INCORPORATING VIDEO GAME MUSIC INTO MUSIC EDUCATION:
POTENTIAL BENEFITS AND CHALLENGES

By
Zechariah Dolan Emery
Liberty University

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APPROVED BY:


Dr. Thomas A.Seel, D.M.A., M.B.A., Committee Reader

Dr. Sean Beavers, D.M.A., Dean of Liberty Online School of Music
This study examines the potential benefits of incorporating video game music into various forms of music education. Since no previous scholarly work could be found on this specific subject, this study relies on examining various aspects of video game music and adjacent studies on student motivation and achievement. The study is broken up into several sections. An analytical study determines that video game music has developed to the point where it is just as complex as other forms of music and has unique aspects that could make it a valuable tool in education. The study also examines the uses of music in games in terms of narrative and producing desired feelings and emotions. This section provides ample evidence that video game music provides unique and compelling examples of practical uses of music in media. The third and final section explores scholarly work incorporating student’s interests into education. Overall, there is a strong case for video game music gaining more representation in education, but gathering solid proof would require larger and longer-term studies than this project's scope.

*Keywords: Game Music, Narrative, Engagement, Narrative, Music Education*
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CHAPTER ONE: INTRODUCTION

The Problem

Video game music should be incorporated into Music education. Even though it has grown to equal the scope and complexity of any other genre, game music is seldom used in classrooms or lessons outside of those specifically dedicated to it. Studies have shown that incorporating student’s interests into education increases motivation and achievement.\(^1\) Video games are an increasingly widespread and popular hobby and pastime for people of all ages, and players can form attachments to the music in games in ways that they do not in other forms of media that incorporate music. Despite the rising popularity of video games and the unique traits of the music within them, there is a lack of representation of video game music in music education.

The Purpose

Students in general and music students, in particular, are usually relatively young. It always behooves educators to make sure the material they use is not becoming outdated and disconnected from students. This is not to say that great works of the past are not essential, but making sure that at least some of the material is of immediate relevance to the learner can be a massive boost to participation. Video games are a relatively new but growing part of our culture and entertainment industry with which many students will be regularly involved. It stands to reason that for musically inclined gamers, game music could be a significant source of motivation in their studies, yet perhaps because of its relative newness it is seldom used, and

there are no studies on this specific topic. The purpose of this study is to provide a preliminary argument for using game music to educate students in music, as well as laying the groundwork for a potential future study that could prove the hypothesis of this project more clearly.

Significance

It is unlikely that this project will result in a paradigm shift in education, even if its results are widely accepted. The study results are useful to individual educators who want to tailor their lessons to their students and use music with which those students identify. A second point of significance is the scarcity of scholarly work on the subject of video game music. Ideally, this study will be an early contribution in an area that becomes better researched as time progresses.

Research Questions

The primary research questions this project seeks to answer is "What are the benefits of incorporating video game music into music education?" To that end, there are several relevant areas of inquiry. Because there is no direct research to draw from, one avenue of draws upon studies in student motivation and engagement to answer the question, "Can the inclusion of video game music be applied to improve student motivation and participation in music education?". Additionally, a secondary question involves exploring the complexity of game music and its uses in teaching music theory and composition. "Does game music have the structural depth to facilitate learning in music theory, composition, and other areas of music?" Finally, an examination of the functional use of music in games uncovers ways in which video game music performs the same roles as it does in other applications, ways in which it is unique, and how it
applies to music education, especially in the areas of composition and performance. "What roles does music play in games, and how can this be applied to music education?"

Hypothesis

If structural and narrative aspects of video game music is incorporated into music education in classrooms and private lessons, then there will be an increase in student interest and participation. Studies have shown that student's interests have a strong relationship with their engagement in academic settings. Even outside of college classes specifically geared towards video games, using material that has a high likelihood of being relevant and relatable should have a noticeable effect on students. Secondarily, game music has advanced to the point where it is worthy of recognition among other forms of music for its unique traits and equal depth and complexity.

Limitations of the Study

Because of the nature of the material ultimately proving the assertion would require long-term practical studies and resources beyond the researcher's practical and logistical capabilities. This project is meant as a foundation for future studies to explore the concept further. There is an extreme scarcity of previous research on this topic, so this study will rely on adjacent studies in utilizing student interest in academics, the effects of music on education, and professional literature on the topic of video game music.

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Assumptions

It is a strong possibility that those reading the project may have limited experience with video games. Explanations of terms and concepts will be given where necessary. There are a massive number of potential samples, and the ones provided, such as those from Nintendo franchises\(^3\), are chosen from relatively well-known and famous compositions from popular games. It is understood that not all students will be familiar with every game that may be referenced and that this would have an unpredictable effect on the results of any real-world application of this thesis.

Glossary of Terms

The following terms and definitions are intended to convey the meaning intended by the author. They are not necessarily precise or complete. All definitions should be thought to begin, "Within the context of this thesis..."

**Video Game:** An electronic game where players control images on a video screen.\(^4\)

**Gamer:** Any person who plays video games, usually but not necessarily regularly.

**Developer:** Refers to the studio and team that created a given game instead of publishers who market the game.

**Franchise:** The entirety of an intellectual property usually comprised of a series of related games, e.g. the Legend of Zelda franchise which includes many distinct games with common characters and themes.

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**Player:** Any hypothetical person in the act of playing the game being discussed.

**Track:** A discrete and complete piece of music considered separately from the entire body of music in a game.

**Community:** A group of people who share an interest in a particular game or franchise and are often active in online discussions around that game. A single person may be a member of many different communities.

**Narrative:** The fictional story a game tells. Music can have a greater or lesser part to play, sometimes simply accentuating certain moments and in others actively contributing to the events.
CHAPTER 2: LITERATURE REVIEW

Background

The supporting material for this study is taken from many areas. The musical analysis portions use several examples of video game music to illustrate the melodic and harmonic structure of quality video game music. Books from teachers and composers of video game music break down the categories that video game music commonly fits into and its functions within the medium. They also serve to establish game music as a distinct genre or meta-genre that has reached a mature state. Lastly, studies in gamifying education and the benefits of incorporating student's interests round out the support for the addition of video game music to music education in various forms.

Music Analysis

The creator of the YouTube channel "8 Bit Music Theory" intentionally obfuscates his name to maintain privacy. Nonetheless, he is a skilled musician and music analyst who creates detailed videos focusing on different aspects of game music, often from a single game per video. His expert analysis features heavily in the discussions of motifs and the storytelling power of game music. His videos also provide the illustrative transcriptions used in those sections.

The music of the Mario series is iconic, and elements of it are often recognized even by those who do not play the games. Composer, Koji Kondo, is personally responsible for many of the most famous and beloved pieces of video game music. The Dungeon theme is an "underworld" theme. It features in the segment on understanding the functions of music.⁵ Another

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⁵ Kondo, Koji, “Dungeon” (Underground Theme), Super Mario Bros, Nintendo, 1985.
of Kondo's works and arguably one of his most famous is the *Hyrule Field* theme from the *Legend of Zelda* Series. This piece serves to exemplify the opposite trope to the previous one. Both of these tracks also show how pieces of music can shape the identity of a game.

Halo's Gregorian chant style beginning from the series of the same name, has come to be identified with the entire *Halo* franchise. It gives a sense of the story's scope and the extreme age of the artificial constructs called Halos, which most of the stories take place on. The music of the *Halo* franchise differs from many others referenced in this project by including electric guitars and tribal drums into its orchestral soundtrack to create a "world music" feel. This demonstrates how music can set the tone for games and portray their narrative themes.  

The track *Hollow Knight* is among many in its namesake game that make masterful use of leitmotifs to tie characters, places, and events together, providing hints of the story for players who are paying attention. This piece could be considered the central theme of the game and makes several appearances in various places that hint at the main character's relationship to those places. The sparseness of the game's actual story makes this a perfect example of music's potential as a powerful tool in both motivic development and storytelling.

**Books by Video Game Composers**

Alyssa Aska gives a basic overview of many familiar tropes in video game music and how certain places and events are portrayed. She also gives overviews of various common categories of video game music, such as overworld, underworld, title, combat, and character

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7 Christopher Larkin, “Hollow Knight” *Hollow Knight*, Team Cherry, 2017.
themes. These studies explored how game music affects narrative and atmosphere, and therefore why it could be motivating to students.  

Alan Belkin looks at video game music from the perspective of a composition teacher and attempts to find a method for comprehensively covering the many genres of music. As with many of the extant works that focus on game music, Belkin casts a broad net and includes practical aspects of the industry and not just the music itself. This is useful for looking at the contributions of game music to teaching composition.  

Music in Video Games: Studying Play is a collection of essays written on various aspects of video game music. The essays cover many topics that relate to this project. These include the composition of video game music, its use, and the process of creating music for games. These also cover some of the unique aspects of music that need to be composed so that it can interact with the actions of the player and various cues.

In his book Composing Music for Games: The Art, Technology, and Business of Video Game Scoring, Chance Thomas covers specific methods in the composition of game music, as well as contrasting game music and other forms of media. Thomas' research will help those who may not be familiar with gaming gain an understanding of what makes game music unique and the unique challenges faced by composers.  

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In *Writing Interactive Music for Video Games: A Composer's Guide.* Sweet gives an in-depth walkthrough of the process of writing game music, including the technological and business aspects. The discussions of the technological aspect of game music will aid in understanding some of the unique aspects of video game music, especially in its early years. Most valuable are the discussions of DAWs and VSTs, which are the essential tools in producing music for games.¹²

**Studies and Journal Articles**

Atkinson uses the concept of flight as a backdrop to compare how the same idea is portrayed in music across various forms of media. His work exposes parallels in how people think of certain concepts musically. His article lays out specific music theory behind how flight is written in several movies and games. His work is a part of the inspiration for the functional segment of this project.¹³

Bensiger's research deals with pre-service teachers' opinions, with focuses on a large range of age groups, on using educational games in their classrooms. This research deals with educational video games and not specifically entertainment games or music. Nevertheless, Bensiger's findings are relevant to educators' feelings about using material from video games in

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general. She gathers information on the teacher's perceptions of video games and their use in education and what they perceive as the challenges to integrating games in their lessons.\textsuperscript{14}

*The Fundamentals of the Video Game Music Genre* makes historical and categorical arguments for the inclusion of video game music as an individual genre, deserving of integration into all aspects of music education. He focuses on the history of video game music and discusses the unique components of video game music and highlights historical influences on game music styles and uses.\textsuperscript{15}

An example of a study that is tangentially related to the research topic, Pasinski's research seeks to understand if any of the cognitive benefits of musicianship can also be gained through video games entirely devoted to music. Pasinski primarily focuses on the popular music game *Rock Band*. The study uses a series of tests on groups of musicians, *Rock Band* players, both, and neither. The study is beneficial because Pasinski details many of the benefits of musicianship and how video game music can relate to it.\textsuperscript{16}

**Supplemental Material**

Tetris Theme A, along with Tetris itself, is incredibly well known worldwide. The melody is that of Korobeiniki, a Russian folk tune that was not popular outside of Russia before Tetris was released. The game's original release was a simple puzzle that included three

\textsuperscript{14} Bensiger, Joy. "Perceptions of Pre-Service Teachers of using Video Games as Teaching Tools." Order No. 3517303, University of Cincinnati, 2012. In PROQUESTMS ProQuest Dissertations & Theses Global.


melodies, unimaginatively called themes A, B, and C. This piece is arguably the first piece of video game music to gain widespread fame and recognition.17

Ezio Auditore De Firenze is the protagonist of Assassin’s Creed II. His theme transcended its original purpose as background music and became so popular that the developers of the series made it the official theme music of the entire franchise. The plaintive melody gives a wistful and thoughtful air to the various games in the series. It is a perfect example of music that grew beyond its origins and why game music can serve as inspiration for music students.18

Like Ezio's Family, Dearly Beloved began as menu music. While it is not officially the theme music for the entire series, it symbolizes the series to many people. This piece is also relevant for its extreme variability. Many titles in the series with different variations and orchestrations, from simple piano to massive symphonic works, are experienced. Its versatility makes it relevant to the argument of game music's relevance to the modern musical world.19

Many pieces from the Final Fantasy franchise are worth examining, but One Winged Angel is arguably the best known. This piece is an excellent example of music thrust into the spotlight because of narrative placement. It appears near the end of the story and is a chaotic mix of many different motifs. It is relevant to this study because of its use to accentuate the climax of the narrative and its association with Sephiroth, a fan-favorite antagonist of the series.20

17 “Theme A” (Korobeiniki) (Traditional Russian Folk Song), Tetris, Alexey Pajitnov, 1984.
CHAPTER 3: METHODOLOGY

This project will include three primary avenues of inquiry. These are analysis, narrative, and educational aspects of game music. The analysis segment includes dissections of the actual transcribed music, the narrative segment includes an examination of how music creates atmosphere and contributes to storytelling, and the education segment explores the benefits of using students' interests in education. The YouTube channel 8-bit Music Theory provided much of the inspiration for this project, and his work touches on all three areas. \(^{21}\)

**Theoretical Analysis of Video Game Music**

This part of the project involves theoretical analysis of transcribed examples of video game music such as *Gerudo Valley*, or the *Title Theme* from the Legend of Zelda franchise, among others. \(^{22}\) Transcriptions will be sourced from several places, and step-by-step breakdowns of relevant points will be given. The chosen pieces will be examined separately to highlight points of interest and compare commonalities among structural elements such as chord progressions and melodic lines. This will allow the identification of features unique to video game music and the depth of meaning and intentionality in it. This section will then transition into the next.

**Narrative Study of Video Game Music**

This segment covers the uses of music within video games. Just as in movies, music in games is meant to underscore the events taking place on the screen, but the interactive nature of games causes this to take different forms. Instead of following fixed events, the music may

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\(^{21}\) “8-Bit Music Theory” *YouTube* October 15, 2016. https://www.youtube.com/channel/UCeZLO2VgbZHeDcDongKzzfOw

represent a place, or a single character, or be general music for things like fights, and will adaptively play when those places or characters are present on screen.\(^{23}\) One example of this is the concept of flight explored by Sean Atkinson.\(^{24}\) Atkinson contrasts the musical portrayal of flight across several games and movies to note the similarities and differences.

Another piece of the functionality of video game music is how it can help tell the story in a medium where narrative events are not always in fixed order. An excellent example of this is the game “Hollow Knight” and the aptly named track *Hollow Knight*, representing the main character.\(^{25}\) Christopher Larkin, the composer for this game, makes masterful use of leitmotifs to contribute to the game’s narrative. Larkin ties places and characters in the game together using variations of the same motif even when the player may not yet understand how these things are related. These techniques and more contribute to the reasons students can get more emotionally invested in game music than in music used in other contexts.

**Implementation of Video Game Music**

This segment overlaps slightly with the other two and generally involves studying how game music is implemented. The main thrust of this section will be demonstrating the benefits of incorporating things that students find interesting and can relate to in their lives. There is also be a discussion of how this relates to the unique history and development of video game music. Because of its beginnings as a purely technological medium, game music has had an abnormal development, going from simple and purely digital and now growing in capability to include live

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\(^{24}\) Atkinson, Sean E. “Soaring through the Sky: Topics and Tropes in Video Game Music.” *Music Theory Online* 25, no. 2 (07, 2019)

\(^{25}\) Larkin, Christopher, “Hollow Knight” *Hollow Knight*, Team Cherry, 2017
recordings of large orchestras just like many movies.\textsuperscript{26} Reviving older game music with real instruments and more complex orchestrations is popular, with groups like the 8-Bit Big Band basing their entire business on it. Some composers will intentionally use digital and "retro" sounds to create certain feels instead of being forced into it by technology.\textsuperscript{27} This creates incredible flexibility and room for students to explore their interests and creativity. This section will touch on the unique ways in which music is composed, such as being written to seamlessly loop as long as a player is in a specific area of the game. This gives new context and challenges for students to test their skills.


\textsuperscript{27} Ibid.
CHAPTER 4: ANALYSIS OF VIDEO GAME MUSIC

Methods of Analyzing and Understanding Game Music

Video game music represents possibly the most complex and dynamic form of music available today. Music meant for performance is static and always plays in the same sequence, with possible differences imposed by the performer. While they contain many different themes with variations and reprises, film scores cannot match the complexity represented in the soundscape of video games. Just as video games are dynamic and interactive, their scores must also respond in real-time both to the player's actions and to scripted events within the game's narrative. This adds a new dimension to the sound design of games that are not present in any other medium, providing new dimensions of thought and challenge to those learning about music. For the purposes of this study, it is beneficial to look at ways of understanding and analyzing game music.

According to Tim Summers, "The field of music studies no longer accepts the model of a piece of music as a single, stable, unchanging work." 28 This is due to the variance introduced by composer revisions and the differences across various performances. Video game music is perhaps the ultimate expression of this, as the music is often designed to change based on environmental factors and player inputs. Game music can even be different based on what region of the world it is released in, as exemplified by Gran Turismo. 29 Being forced into such a subjective stance when studying music can benefit musicology since our experience of music itself is often very subjective. This is especially true for video games, as the analyst will almost always also be a player who is having a subjective experience of the game and music that is

28 Tim Summers, Understanding Video Game Music, University Printing House, University of Cambridge, UK. 2016. Pg. 24
29 Tim Summers, Understanding Video Game Music, pg. 25
unique to them. As Summers says, "In a situation where the analyst is intrinsically linked to the sounded incarnation of the text (the written music), it is impossible to differentiate the listener, analyst, and gamer."\textsuperscript{30}

Most existing material on analyzing video game music deals with what this research refers to as "functional" aspects of music, such as the uses and context within the game, while this section will focus on the "structural" aspects like the actual written works. In the case of video games, these two aspects are heavily intertwined, and the written music itself is hard to nail down because of its interactivity. Despite this, some examples can be found that will always be the same but must still be transcribed in ways that do not always represent how the player will experience it. Following is a partial list compiled by Summers of various sources and angles from which to analyze game music.\textsuperscript{31}

- Analytical Play- The analyst personally plays the game or watches recordings of others doing so to listen intentionally to the music.
- Code and Engine- Analysis of the code and cues that determine what music plays when.
- Music Data- Study of the music files present in the game's code.
- Notated Transcriptions- printed notation acquired in a variety of ways and subjected to traditional musical analysis.
- Psychological Gamer Response- Observation of gamer reaction to video game music.

\textsuperscript{30} Tim Summers, \textit{Understanding Video Game Music}. pg. 30
\textsuperscript{31} Ibid. pg. 51
Techniques and Theory in Game Music Scoring

Video game music has developed in a way that is the opposite of music. Music, in general, has been around for all of human history, and only within the last few decades has begun to move into digital music and artificial instruments. In contrast, by necessity began as an entirely digital medium and over the course of decades, video game music worked its way into utilizing more and more "real" instruments. Despite early video games being limited to as little as one to three notes that could sound at once, their music has always been based heavily on melodic and harmonic concepts that can be found in art music going back centuries. Over time, game music has expanded to include nearly every genre imaginable while creating new music unique to itself. Including game music in music theory studies would give students access to a wide-ranging resource. This section makes use of specific examples from game music to demonstrate the breadth and depth of compositional techniques present in a wide variety of game music.

Because of the early technological limitations on video games' sound technology and memory capacity, melodies became extremely important and were sometimes the only music the game could produce. This has led to video game melodies developing some unique attributes. One technique that games rely on heavily is the concept of leitmotifs. Webster defines a leitmotif as, "an associated melodic phrase or figure that accompanies the reappearance of an idea, person, or situation, especially in a Wagnerian music drama." The idea of associating a

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One piece of video game music that showcases the idea of leitmotifs and common methods of the construction of video game music is *Gwyn, Lord of Cinder* from the popular game *Dark Souls*. This piece is composed of three major sections. All three are relatively calm and contrast significantly with the loud and frantic nature of the rest of the soundtrack. The piece uses two central motifs over three main sections to create over 3 minutes of material using variations and transpositions.\(^3^3\) (Transcriptions created by 8 Bit Music Theory, video links in the bibliography)

\[^3^3\] 8 Bit Music Theory, *How Dark Souls Turns Motifs into Music*, YouTube. https://www.youtube.com/watch?v=bUdyc8j8eLc

The first motif is the basis of the first section of the piece. Its simplicity allows for great flexibility. The first technique used is simply inverting the interval at the end of the motif from a fourth step down to a fourth step up. This first section is the shortest of the three, but the motif returns throughout. Also, note the bars at the end of the section that are empty of melody.
The B section introduces the second motif. Here pick-up notes are added before the motif; the motif is repeated once unaltered and played again with the entire figure inverted instead of just the last note as was done with the first motif. The variations used here create a
miniature ABAC pattern within the sixteen-bar section. Using a continuing bass figure as a kind of ostinato through the first two sections of the piece adds unity and atmosphere. The C section consists of the second motif augmented so that each note fills the entire three-beat measure and adds a different bass figure. There are also several interludes or bridges that sometimes use the motifs.

Several other variation methods are used to fill out the melodies across several portions of the piece. Both motifs are occasionally begun on the second beat of a measure, which connects the two as well as keeping the music from sounding repetitive. The measures that contain no melody appear after the first expression of each motif. These also serve to break up the music and contribute to the atmosphere that the music is trying to create, which will be explored more in the artistic and functional section of the research. Finally, several times, the same type of variation or transposition is used for the same motif, and the motifs are sometimes used together. 34

Gwyn, Lord of Cinder is an excellent model of the importance of motifs and motivic development to video game music. It is an example of the skill, professionalism, and thought that goes into most video game music. It would make an excellent source for educating students on writing melodies, the many techniques for expanding music without always writing brand new material, and drawing in listeners. It answers the question of game music’s potential usefulness to education. This theme is also hard to pin into a specific genre and could fit into a genre of uniquely video game music.

34 8 Bit Music Theory, How Dark Souls Turns Motifs into Music, YouTube. https://www.youtube.com/watch?v=bUdy8j8eLc
Another game in which motifs play a vital role is *Hollow Knight*. The game relies heavily on leitmotif to augment its sparse storytelling and contains several leitmotifs that each appear in several tracks of the game's music. Of these, the titular track named *Hollow Knight* appears in many different forms throughout the game. The motif is comprised of two short phrases, making it longer than those in Gwyn's theme, although sometimes only the first two bar section is used.

![Motif Example](image)

In this case, many of the same techniques are used to create variations on the theme. The main difference is that while Gwyn's theme is confined to a single piece, this one is used across many different game themes. The variations arise from the different uses the motif are put to in various character and area themes. The Hollow Knight Theme is first seen in the track *Hollow Knight*, and makes appearances in the themes *Broken Vessel, Lost Kin, False Knight, Sealed Vessel*, and *Watcher Knight* themes.

In the Broken Vessel theme, the first part of the motif is changed to quarter notes and used as a marching rhythm and ostinato, while another altered statement of the entire motif is placed in the melody. The Lost Kin theme is a faster-paced and more frantic version of this piece. The *False Knight* and *Watcher Knight* also share a theme that uses this motif. This version augments the melody even more while contrasting it with a bass line of fast eighth note triplets. Aside from its first appearance at the beginning of the game, the Sealed Vessel theme is the most important appearance of this motif within the game's narrative. The melody is the same as the original motif, but each section is stretched from two measures to six and doubled in the bass.
The rapidly converging and diverging string sections add a sense of urgency to the climactic confrontation. This sample from early in the track demonstrates these points—

These examples show a small portion of the creativity and variety present in the melodies of video game music, but a study of harmony is also essential to discovering the educational value of video game music. While melodies and motifs are easy to recognize, harmonies by themselves are rarely memorable. Harmonies are most prominent in music meant primarily to set moods and provide a backdrop to a location or whatever is happening on screen. These examples will show that video games take advantage of the full range of harmonic techniques.

The first example is the track Rain from the game Halo: ODST (ODST stands for Orbital Drop Shock Trooper, but this is irrelevant to the music). This piece provides prime examples of how to manipulate chord voicings to produce the desired effects. The composer Martin O'Donnell makes intentional use of the intervals in the chords to produce an open and somber sound. He also varies the extensions he uses, even on the same chords, to defy the Listener’s

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35 8 Bit Music Theory, Leitmotif in Hollow Knight’s Soundtrack, YouTube. https://www.youtube.com/watch?v=5IZ6ObjdkPA
expectations or aid in a modulation. One extension used throughout the piece is the relatively rare sharp eleventh extension, which is added to every D major chord in the piece.

Rain also makes unique use of power chords, which avoid major and minor tonalities by only including the root and fifth of the chord. Despite the name, these are not used in an overly aggressive way and contribute to the thoughtful and emotional nature of the piece. The final major takeaway from *Rain* is the inspiration by Bach. The style of voice leading and the habit of placing the third of a chord an octave above the other notes is a technique that Bach made use of to create more open sounds.36

The game *Chrono Trigger* is an older game that was released in 1995. Its original soundtrack comprises what is known as "chiptune" music, digital sounds that do not particularly resemble any instrument and which could only handle a small number of notes sounding at one time. Despite this, the soundtrack has become a classic among the video game community. The soundtrack contains many examples of non-functional harmony. Non-functional harmony involves chord progressions that do not resolve in ways that feel natural to the ear. The composer makes use of both tritone progressions and pentatonic scales to provide harmonic movement that makes sense despite the unusual chord choices.37

**Digital Composing**

Modern composing often requires the use of digital tools. These tools have been used for film and other uses but become essential when composing for games. Without DAWs and tools like MIDI, video game music would not be possible. In film the music is static, and although

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various tracks and themes and music samples may be spliced together, it will always play out the same way with every viewing. Video games use the full potential of these tools to create music that can react and change over time. Some familiarity and awareness of these tools would be helpful for any student learning music, especially if they are interested in composing and making their music in a modern setting.

The main tools are DAWs (Digital Audio Workstations) and VSTs (Virtual Studio Technology) DAWs are platforms that facilitate the editing and mixing of many different audio files for inclusion into a game. VSTs are primarily libraries of thousands of virtual instruments and special effects. Together these tools allow a composer to create almost anything they can imagine. With modern technology and knowledgeable users' virtual instruments can sound real. Hollow Knight's soundtrack was made entirely within a DAW, with only a single cello and a single human voice being physical instruments recorded for the project. At first listen, it is not easy to tell.

Sweet says that the most significant difference between "linear" scoring and game music "looping, interactive scoring techniques, and the ability to transition from one piece of music to another".\(^{38}\) There are two main reasons for looping. The first is menu music, and the second is area themes. These are both circumstances in which the music needs to be able to play for an arbitrary amount of time without stopping, which would be disruptive to the player's experience. Interactive music and transitions have some overlap and require deeper exploration.

Phillips defines interactive music this way, "In an interactive composition, music is created as a series of component parts that are meant to operate together but can be presented in

many different configurations." Video games are inherently interactive, and the ways that game music changes based on player input fits broadly into two categories, horizontal resequencing and vertical layering. Horizontal resequencing is straightforward. It involves causing different bits of music to play in sequence depending on cues that the player can trigger while in the game. This can be anything from a soft trill slowly rising in pitch as a series of chains are broken to the music changing to a faster-paced version of the same track when enemies appear. In its most advanced forms, this system can become quite complex.

Vertical layering is potentially even more complex, and the two are usually used simultaneously to some extent. In digital composition using DAWs and other modern software and hardware, it is possible to separate parts of a composition such as single instruments or groups of instruments into several separate audio files that can be triggered or removed independently. This can even be used to layer actual instrumental recordings over VSTs as if they were one recording. In film and games, these individual pieces are usually called stems and layers. Both vertical sequencing and horizontal layering contribute to the dynamic transitions within tracks and even between two completely different pieces of music, such as when player moves from one area of a game to another. These transitions must be flexible enough that they can happen at any point in the first track and still sound smooth.

Narrative Functions of Music in Video Games

An understanding of why video game music could be relevant to music education is incomplete without understanding the functions that game music fills within video games. The

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way music is implemented in video games partially explains why players get so attached to it. Just like in film, music creates atmosphere, moods, and accentuates points in the story. Unlike film, game music interacts with the player and responds to their actions. The players choices can trigger anything from sweeping musical movements to the short but iconic musical cues in franchises such as the Mario or the Legend of Zelda series. Because of this interactivity, music can actively assist in telling the story of a game.

**Common Themes of Video Game Music**

Alyssa Aska lists five overarching categories of game music that have developed to include similar features. These are overworld, underworld, battle, safe zone, and theme. There is also music specific to the many genres of video games. This section examines these to demonstrate how game music is used to create certain feelings and convey ideas in an even more profound way than it does in other uses of music.

The first category, the overworld theme, is a wide-ranging category. It is mainly used to denote large, open areas of a game that often exist mostly to be traversed. Consequently, the music in these areas is usually lighthearted, higher in pitch, and in a major key. It will sometimes involve a marching rhythm to score your character traveling across the region. An excellent example of this type of theme is the *Hyrule Field* theme that appears in multiple forms throughout the *Legend of Zelda* series.\(^{41}\) *Hyrule Field* has conjured feelings of adventure and exploration through the fictional world of Hyrule in its many incarnations.

Underworld themes do not necessarily denote some kind of afterlife as that word usually implies. Underworld themes apply to any underground area such as caves, dungeons, or

catacombs in games. There is no known reason why “underworld” was settled on. The music in these areas is usually stereotypically sinister, and encounters with enemies are frequent. The music in these areas is understandably the opposite of overworld themes. They are often in minor keys, lower in pitch and make more use of strings than other instruments. The music is designed to convey a sense of danger or dread. One example that Aska gives for this type of music is the Dungeon theme from the Mario Bros. series, also sometimes known as the Underground theme. This piece is a simple twelve-second loop with four repetitions of a short motif and a short bridge that still manages to create tension even in this whimsical series.42

The next category is battle music. This could be one of the most varied kinds of music in video games. Some form of battle or combat music occurs in almost every game. There are two significant types of battle themes, general and boss themes. Boss music is usually unique and strays closer to character themes, but general combat music has characteristic features. It is most often fast paced, energetic, and with fast rhythms. It also generally makes heavy use of brass or brass equivalent when made of synthetic sounds. Depending on the game style, there may also be electric guitars and other typical features of rock music. While this type of music is ubiquitous, one early and influential example is Battle from the first Final Fantasy game.43

Aska's fourth category is safe zones. These are areas of the game where there is no danger to the player. These can take many forms but often are hub areas or towns where the player can meet NPCs and buy in-game items. Early games may have had only one theme for these types of places due to memory constraints. Modern games will have individual themes for each area. These themes are so diverse and relatively peaceful that few really stand out.

42 Kondo, Koji, “Dungeon” (Underworld Theme), Super Mario Bros, Nintendo, 1985.
The final larger category that Aska divides game music into is general theme music. By this, she means music is designed to establish the musical identity of the game. There are no common elements across all theme music, allowing players to identify a game by the music. This type of music is by design among the most recognizable and is often the kind that triggers nostalgia and emotion that could help to interest students in learning music.

A quality example of theme music would be *Dearly Beloved* from the Kingdom Hearts series of Role-Playing Games. Beloved by many, this piece is a beautiful encapsulation of the major narrative themes of the series. Appearing as menu music and in many forms throughout the gameplay, this piece in its most basic form starts with a quiet and wistful melody on piano and is gradually joined by harps, bells, and eventually a full orchestra as the melody swells to an emotional climax. This piece became the theme music for the entire series, and many who have played the games have a strong emotional connection to the music and the characters.

Another iconic example of theme music is *Halo* from the series of the same name, although it appears under different names in different arrangements such as *Mjolnir Mix in Halo 2*. This track embodies the epic action and scope of the *Halo* series with a large and intense string section mixed with electric guitars. A notable feature of this piece is the iconic opening bars of Gregorian chant-like vocals. Together this allows the track to capture the essence of the story of a lone soldier attempting to prevent the extinction of humanity as well as the ancient nature of the halo artifacts themselves.

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44 Aska, *Introduction to the Study of Video Game Music*. pg. 2234
Atkinson explores the trend of different concepts, which he calls topics, to start being pictured musically in similar ways. As a case study, he focuses on the ways the concept of flight is portrayed in a selection of films and video games. He finds that the concept of flight is most often portrayed using leaps in the melody, flourishes, and general upward motion. He also acknowledges that game music is part of what endears video games to people. One of his most significant observations is the importance of these musical topics to the narrative.\(^{47}\) This is an important idea that is worth looking at in more detail.

**Musical Storytelling**

Music does not just set moods. It can take an active role in telling the story in video games. Many games contain hints of this, but one of the best recent examples is *Hollow Knight*, the game that has been covered before in the section on motifs. These motifs are used in the game to create connections between characters and places. The title theme *Hollow Knight* was initially discussed for the use of its motif in a variety of settings. This motif implies a connection to the other characters where the theme appears.

A brief explanation of parts of the story will help to demonstrate this. Within the game’s narrative the main character is known only as "the knight" and is a member of a group called "vessels" created to contain an infection known as the radiance. This motif is explicitly connected to the main character at the game's beginning before the player knows anything about the origin of the knight. Before the player discovers this information, the motif can be heard in the *False Knight*, *Broken Vessel*, and *Lost Kin* themes. All of these involve either an impostor or

a fallen vessel possessed by the infection. The final time it is heard is in the climactic confrontation with the being known as the Hollow Knight, who is the vessel chosen to finally contain the radiance. By this point, the player knows the backstory, and it is not surprising to hear this motif scoring the fight.\textsuperscript{48}

The other motif that was mentioned is the \textit{Pale King}. This motif is connected to the king of the land known only as the Pale King. Among others, this track appears in the themes \textit{White Lady}, \textit{Hornet}, and \textit{White Palace}. Again, although the player does not know it upon first meeting them, the characters attached to the first two themes are the king’s wife and daughter while the third is his castle. This music uses to tie story elements together to show the value in video game music to teach students creative ways to write music and tie it into other forms of media.

\textbf{Studies in Music Education}

As mentioned before, there is currently no scholarly work in the specific area this thesis covers. In fact, scholarly work on video games as a whole is relatively rare but slowly increasing.\textsuperscript{49} This scarcity includes incorporating video game music into general music education to leverage its unique aspects and the emotional connection players form with it to increase interest and engagement with music. This section will reference scholarly studies in using students’ interests to enhance education and studies that discuss using educational video games in a more general sense to aid in education.

\begin{itemize}
  \item \textsuperscript{48} 8 Bit Music Theory, \textit{Storytelling Through Music in Hollow Knight}, YouTube. https://www.youtube.com/watch?v=f2NEvQb2OeA
\end{itemize}
Educational Video Games

The information on using educational video games in classrooms is only tangentially related to the topic of this thesis, but some elements could apply to other video games. The studies on student interest are more immediately relevant, so those will be discussed last. The first digital education system was PLATO (Programmed Logic for Automated Teaching Operations) in the nineteen sixties. Some gaming functions were quickly added to the system when it was realized that they made the experience more engaging.\(^{50}\) Since then, many studies have shown that video games have value in education. Some studies and video game companies have found that students who have grown up around technology may have an easier time learning when the lessons include video games.\(^{51}\)

In a survey of pre-service teachers, Bensiger found that 76\% at least occasionally played video games themselves, and many were willing to incorporate video games and technology into their classrooms in various ways. Unfortunately, many reported not feeling confident in the technology or in support of the school system, which is often slow to change.\(^{52}\) While a plurality of respondents signaled support for video games in education, a small number thought that video games were too much a part of student's home lives, which would dilute their effectiveness in classrooms.\(^{53}\)

\(^{50}\) Andrew Lesser, “Video Game Technology and Learning in the Music Classroom”, PhD. Diss. Columbia University, 2019. pg. 26

\(^{51}\) Joy Bensiger. “Perceptions of Pre-Service Teachers of using Video Games as Teaching Tools.” PhD. Diss. University of Cincinnati, 2012. pg. 24

\(^{52}\) Bensiger, “Perceptions of Pre-Service Teachers”, pgs. 19, 43

\(^{53}\) Ibid. 22
Interest and Motivation

Another topic that ties this idea into music education is the idea of music games like *Rock Band* and what influence they might have on learning real instruments. One study showed that music video games could equip students to learn real instruments or produce some of the mental characteristics found in musicians.\(^\text{54}\) *Rock Band* and other games like it started by simulating popular songs on guitar but quickly expanded to keyboard and other instruments. There are significant shortcomings in any potential application to authentic musical learning, but some researchers still believe that it could be used in education. There is also some indication that it may inspire students towards more formal musical endeavors.\(^\text{55}\)

Based on other studies, Kahu, et al. describes two kinds of interest that affect student motivation. These are individual or intrinsic interest and situational interest. The paper states, "Both individual and situational interest is associated with enjoyment, persistence, and learning."\(^\text{56}\) Individual interest lies in topics and activities that students have a general interest in or enjoyment of, while situational interest arises when a student is actively involved in something that interests them at the moment. Therefore, if a student's individual interest is reflected in whatever educational situation they are in, learning and engagement can significantly increase.\(^\text{57}\)

\(^{54}\) Amanda Pasinski, “Possible benefits of playing music video games” PhD. Diss. University of Nevada, 2014. Available from ProQuest Dissertations & Theses Global. Pg. 39

\(^{55}\) Lesser, “Video Game Technology”. pgs. 29, 31

\(^{56}\) Ella Kahu et al. “Student Interest as a Key Driver of Engagement for First Year Students”, *Student Success* ISSN: 2205-0795 Volume 8, Issue 2, July 2017. pg. 57

\(^{57}\) Ella Kahu et al. “Student Interest as a Key Driver of Engagement for First Year Students”, *Student Success* ISSN: 2205-0795 Volume 8, Issue 2, July 2017. pg. 64
The next step is motivation. Lesser, citing a study by Malone, says that video games in particular generate motivation through challenge, fantasy, and curiosity.\(^{58}\) In his study, Lesser finds evidence that including games in education may increase students’ desire to learn due to competition. Espinosa found that sixty-seven percent of respondents reported a noticeable increase in motivation when education was gamified. This effect, and all motivation, is also affected by environmental and social factors.\(^{59}\)

Though these studies deal specifically with games designed to be educational, the principles expressed should apply to music education. Some of them should also apply to using music from non-educational video games in education. Specifically, the studies that reinforce the importance of generating interest and using preexisting personal interests could be applied to all forms of education, including music. This is an area that is worthy of further study.

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\(^{58}\) Andrew Lesser, “Video Game Technology and Learning in the Music Classroom”, PhD. Diss. Columbia University, 2019. pg. 33

\(^{59}\) Luis Espinosa, “Gamification Strategies for Music Educators: An Online Continuing Music Education Course” MA Curriculum Project, Liberty University 2020. pg. 29
CHAPTER 5: CONCLUSION AND NEXT STEPS

Summary of the Study

This study was conducted to determine the potential benefit and feasibility of incorporating video game music into music education. The research analyzed the compositional depth and function of video game music and studies of student interest, motivation, and video games in education. The study was limited by the scarcity of studies on this topic and the relative newness of video game music and scholarship. The research also highlighted the maturity of video game music as a genre or meta-genre.

Summary of Purpose and Procedure

The purpose of the study was to address the lack of recognition of video game music by investigating the possibility of incorporating it into general music education, such as classrooms and private lessons. This was done by examining examples of video game melodies in the form of motifs as well as examples of harmony. Following this, there was a brief exploration of the categories of game music and the narrative function it serves. This was primarily accomplished by a deeper look at the music of *Hollow Knight*. Finally, the study examined other studies conducted on video games in education and the impact of using student’s individual interests and situational interests to maximize their motivation and engagement.

Summary of Prior Research

As previously stated, no prior research could be found directly relating to the main topic. The books referenced were written by professionals in the field of music with experience in music education and video games. Several studies made a case for the educational value of video game music, and at least one advocates for more significant study of it as a mature category or
genre of music. They provided valuable insights into the nature and workings of video game music, including its history and composition.

The referenced studies involved using educational video games in the classroom and incorporating student's interest to increase motivation and engagement. For the first category, the studies consistently found that "gamifying" education with technology had positive results but was challenging to implement. In the second category, the studies predictably found that education that aligned with the student's interests resulted in greater engagement, higher rates of participation, and lower drop-out rates.

**Summary of Findings**

This study's findings can be best summarized as answers to the secondary research questions. The first question was, "Can the use of video game music increase student motivation and participation?". Assuming students in music education settings have an interest in music, the data would suggest that such a student who also had an interest in video games would likely receive some benefit. Even those not interested could benefit from relevant cultural references. The second question was, "Does video game music have the structural depth to facilitate learning in music theory, composition, and other areas?". The authors' input and the analysis of music samples suggest that video game music as it is today contains as much compositional complexity and depth as any other genre of music. It also makes use of techniques unique to itself, so the answer to this question seems to be in the affirmative.

The final question was, "What roles does music play in games, and how can this be applied to music education?" The research shows that music plays an integral part in the experience of games. For most of the history of video game music, this has helped to define the
various locations within games, and more importantly, have played roles in accentuating the mood and atmosphere of games. Most importantly, music aids in telling the stories, and these aspects can be helpful to those learning to perform and compose music. Studying how game music is used can help students learn how to shape the music to produce their emotions and effects. Taken collectively, these findings provide a tentative answer to the primary research question about the potential benefits of incorporating video game music into music education.

**Recommendations for Future Study**

This study is only a preliminary investigation. In order to fully explore the potential of game music in music education, a much larger scale project would be required. For classroom education, complete curricula partially or wholly based on video game music could be written and given to one class, while another takes a more traditional class to act as a control. Another way would be to write the curricula so that the lessons were the same, but the assignments for half of the class involved video game music. This approach could be used in several iterations for different kinds of classes. Private lessons would be easiest to integrate, as the students themselves could be more easily consulted about the games from which they would be most interested to learn. At the very least, initial surveys could be conducted to gauge interest in measures like these.

There are some issues that could hinder this process. In classroom settings, it could be challenging to separate students who are interested in games from those who are not. Full implementation of video game music in education would probably be dependent on how familiar the researcher and teachers were with video games. As the demographics of the average teacher changes, this is likely to become less of an issue.
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University of North Texas Health Science Center, *Bloom’s Taxonomy, Learning Outcomes, and Higher Order Thinking*, Posted 9/17/15 https://www.unthsc.edu/center-for-innovative-learning/blooms-taxonomy-learning-objectives-and-higher-order-thinking/
APPENDIX
CURRICULUM

COURSE SYLLABUS

NAME OF COURSE: SCORING MEDIA: MUSIC THEORY IN VIDEO GAME MUSIC

COURSE DESCRIPTION:

This course will explore composition techniques such as motivic development, mode mixture, and many others as they relate to creating a background to video games. Students will study examples of these techniques in the presentations and learn from experts in the field through the class texts. They will then be challenged to use the things they have learned in compositions of their own.

RATIONALE

Throughout the 40+ year history of video games, music has been an integral part of the experience, contributing to the atmosphere and helping to drive the narratives forward as well as providing backdrops to the action. Game music is often one of the most memorable parts of a game. This course will examine the music theory behind how game music creates emotions and contributes to storytelling. Some of the techniques covered can be applied to other forms of media, but this class will touch on many facets unique to video games. This class will equip students with basic tools and help them to decide if they want to pursue this form of composition further.

I. PREREQUISITES

Prior music theory courses are preferred. A strong grasp of basic music theory is required.

Familiarity with the Finale music engraving program is required for completing the assignments in this course.

II. REQUIRED RESOURCE PURCHASE(S)


Finale 2019

III. ADDITIONAL MATERIALS FOR LEARNING

8-BIT MUSIC THEORY (YOUTUBE CHANNEL)
https://www.youtube.com/channel/UCeZLO2VgbZHeDcongKzzfOw

IV. MEASURABLE LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

A. Describe the emotional and atmospheric effects created by music.

B. Identify what techniques are being used to create the musical atmosphere of a game.

C. Employ melodic, harmonic, and rhythmic techniques associated with the material being scored.

D. Compose music that meaningfully portrays people, places, events, etc.

E. Score visual media such as video games

V. COURSE REQUIREMENTS AND ASSIGNMENTS

A. Textbook readings and video presentations

B. Discussion Board Forums (5)

For each forum the students will respond to the provided prompt from the instructor. The threads will be a minimum of 200 words and students will reply to at least two posts from other students.

C. Essays (2)

For each essay a transcription of a piece will be provided that contains several of the techniques discussed in the presentations. Students will analyze and identify those techniques and how they are being used in as much detail as possible. Each essay is to be a minimum of 2 pages.

D. Composition Assignments (6)

Students will demonstrate their understanding of the material by composing short sample pieces in finale showcasing the techniques discussed in textbook readings and presentations.
E. Final Project

Students will write a piece of music of at least 32 measures. This piece should include at least an “A” and “B” sections and demonstrate understanding of melodic, harmonic, and rhythmic techniques learned in the course. Students will include with the piece a written description of the image or concept the music is meant to convey, as well as identifying in detail the techniques used and how they contribute to the work. Students may choose what instrumentation to use. The music need not be overly complicated as long as it demonstrates an understanding of the material.

VI. Course Grading and Policies

A. Points

B. Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A+</td>
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<tr>
<td>A</td>
<td>970–989</td>
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<tr>
<td>A-</td>
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<tr>
<td>B+</td>
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<tr>
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<tr>
<td>D-</td>
<td>780–799</td>
</tr>
<tr>
<td>F</td>
<td>0–799</td>
</tr>
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</table>

C. Late Assignment Policy

Assignments turned in within one week after they are due will receive a 10% deduction. Assignments turned in after this will receive a 20% deduction. Exceptions will be determined by the instructor on a case by case basis.

Curriculum Project – Analysis Chart

Part I: Curriculum Information

<table>
<thead>
<tr>
<th>Student: Zechariah Emery</th>
<th>Course for which you are creating curriculum: Music Theory in Video Game Music</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Textbook for Class (at least two textbooks should be entered with complete information in Turabian style):</td>
<td></td>
</tr>
<tr>
<td>8-Bit Music Theory (channel), <a href="https://www.youtube.com/channel/UCeZLO2VgbZHeDcongKzzfOw">https://www.youtube.com/channel/UCeZLO2VgbZHeDcongKzzfOw</a></td>
<td></td>
</tr>
</tbody>
</table>

43
Identify the problem:
The student must learn to use principles of music theory to effectively score video games.

Who are the learners and what are their characteristics?
College music majors and others who are familiar with both games and music theory.

What is the new desired behavior?
The student will be able to use basic scoring techniques to portray characters, locations, and events.

What are the delivery options?
This course is a 12 week online course with textbook readings and presentations on a week by week basis.

What are the pedagogical considerations?
The course will contain both philosophical and practical considerations on musical storytelling and atmosphere building using textbook readings, demonstration videos, and the Finale program.

What learning theory applies to your curriculum? Why?
Cognitive Load Theory will be applied to this course. The broad range of possibilities the course presents will be broken up into manageable pieces to aid in retention. Each theory technique will be paired with real world examples for further increased retention.

Part II: Learning Outcomes

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the end of the course, the student will be able to:</td>
</tr>
</tbody>
</table>

1. Describe the emotional and atmospheric effects created by game music.

2. Identify what techniques are being used to create the musical atmosphere of a game.

3. Employ melodic, harmonic, and rhythmic techniques to create certain effects.

4. Compose music that meaningfully portrays people, places, events, etc.

5. Score visual media such as video games.
COURSE SYLLABUS

NAME OF COURSE: SCORING MEDIA: MUSIC THEORY IN VIDEO GAME MUSIC

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Throughout the 40+ year history of video games, music has been an integral part of the experience, contributing to the atmosphere and helping to drive the narratives forward as well as providing backdrops to the action. Game music is often one of the most memorable parts of a game. This course will examine the music theory behind how game music creates emotions and contributes to storytelling. Some of the techniques covered can be applied to other forms of media, but this class will touch on many facets unique to video games. This class will equip students with basic tools and help them to decide if they want to pursue this form of composition further.

VII. PREREQUISITES

Prior music theory courses are preferred. A strong grasp of music theory is required.

Familiarity with the Finale music engraving program is required for completing the assignments in this course.

VIII. REQUIRED RESOURCE PURCHASE(S)


Finale 2019


IX. **ADDITIONAL MATERIALS FOR LEARNING**

8-BIT MUSIC THEORY (YOUTUBE CHANNEL)
https://www.youtube.com/channel/UCeZLO2VgbZHeDcongKzzfOw

X. **MEASURABLE LEARNING OUTCOMES**

Upon successful completion of this course, the student will be able to:

A. Describe the emotional and atmospheric effects created by music.

B. Identify what techniques are being used to create the musical atmosphere of a game.

C. Employ melodic, harmonic, and rhythmic techniques associated with the material being scored.

D. Compose music that meaningfully portrays people, places, events, etc.

E. Score visual media such as video games

XI. **COURSE REQUIREMENTS AND ASSIGNMENTS**

A. Textbook readings and video presentations

B. Discussion Board Forums (5)

   For each forum the students will respond to the provided prompt from the instructor. The threads will be a minimum of 200 words and students will reply to at least two posts from other students.

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   For each essay a transcription of a piece will be provided that contains several of the techniques discussed in the presentations. Students will analyze and identify those techniques and how they are being used in as much detail as possible. Each essay is to be a minimum of 2 pages.

D. Composition Assignments (6)

   Students will demonstrate their understanding of the material by composing short sample pieces in finale showcasing the techniques discussed in textbook readings and presentations.

E. Final Project

   Students will write a piece of music of at least 32 measures. This piece should include at least an “A” and “B” sections and demonstrate understanding of melodic, harmonic, and rhythmic techniques learned in the course. Students will include with the piece a written description of the image or concept the music is meant to convey, as well as identifying in detail the techniques used and how they contribute to the work. Students may choose what
instrumentation to use. Students may use whatever orchestration they wish, but the music need not be overly complicated as long as it demonstrates an understanding of the material.

XII. COURSE GRADING AND POLICIES

D. Points
E. Scale
   D- = 680–699  F = 0–679
F. Late Assignment Policy
   Assignments turned in within one week after they are due will receive a 10% deduction. Assignments turned in after this will receive a 20% deduction. Exceptions will be determined by the instructor on a case by case basis.

CURRICULUM PROJECT – DESIGN CHART

<table>
<thead>
<tr>
<th>Author: Zechariah Emery</th>
<th>Course for which you are creating curriculum: Music Theory in Video Game Music (Online)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concept Statement:</strong></td>
<td>(Briefly describe the overall purpose and point of the instructional unit.) The purpose of this course is to teach students basic melodic and harmonic techniques used in scoring video games.</td>
</tr>
<tr>
<td><strong>Learning Outcomes</strong></td>
<td><strong>Content</strong> (What must be learned to reach this objective?) <strong>Learning/Training Activity</strong> (How will you teach the content?) <strong>Assessment</strong> (How will you know that the student has met the objective?)</td>
</tr>
<tr>
<td>1. Describe the emotional and atmospheric effects created by music.</td>
<td>Week 1:  • Aska, Chapters 3-6  • Overview and outline of techniques that will be presented</td>
</tr>
<tr>
<td>2. Identify techniques being used to create certain effects in games.</td>
<td>Week 2:  • Aska, Chapter 7  • Identify Leitmotifs and how they are manipulated</td>
</tr>
<tr>
<td>Week</td>
<td>Assignments</td>
</tr>
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<tr>
<td><strong>Week 4:</strong></td>
<td><strong>Week 4:</strong></td>
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<tr>
<td></td>
<td>Phillips, Chapter 4-5</td>
</tr>
<tr>
<td></td>
<td>Determine effective uses of silence.</td>
</tr>
<tr>
<td></td>
<td>Recognize structure of compositions.</td>
</tr>
<tr>
<td></td>
<td>Recognize antecedent, consequence, period and other subdivisions</td>
</tr>
<tr>
<td><strong>Week 5:</strong></td>
<td><strong>Week 5:</strong></td>
</tr>
<tr>
<td></td>
<td>Identify the uses of key changes and modal choice in game music</td>
</tr>
<tr>
<td></td>
<td>Analyze mode mixture and borrowed chords in game soundtracks</td>
</tr>
<tr>
<td><strong>Week 6:</strong></td>
<td><strong>Week 6:</strong></td>
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<tr>
<td></td>
<td>Example video from 8-Bit Music Theory</td>
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<tr>
<td></td>
<td>Reserve</td>
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<tr>
<td></td>
<td>Weekly Finale Assignment</td>
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<tr>
<td><strong>Week 7:</strong></td>
<td><strong>Week 7:</strong></td>
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<td></td>
<td>Sweet, Chapter 2</td>
</tr>
<tr>
<td></td>
<td>Review Melodic techniques.</td>
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<tr>
<td></td>
<td>Begin creating and employing broad compositional</td>
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</tbody>
</table>

3. Employ melodic, harmonic, and rhythmic techniques to create certain effects.

Week 7:
- Example video from 8-Bit Music Theory
- Weekly Finale Assignment
- Reserve

Week 7:
- Assessment of the weekly Finale assignments
- Assessing the Collaborative
| 4. Compose music that meaningfully portrays people, places, events, etc. | **Week 8:**
| --- | --- |
| **Week 9:**
| **Week 10:**
| 5. Score visual media such as video games. | **Week 11:**
| **Week 12:** | **Week 8:**
| **Week 8:**
| **Week 8:** | **Week 9:**
| **Week 9:**
| **Week 9:** | **Week 10:**
| **Week 10:** | **Week 11:**
| **Week 11:** | **Week 12:**
| **Week 11:**
| **Week 12:** | **Week 12:**

- Compose looping melodies.
- Employ modes outside of Ionian and Aeolian (Major and Minor).
- Use mode mixture and borrowed chords

- Collaborative Composing Activity for classroom version of the course
- Example video from 8-Bit Music Theory
- Weekly Finale Assignment

- Assessment of the weekly Finale assignments

- Phillips, Chapter 7, 9; Sweet, Chapter 11
- Create short works portraying provided media in unique and creative ways.

- Phillips, Chapter 10; Sweet, Chapter 24
- Create ambient music as background to provided media.

- Example video from 8-Bit Music Theory
- Weekly Finale Assignment
- Discussion Forum 2

- Assessment of the weekly Finale assignments
- Assessment of Forum posts and responses

- Phillips, Chapter 13
- Review all techniques covered in the course.
- Prepare for the final project.

- Compose a longer work scoring a video or a sequence from a game.

- Example video from 8-Bit Music Theory
- Quiz 2

- Final Project

- Grading quiz 2
- Assessing the final project submissions
<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Rational for Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe the emotional and atmospheric effects created by music.</td>
<td>This outcome serves as a basis for the others. It serves to introduce the ideas the course will cover by working from the students’ own experience. The students will gain a basis for learning why their favorite music affects them the way it does.</td>
</tr>
<tr>
<td>2. Identify techniques being used to create certain effects in games.</td>
<td>The next logical step is to begin systematically identifying the individual music theory techniques used to create various musical and emotional effects. This stage will be a significant portion of the class and focus heavily on somewhat advanced principles of music theory.</td>
</tr>
<tr>
<td>3. Employ melodic, harmonic, and rhythmic techniques to create certain effects.</td>
<td>This outcome is to be somewhat interwoven with outcome 2. As students learn these composition techniques they will begin to practice using them to project the feeling they want in their own work.</td>
</tr>
<tr>
<td>4. Compose music that meaningfully portrays people, places, events, etc.</td>
<td>As we build to the ultimate goal of the course, students will begin to compose longer works that portray actual media, such as a picture or a short sequence from a video game.</td>
</tr>
<tr>
<td>5. Score visual media such as video games.</td>
<td>Once everything else is completed, the student will be prepared to compose longer works. While scoring an entire game is obviously beyond the scope of this course, students will put all their knowledge to use scoring a longer video or several minutes of a video game.</td>
</tr>
</tbody>
</table>

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60 University of North Texas, *Bloom’s Taxonomy, Learning Outcomes, and Higher Order Thinking*
62 Van Brummelen, *Steppingstones to Curriculum*, pg. 188
63 Ibid.
64 Indiana university, *Backwards Course Design*
**CURRICULUM PROJECT – DEVELOPMENT CHART**

<table>
<thead>
<tr>
<th>Author: Zechariah Emery</th>
<th>Course for which you are creating curriculum: Music Theory in Video Games</th>
</tr>
</thead>
</table>

**Organizers and Introductions**

**Expository**

Hello class! Welcome to our lesson on leitmotifs. Before you watch this presentation make sure to watch the short series of videos included in this week’s material. Pay special attention to the uses and manipulations of motifs in the pieces “The Pale King” and “The Hollow Knight” as well as the other pieces that use the same motifs. It is easy to miss some of these subtle uses of short melodies. Can you think of any other examples of this kind off the top of your head? Give a few other examples. Discuss how musical elements can tie together a story. Discuss melodic contour and methods of manipulating motifs. Discuss what changes produce which effects.

**Narrative**

I will begin the class with a reminder to watch the other videos included in this week’s material. When they have watched them I will begin asking questions to get the students thinking about where they may have encountered these concepts before. The videos include discussions of leitmotifs, melodic contour, and harmonic considerations. I will draw particular attention to the pieces “The Pale King” and “The Hollow Knight” Which act as themes for particular characters. Questions I could ask include but are not limited to, what makes a good motif, what are several ways that motifs can be altered to produce different atmospheres, how do motifs aid in storytelling? Since this is an online class there can be no real time verbal assessment. There will be a Finale assignment where students will be asked to write a motif or two and demonstrate at least four of the discussed methods of transforming them. Simple harmonies to help demonstrate these methods will be welcome but not required for now.

**Graphical Organizers**

This lesson takes place early in the course. The chart shows the progression from basic theory principles the student should already be familiar with to the principles behind using these building blocks practically to create and use leitmotifs. The focus is to be on melody, with harmony and rhythm focused on later in the course. Despite this harmony and rhythm are touched on.
Course Progression Chart:

Basic Theory
• Intervals and Chords
• Principles of Harmony
• Known Melodies

Practical Use
• Using Intervals to Create Motifs
• Using Harmony to Give Context to Melodies
• Recognizing Elements of Known Melodies

End Result
• Creating Original Motifs
• Manipulating Melody and Harmony to Change the Effect
• Effective Motivic Development
<table>
<thead>
<tr>
<th>Instruction Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gain attention</td>
<td>Each lesson will include one or more videos on the week’s topic that are presented in a fun and colorful manner, but are dense with information. Presenting real world cases will open the student to analyze how these principles can be used in their own music. (Nilson pg. 199)</td>
</tr>
<tr>
<td>2. Inform learners of objectives</td>
<td>The main principle for the week will be presented in the videos and lectures for that week. I will then inform the students of the specifics of what they are attempting to practically accomplish in the assignment for that week. (Nilson, pg. 101)</td>
</tr>
<tr>
<td>3. Stimulate recall of prior</td>
<td>I will remind the students of the content of the previous lesson. Also, each lesson should naturally build off and include elements of the previous lessons. (Nilson, pg. 5)</td>
</tr>
<tr>
<td>learning</td>
<td></td>
</tr>
<tr>
<td>4. Present the content</td>
<td>The videos accompanying each lesson will introduce the material, and then the lecture presentation will elaborate on the ideas introduced. At the end of the presentation the students will be asked questions that will get them thinking towards practical use of what was learned. (Nilson, pg. 253)</td>
</tr>
<tr>
<td>5. Guide learning</td>
<td>The videos and lectures will present the information to the students, and the assignments will help them to apply it practically. The teacher will be available to answer any questions or correct misconceptions. (Nilson, pg. 142)</td>
</tr>
<tr>
<td>6. Elicit performance (practice)</td>
<td>Students will be given an assignment to produce their own motifs and show motivic development. (Nilson, pg. 5)</td>
</tr>
<tr>
<td>7. Provide feedback</td>
<td>The teacher will be available to answer questions, grade assignments, and provide feedback as quickly as possible through electronic means. (Nilson, pg. 276)</td>
</tr>
<tr>
<td>8. Assess performance</td>
<td>The teacher will grade the student’s assignments based on the instructions given based on an analytical grading system. (Nilson, pg. 309)</td>
</tr>
<tr>
<td>9. Enhance retention and transfer</td>
<td>The practical experience of the finale assignments and the real world examples will act as “simulation” type learning. (Nilson, pg. 171)</td>
</tr>
</tbody>
</table>
### Curriculum Project – Implementation Chart

#### Physical Items

<table>
<thead>
<tr>
<th>Author: Zechariah Emery</th>
<th>Course for which you are creating curriculum: <strong>Music Theory in Video Games (online)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Powerpoint</strong></td>
<td>The Powerpoint will go along with the lecture presentation for the week and will allow students to see a visual representation of the material. This will help students to retain information and organize the material. It will also be available for download if the students wish to have it on hand. (Nilson pgs. 261-262)</td>
</tr>
<tr>
<td><strong>Video Presentation</strong></td>
<td>The presentation will deliver and elaborate upon the lesson material and example videos for that week. The powerpoint will be integrated into the video and together they will give the students a thorough understanding of what they are aiming to learn and be able to do. (Nilson pgs. 269-270)</td>
</tr>
<tr>
<td><strong>Piano/Keyboard</strong></td>
<td>A piano or keyboard will allow the instructor to demonstrate key concepts in real time as well giving the students something to copy at home or use as a basis for their own practice. (Nilson pg. 253)</td>
</tr>
<tr>
<td><strong>Example Videos</strong></td>
<td>Example videos from 8-bit Music Theory will give specific examples from games and detailed analysis for the students to study. It will also give them ideas for further music and concepts to research and use as inspiration for their own work. (Nilson pg. 259)</td>
</tr>
<tr>
<td><strong>Downloadable Notes</strong></td>
<td>A document including the powerpoint from the presentation and additional notes will be made available for download. (Nilson, pg. 151)</td>
</tr>
<tr>
<td><strong>Assignment Instructions</strong></td>
<td>A document with detailed instructions for the week’s assignment will be made available for download. This could also be accomplished through a video. (Nilson pg. 199) (Nilson, pg. 200)</td>
</tr>
</tbody>
</table>

#### Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Write the Lecture</strong></td>
<td>The lecture will be the main vehicle for delivering the lessons the students will go on to apply each week. (Nilson, pg. 142)</td>
</tr>
<tr>
<td><strong>Find Locations and Camera Crew for Filming</strong></td>
<td>A well made video will help to keep student’s attention, and allow them to watch the presentation as many times as they need to retain the information. (Nilson pg. 143)</td>
</tr>
<tr>
<td><strong>Compose Instructor Examples for Lessons</strong></td>
<td>“Live” examples will enable the instructor to break down the details of the lesson. The students will be able to hear the example and see how it is done, hopefully aiding in understanding. (Nilson, pg. 251)</td>
</tr>
<tr>
<td><strong>Review Previous Material</strong></td>
<td>The instructor should review previous material before each lesson. This will ensure continuity in progression of the lessons. It will also help the instructor to tailor each lesson to the learning outcomes being aimed for. (Nilson, pg.)</td>
</tr>
<tr>
<td><strong>Arrange Materials on Blackboard</strong></td>
<td>Before each lesson, the instructor should make sure that all of the necessary links and materials are correctly entered into blackboard. This keeps the learning experience smooth and prevents unnecessary frustration. Instructors will also be able to add or change anything they need to. (Nilson, pg. 69)</td>
</tr>
<tr>
<td><strong>Research Deals for Textbooks</strong></td>
<td>It would be a great relief to students if the instructor could find a more simple or affordable way for them to access course materials that are often inordinately expensive. This could include getting textbooks on kindle, which is often cheaper, or using other digital sources. (Nilson, pg. (46-47)</td>
</tr>
</tbody>
</table>

| **Formative Assessment Type** | **Assessment Details** |
| **Creative** | Because this is an online course it is difficult to have real time assessment. The weekly assignments involve students using the concepts taught to create their own music that uses those concepts. To facilitate feedback the assignments could be made due in the middle of the week to allow time for the students to ask questions and for the teacher to respond before the assignment is graded. This feedback would be encouraged and the grading by necessity would be somewhat subjective except for a few key elements that must appear. The teacher could even give feedback and then allow the student to revise their work before it is graded. This would enable discussion and clarification while relieving pressure on the student. |
# Curriculum Project – Evaluation Chart

<table>
<thead>
<tr>
<th>Author: Zechariah Emery</th>
<th>Course for which you are creating curriculum: Music Theory in Video Games</th>
<th>Rationale for Formative Assessment Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning Outcomes</strong></td>
<td><strong>Formative Assessment Plan</strong></td>
<td><strong>Rationale for Formative Assessment Type</strong></td>
</tr>
<tr>
<td>1. Describe the emotional and atmospheric effects created by music.</td>
<td>The Students will participate in a forum where they will discuss, in as much musical detail as possible, game music that they believe creates significant atmosphere and emotion in the instance where it appears. They will also complete a basic composition assignment to demonstrate understanding of the concepts.</td>
<td>The forum will act as a kind of “Background Knowledge Probe” to help the teacher gauge the level of understanding of the subject matter the students are entering the class with, as well as getting them thinking about the underlying principles. The results will give the teacher a framework for how to proceed. This assignment fits under the “knowledge” portion of Bloom’s Taxonomy.</td>
</tr>
<tr>
<td>2. Identify techniques being used to create certain effects in games.</td>
<td>After watching the presentations from the instructor and the example videos, the student will analyse a given piece of music from a game and explain how the music is effective in its context. They will also discuss the theory behind how this effect was created.</td>
<td>This assignment continues to encourage the student to think and analyse game music as a way to set them up for applying the principles they are learning in upcoming sections of the course. It is a way for them to teach themselves and identify areas they may need to work on. This assignment fits under the “Comprehension” portion of Bloom’s Taxonomy.</td>
</tr>
<tr>
<td>3. Employ melodic, harmonic, and rhythmic techniques to create certain effects.</td>
<td>The student will complete more complex composition assignments to demonstrate an understanding of the contributions of melody, harmony, and rhythm to the impact of music.</td>
<td>This assignment allows students to begin using their own creativity to apply what they have been learning, and to prepare them to create music to portray an external concept or piece of media. Showing them the progress they have made and the skills they are beginning to</td>
</tr>
</tbody>
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66 Ibid Pg. 226
4. Compose music that meaningfully portrays people, places, events, etc.  

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>/</td>
<td>After completing the readings and presentations for the week, the student will take part in forums that will facilitate discussion about what has been learned in the class, as well as completing Composition assignments that involve creating music to portray a given concept or piece of media. The concept or media given will be the same for all students.</td>
<td>The forums, and to a lesser extent the composition assignments, will act as a “muddiest point” assessment. This will allow the teacher to identify any problem areas that need to be addressed before the class moves into the final section of the course. This section fits into the “Synthesis” portion of Bloom’s Taxonomy.</td>
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5. Score visual media such as video games  

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</thead>
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<tr>
<td>/</td>
<td>The students will complete a final composition that will incorporate as many concepts from the course as possible, though it will probably not be able to contain them all. A piece of media will be given to the students to compose a longer piece of music as a score.</td>
<td>This final assignment will allow students to demonstrate all that they have learned throughout the class, as well as hopefully giving them an accomplishment to be proud of. It will act as a way for instructors to determine how well the students have learned the skills the course is trying to impart. This outcome is part of the “Evaluation” segment of Bloom’s Taxonomy.</td>
</tr>
</tbody>
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68 Ibid. Pg. 277
69 Ibid. Pg. 301
Sample Assessments
Formative Assessment

1. Which Composer was a pioneer in the use of leitmotifs? (5 points)
   - Beethoven
   - Wagner*
   - Strauss
   - Chopin

2. Identify the character or location portrayed by this motif. (5 points)
   *motif played will be “Hollow Knight”

3. Identify the character or location portrayed by this motif. (5 points)
   *motif played will be “The Pale King”

4. True or False: Webster defines a leitmotif as an associated melodic phrase or figure that accompanies the reappearance of an idea, person, or situation. (5 points)
   True*

5. In your opinion, how does the harpsichord sound enhance the melody of the “Mantis Lords” theme? (5 points)
   *Answer must be thoughtful and show that the student has interacted with the lesson material.

6. Which piece from the videos does not make use of an ostinato? (5 points)
   - Soul Sanctum
   - City of Tears
   - Greenpath
   - Soul Master*
7. How does the Soul Sanctum music re-use and change the music of “City of Tears”? (5 points)
   Transposes it to a minor key
   Changes and slows the ostinato
   Moves the melody from piano to organ
   Re-harmonizes the melody
   All of the above*

8. Name two themes that use variations of the “Pale King” theme (5 points)
   *acceptable answers include “The White Lady”, “The elegy of Hallownest”, “The White Palace”, and “Hornet’s Theme”

9. What are the three stages Christopher Larkin usually uses when using motifs to create a larger theme? (5 points)
   *Melody, Variation, Development

10. Identify themes that use the “Hollow Knight” motif (5 points)
    “Broken Vessel”*
    “Soul Master”
    “Hornet’s Theme”
    “Sealed Vessel”*
1. In the reading, Aska names five major categories of video game music. Name three of them. (4 points)
   *Overworld, Underworld, Battle, Safe Zone, Theme Music.

2. According to Aska, which of these is not characteristic of Overworld/Field music in video games. (4 points)
   Hand percussion
   Major keys
   *Sparse orchestration
   Wind instruments
   Steady rhythms

3. What does the reading claim to be one of the most distinguishable types of video game music? (4 points)
   *RPG (Role Playing Game) battle music

4. Identify the character or location portrayed by this motif. (4 points)
   *motif played will be “The City of Tears”

5. Identify the character or location portrayed by this motif. (4 points)
   *motif played will be “Mantis Lords”

6. What is the most diverse category of video game music? (4 points)
   Underworld music
   Character music
7. True or False: Theme music is not intended to create a musical brand for a game. (4 points)
   *False

8. Which theme mentioned in the reading involved Gregorian chant? (4 points)
   “Metroid”
   *“Halo: Combat Evolved”
   “To Zanarkand”
   “The Legend of Zelda”

9. Which theme mentioned in the reading involved non-musical sound effects? (4 points)
   *“Metroid”
   “Halo: Combat Evolved”
   “To Zanarkand”
   “The Legend of Zelda”

10. How does the theme “To Zanarkand” differ from typical theme music? (4 points)
    *some variation of “Limited instrumentation and a melancholy sound used to portray the somber mood of the events of the game.”

11. What is one of the most important elements of a motif? (4 points)
    Key
    Opening chord tone
    Harmony
12. What is the chord that comprises the ostinato of “The City of Tears” theme? (4 points)

Ab6/9
*Ebsus²
Ebadd2/G
Cm11

13. What technique is used to create the appearance of chord progression around this chord? (4 points)

*It is recontextualized by the melody notes and base line.
The intervals are changed, but the notes stay the same.
The instrumentation changes.

14. What does 8-Bit Music Theory claim is a common technique for creating “atmospheric” music? (4 points)

*Pedal tones beneath changing chord progressions

15. Which other piece used recontextualization to create chord progression? (4 points)

*“Greenpath”
“Crystal Peak”
“Broken Vessel”
“Mantis Lords”

16. True or False: The unity of Hollow Knight’s soundtrack is attributed to a consistent melodic style. (4 points)

*True
17. True or False: Melody is the only consideration in the effect of a motif. (4 points)
   *False

18. Describe some ways in which motifs are used to aid storytelling in Hollow Knight. (4 points)

19. Who was the composer of the music for Hollow Knight? (4 points)
   Hip Tanaka
   Nobuo Uematsu
   *Christopher Larkin
   Martin O’Donnel

20. What is the rhythmic change in the “Pale King” theme when it is used for “The White Palace”? (4 points)
   * It is changed from 4/4 time to ¾ time while keeping the same melody.

21. What two classical composers did Christopher Larkin say he was inspired by? (4 points)
   *Mahler
   Chopin
   *Rachmaninoff
   Rimsky-Korsakov

22. How does Hornet’s theme use the “Pale King” motif? (4 points)
   *It uses augmentation to stretch the melody and adds new development.

23. How do Hollow Knight’s three endings use music to highlight the story differences? (4 points)
   *Some variation of: It uses pieces of character themes to mirror what is happening in each set of scenes, and layers multiple character themes to connect them thematically. Other well explained answers are acceptable.
24. What character(s) does the “Hollow Knight” theme portray? (4 points)

*The main character (The Knight), the Hollow Knight or Sealed Vessel (a separate character), and the Broken Vessel (a third character) are all acceptable answers. This is kind of a trick question, as they are all related thematically.

25. What does the cut off version of the Pale King theme in the Broken Vessel fight signify? (4 points)

*It is used to portray how the Hollow Knight is trapped in a repeating cycle.