GAMIFICATION STRATEGIES FOR MUSIC EDUCATORS:

AN ONLINE CONTINUING EDUCATION COURSE

by

Luis E. Espinosa

A MASTER'S CURRICULUM PROJECT PRESENTED IN PARTIAL

FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS IN MUSIC EDUCATION

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ABSTRACT

This curriculum project is designed to provide music educators in the public and private sector with introductory knowledge about the topic of gamification and game-based learning, framed within the scope of an online continuing education course. It is meant for adult learners who teach young musicians in the K-12 range. The course offers a set of strategies and step-based processes that help transform a traditional music lesson plan into an interactive and meaningful learning experience that leverages games. The games created by the students in the course can serve to motivate music students by incorporating a sense of competition and personal achievement in and out of the classroom. Research in game-based design will demonstrate the usability of gamification within music education. This project aims to provide gamified knowledge delivery methods and assessment tools that apply to students in K-12. While one of the goals of gamification is to enhance music education through the creation of fun activities, the curriculum does not lose focus on the importance adhering to the National Core Arts Standards of creating and performing.[1] Game-based learning can complement hard-work and consistent practice through the use of game elements during a music lesson. Educational games can be a valuable method of instruction when a student struggles to understand complex subjects such as music theory by helping the student develop necessary critical thinking skills. Game-based music learning can also increase student interest and participation during class.

Keywords: gamification, game-based learning, gamified system design, engagement.

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[1] NAFME, "National Coalition for Core Arts Standards."

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CHAPTER I: INTRODUCTION

Background

The concept of gamification, which is the addition of game elements to non-entertainment tasks, has been increasingly incorporated in professional environments such as business, education, and music. Complex problem-solving techniques commonly associated with software programmers and game designers have been applied in the development of curriculum and lesson plans through the process of gamified system design.[2] Some of the benefits associated with the practice of gamification in music education could include: 1) Increased student engagement in and out of the classroom, 2) Accelerated student progress through independent critical thinking skills, 3) Teacher knowledge of different formative assessments and motivation tools, and the 4) Strong teacher-student relationships through meaningful and fun interactions. Gamification and game-based learning leverages competition as a motivator during game learning sessions. Competition can be either with oneself or with other peers. The feeling of glory manifests itself by using achievements and rewards, predetermined within the lesson plan and designed to propel the student to meet learning goals.

To ensure the educator creates meaningful engagement through game-based learning, he or she should adhere to S.M.A.R.T goal criteria during the lesson development process.[3] This goal framework was first introduced in the 1980s as a way to focus on goal achievement in the business sector. Professional learning communities have also embraced the principals of this mnemonic acronym. S.M.A.R.T goals can forward professional development, focus curriculum

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[2] Kim Sangkyun, et al, *Gamification in Learning and Education: Enjoy Learning like Gaming* (New York, NY: Springer Science Business Media, 2017): 30.

[3] Ibid., 9.

improvement, and support organizational changes.[4] The goals of the gamified music lessons should tackle a *specific* concept, progress during the game should be *measurable* and successful completion *attainable*. Additionally, game sessions must remain *relevant* to music learning and be *time-based*. Setting a target time or date for when a task must be completed can motivate students to apply focus, muster discipline and keep leaning milestones on track. The educator must consider how the different components of gamification produce the desired goal in the creation of gamified lessons.[5]

An alternative word for gamification is *ludicization*, which stems from the Latin word *ludus* or game.[6] An examination on the use of this word reveals that ancient Romans commonly incorporated games to facilitate learning. Ludicization is associated with the Roman Primary school system where children learned life skills through play. Ludology research also identify Roman board games such as the *ludus duodecim scriptorum* which is the ancient progenitor to backgammon.[7] Ludus is also used to describe gladiatorial games such as the "Ludus Magnus," the school where men trained to battle against each other for the purpose of entertainment in the colosseum.[8]

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[4] Anne Conzemius and Jan O'Neill, *The Power of Smart Goals: Using Goals to Improve Student Learning* (Bloomington, IN: Solution Tree Press, 2011): 13.

[5] Sangkyun, et al, *Gamification in Learning and Education,* 59.

[6] T.J. Leary, Some Roman Board Games, *Akroterion* 64 (2019): 124.

[7] Ibid.*,* 125.

[8] Wolfgang Neubauer, et al, "The Discovery of the School of Gladiators at Carnuntum, Austria," *Antiquity* 88, (2014): 179.

Statement of the Problem

Music theory, ear-training and other formative musical topics are often underprioritized in the K-12 music classroom due to time constraints and inherent complexity.[9] Lack of face-to-face interactions inherent in distance learning can limit opportunities for teachers and students to create rapport in meaningful ways. Changes in instructional delivery methods, for example, those resulting from a sudden shift to online education, can result in unequal access to music education and a reduction in student engagement.[10] Infrequent lessons can stimy musical growth and hamper the student's motivation and ability to develop practice discipline.

Statement of the Purpose

This curriculum seeks to inform music educators about the benefits, disadvantages, and differences between the concepts of gamification, game-based learning, and game system design when applied in music education. These ideas will enable music teachers to develop innovative and engaging lesson plans designed to promote student engagement and improvement. Teachers will be able to identify learning gaps, utilize gamification techniques to meet learning goals and encourage students to problem solve through game-based learning. Distance learning courses can be improved with gamification, resulting in increased student participation and comprehension in a range of teaching environments. The application of gamification techniques in music curriculum could be valuable to educators who want to use alternative engagement tools to

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[9] Michael Rogers, *How Much and How Little has Changed? Evolution in Theory Teaching* (College Music Symposium, Vol. 40, 2000): 110

[10] Linda Thorton, "Music Education at a Distance*," Journal of Music Teacher Education* 29 (June, 2020): 5.

confront the negative effects of infrequent lessons and increase student motivation outside of the classroom.

Significance of the Study

This curriculum is significant because it provides educators with strategies and techniques that will improve lesson plans and increase student engagement. The goal of the curriculum is to create a repository of techniques and methods that music educators can utilize when teaching challenging material in their classrooms. After completion of this course, educators will be able to define the nature and application of gamification and game-based learning. They will be able to describe gamification strategies and techniques for use in a K-12 setting and analyze case studies within music education that incorporate elements of gamification. This experience will empower them to design interactive game-based curriculum to be applied during music lessons. Finally, they will be able to assess the value of gamified lessons plans within their educational environment.

Definition of Terms

Gamification: The addition of game elements to a non-game scenario.[11] It rewards certain behaviors using player progression and achievement through internal or external competition. Assessments are typically not within the game. Game elements rather than learning concepts are adjusted to fit the lesson content. Motivation for success relies on extrinsic rewards such as grades outside of the game system.

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[11] Carolyn Wagner, "Digital Gamification in Private Music Education," *Antistasis* 7, no. 1 (2017): 117.

Game-Based Learning (GBL): Rather than using game elements, game-based learning uses established games to teach complex concepts.[12] These games can be digital (video games) or physical (board/card games). Assessments are usually found within the game. Learning concepts not game elements are adjusted to fit the game. Intrinsic motivation is common in GBL, as students tend to focus on earning points and feeling accomplished by completing challenging levels.

Game System Design (GSD): The purposeful use of game elements as framework meant to accomplish goals outside of the context of entertainment. GSD game thinking and user-experience design to build motivation, explain difficult concepts, broaden audiences, deepen commitments, and enhance human relationships.[13]

Engagement: The level of participation a student has within a game system.[14] For the purpose of this research, engagement is also understood as a student's attention level. In order to focus on the behavioral and cognitive effects resulting from gamification, the way in which a student engages, or the quality of the user's attention, will be highlighted.

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[12] Marc Presk, *Digital Game-Based Learning* (New York, NY: McGraw-Hill, 2001): 16.

[13] Sari Gilbert, *Designing Gamified Systems*: *Meaningful Play in Interactive Entertainment, Marketing and Education* (Oxfordshire, UK, Routledge, 2015): 22.

[14] Ibid., 24.

CHAPTER II: LITERATURE REVIEW

Background

The supporting literature is taken from a variety of fields, including education, business, medicine, STEM, and music. It provides a background of gamification and game-based learning and presents evidence of benefits and detriments of this technique when applied in the music classroom. The usability of game design mechanisms in a classroom setting is evident within case studies. Throughout the review, the term *user, player, or student* is used interchangeably and meant to distinguish those undertaking gamified music activities to accomplish a learning outcome.

Game-Based Learning

Gamification in Learning and Education will help students in the continuing education course synthesize gamified strategies within the scope of music education.[15] It provides a comprehensive look at the rationale for using games as a learning tool and how to determine if the application of game systems design was of benefit or detriment to the learning activity. The text also covers the legal and ethical issues associated with gamification. These include privacy, copyright, ownership, and consent.[16]

In *Gamification in Education: Breakthroughs and Research*, authors Xun Ge and Dirk Ifenthaler focus on the implementation of these assessments.[17] They evaluate the effectiveness of

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[15] Sangkyun, et al, *Gamification in Learning and Education,* 1.

[16] Ibid., 116.

[17] Xun Ge and Dirk Ifenthaler, *Gamification in Education: Breakthroughs in Research and Practice* (Hershey, PA, IGI Global, 2018): 10-11.

game scoring, external assessments and embedded assessments within gamified systems and explain the benefits of each evaluation type. Educators who practice strategic gamification in the classroom must determine if meaningful behavioral changes occurred after a lesson. Teachers will track the motivational, emotional, and metacognitive characteristics of the student during and after the game.[18]

In *Digital Game-Based Learning*, author Marc Presky explores "digital wisdom" or the impact of modern technology on the way students learn today.[19] He highlights case studies that cover both the implementation and reaction to gamification within the online classroom. One of the case studies considers the success of the learning application called *Duolingo*.[20] As players learn another language, they can collect different achievement badges, race against time, or compete against friends. The strategies of gamified system design are meant to target specific users and motivate them to independently navigate a set of parameters in an effort to achieve a meaningful learning experience. Gamification in music education is more than creating a music theme game and playing it with a student.

Game System Design

Designing Gamified Systems, written by Savannah College of Art and Design professor Sari Gilbert, is the main source for the proposed curriculum.[21] The book is ideal for educators that have experience teaching in the K-12 classroom but have limited knowledge of gamification

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[18] Dirk Ifenthaler and Xun Ge, *Assessment in Game-Based Learning* (New York, NY, Springer, 2012): 6.

[19] Marc Presky, *Digital Game-Based Learning* (New York, NY: McGraw-Hill, 2001): 1.

[20] Sangkyun, et al, *Gamification in Learning and Education,* 142.

[21] Gilbert, *Designing Gamified Systems*, 1.

concepts and applicability within their lessons plans. The text introduces its reader to the history

of game design and how game-based systems was used towards the goal of knowledge

acquisition. Written in 2015, the book contains case studies that showcase technology and

systems still in use today. These are explored and analyzed in full within the proposed

curriculum and include: Khan Academy, Duolingo and Classcraft. The author concludes the

book with a thorough examination of the use of gamification in both the learning and marketing

environments. Though the book is not specifically focused on music education, the curriculum

applies the concepts to that setting.

The book titled *The Multiplayer Classroom* by author Lee Sheldon adds context to terms

utilized in the curriculum research.[22] Prior to becoming a professor at the Rensselaer Polytechnic

Institute, Sheldon created over 20 commercial video games and was a producer in more than 200

television shows such as "Star Trek: The Next Generation." His book provides information about

the game creation process and the elements that make a game successful. The text also includes

an overview of behavioral profiles commonly associated with video game players; a concept that

has been adapted to game-based learning to differentiate learners according to their play patterns

during an activity.[23]

Supplemental Sources

According to gamification expert Raph Koester, fun in games arises out of mastery and

comprehension, such as the act of solving puzzles. His text titled *A Theory of Fun for Game*

Design explores the difference between re-playability and how to design experiences with long

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[22] Lee Sheldon, *The Multiplayer Classroom: Designing Course Work as a Game* (Boston, MA: Cengage Learning): 1.

[23] Ibid., 69.

lasting educational value. In the same book he proposes to associate the word fun as another component of the learning process and to combat the notion that fun has no place in a learning setting.[24]

The article titled "Does Educational Gamification Improve Students' motivation? If so, which Game Elements Work Best?" by Jared Chapman and Peter Rich includes data concerning the perception of educators and students to the adoption of gamification in classrooms. The authors provide an analysis derived from a collection teacher surveys about the pedagogical value of gamification. [25] The study targeted pre-service and in-service teachers who participated in a two-hour workshop about gamification and its practical applicability.[26]

"Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions" by Richard Ryan and Edward Deci, provides an overview of the significance of human motivation. It explains how a person may be affected, both positively or negatively, based on inward and outward factors. The information contained in the text serves to provide complementary knowledge that assist the music educator during the game system design phase of the curriculum.[27]

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[24] Raph Koester, *A Theory of Fun for Game Design* (Phoenix, AZ: Paraglyph Press, 2004): 38.

[25] Yun-Jo An and Li Cao, "The Effects of Game Design Experience on Teachers' Attitudes and Perceptions Regarding the Use of Digital Games," *Association for Education Communication and Technology* (October 2016): 163.

[26] Jared Chapman and Peter Rich, "Does Educational Gamification Improve Students' Motivation? If so, Which Game Elements Work Best?" *Journal for Education for Business* (September, 2018): 321.

[27] Richard Ryan and Edward Deci, "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary and Educational Psychology* 25, no. 1 (2000): 55.

Author Carolyn Wagner provides insight into the successful implementation of gamification within her private piano study.[28] Her research titled, "Digital Gamification in Private Education" covers the phenomenological aspects of game-based music education and the effects of the practice within her lesson plans. It covers the concept of *flow*, or immersion in gaming, and what achieving that state in music education may look like. The author provides advice on the potential hurdles a teacher might face while using gamification in music.

In "The Design of a Gamification Algorithm in a Music Practice Application," Steven Frazier aimed to incorporate a gamified points system into his music lessons plans.[29] With the help of music educator Cathryn Peoples, he proposed the creation of an application for mobile devices that would track student practice time. The application measured student progression as they learned music in his studio. This case study in usability showcases gamification towards the improvement of human behavior.

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[28] Wagner, "Digital Gamification in Private Music Education," 117.

[29] Steven Frazier-Roberts and Cathryn Peoples, "The Design of a Gamification Algorithm in a Music Practice Application," *Open Journal of Web Technologies* 6, no. 1, (2019): 1.

CHAPTER III: METHODOLOGY

Design of Study

Mixed methods research was conducted during the project development phase and supported by historical and descriptive analysis of game-based pedagogical resources. A collection of case studies that demonstrate gamification in action were selected to verify and synthesize evidence of game-based strategies used in virtual and in-person educational settings. Data critical of gamification was considered and provided insight to shortcomings.[30] Some of the criticism levied at gamification stems from the possibility of over application of gamified systems in the daily lives of the general population. The idea of an all-encompassing gamified social system was presented by Jesse Schell in 2010, in which human choices are measured by sensors and gamified. Food choices, school performance and social media interactions would all incorporate a point system aimed to moderate human behavior. The presentation earned the title of most disturbing presentation of the year.[31] Critics also believe that gamification is given too much credibility as a pedagogical approach and rather, the system devolves into a simple points system at its core.[32] The historical period explored in this research presents scholarly data from the year 2000 to 2020.

Descriptive data found in game-based learning books and research journals served as the starting point for the gamification in music education hypothesis. The observations and descriptions of game system application in the fields of education, medicine, and marketing

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[30] Aaron Chia and Yuan Hung, "A Critique and Defense of Gamification," *Journal of Interactive Online Learning* 15, no. 1, (Summer 2017): 60.

[31] Chia and Hung, 61.

[32] Ibid., 63.

helped inform the sequencing of the proposed curriculum. The interpretation of descriptive data resulted in a curriculum that provides the student with substantive background information about game development and ensures that learning activities are centered on music education.

Questions and Hypothesis

For this curriculum project, I postulated two research questions. Question one is "How can gamification strategies best be implemented in music education?" The hypothesis for this question is as follows: The integration of gamification strategies in the areas of music theory, ear-training and practice regimen development can help accelerate student progress and increase musicianship.[33]

The second research question is "How can music educators utilize game system design to improve and sustain student engagement?" The hypothesis for the second inquiry was: The implementation of gamified lessons and goal focused reward system within music curriculum can help increase and sustain student motivation in and out of the classroom. The research culminated in an online continuing education course aimed at music education graduates who wished to learn how to incorporate game-based learning in the K-12 classroom.

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[33] Gilbert, *Designing Gamified Systems*, 34.

CHAPTER IV: RESEARCH FINDINGS

Curriculum Design

The goal of the curriculum is to teach current and aspiring music educators how to best implement gamification in their classrooms. To achieve this, the curriculum focused on the design and development phases of the ADDIE model which identifies learning needs, matching goals and relevant strategies.[34] Students of the curriculum will apply gamification strategies and mechanism as they design a music lesson plan throughout the course. Gilbert's text is the main source for the curriculum and informs the sequence of information presented to the student.[35] Gamed-based learning design support's students by providing adaptive feedback that responds to their input while motivating them to learn from their mistakes.[36] Students of the gamification curriculum will learn to create environments that encourage the learning complex behaviors through the implantation of game mechanisms. This philosophy of lesson design is supported by the six principles of gamified systems: active learning, amplification of input, incremental challenge, explicit information, regime of competence and the psycho-social moratorium.[37]

Case Studies

The case studies presented in this section examine game systems and game design, to include common game mechanisms and their successful implementation in a learning environment. The case studies reinforce gamification concepts and provide students an

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[34] Robert Branch, *Instructional Design: The ADDIE Approach* (Athens, GA: Springer): 59.

[35] Gilbert, 35.

[36] Ibid., 112.

[37] Ibid., 113.

opportunity to explore some of these digital platforms during the course. Physical applications of game-based learning are addressed further in the curriculum.

Khan Academy: Points Systems and Level Progression

The first case study will explore a gamified point system measure knowledge development through the application of level progression and other game mechanisms. *Khan Academy* is an online learning platform designed for long-term engagement through the incorporation of a task management road map.[38] A student may start learning the history of the United States in elementary school and progress through high school.

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[38] Gilbert, 125.
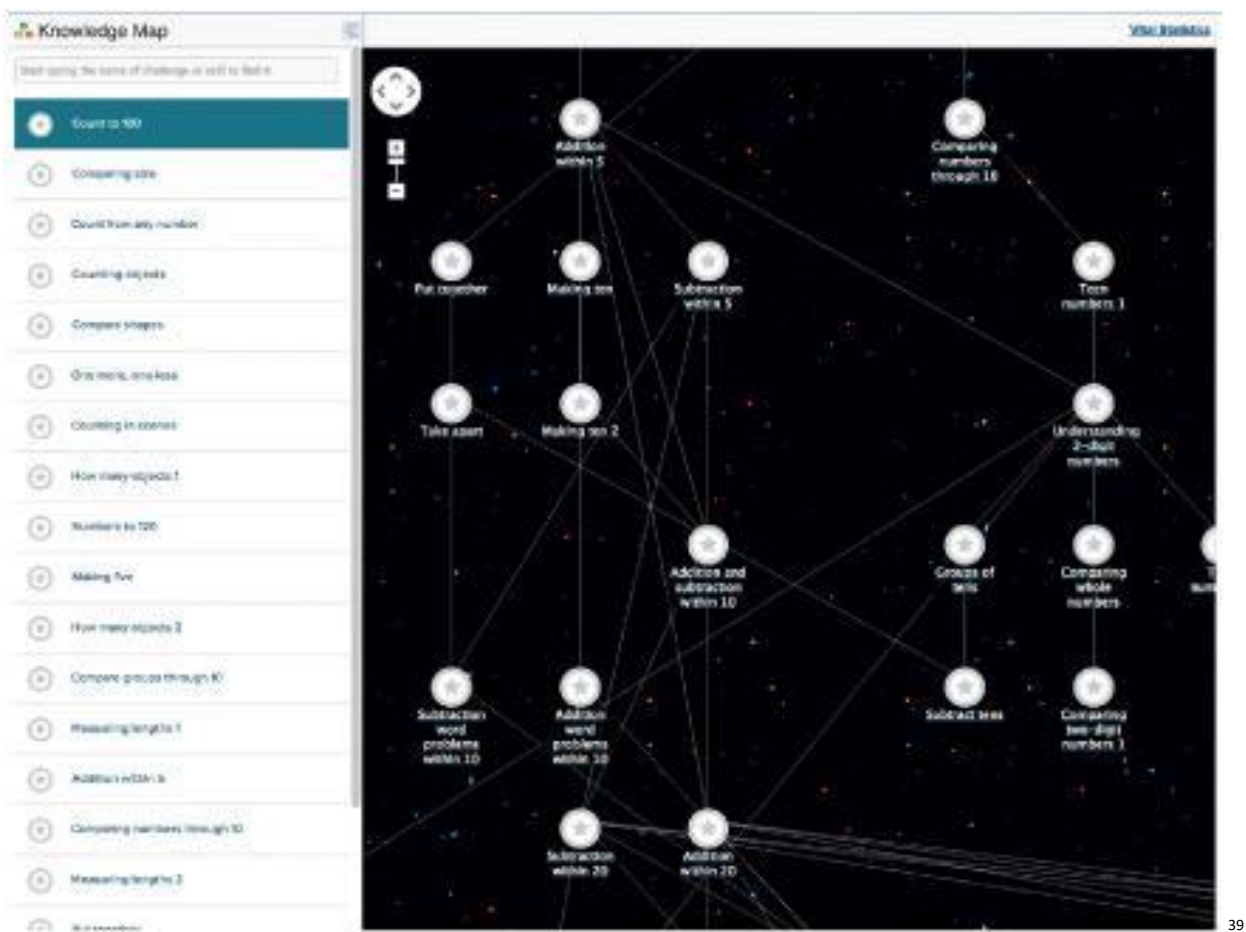
Figure 4. 1 Khan Academy Knowledge Map

Figure 4.1 shows the incorporation of a points system within a determined knowledge map allows teachers to measure goals within a game layer. A game layer is defined as a component of a gamified system meant to connect tasks in the real world with game elements.[40] To earn "energy points" in *Khan Academy,* students participate in courses, answer questions about a topic or participate in video sessions. The visual hints provided by the game-based learning platform show the student his or her areas of success and areas that need assistance. A

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[39] Gilbert, 38.

[40] Ibid., 126.

similar points system can be implemented within a classroom with the use of physical materials for students to track after each learning session. A point system also creates a sense of competition internally or with a student peer group.[41] Educators must consider that an underperforming student may feel alienated and unable to catch-up. To help the students meet achievement goals, an educator can create opportunities for focused remediation and tailor gamified activities to remedy shortcomings.

Music Practice Algorithm: Leaderboards and Badges

Music educators, Frazier and Peoples, created a road map that contained music of increasing difficulty to be learned within a semester.[42] Points were awarded for daily practice and completion of performance assignments. Students that completed difficult assignments received more points. Once the scores were calculated, student achievement was displayed in the studio's leaderboard, which added an element of competition to the learning experience. As an additional motivator, Frazier included the ability for students to earn bonus points by increasing the amount of time they practiced during the week. He also incorporated a merit badge component used to motivate the students toward side goals while encouraging autonomy. Badges were awarded when students performed a set of musical pieces by the same composer, maintained a consistent practice history or streak, performed a composition with multiple movements, and sight-read a new piece.

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[41] Sangkyun, et al, *Gamification in Learning and Education,* 50.

[42] Frazier-Roberts and Peoples, "The Design of a Gamification Algorithm in a Music Practice Application," 18.

Duolingo: Currency and Experience Points (XP)

Duolingo is a language learning platform accessible through mobile applications or desktop computers via a web browser.[43] With gamification as its education framework it provides users with a variety of short lessons in thirty-eight different languages.

Figure 4. 2 Duolingo Experience Tracker

The target audience of Duolingo are beginning language students, though users have found it useful during in-person classroom sessions. To motivate learners, Duolingo utilizes several game mechanisms such as experience points, virtual currency, leaderboards, and level progression. By completing language lessons, students earn experience points (XP) which tracks

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[43] Sangkyun, et al, *Gamification in Learning and Education,* 141.

[44] Luis Espinosa, 2020.

their progress and unlocks more learning challenges or games. Figure 4.2 is a snapshot of

Duolingo's experience system within the iOS ecosystem. Users are presented with assessments

and rewards after the completion of lessons.

Virtual currency also plays an important role within the game system design. "Lingots"

are earned through task completions events. Examples include applying new skills, preserving a

10-day streak, or inviting others to play. The currency can be used to purchase valuable items

designed to enhance the overall experience. For example, "Power Ups" can double the amount of

gained XP and "Player Outfits" that change the way a player looks. Bible apps also utilize

similar gamification techniques used to sustain engagement by challenging the reader to preserve

a "streak" and beat his or her previous best scores. Music educators can leverage similar game

mechanisms like those found in Duolingo to highlight learning landmarks and motivate students

to earn additional rewards through task completion.

Virtual Worlds: Quests and Collaboration

Digital instructional delivery platforms have incorporated gamification to support

positive performance and behavior among students.[45] One platform is called *Classcraft,* which is

an educational multiplayer role-playing game (RPG) that included game mechanisms common in

online adventure games. While in the game system, learners create a personalized avatar as

illustrated in Figure 4.3 and work in groups of five to unlock rewards and complete quests. Each

player can assume classic RPG roles such as a warrior, a priest, or a rogue to leverage his or her

unique strengths within curated learning challenges. Because the focus is on developing teams'

skills, students are encouraged to help those who may be falling behind on individual tasks. In

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[45] Gilbert, *Designing Gamified Systems*, 132.

music education, several teachers have incorporated *Classcraft* into their lesson plans to explore

music history and music theory in a team environment. More than 5000 teachers from 75

countries utilize *Classcraft*, which represents approximately 150,000 students worldwide.[46]

Figure 4. 3 Classcraft

Gamified systems are designed to be fun. Gamification in learning is a form of

constructionist education which suggests that learning is more efficient when the student

constructs his or her model of how to organize new knowledge.[48] An example is the use of the

video game *Minecraft* to teach students Egyptian history while making a digital pyramid.

Minecraft is a sandbox video game developed by Mojang Studies in 2009 where players can

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[46] Gilbert, 133.

[47] Ibid., 243.

[48] Ibid., 34.

explore a procedurally generated world. By gathering materials in the form of blocks, users can

build custom structures and systems to survive against the environment. Microsoft began to

develop a learning focused version titled *Minecraft Education Edition* after purchasing the rights

to the game for an estimated $2.5 Billion in 2014. Teachers can create Minecraft lessons plans to

explore a variety of subjects within the game world. Science teachers have leveraged the

depiction of nature within Minecraft to demonstrate concepts such as animal behavior, biome

diversity and biological structures.[49]


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Figure 4. 4 Simulated Classroom in Minecraft Education Edition

[49] Youngkyun Baek, et al, "Mining Education Implications of Minecraft," *Computers in the Schools* 37: no.1 (February 2020): 6.

[50] Luis Espinosa, 2020.

Music education can also benefit from the use of systems within the *Minecraft* platform. By using a combination of pressure plates and musical note blocks, learners can compose music for all players to listen. These blocks can also be used to create in-game challenges such ear-training exercises targeting interval recognition and construction. Teachers can purchase and share comprehensive lesson plans for a range of topics through the *Minecraft Education Edition* online catalogue. Figure 4.4 highlights the Minecraft Education lesson hub where teachers can exchange or purchase lessons plans.

Systems and Practice
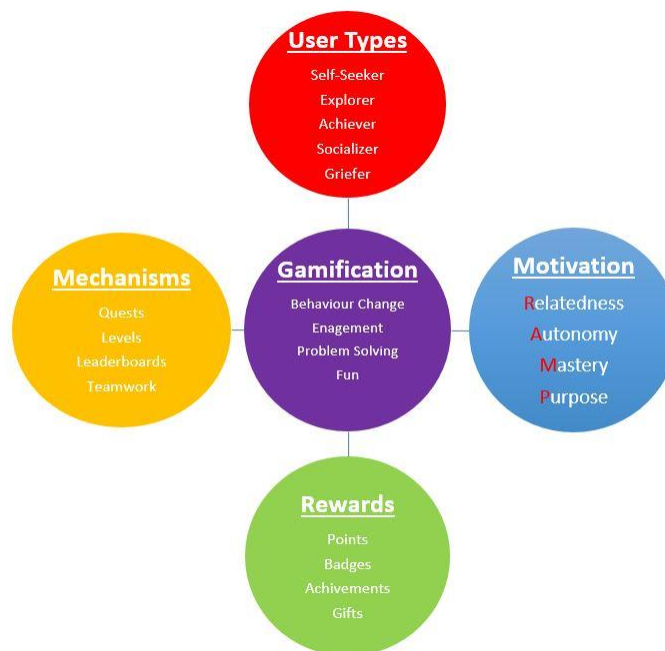
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Figure 4. 5 Components of Gamification Theory and Applicative Examples

Game Elements

Gamified systems rely on objects, attributes, competition, and other non-game elements

to achieve a specific goal.[52] Figure 4.5 represents different elements commonly found within

gamified systems and how they contribute to gamification within instruction design. The goal of

this curriculum project is to help students understand difficult music concepts through the

incorporation of gamification in music lessons plans. When designing meaningful game systems

the educator must consider the following: 1) student behavior and actions during the game must

have a purpose, 2) evaluations of the gamified system can be done through analysis of player

experiences and individual game-based components, and lastly, 3) measurements within the

system help facilitate learning.[53] Game participation should be voluntary to enable the student to

feel safe in the activity. The student must understand that the repercussions of failure will not

carry on to real life.[54] Students are more likely to enjoy the experience when the game is

voluntary. Table 4.1 illustrates the differences between every-day games and gamified systems

designed with measurable goals that lead to growth outside of the game space. Student

engagement also plays a role in in the success of a gamified system.[55] Voluntary participation

helps the user sustain a desire to engage in learning and progression. In gamification, the

willingness to follow arbitrary rules within the constraints of a game is defined as the *lusory*

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[52] Gilbert, *Designing Gamified Systems*, 36.

[53] Gilbert, 46.

[54] Ibid., 48.

[55] Ibid.

attitude.[56] *Emergence* is created when a student interacts with the mechanisms of a game freely and he or she willingly learns a desired behavior.[57]

Table 4. 1 Characteristics of Games vs Gamified Systems.[58]

Characteristics	Games	Gamified Systems
Has a goal or sets of goals	X	X
Includes the aspect of chance	X	X
Requires one or more players	X	X
Includes rules	X	X
Play is voluntary	X	
Play can take place outside of the classroom	X	
Generates data	X	
Data generated serves goals beyond the play experience		X
Driven by goals beyond fun		X

Table 4. 2 Contributing Factors in Lusory Attitude[59]

Scale Learning Gamefied System	
Urgency	1) Moderate level of difficulty presented to the student. (Start with only 1 or 2 Sharps/Flats in the Circle of Fifths) 2) Clearly define "reward" and limitations. (Students cannot progress and earn points until learning goal is met.)
Agency	1) Provide different paths that lead to the same learning goal. (Student can choose to switch between sharps or flats depending on which he or she is more confident on.)
Realism	1) Demonstrate real-world applicability of learned concepts. (Incorporate learned scales within an improvisation exercise or have the student identify scales within a given piece of music.)

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[56] Gilbert, 55.

[57] Ibid.

[58] Luis Espinosa, 2020.

[59] Ibid.

An educator can elicit emergence from a student by incorporating urgency, agency, and realism within the learning environment. These ingredients help ensure the student develops a pattern of intrinsic motivation that is supported by autonomy, mastery and relatedness within an activity. Table 4.2 describes how these three factors come in play in a music game lesson: Game elements include levels, quests or challenges, leaderboards, badges and points. Levels are specific areas of progression meant to delineate intermediate goals.[60] Users accumulate experience points (XP) earned during the practice of intermediate tasks and move to the next level once the point requirements are met. For example, Level 1 requires the student to earn 100 pts; Level 2 requires 200 points and so on. *Quests* are intermediate tasks that help players accrue the necessary XP and are often accompanied by narration for the purpose of immersion.[61] Leaderboards are public displays of scores that rank players in relation to each other and are based on an assessment system.[62] The collection of achievement badges, experience, titles, or completions of unique tasks all contribute to comparative elements that can be incorporated into a leaderboard. An avatar can serve as a visual representation of the user within a virtual world that adds an element of self-expression to the game activity.[63]

User Types

An instructor needs to consider the types of behavior a student may demonstrate during a lesson. This will allow the educator to make necessary changes to better target learning

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[60] Sheldon, *The Multiplayer Classroom: Designing Course Work as a Game*, 51.

[61] Ibid., 52.

[62] Gilbert, *Designing Gamified Systems*, 67.

[63] Sangkyun, et al, *Gamification in Learning and Education,* 71.

deficiencies in his or her pupils. According to Sari Gilbert, human interactions fall within three categories.[64] These include:

- Inactive: Attends but not actively participates in the activity.

- Spectators: Focuses on consuming material but does not contribute.

- Joiners: Participates in the activity but does not interact with others.

- Collectors: Accrue and shares knowledge from the activity but want to move on as quickly as possible.

- Critics: Focuses on providing opinions about the activity. Can be a source of valuable feedback or possibly disrupt a group session.

- Creators: Independent contributor. Their participation propels learning and motivates others through the activity.

Table 4. 3 Player Types [65]

Richard Bartle Hierarchy of Player Types.	
1) **Self-seeker or Philanthropist (Spike/Power Gamer)**	The newest players. Working out the parameters or limits of gameplay. Focused on the competitive aspect of the activity. Has potential to become disruptive.
2) **Explorer or Free Spirit (Johnny/Creative Gamer)**	They are familiarizing themselves with the game system at a deeper level. Focused on discovering new avenues to achieve their goals.
3) **Achiever or Consumer (Timmy/Fun Focused Gamer)**	Understand and know how to navigate the game system. Focus on the most difficult challenges available; fun over victory.
4) **Socializer or Networker (Vorthos/Aesthetic Gamer)**	Core players within the game environment. Most experience in the underlying system. Tend to bring people together and value social interaction and immersion over other aspects.

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[64] Gilbert, 71.

[65] Sangkyun, et al, *Gamification in Learning and Education,* 54.

Teachers should be aware of *griefers* as they facilitate learning game sessions. These are players who purposely disrupt the game experience.[66] Griefers find value through gaining attention from those around them. Students taking the role of griefers may target new players by blocking a road path, destroying items made by other users, and at times use verbal harassment. The educator can plan for griefer interactions during the design phase by limiting opportunities for harassment and providing immediate correction after a negative experience is detected.

Motivation and Rewards

To further understand the application of rewards within game-based design, one must consider the fundamentals of human motivation. Students react and perform based on external or internal factors and their level of motivation can be categorized from amotivation to intrinsic motivation fueled by internal drive.[67] Examples of external motivation includes gifts, gold stars stickers, and the desire to keep up with a top performing peer group. With practice, a person grows to enjoy the process of learning which is defined as *integration* within game system design.[68] Figure 4.6 shows the human motivation continuum and the individual actions associated with each motivating factor. Extrinsic motivation is defined as an effort that pertains whenever an activity is completed to attain a separable outcome.[69] In gamification, extrinsic

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[66] Sangkyun, et al*,* 54.

[67] Gilbert, *Designing Gamified Systems*, 80.

[68] Ibid.

[69] Richard Ryan and Edward Deci, "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary and Educational Psychology* 25, no. 1 (2000): 55.

motivators are usually awarded to an individual after he or she completes a task. Intrinsic

motivation refers to the desire for success for its inherent satisfaction rather than for a separable

reward.[70]
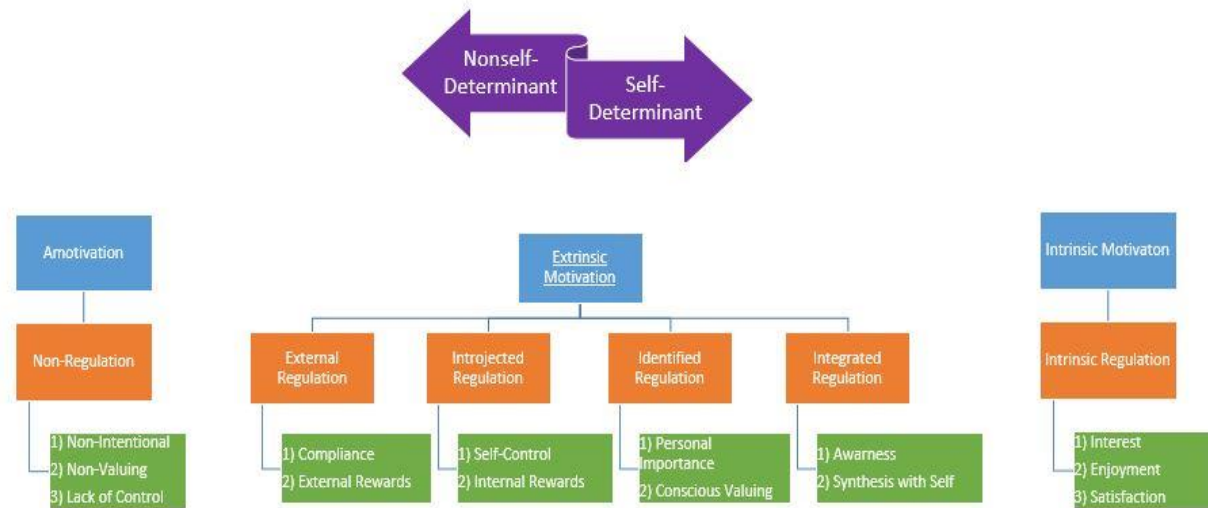
71

Figure 4. 6 Taxonomy of the Human Motivation Continuum

Self-Determination Theory asserts that people's volition can be influenced by their

environment and social factors.[72] The theory also identifies four distinct motivators prevalent in

human growth. These are relatedness, autonomy, mastery and purpose; within game-based

design this concept is known as RAMP. Table 4.4 describes the individual motivators, the

coordinating user type and the different factors that influence motivation. When designing a

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[70] Ryan and Deci, 58.

[71] Lief Singer, Self- Determination Continuum, last modified January 2017, accessed November 20, 2020, https://leif.me/self-determination-theory-understanding-human-motivation-for-fun-and-profit/.

[72] Sangkyun, et al, *Gamification in Learning and Education,* 40.

game-based learning system, an educator can utilize influence motivators to encourage intrinsic

motivation development.

Table 4. 4 The R.A.M.P. Model of Intrinsic Motivation[73]

RAMP Motivators	Definition	User Type	Factors or Needs
Relatedness	A level of connection between people with things in common.[74] The desire to belong within a social network.	Socializer/Networker	Belonging, Social Status, Connection
Autonomy	Self-directing freedom or self-governance.[75] Evident in game design through the application of choice; different paths.	Explorer/Free Spirit	Creativity, Responsibility, Agency
Mastery	Process of gaining great skill or technique; superior knowledge of a subject.[76] In gamification this is most achieved through gradual increase in difficulty.	Achiever/Consumer	Learning, Personal Development
Purpose	The desire to help others in some way or to understand the significance of our actions within a scheme.[77]	Philanthropist/Self-seeker	Altruism, Meaning

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[73] Luis Espinosa, 2020.

[74] Merriam-Webster Dictionary, s.v. "relatedness," accessed September 10, 2020.

[75] Merriam-Webster Dictionary, s.v. "autonomy," accessed September 10, 2020.

[76] Merriam-Webster Dictionary, s.v. "mastery," accessed September 10, 2020.

[77] Adam Grant, "The Significance of Task Significance: Job Performance Effects, Relational Mechanisms, and Boundary Conditions," *Journal of Applied Psychology* 93 (2008): 108.

In gamified design, one of the main ways to elicit extrinsic motivation is to include rewards within the game space. Teachers should consider which reward to use to help a student reach a learning goal. Task contingent rewards are given when a learner completes an objective.[78] By nature, these are the most controlling and do not support choice or autonomy in the student. An example is: "Do X task and you will get Y reward." Engagement contingent rewards are granted for simply participating in a task, but they are unknown to the user. Because the learner is not expecting anything for their performance, engagement rewards create a sense of surprise or unexpected pleasure. The most effective rewards are performance contingent rewards which are only awarded when a player reaches a certain level of mastery on a subject or activity.[79] Examples of rewards commonly used during gamified system design include: points, badges, trophies, achievements, gifts or currency.

Student's reaction to these rewards systems will influence his or her short- and long-term happiness. Studies have shown that 67% of students participating in gamified lessons have reported a perceived increase in motivation when compared with traditional instruction delivery methods.[80]According to Gilbert, creative problem-solving is directly conducive to positive emotions.[81] Dopamine is the neurotransmitter in the brain associated with rewards and the anticipation of rewards. This chemical also enhances quick thinking and decision-making when a

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[78] Gilbert, *Designing Gamified Systems*, 99.

[79] Ibid.

[80] Chapman and Rich, 319.

[81] Gilbert, 101.

person experiences positive emotion. Games also have the potential to elicit engagement from their users. For example, the Massively Multiplayer Online Roleplaying Game (MMORPG) *World of Warcraft* continues to sustain a loyal base of over 8 million concurrent users since its release in 2004.[82]

Assessments and Outcomes

In gamified systems, assessments occur at different levels of design. First, the student participates in a form of assessment during the activity as he or she determines what actions mean within the game environment.[83] Students participating in *Classcraft* lessons can achieve this by analyzing the feedback already provided by the learning platform.[84] Contributing factors used to assess the success of gamified lessons include: amount of points earned or lost by students, player in-game achievements and total rewards received during a game session.

Second, a summative evaluation of the overall system occurs when the instructor analyzes how the different components of the game interact with and complement each other. Data gathered by the teacher during the assessment phase may vary depending on which game elements were used during the lesson's design. Variables that can improve the learning experience include: 1) number of players, 2) number of completed quests or tasks, 3) distribution and ratio of game points and, 4) frequency and ease of access to the game mechanism.[85] The

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[82] Gilbert, *Designing Gamified Systems*, 130.

[83] Ibid., 118.

[84] Eric Sanchez, et al, "Classcraft: From Gamification to Ludicization of Classroom Management," *Education Information Technology* 22 (2016): 509.

[85] Sangkyun, et al, *Gamification in Learning and Education,* 104.

third and final assessment evaluates how the gamified learning system forwarded a goal beyond the game itself.[86] The game designer can then make informed choices on how to improve the different components or mechanisms.
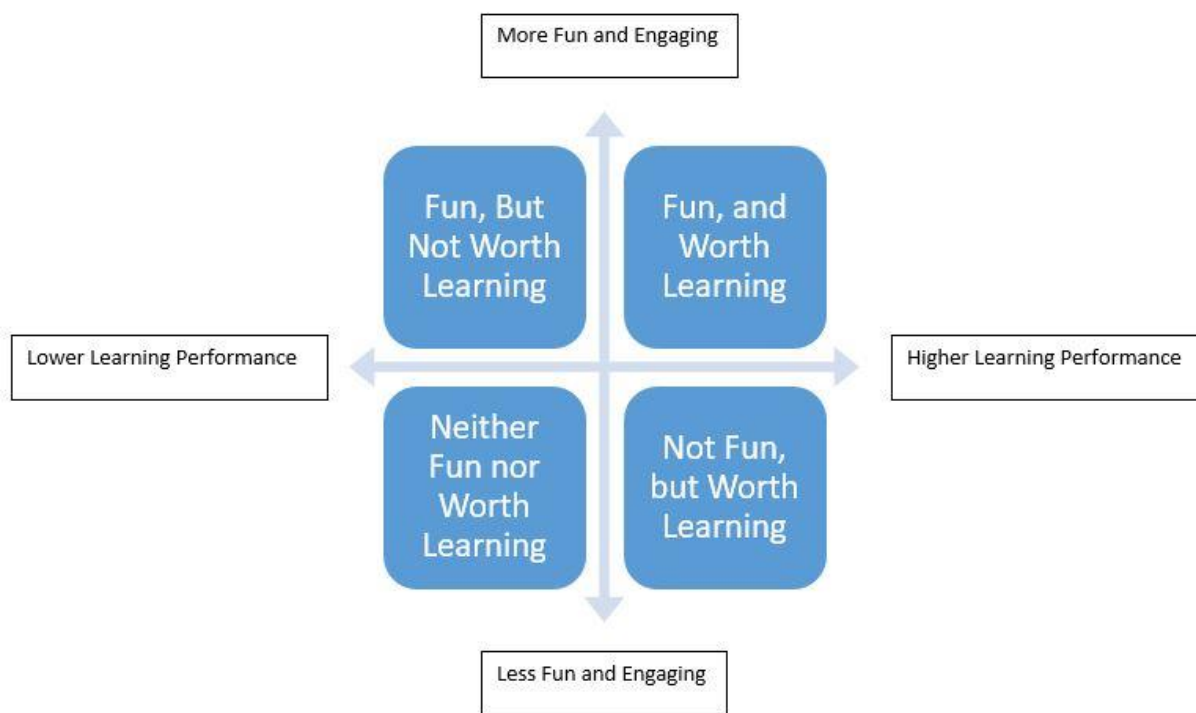
87

Figure 4. 7 Learning Goal Evaluation Quadrant

By using Figure 4.7, the educator can place the lesson or activity within the learning goal evaluation quadrant. Ideally, gamified lessons fall within the top-right quadrant were they are considered to be fun, while sustaining a high level of learning performance. Student feedback and overall performance during the game session can inform the teacher how the activity was received and encourage changes to the gamified lesson.

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[86] Gilbert, *Designing Gamified Systems*, 122.

[87] Sangkyun, et al, 105.

The goal of gamified system design is to facilitate achievement in education. In music education this is often measured by meeting a standard of excellence as established in the National Arts Standards.[88] Gilbert believes game-based learning allows students to play with concepts or structures of knowledge that may have become too rigid over time and thus enable them to reach a learning goal independently.[89] A unique benefit to game-based learning is that achievement can be measured through game mechanisms such as point systems or quest completion. The feedback provided by these mechanisms allows the student to see growth as they earn rewards. More importantly, gamified lessons motivate the student to pursue bigger challenges and increase skill.
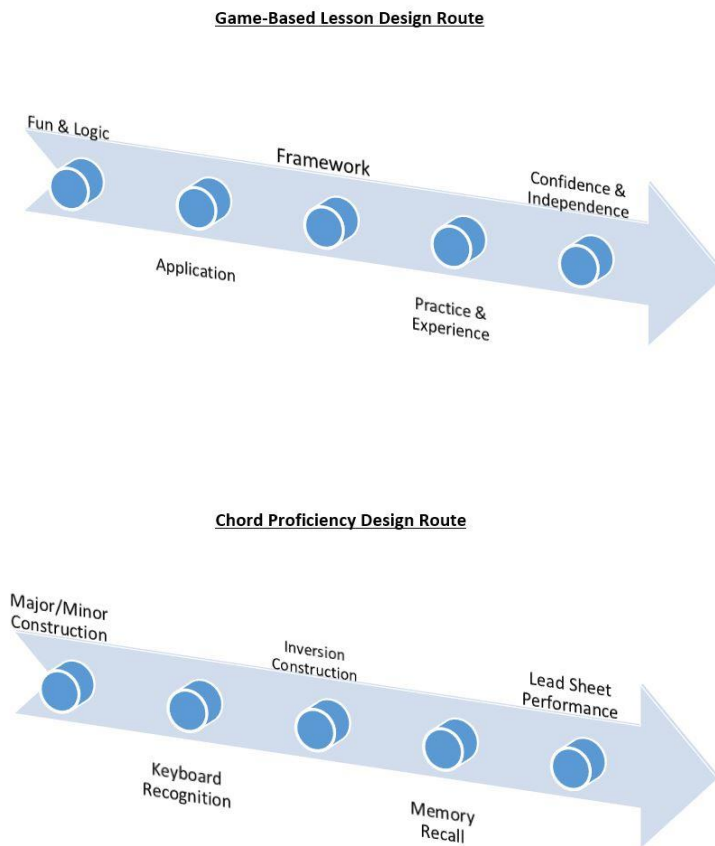
Curriculum Analysis

The gamification curriculum provides the students with a sequential strategy on how to implement gamification in music lessons. This plan is founded on principles found in Bloom's Taxonomy and supports the cognitive progression of the music pupil during a game learning session.[90] Teachers will create games that provide basic requisite knowledge and foster comprehension. The tasks implemented in a gamified lesson plan will ask the player to apply and analyze new knowledge through problem solving within the game environment. Lastly, teachers will incorporate feedback mechanisms meant to encourage their pupils and foster independent thinking.

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[88] NAFME, "National Coalition for Core Arts Standards."

[89] Gilbert, *Designing Gamified Systems*, 154.

[90] Ibid., 102.

Game-Based Lesson Design Route

Fun & Logic

Framework

Confidence & Independence

Application

Practice & Experience

Chord Proficiency Design Route

Major/Minor Construction

Inversion Construction

Lead Sheet Performance

Keyboard Recognition

Memory Recall

91

Figure 4. 8 Developing a Game-Based Music Lesson Plan

Figure 4.8 is an example of a gamified lesson plan and shows how it correlates to the

creation and implementation of music learning goals of increasing difficulty. In this instance, the

music educator wants to design a game-based lesson plan that will help the pupil learn scales,

recognize the piano keyboard, analyze chord inversions, recall concepts when prompted and

learn to read lead sheets. Once the plan has been created, the music educator can then design

games that target each of these progressive learning goals and adjust based on player feedback.

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[91] Nicola Cantan,"Gamifying Piano Lessons: Why Fun is Not a Dirty Word," *Colourful Keys Blog.* August 17, 2020, accessed November 28, 2020, https://colourfulkeys.ie/making-piano-lessons-fun/.

CHAPTER V: CONCLUSION

Summary of Study

The study was used to determine in what manner and to what extent can the constructionist education model of gamification result in increased student engagement. The research identified best practices of gamified system implementation within music education. The study examined current examples of gamification being used for educational purposes in both in-person and self-passed digital applications. The research also explored usability limitations by defining common game systems mechanism and the resulting interactions with a wide range of player types.

Summary of Purpose

The purpose of the research was to describe game-based strategies that could increase student engagement while learning difficult music topics. Historical data pointed to the success of gamified education in overcoming engagement detractors such as long-distance learning settings and lack of practice discipline in new music students. The project supported the creation of a music education curriculum that teaches educators how to incorporate gamification in their lesson plans and how to best utilized game-based teaching techniques. Previous studies in gamification applied to fields other than music. The need to bring exposure on the topic to current and future music educators through the proposed curriculum added value to the work.

Summary of Procedure

The study leveraged historical and descriptive research methodology in gamification, game-based learning, gamified system design, and student engagement. When developing the

curriculum, it was important to focus on the application of the material within music education. The descriptive research centered on foundational mechanism in gamification and their successful implementation within the scope of learning. The data from scholarly historical sources was used to bring credibility to the pedagogical uses of gamification and to cause the student to think of ways the strategies can be applied within an online or in-person setting. The pacing of the curriculum reflects a desire to make this material applicable to a wide range of music topics. This is to ensure that music educators did not limit gamification techniques to rigorous subjects such as music theory but to encourage them to be creative in the use of gamified learning design.

Summary of Findings and Prior Research

Prior Research

As shown in chapter two, most peer reviewed gamification research in learning design innovation focuses on STEM rather than the arts. Recurring evidence demonstrated that gamification as a process enhanced the learning experiences of both young and adult learners. The proponents encouraged the use of game mechanism and systems as supplements to existing curricula to target engagement and idea compartmentalization during moments of decreased motivation or comprehension. Gamification within the music education can be applied towards the teaching of difficult musical concepts and incorporated within lesson plans.

Curriculum Summary

The students taking part in the gamification in music curriculum will be able to define the nature and application of game-based strategies in the field of music education. This knowledge will enable them to describe gamification techniques as it pertains to the K-12 classroom, and

design interactive game-based lesson for use with their pupils. The students will analyze cases studies in gamification throughout a wide range of disciplines. Finally, they will be able to assess the value of a gamified music curriculum and confidently apply game design mechanism to target learning deficiencies as they design lessons plans.

Formative assessments in the form of weekly discussion boards and video reflection blogs will identify knowledge gaps and improve learning. These will also guide the instruction as a way to support specific student needs. Summative assessment occurs at regular intervals during the curriculum through quizzes, a midterm exam which tests the student's ability to apply gamification mechanism in music lessons, and a final capstone project. In this project the student will create an 8-week lesson plan that utilizes gamification mechanisms, and game systems that measure learning goals.

The curriculum will incorporate current technology platforms to bring exposure to software options music educators could use as they implement gamification strategies in their classrooms. FlipGrid is a learning video discussion platform that will be utilized to record student reflections for further discussion. These video blogs can also serve to identify possible knowledge comprehension short-comings students may encounter and allow the gamification curriculum facilitator to individually address them individually. Music educators could leverage FlipGrid in their classroom by asking students to record short music performances or forward inquiries to their music teachers. This easy to access platform can encourage engagement by maximizing communication in a safe digital environment.

Students of the gamification curriculum will also utilize Classcraft throughout the course as they familiarize themselves with different game design mechanism. They will create a

personalized avatar, accumulate points, and participate in "Quests" which will serve as assignments within the curriculum and will be tracked through Classcraft. The curriculum is flexible to adjust to emerging learning technology. While great care was taken in selecting digital media tools with proven track records and history, the course can adapt to newer technologies with little revision to the material.

Since music educators may not be familiar the concepts of gamification, game-based learning and game system mechanism, the design of the curriculum utilizes several scaffolding strategies to maximize understanding. The assignments gradually increase in complexity as the student learns new material in game-based learning design. For example, in Week #4 the students will assigned to gamify a scale construction lesson by utilizing some of the concepts learned in the previous weeks. This same assignment will be revisited in Week #8 to refine their lesson with the addition of reward systems and the development of an assessment matrix. The idea behind incorporating this scaffolding instructional technique is to progressively expose the student to more complex gamification material while encouraging greater independence in the learning process.

Limitations

There are several limitations to the proposed curriculum. A follow-up course meant to reinforce the content can mitigate some of the time constraint limitations inherent to a 12-week online lesson plan. Another limitation to the gamification course centers on the permissible teaching guidelines within a school district or private studio. Not every school administrator may be willing to let a teacher incorporate gamification into his or her lessons plans. According to the findings, educators were concerned about early adoption of gamification in their schools and

hesitated to incorporate gamified strategies due to a perceived lack of support from school administrators. The teacher may encounter apprehension when making a case for the pedagogical value of these strategies or be limited by funding and time constraints. Lastly, gamification in music education is relatively new teaching design space with limited ready-to-use lesson plan examples. The educator may be limited by his or her own creative use of game lesson design.

Recommendation for Future Study

Further study of gamification in music could lead to subsequent curriculum development. While this study seeks to improve engagement in young music students, the effects of gamification on the motivation of adult learners and professionals requires additional research. For example, a study on the use of gamification in the music performance field could yield data of value to those preparing students to enter the audition circuit or preparing to become professional musicians. A theoretical follow-up course would provide additional information on the area of game lesson design but focused on the application of these strategies beyond the K-12 music classroom.

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APPENDICES

Appendix A (Detailed Curriculum)

COURSE SYLLABUS

NAME OF COURSE:

GAMIFICATION STRATEGIES FOR MUSIC EDUCATORS

COURSE DESCRIPTION

The concepts presented in this course will enable students to incorporate game-based strategies in curricular design for use in schools ranging from grades K through 12. It will explore the nature, application, and use of gamification strategies in the classroom and synchronize traditional music pedagogy with mechanisms utilized in everyday gaming systems.

RATIONALE

This course seeks to increase student engagement and sustain learner interest by incorporating ideas commonly associated with video games and mobile technology. The goal is to help educators create new game-based lesson plans and curriculum for use in public and private music education. Gamification seeks to abstract complex concepts into individual skills, design a system of challenges that become progressively more difficult and to create a reward framework that promotes engagement and social interaction within student groups.

I. **PREREQUISITES**

II. **BASIC KNOWLEDGE OF CURRICULUM DEVELOPMENT AND LESSON BUILDING. STUDENTS SHOULD ALSO BE RUDIMENTARY FAMILIAR WITH VIDEO GAME TERMINOLOGY AND THE USE OF ONLINE SOFTWARE.**

III. **REQUIRED RESOURCE PURCHASE(S)**

Gilbert, Sari. *Designing Gamified Systems*: Meaningful Play in Interactive Entertainment, Marketing and Education. Oxfordshire, UK, Routledge, 2015.

Rouse, Richard. *Game Design*: Theory and Practice. Plano, TX: Wordware Publishing, 2005. ISBN: 1556229127

Sheldon, Lee. The Multiplayer Classroom: Designing Course work as a Game. Boston, MA: Cengage Learning, 2012. ISBN: 9781435458444

IV. ADDITIONAL MATERIALS FOR LEARNING

 A. Computer with basic audio/video output equipment

 B. Internet access (broadband recommended)

 C. Microsoft Office

 D. Smartphone with access to application store of your choice (iOS or Android).

 E. Access to "Credly" Badge System Software

 F. Access to "Flip Grid" Video Discussion Software

 G. Access to "Classcraft" Online Task Management Software

V. MEASURABLE LEARNING OUTCOMES

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

A. Define the nature, application and use of gamification and game-based learning**.**

B. Describe gamification strategies and techniques within the K-12 music classroom.

C. Analyze case studies within music education that incorporate game-based learning.

D. Design interactive game-based technologies for use in the music classroom.

E. Assess the value of a gamified curriculum and lesson plans within the music education environment.

VI. COURSE REQUIREMENTS AND ASSIGNMENTS

A. Textbook readings and reflection video blogs.

B. Course Requirements Checklist

C. Discussion Board Forums (9)

Discussion boards are collaborative learning experiences. Therefore, the student is required to provide a thread in response to the provided prompt for each forum. Each thread must be 200-300, demonstrate course-related knowledge, and reference at least 1 source. In addition to the thread, the student is required to reply to at least 2 other classmates' threads. Each reply must be 150-200 words.

D. Course Material Reflection Video Blogs (6 Vlogs)

Vlogs must be 3 to 5 minutes in duration and include a personal reflection on the assigned material. Student must address the following: Applicability of concepts in music education, one positive aspect of concept presented and one negative aspect of concept presented. Video material from the students will be recorded via the "Flip Board" software and strictly monitored by faculty for appropriateness and evaluation.

E. Independent Student Tasks or "Quests" with Group Feedback (5)

Quests are designed to expose the student to strategies and techniques being presented in the gamification course. These quests will be created in the "Classcraft" Online Task Management software. Students are to complete assigned quests incorporate their experiences on scheduled discussion board or video blogs as assigned during same week.

F. Quizzes (6)

Each quiz will cover the Reading & Study material for the assigned modules/weeks. Each quiz will be open-book/open-notes, contain 20 multiple-choice and true/false questions, and have a 1-hour and 30-minute time limit.

G. Midterm Exam

The exam will be cumulative and cover the Reading & Video lecture material for the previous modules/weeks. The exam will be open-book/open-notes, contain 50 multiple-choice and true/false questions, and have a 2-hour time limit.

H. Final Project

The student will select music education-based course and develop a 15-week semester lesson plan that incorporates gamification strategies. This project will be comprised of a lesson plan and a progress achievement chart that evaluates prospective music learners on weekly basis; one lesson per week. The achievement and badge system will be developed in the "Credly" online software as previously implemented during the Quest Creation assignment. Additionally, the student must include the use of tasks and rewards concepts and the incorporation mobile technology within the overall lesson plan or curriculum. The student will submit the assignment with all references formatted in current Turabian style. During the last week of class, students will divide into work groups and brief their project to other students through the "Flip Board" software.

VII.   **COURSE GRADING AND POLICIES**

A.   Points

Discussion Boards (180) Video Blogs (180) Quizzes (250) Midterm Exam (200) Final Project (200)

B.   Scale

A = 940–1010   A- = 920–939   B+ = 900–919   B = 860–899   B- = 840–859

C+ = 820–839   C = 780–819   C- = 760–779   D+ = 740–759   D = 700–739

D- = 680–699   F = 0–679

C.   Late Assignment Policy

Course Assignments, including discussion boards, exams, and other graded assignments, should be submitted on time.

If the student is unable to complete an assignment on time, then he or she must contact the instructor immediately by email. Assignments that are submitted after the due date without prior approval from the instructor will receive the following deductions:

1.   Late assignments submitted within one week after the due date will receive a 10% deduction.
2.   Assignments submitted more than one week and less than 2 weeks late will receive a 20% deduction.
3.   Assignments submitted two weeks late or after the final date of the course will not be accepted.
4.   Group projects, including group discussion board threads and/or replies, and assignments will not be accepted after the due date.

Special circumstances (e.g. death in the family, personal health issues) will be reviewed by the instructor on a case-by-case basis.

CURRICULUM PROJECT – ANALYSIS CHART

Required Textbook for Class:
Gilbert, Sari. *Designing Gamified Systems*: Meaningful Play in Interactive Entertainment, Marketing and Education. Oxfordshire, UK, Routledge, 2015. Rouse, Richard. *Game Design*: Theory and Practice. Plano, TX: Wordware Publishing, 2005. ISBN: 1556229127 Sheldon, Lee. The Multiplayer Classroom: Designing Coursework as a Game. Boston, MA: Cengage Learning, 2012. ISBN: 9781435458444
Identify the problem: *(What does the student not know how to do? What is the student's gap in the training or experience?)*

The student must learn to incorporate game-based learning strategies into their music education lesson plans.
Who are the learners and what are their characteristics? *(Age, major, pre-requisites, residential, online, or a hybrid of the two)*
Public and private music educators with some curriculum development and lesson planning prior experience.
What is the new desired behavior? *(Overall, what is the main change or new addition to the student's demonstrated ability?)*
The student will be able to include task-based rewards systems and game-based achievement landmarks into their lessons plans or curriculum.
What are the delivery options? *(Explain the materials you will develop for the course.)*
This 12-week course is online and is delivered via web browser and accompanying institutional learning platform.
What are the pedagogical considerations? *(Describe your general content and methodology for the course.)*
This course incorporates concepts and the use of technology traditionally outside of music pedagogy.
What learning theory applies to your curriculum? Why?   The theories of constructivism and connectivism form the basis for the curriculum. The student will build on his or her personal teaching experience through the addition of gamification strategies. Several portions of the course utilize self-directed experiences which will help the student discover how these new game-based concepts will affect their pupils. The incorporation of social discussion and the use of mobile learning activities will serve to broaden the online learning experience.

Learning Outcomes   **At the end of the course, the student will be able to:**
1. Define the nature, application and use of gamification and game-based learning**.**
2. Describe gamification strategies and techniques used within the K-12 music classroom.
3. Analyze case studies of successful examples of game-based music learning.

4. Design interactive game-based technologies for use in the music classroom.			
5. Assess the value of gamified curriculum and lessons plans within music education environment.			

CURRICULUM PROJECT – DESIGN CHART

Concept Statement: Exploring the nature, application, and use of gamification strategies in the music classroom. Focus on the selection and development of game-based strategies designed showcase student progress, foster independent learning, and encourage community-based growth behavior.

      Course Materials: Computer and Internet access. Smartphone with App Store and internet access.

      Reading: Gilbert, Sari. *Designing Gamified Systems*: Meaningful Play in Interactive Entertainment, Marketing and Education; Rouse, Richard. *Game Design:Theory and Practice;* Sheldon, Lee. *The Multiplayer Classroom: Designing Coursework as a Game*

Learning Outcomes *(List in the order you plan to address in 12 weeks)*	Content *(What must be learned to reach this objective?)*	Learning/Training Activity *(How will you teach the content?)*	Assessment *(How will you know that the student has met the objective?)*
1. <u>DEFINE</u> the nature, application and use of gamification and game-based learning**.**	Week 1: ● Discover gamification concepts. ● Distinguish between game-based learning strategies and uses. ● Apply gamification through course role-play. ● Reflect on game-based learning and role play experience through a video blog (vlog).	Week 1: ● Video on course summary. ● Introduction of game-based concepts. ● Create reflection "vlog" via FlipGrid. ● Study assigned course reading. ● Quest #1: Create personal avatar and story line on Classcraft to be used during a 12-Week course.	Week 1: ● Discussion Board: Describe student personal avatar and creation process. ● Quiz #1.

2. Describe gamification strategies and techniques within the K-12 music classroom.	Week 2: ● Identify motivational strategies to use in game-based learning. ● Select five online video examples of game-based motivational mechanisms. ● Hypothesize examples of game-based motivational mechanisms that would work in the learner's own music classroom. Week 3: ● Discover the use of game-based achievements in music education. ● Operate a smartphone or tablet achievement-based game. ● Reflect on game-based experience. ● Propose topic for game-based lesson plan for final project. Week 4: ● Explain the differences between visual rewards and goal-oriented tasks. ● Illustrate the use of badges and titles in the music classroom. ● Create a goal-oriented task plan for use in the music classroom.	Week 2: ● Video on utilizing communication technology in the e-learning environment. ● Study assigned course reading. ● Quest #2: Search for 2 video examples dealing with the subject game-based motivation mechanisms. Week 3: ● Video on game-based achievements in music education. ● Create reflection "vlog" via FlipGrid. ● Study assigned course reading. ● Quest #3: "Pokémon Go" Case Study. Week 4: ● Video on visual rewards (badges and titles) and goal-oriented tasks. ● Study assigned course reading.	Week 2: ● Discussion Board: Share and discuss video selections. ● Badges and Achievement titles awarded via Credly. ● Quiz #2. Week 3: ● Final Project Topic Selection. ● Discussion Board: AppStore Achievement and Progression tracking discussion. Week 4: ● Midterm Exam ● Badges and Achievement titles awarded via Credly.

	Week 5: ● Relate current practices of student engagement with video lecture on student engagement and motivation in a game-based learning environment. ● Examine tactics used to engage disenfranchised students to participate in game-based learning activities. ● Develop capstone project outline.	Week 5: ● Video on how to tackle student engagement and disenfranchisement. ● Create reflection "vlog" via FlipGrid. ● Study assigned course reading.	Week 5: ● Student turns in Final Project Outline. ● Discussion Board: How do you deal with students falling behind?
	Week 6: ● Recall scaffolding techniques for music educators. ● Modify badge and achievement titles for use in gamified scale exercise. ● Employ scaffolding technique in capstone final project utilizing traditional learning landmarks from course video. ● Evaluate gamified scale studies. ● Create gamified scale study.	Week 6: ● Video on gamification of traditional learning landmarks. ● Study assigned course reading. ● Quest #4: Transform learning scales through gamification.	Week 6: ● Discussion Board: Showcase and Group Feedback of Scale Learning exercise. ● Badges and Achievement titles awarded via Credly. ● Quiz #3.
	Week 7: ● Compare quests and reward systems in game-based learning environments. ● Modify gamified scale exercise to include reward and	Week 7: ● Video on task-oriented assignments: Quests and Rewards. ● Create reflection "vlog" via FlipGrid.	Week 7: ● Quest Construction Assignment via Classcraft: Implement a reward and achievement framework using the scale

	achievement framework. ● Evaluate modified gamified scale exercise. ● Create reflection vlog on gamified scale exercise.	● Study assigned course reading.	gamification as a basis. ● Quiz #4.
3. Analyze case studies of successful examples of game-based music learning.	<u>Week 8</u>: ● Distinguish between F2F and eLearning instructional models. ● Investigate F2F gamification and reward systems in the music classroom. ● Prepare a digital record of attendance of a public music performance.	<u>Week 8</u>: ● Video on face-to-face game-based classroom instruction. ● Study assigned course reading. ● Quest #5: Incorporate 3 different reward systems into the scale learning exercise created in Week 4. Rewards are to be accompanied by an assessment matrix to measure student progress.	<u>Week 8</u>: ● Discussion Board: Quest #5 observations. How do gamification rewards promote positive learning behavior? ● Badges and Achievement titles awarded via Credly.
	<u>Week 9</u>: ● Differentiate between various types of mobile learning technologies used in the music classroom. ● Criticize the use of social media and video use in the modern music education classroom. ● Recommend best mobile learning tools for the music classroom through a reflection vlog.	<u>Week 9</u>: ● Video on e-learning classroom instruction. ● Create reflection "vlog" via FlipGrid. ● Study assigned course reading.	<u>Week 9</u>: ● Discussion Board: Social Media and Video Platforms. ● Student ● Quiz #5.

4. Design interactive game-based frameworks for use in the music classroom.	Week 10: ● Discover methods of archiving student achievements. ● Investigate game-based mobile and tablet applications available for music curriculum. ● Investigate game-based computer applications available for music curriculum. ● Evaluate game-based applications for use in music curriculum.	Week 10: ● Video how to implement readily available gaming platforms in music curriculum. ● Study assigned course reading.	Week 10: ● Discussion Board: Explore the challenges of archiving student game-based progress in a physical classroom. ● Quiz #6. ● Badges and Achievement titles awarded via Credly.
	Week 11: ● Discover communication technology in the e-learning environment. ● Utilize communication technology in the e-learning environment. ● Reflect on the use of communication technology in the online music class through a created vlog. ● Compare course quests and avatar achievements. ● Synthesize experienced gamification with gamification techniques in capstone project.	Week 11: ● Video on game-based motivational strategies. ● Create reflection "vlog" via FlipGrid. ● Study assigned course reading.	Week 11: ● Final project submission.
5. Assess the value of gamified curriculum and lessons plans within	Week 12: ● Synthesize gamification strategies through the	Week 12: ● Video Presentation: Further Game-	Week 12: ● Discussion Board: Group showcase of lessons learned and

music education environment.	creation of a capstone project.	based Classroom considerations.	final avatar achievement presentation.

Learning Outcomes	Rational for Sequence
1. Define the nature, application and use of gamification and game-based learning**.**	A foundational knowledge of game-based learning theory will enable the student to understand the basic outline for the rest of the course. This material helps the student bridge gamification education concepts with which he or she may already be familiar. Furthermore, the creation of an avatar will serve as a basis of observation of gamification in action.
2. Describe gamification strategies and techniques within the K-12 music classroom.	Specific areas in music education will be targeted for gamification and real-life applicability will be discussed. The student will explore an achievement system based on goals and rewards and how it can be incorporated in the K-12 learning environment.
3. Analyze case studies of successful examples of game-based music learning.	After experiencing and evaluating game-based music education techniques, the student will be challenged by case studies in game-based learning. Since music education happens both in the face-to-face and e-learning setting, the student will have an opportunity to discover practical application methods for both environments.
4. Design interactive game-based frameworks for use in the music classroom.	Now that game-based learning techniques and strategies have been defined and conceptualized, the student will experience current communication platforms that can be used in the classroom. Additionally, they will be able to design achievement game-based frameworks for educational use.
5. Assess the value of a gamified curriculum and lesson plans within the music education environment.	The capstone project captures the goal of the curriculum: to equip the modern-day music educator with out-of-the box techniques towards student musical growth, independent motivation and lifetime achievement. The student will be able to assess the value and effectiveness of gamification in the music classroom.

CURRICULUM PROJECT – DEVELOPMENT CHART

Expository *(You are verbally describing the new content you are about to cover; enter below what you will say to the class as though it is in a script format)*
Good morning students! Today we will be covering brand new material on the different types of mechanism utilized in game-based learning. We will also learn how these new terms relate to our previous topic regarding the benefits of gamification; but before we do. (*PowerPoint presentation of a video game character missing a jump over and over playing in the front of* class). How many of you have been stuck in a situation like this and unable to progress in a game level because we have not learned the correct way to execute a jump or solve a puzzle? (*Discuss*) In a way, we progress in video games by learning from our mistakes, over and over, often without a teacher or "better player" standing next to us. What are some of the differences between learning from our mistakes in a traditional classroom setting and a video game setting? (*Discuss*) Both settings contain a set of rules, benchmarks, or expectations that the student or player need to fully understand to perform at their best. With that in mind, let us learn about game-based mechanisms and how they can apply in the music classroom.
Narrative *(You are presenting the new information in a story format; enter below what you will do or say.)*
Good morning students! When I was 10 years old, my dad bought me a game for Super Nintendo called Street Fighter. Has anyone had an opportunity to play this game before? (*Discuss*)In it, you can play a series of characters who battle it out to become the best fighter in the world. What is unique about this game, is that each character has its own set of moves, along with specific strengths and weaknesses. The more familiar you are with a character in the game, the better you will perform. Also, the more you are familiar with the moves the other characters can do, the better you will react against them. In the game world these are called mechanics or mechanisms. (*Break out into groups. Complete puzzle solving activity: One puzzle piece is missing in each puzzle, one puzzle piece belongs to a different group*). As you can see, not understanding or having the correct information can hinder our ability to complete a given task. Let us go ahead and dive into the different mechanisms used in game-based learning and see how they can affect student progress.
Graphic Organizers *(You are presenting an original visual pictograph, chart, or concept pattern.)* Describe the visual below and then copy and paste your original graphic.
The graphic you are seeing right now contains the five types of game mechanics we will be discussing today. They are points, challenges, leaderboards, badges, and levels. It is important that we understand how these mechanisms are utilized by game developers in the creations of game systems and how we can apply the same concepts into our classroom setting.

GAMIFICATION

Points

Measure student learning achievements.

Can be used as currency in exchange of rewards.

Challenges

Encourage engagement by offering specific tasks to complete.

Build upon previous tasks or concepts.

Leaderboards

Organize students by rank, based on a set of scores.

Create a sense of competition and increases user focus.

Badges

Visual representation of achievements.

Helps others easily see the user's strenghts.

Levels

Encourage progression and independent learning.

Able to be used as a tool to compartamentalize complex concepts.

Gagne's Nine Events of Instruction

Instruction Event	Describe how each instructional event will be addressed in your instructional unit. Cite a reference from your text as to why this approach will be effective.
1. Gain attention	Each lesson will begin with an enthusiastic thought-provoking question or story and an interesting pictograph or video that relates to the day's topic. This will ensure learners are ready to learn and participate in upcoming instruction. (Nilson, pg. 43)
2. Inform learners of objectives	I will clearly state our goals for learning for this session. Additionally, I will explain how some of the gamification concepts discussed will be beneficial and relevant to them in a real-world setting. (Nilson, pg. 5)
3. Stimulate recall of prior learning	At this point, I will ask students a question about the game-based musical learning material covered in the previous class. This will help students recall previous concepts and provide yet another possible opportunity for teacher feedback. (Nilson, pg. 49)
4. Present the content	The material will be organized by main concept and sub-concepts in a bullet point format. I will first show where we are going in the lesson by showing a graphic with the things that will be covered in this session. This will be especially helpful to those students who learn visually and stimulate further curiosity. (Nilson, pg. 39)
5. Guide learning	Throughout the gamification curriculum, students will be involved in game-based learning activities such as challenges or quests which is a simplified form of inquiry guided learning. (Nilson, pg. 106). I will be able to leverage these events as coaching opportunities and better assist the students in understanding new concepts.
6. Elicit performance (practice)	Students will be divided into groups to help solve a lesson development problem or work on a case study and construct new gamified material for use in music lessons. This will facilitate team learning and improve critical thinking skills. (Nilson, pg. 106)
7. Provide feedback	Feedback on the performance practice will be provided by the teacher and by the student's peers. Because students have varied exposure with video games or gaming topics, peer feedback will provide a variety of experience which the students can benefit from. (Nilson, pg. 171)
8. Assess performance	The game-based point system of assessment will not only show the students how to utilize the mechanic in their own gamified lessons, but also serve as a way to measure their own performance in the class. At the end of each lesson point are award to students based on performance on the day's activity or quiz with short answer questions about the topic. (Nilson, pg. 290)
9. Enhance retention and transfer	I will finish each lesson with a "Top Two Concepts" question. Students are to summarize two concepts they learned during the class and explain in which way they could be used in music education. This wrap-up activity will help the student remain alert during the whole period and showcase how much content they were able to retain. (Nilson, Chapter 13)

CURRICULUM PROJECT – IMPLEMENTATION CHART

Physical Item	Rationale for Use (Cite a reference from your text for each item indicating its effectiveness)
PowerPoint	PowerPoint presentations serve to introduce both written and visual information to the student and to help set the pace of teaching. (Nilson, pg. 250) It also serves as a repository of knowledge in an asynchronous classroom setting.
Learning Management System (LMS)	This package of useful software is designed to streamline instructor duties in the classroom. (Nilson, pg. 258). It will be used to maintain open communication with the student and to provide online assessments, assistance and learning materials.
Video Recording Device	This item is necessary in the production of audio-visual demonstrations for distance learning students. Familiarization with the video platform "FlipGrid" will be essential to enhance the group communication. It also helps build rapport and motivation in the students by "putting a face" to those participating in the learning experience. (Nilson, pg. 52)
Badge System	The badge system managed through "Credly" software is designed to showcase and track a student's learning achievements. The teacher determines which learning landmarks are deserving of a badge reward based on curriculum learning outcomes. (Nilson, pg.17)
Engagement Management System (EMS)	"Classcraft" is a Google Classroom online platform designed to present students with customized tasks or quests for any subject matter, to include music education. It will serve to maximize student engagement using simulations in an online environment. (Nilson, pg. 148)
Computer and Digital Applications	A critical component of the distance learning classroom. In addition, a laptop or desktop, a smartphone device will be specified as a course requirement in the syllabus. The hardware will be used to deliver lectures, presentations, interaction through conferencing software and to experience gamification concepts being thought in the class. (Nilson, pg. 260)

Task	Rationale for Task (Cite a reference from your text for each task indicating its effectiveness)
Design PowerPoint Presentation	My reasoning for incorporating PowerPoint presentations is its ability to deliver custom made graphic packages especially useful in a music gamification class. I will be able to convey information more efficiently in a visual learning format. Presentations will also contain instructions on how to use other technology platforms in the class which students can freely come back to as a reference. (Nilson, pg. 240)
Engage students through Learning Management System	Asynchronous communication through online discussion forums, class email and assignment assessments will help me provide the feedback the student will need to learn the material (Nilson, pg. 259). Additionally, consistent presence through the LMS is important in creating a welcoming distance learning environment
Record supplemental video instruction material	Community learning will be encouraged using video threads facilitated by "Flip Grid". The teacher creates a topic for discussion and students reply asynchronously through video replies and reflections on the material covered. (Nilson, pg. 166).
Set-up Badge System	The main goal of the badge system is to increase student engagement in their musical journey, in and out of the classroom. It leverages learning experiences through rewarding learning goals. (Nilson, pg. 54). Through "Credly", I can customize the badges and achievements for any class based on the student's needs.
Create "Classcraft" Materials	Design and implement a "quest" task within Google classroom platform. By designing engaging musical learning goals, I can encourage, reinforce, celebrate, and reward my students as they explore music. Classcraft will also enable students to create a custom avatar which can also help those students who tend to not be socially outgoing and empower them to share their ideas with others. (Nilson, pg. 253)
Ensure all software and hardware is up to date	Being able to access all classroom distance learning platforms is essential to teaching success. It will enable me to provide essential feedback and continue to build on that first impression. Ensure students are also up to date with both software and hardware requirements for this class in order to avoid problems beyond the first week of instruction. (Nilson, pg. 45).

Formative Assessment Type	Assessment Details
"Quests", Peer Feedback, Lesson Design Project	Students will be challenged through assignments that have them explore game-based technology that can be used in the music classroom. These assignments will be in the form of "quests" and incorporate gamification concepts that they will use in future lessons. As they learn, they practice and experience the concepts they will teach in the future. The community platforms such as "Classcraft", "Flip Grid" and "Credly" allow for both teacher and peer feedback in a manner that is constructive and encourages discussion. The lesson design project leverages the student's creativity in music education by leveraging their individual teaching strengths in their field within the framework of gamification.

CURRICULUM PROJECT – EVALUATION CHART

Learning Outcomes	Your Formative Assessment Plan	Rationale for Formative Assessment Type *(Describe why you believe this assessment is the most effective and cite a reference from your text for support)*
1. Define the nature, application and use of gamification and game-based learning**.**	The instructor will present video lectures and PowerPoint presentations designed to stimulate conversation about game-based strategies. Students will be divided into works groups to demonstrate how these concepts apply in a music setting. Additionally, several summative assessments in the form of quizzes and an exam will serve to test the student's knowledge of the material and its applicability to music education.	Creating opportunities for group learning will help students in a variety of ways. It will help them better understand material that is foreign to most music educators and develop necessary team building skills that are essential for them to successfully create game-based curriculum. (Nilson, pg. 155) Bloom's Taxonomy: Knowledge
2. Describe gamification strategies and techniques within the K-12 music classroom.	During the course, students will be sent on quests or task-based assignments that are design to demonstrate gamification in a variety of	People learn when they reflect on their personal performance. By incorporating meta-cognition into the gamification course, I seek to

	settings. Reflective video blogs will be created through FlipGrid by the learners. These are designed to capture and assess the student's comprehension and to provide a sense of community while learning asynchronously in different parts of the globe.	expand the ways student think about the subject. (Nilson, pg. 4) It will also allow me to evaluate how effectively I am delivering instruction. Bloom's Taxonomy: Comprehension
3. Analyze case studies of successful examples of game-based music learning	Assigned reading will present a variety of case studies in which game-based music learning has been either successful or poorly implemented. Through discussion boards assignments students will be able to speak to the topic at hand and receive both teacher and peer feedback.	This assessment leverages student interaction in an online setting and serves to reinforce concepts presented during the week. (Nilson, pg. 260) A rubric will clearly delineate the expectations and outcomes of this learning outcome. Bloom's Taxonomy: Analysis
4. Design interactive game-based frameworks for use in the music classroom.	Students will implement learned concepts during a quest construction assignment via Classcraft. In it, they will seek to apply a task-based reward and achievement system that serves to engage music learning and facilitate game-based assessments.	This will be an opportunity for students to showcase how game-based strategies apply within the music classroom. Learners will be given guidelines in how to practically incorporate learned concepts during the exercise and how their performance will be measured. Students will also share their own creative ideas with others, further enhancing the level of instruction through group participation. Bloom's Taxonomy: Synthesis
5. Assess the value of gamified curriculum and lessons plans within music education environment.	During the capstone project student will design, develop and present a comprehensive 15-week teaching plan that incorporates game-based music education strategies. Not only is the project a large portion of their overall score, but it will also be presented to	This assessment captures all knowledge the student was able to assimilate during the course and evaluate their creativity in the process. Additionally, by including other students in the formative feedback process I hope to provide them with a diverse

	the rest of the class to share each other's ideas for future use.	set of insights for long term application. Bloom's Taxonomy: Evaluation

Evaluation and Reflection

Issue/Strategy	Rationale for Changing
1. Clearly define gamification terms and their use within music education.	To achieve this strategy, I will incorporate not only definitions of game-based terms on their own, but also include examples of their application in music education in order to bridge the gap between the two disciplines.
2. Concisely explain the rationale for utilizing the learning platforms in the course.	In addition to presenting them in the course requirements, providing students with the reason and manner in which the different software platforms used during the course will increase the level of buy-in from the class.
3. Budget additional time outside of instruction period for one-on-one assistance.	Because not every student will be on the same comprehension level when dealing with software outside of the music discipline, additional times to troubleshoot concerns on a one-on-one basis should be programmed in the course. I hope to achieve this by spacing out the assignments in such a way to permit for this additional time of instruction. I expect this issue to be especially prevalent during Week 1 of instruction.
4. Refine the course prerequisites to manage course expectations.	Include more information about the technology-based course requirements. This will serve to create a sense of curiosity towards the subjects being tackled in the class and help the student come into the course with a better frame of mind on how to approach the material.
5. Distance learning communication barriers must be anticipated through active engagement with students.	Distance learning creates the need for additional engagement on the part of the teacher. Including such opportunities in the curriculum will help instructors stay abreast of potential communication problems during the course.
6. Ensure plenty of examples are provided for each learning section.	Because developing game-based music education lessons necessitates an understanding of the technology required, including a variety of visual aids and examples can help learners grasp the material presented and potentially trouble-shoot issues on their own. PowerPoint presentations will serve as a repository of instruction that students can refer too during the course.

7. Include an assessment rubric for the student's reflective video blogs.	The video blogs are included in the class in order to help the educator become familiar with a platform they will be using in their gamification curriculum, and to reveal ways in which the instructor can provide tailor made feedback. Making clear how these learning events will be assessed will increase the quality of the feedback provided and assist the student in retaining more of the information presented.
8. Manage student involvement in open discussion boards and ensure questions are through provoking.	Setting clear expectations of what the content and nature of the discussions opportunities in the class will help students remained engaged during the entire course. Tailoring questions that leverage previous discussions will also deepen the level of conversation among the class.
9. Add working groups as a learning tool using online communications platforms required in the course.	Peer feedback can play an important role in a student's understanding of a subject. By deliberately including opportunities for that sort of communication to occur, I hope to create an environment where learners seek to help each other grow together.
10. Narrow the scope of the gamification capstone project from a curriculum creation project to a 15-lesson music education plan.	Making this change will help in putting all the students on the same page and increase collaboration during the work group sessions. Additionally, the assessment process will be simplified by removing unnecessary variables by having students complete the same project at the end of the course.

FORMATIVE ASSESSMENT
Week One

1) Guided instruction on the use of software via PowerPoint presentation and LMS communication.	6) Quick introduction to independent tasks during the rest of the course (which will be known as "quests"). Critical thinking opportunity presented to students via thought provoking questions.
2) Online round table discussions to promote problem solving during the introduction of gamification terminology and designed to increase student cohesion for first week.	7) Teacher modeling during the creation of personal avatar in "Classcraft" and used as another opportunity to clarify missed concepts or instructions.
3) Productive group work by presenting a game-based learning music example for analysis.	8) Recall exercises at the end of group discussion to help students remember content previously covered via "FlipGrid".

4) Recall exercises at the end of group discussion to help students remember content previously covered.	9) "3-2-1 Countdown" to one student in the class to share with others. 3 things they did not know; 2 things that surprised them; 1 thing they want to incorporate into their lives.
5) Presentation of class material via graphics model to stimulate visual learning. Open-ended questions to follow the presentation.	10) Student self-reflection video designed to incorporate meta-cognitive strategies into learning plans.

SUMMATIVE ASSESSMENT EXAMPLES
Quiz Example (10 Points per item = 250 Points)

True – False	Completion	Multiple Choice
Abstraction is method of breaking down complex concepts into specific tasks. *True	Mechanics of a game are the sets of *rules and feedback loops that govern a Lerner's progressions towards completion of a goal.	The three main elements of gamification are: 1) *Abstraction, Mechanics, Interface 2) Gameplay, Mechanics, Points Systems 3) Abstraction, Rules, Interface
The game mechanics design process begins prior to the creation of an assessment system. *False	Game interfaces are designed to invite ongoing *participation.	Educators must develop_____ to take advantage of game-based strategies. 1) Assessment plan 2) Badge System 3) *Instructional Strategies
Gamification can replace traditional methods of teaching. *False	The average young person will voluntarily spend 10,000 hours playing video games by age 21.	According to the text, a hidden feature purposely imbedded into a class plan for students to find is known as: 1) Secret 2) Easter Egg* 3) Hidden Gem

Metacognition refers to thinking about one's learning and thinking. *True	An <u>Engagement</u> Management System is designed to help the user keep track of their learning progress while encouraging consistent participation.	Music educators can use the following game-based strategy to reward a student's notable progress achievement: 1) Avatar Title 2) Points 3) Additional Quests 4) All the Above*
Classcraft software is an example of a Learning Management System. *False	An <u>avatar</u> is an online representation of a participant in a game or social network.	According to the text, which of these is not an education centered gamification mechanic: 1) Badges 2) Levels 3) Player vs Player*

Matching		Short Answer
Match the terms on the left column with the associated concepts on the right column.		
1) Student 2) Teacher 3) Student Name 4) Class Group	A) Guild (*4) B) Game Master (*2) C) Player (*1) D) Avatar (*3)	Another name for a task which upon completion provides a reward is? *Quest
1) Points 2) Challenges 3) Leaderboards 4) Badges 5) Levels	A) Encourages progression (*5) B) Encourages engagement (*2) C) Representation of Achievements (*4) D) Creates competition (*3) E) Can serve as currency (*1)	A gamified answer to traditional class grading assessments is/are? *Game Experience System
Multiple True-False		Which are the two types of motivation the educator must balance when designing games-based curriculum? *Extrinsic and Intrinsic
When creating a quest for a music student it is recommended that you: <u>F</u> 1) Limit tasks to indoor activities only; <u>T</u> 2) Incorporate concepts previously learned; <u>T</u> 3) Increase the level of challenge; <u>F</u> 4) Do not include group activities.		
Whenever a student falls behind among their peers in a gamified classroom you should: <u>F</u> 1) Lower the level of difficulty; <u>T</u> 2) Provide one-on-one assistance; <u>T</u> 3) Pair up weak and strong students together on special completion tasks; <u>F</u> 4) Remove student from leaderboards.		What is the principle goal to take into consideration when designing challenges? *Reinforce previous concepts.
		The following gamification mechanic can be utilized to increase a student's focus: *Challenges.