be dramatic and a turning point in the narrative, then the music should reflect that. This should be the case across the whole game in order to maintain cohesion. Every aspect of the game should work together in order to immerse the player and impact their satisfaction in a meaningful way (Smith 7).

In some shape or form, all video games use adaptive audio or music due to the nature of the medium, however it is a matter of application of adaptive audio or music that will leave a positive lasting impression on the player. The older generations of games lacked the deep audio systems that modern games have mainly due to hardware restrictions of the times. Take, for example, the comparison between *Devil May Cry* and *Devil May Cry 5*: the former has a very limited approach to how the music is implemented into the gameplay whereas the music in the latter is there to motivate the player to become better (Fillari). The same comparison can be made between *Final Fantasy VII* and its remake; the former has excellent music, but it is implemented in a very barebones fashion based on modern standards, which motivated the development team of *Final Fantasy VII Remake* to make the music much more adaptive and reactive to the player's actions within the virtual space (Allen).

As previously mentioned, *Devil May Cry 5*'s music system being tied to the ranking system in the game motivates the player to be more consistent and skilled in order to get the payoff of the chorus from the combat themes (De Meo). This is what makes the music and game combination satisfying for the player: to know they improved because they reached a high rank and are hearing the chorus of the combat theme. This is the intended purpose of adaptive music

in video games: to serve a higher purpose than just being background music. *Final Fantasy VII Remake'*s fresh takes on Uematsu's work from the original also motivates the player to become better, especially veteran players from the original, with the example given previously with the JENOVA Dreamweaver boss fight. Throughout the boss fight, the iconic melody and piece is teased by this legato line for about 8 minutes of the fight (depending on the player's skill) until the player reaches the third and final phase and gets the ultimate payoff of finally hearing the original piece in a modernized way. The player earned that by persevering through the first two phases because of the skill they had been building up until that boss fight (*Final Fantasy VII Remake Intergrade*). All of these are examples of how players feel motivated to get better at the game through the use of adaptive music in the video game medium.

Adaptive music can also immerse a player into the game that they are playing. *Journey* serves as an example of this by how the music is deeply engraved into the moment-to-moment gameplay. As mentioned previously, *Journey* has music mapped into the game itself, meaning that how the music is played is entirely up to how the player traverses the world (Wintory). The music operates as the main delivery of narrative beyond the visual aspect of the game due to the lack of any dialogue, therefore the music has to really carry the experience and make the player lean into the world (Wintory). For example, the music is designed for the player to go through areas A, B, and C, which all have new additions to the soundtrack as the player traverses through them. Each piece tied to each area will seamlessly transition between one another even if the player decides to skip area B and go straight to C; the music will adapt to this as if that was the intended way for the player to experience that area of the game (Wintory). This design is meant to invite the player into the world of *Journey*, to help immerse them. As one reviewer says:

Journey's visual and sound design sets new standards for interactive entertainment. This

alone makes it an extraordinary work, but it's the way that these aesthetic elements come

together with beautifully subtle direction and storytelling to create a lasting emotional

effect that elevates this to one of the very best games of our time. (MacDonald)

Adaptive music serves as a way for the player to enter the virtual world, which is why it is such

an integral part of a game's experience. There are many different types of ways in which this

music can be implemented, as explained before. Immersion is the number one factor as to why

developers utilize adaptive music in video games and that can come in the form of motivation in

the case of *Devil May Cry 5*, nostalgia in the case of *Final Fantasy VII Remake*, and exploration

in the case of *Journey*.

Conclusion

The modern applications of adaptive music, specifically the games just discussed, are just

some of the many possibilities discovered as the gaming industry continues to grow in

popularity. *Devil May Cry 5* proved that adaptive music can improve a player's skill in a game

by tying the adaptive music to a ranking system based on how virtuosically the player is

performing in combat. *Final Fantasy VII Remake* proved that adaptive music can immerse a

player into the game with its seamless transition between combat music and calm music. On top

of that, the boss phases bridge between one another at any beat as if that was the purpose of the

music. *Journey* proved that adaptive music can tell a narrative without the need of any type of

dialogue and can also guide a player throughout a level just based on fading in and out

instruments throughout the soundtrack. All of these games are proof that adaptive music in video

games can impact player satisfaction in a variety of ways. The older generation of games are in

large part responsible for what can be heard on these soundtracks because the composers were able to work around technological restrictions of the hardware from their respective eras and provide the necessary building blocks for later generations to put together.

One game, in particular, that is utilizing adaptive music in a fresh and unique way is *Sword of Symphony*. This is an indie role-playing game being developed by a single person, Stephen Ddungu. Essentially, the music is tied to combos that the player is inputting into the game during combat. Now, the player can decide to randomly input moves, however, if the player decides to input their combos on beat to the metronome that can be heard in the background, then the player will be dealing out more damage through critical-hits to the enemies they are fighting.

Video games are still a young and growing form of entertainment that continues to be profitable due to the wide appeal of titles available across multiple consoles. Adaptive music within these titles are an essential part of what makes video games stand out from the other art forms. It makes every story told between friends unique, every experience taken to a new level, and can even inspire players to become better at video games. All of this is why developers have recently started to put more of their efforts into adaptive music in their titles because it enhances the player's experience and impacts the player's satisfaction with the product in a deep and meaningful way.

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