

Creating a Course Syllabus and Lesson Plan Using ChatGPT: Some Considerations

Debra-Ann Davidson

Edna Manley College of the Visual and Performing Arts

Abstract

ChatGPT remains controversial in education since its public release in November 2022. Despite its impressive résumé, which includes producing human-like responses, it is liable to hallucinate; and the opportunities for plagiarism are well documented in the literature. Could ChatGPT be an asset to teaching and learning? ChatGPT and other Large Language Models (LLMs) continue to improve at astonishing rates, and students are already using the services. This qualitative study assesses the accuracy and usefulness of ChatGPT as a tool to create a course syllabus and lesson plan for a Western classical music history course, and by extension its usefulness as a teaching tool in the classical music history classroom. The findings suggest that while the LLM cannot be a substitute for the expertise of the educator, it is a useful tool. If used in conjunction with established practices and tools in humanities studies, the very limitations of ChatGPT could not only create powerful learning opportunities for developing AI literacy among students outside of STEM, but could support the development of higher-order cognitive skills in the music history classroom.

Keywords: ChatGPT, course syllabus, lesson plans, music history

Introduction

When OpenAI announced the arrival of ChatGPT, a form of generative artificial intelligence (AI) to the world in November 2022, it was hailed as the “largest language model in the world” (Floridi & Chiriatti, 2020, as cited in Lund et al., 2023, ChatGPT section, para. 3), and one that would “revolutionize the world” (Jürgen et al., 2023, p. 2). Soon after it was unveiled, ChatGPT became the “fastest-growing user application in history” (Lo, 2023, p. 1). ChatGPT’s impressive résumé included answering questions and writing essays, stories, poems, and code within minutes

of receiving a prompt. ChatGPT and similar Large Language Models (LLMs) can generate human-like text on a range of topics (Barrett & Pack, 2023) and provide personalized tutoring to students (Mutanga et al., 2024). ChatGPT’s upgrade to GPT-4, released in 2023, was projected to have “100-trillion parameters, about 500 times more than GTP-3 ... thus approaching the number of neural connectors in the human brain” (Jürgen et al., 2023, p. 3).

ChatGPT’s remarkable power and capabilities have led several scholars to suggest, albeit

cautiously, that ChatGPT could be used to personalize lessons for students, simplify complex concepts, and provide personalized learning (Adiguzel et al., 2023). As a provider of personalized learning, ChatGPT functions as a chatbot, or “bot” for short, where the user converses with the bot using their natural language in similar ways that the user would converse with another human (Chintala et al., 2024). Halaweh (2023) advocated using ChatGPT in the classroom to increase student engagement while teaching 21st-century skills such as collaboration, problem-solving, critical thinking, and digital literacy. It was also suggested that ChatGPT could serve as a teaching assistant to teachers by creating lesson plans and in-class activities (Halaweh, 2023).

The benefits of ChatGPT to STEM education and the learning of human languages is well documented (Humble & Mozellius, 2022). Rajala et al.’s (2023) study concluded that despite ChatGPT’s tendency to hallucinate, a term that describes inaccurate output from the bot, students enrolled in a web development course felt that ChatGPT was useful in helping them complete course projects. Their mixed methods study took place in a computer science class for first-year and second-year students at Tampere University, Finland. The pre-test and post-test surveys were completed by 109 students who were divided into two groups. The experimental group had access to ChatGPT to help them with group projects on web design and coding. Each group had between 5-7 students. The control group did the same exercises but did not have access to ChatGPT.

David Malan, Professor of Computer Science at Harvard University, agreed with Rajala et al. (2023) in an interview with Coffey (2023). Malan reported that Harvard had integrated ChatGPT into their introductory computer science courses. The goal, according to Malan, was to allow teaching assistants to devote more time to providing personalized assistance to students. The chatbot would support increased in-person interactions between students and teachers (Coffey, 2023).

The Problem

Since its inception in the 1940s, generative AI (GenAI) continues to evolve at an alarming rate. Several industries have now integrated it into their workflows, and require their employees to use it. In the finance industry, for instance, AI provides customer service, detects fraud, and supports risk management. In manufacturing, AI provides quality control by detecting defective merchandise (Mossavar-Rahmani & Zohuri, 2024). Despite its accessibility and widespread use, AI is not without its problems. Text created by AI is difficult to detect, making plagiarism easier than before ChatGPT was released. ChatGPT has a penchant for hallucination, or of making up facts. Banning it, or otherwise restricting its use in the classroom out of fear, will severely curtail the effectiveness of a future workforce to thrive in an AI-driven economy. Artificial intelligence is here to stay. It is therefore necessary that educators learn how to integrate AI into their own work processes to familiarize themselves with its potential in their domains.

The problem is that no empirical research has been done to determine whether ChatGPT could be useful for creating a course syllabus and lesson plan for an undergraduate-level class in Western classical music history, or whether Gen AI is useful as a teaching tool in the Western classical music classroom. Research has shown that ChatGPT is useful for teaching STEM subjects, including computer coding. It can pass exams in law and business (Adiguzel et al., 2023). Several studies focus on using ChatGPT in the music education classroom, or as a tool for composing the text for songwriters (e.g., Holster, 2024; Sun, 2024). Few studies examine its use in humanities courses, however (see Ali et al., 2024).

The Purpose

The purpose of this study is to assess ChatGPT’s usefulness in creating a course syllabus and lesson plan for an undergraduate-level music history course on 20th century classical music at a small teacher’s college in Jamaica. Using ChatGPT to create course syllabi and lesson plans provides a foundational instrument that

educators could modify to suit their contexts. Creating these documents allows instructors to evaluate ChatGPT's suitability as a teaching tool for undergraduate music history majors. It takes AI literacy and prompt engineering out of the exclusive domain of STEM courses and into other subject areas. Because ChatGPT interacts with users in ways that mimic human conversations, users in the humanities, for instance in music, can solicit the chatbot's help to generate text (Holster, 2024), without skills in computer coding (Chintala et al., 2024; Guo, 2024).

Research Questions

The study answers the following questions:

RQ1: What are some of the issues that surface when using ChatGPT-3 to create a lesson plan for an undergraduate music history class on the music of the 20th century at a small teacher's college in Jamaica?

RQ2: Could ChatGPT be useful to the Western classical music domain, and by extension, is it worth integrating into the music history classroom?

Research Participants and Setting

The population most impacted by the results of this study are instructors of Western classical music history and undergraduate music majors who are required to take survey courses in music history. As this 20th century course had not been offered at the college in several years, its content needed to be upgraded. It was time to create a new syllabus. The course was taken by students on the performance track in their fourth and final year of university study, and the class size ranged from 1-6 students.

Literature Review

Gladstone (2023) states categorically that teachers should use ChatGPT and that it "has no limits" (p. 19) in the ways it can be used. Despite these absolute statements, Gladstone admits that ChatGPT can neither reason nor empathize. This observation is in line with Lund et al., (2023). The bot is unable to determine whether its output could potentially be harmful

to groups of people by perpetuating biases. Each time the user interacts with the bot by inputting prompts, the person is training the AI. This raises issues of privacy, security, and authorship (Gladstone, 2023).

Large Language Models are liable to hallucination and bias. Washburn and McCutchen's (2024) qualitative study found this to be the case in a course on American Indian history. Their sample was drawn from students in their survey and upper-level history courses. The students were given essays generated by ChatGPT that were based on required course readings and instructed to critique the AI's identification of central themes from the texts. The students noted that the AI-generated essays failed to mention a few significant themes from the assigned readings and tended to use the term "Native Americans" as a blanket term without differentiating tribes. The students asked ChatGPT to generate a 10-item bibliography representing the most recent peer-reviewed studies on the topic of Native American history. All 10 items were fictitious. Guo (2024) circumvented the issue of hallucination and was able to generate fairly accurate outputs by engineering their prompts using Python and an iterative process for an art history course. Using the English language, Guo prompted ChatGPT to use Python script to generate a response to his question instead of using the script to write the entire prompt. The researcher analyzed ChatGPT's output, then refined their prompt for a more nuanced response, and repeated the process until the chatbot produced a satisfactory response to the original prompt. This iterative collaboration between user and AI characterizes effective practices in prompt engineering (Guo, 2024). Computer programming, however, is beyond the scope of many humanities instructors and their students. It would not be feasible to teach computer programming in a humanities course.

Cooper (2024) conducted a quantitative study in which 56 participants were asked to distinguish between AI-generated lesson plans and ones created by humans for a music education course. The participants were presented with eight lesson plans: four were created by AI and the other four were created by humans. Fifty-five

percent of the teachers accurately identified the AI generated lesson plans, but most participants admitted to guessing. None of the participants expressed confidence in differentiating between the two. Cooper's study differs from Guo (2024) in that instead of advocating for an iterative interaction with ChatGPT, the user is encouraged to employ "prompt chaining" (p. 11) where the bot is given small bits of instructions to create the lesson plans. Cooper (2024) observed that teachers should become familiar with prompt engineering to create lesson plans to suit their context.

A qualitative research design was chosen for this study because the objective was to evaluate ChatGPT within the context of a music history course for undergraduates. This study differs from the objectives of Cooper (2024). While Cooper's study focuses on lesson plans for a generalized music class for high school students, this study evaluates ChatGPT for its nuanced, insightful, and specific output suitable for a college course intended for music majors. This design seeks to understand the experiences of individuals and groups within a specific time and place (Flick, 2018). In light of the problem and questions that this study addressed, a self-case study provided insight into ChatGPT's strengths and weaknesses from the perspective of the researcher's work process and by extension, the context in which the documents would be used.

The researcher used Kotzeva and Anders's (2023) prompt formula to create a syllabus and lesson plan using ChatGPT for an undergraduate music history course on 20th century music. Kotzeva and Anders's formula was adopted because the study was one of the earliest published on prompt engineering for ChatGPT that was available at the time of conducting this research. Since then, other scholars have published studies on prompt engineering, such as Nazari and Saadi (2024). While Nazari and Saadi (2024) combined a generalized and domain-specific approach to developing their prompt formula, Kotzeva and Anders used an approach taken from rhetoric to develop their formula in which *techné* (skill) connects *praxis* (application) to solve real-world challenges. The authors connected rhetoric and creativity to the world

of AI. ChatGPT lacks contextual and rhetorical awareness, and Kotzeva and Anders's formula provided the context for the bot. By connecting *praxis* to real-world needs, the user can address ethical issues by using ChatGPT as a tool while retaining human autonomy in problem-solving.

Training Generative AI

Large language models such as ChatGPT, a form of GenAI, can learn vast amounts of data using Natural Language Processing (NLP). The AI is trained through a process called Machine or Deep Learning using a complex system of neural networks, much like the human brain. ChatGPT is trained on approximately 45 tetrabytes of knowledge gathered from the open web; that is, blogs, Wikis, websites, ebooks, articles, and newspapers (Jürgen et al., 2023, p. 3). Using the ability to predict text, LLMs combine algorithms and deep learning to generate responses to users (Lund et al., 2023). As ChatGPT constantly finds and trains on new data, its responses to the same prompts will improve over time. Each time users interact with the bot, it learns new material and applies it to a later similar prompt. Essentially, it is the user who contributes their expertise to training and improving the AI's output, which then benefits subsequent users. The refining process is akin to helping a student learn through the Socratic process, where the teacher asks questions of the students that are designed to help them think critically to develop their responses (Dalim et al., 2022). The iterative nature of Socratic questioning helps students learn course content (Dös et al., 2016).

This refining process makes it difficult to spot plagiarism. If a student decides to use ChatGPT to complete an assignment, the instructor testing whether the assignment was AI-generated would have a difficult task determining if that was the case, especially if the time-lapse between completing the assignment and the grading process was great enough for the AI to update, upgrade, and improve its responses. Refining, however, can be undertaken by the user instead of going through the AI.

Method and Findings

In this qualitative study, the free version of ChatGPT released in November 2022 was used to create the course syllabus and lesson plan for an undergraduate course on 20th century music. This is the version that was most accessible to faculty and students in Jamaica at that time. The study was conducted between June and August 2023, when concerns about AI's influence on education and other sectors were heavily reported in the mass media. The AI-generated course syllabus was used to guide the course, and a modified version of the lesson plan for Week 1 was used to teach the course for that week.

The prompt outlined below was developed by Kotzeva and Anders (2023) and is based upon an online workshop conducted by Anders in June 2023. Their 5-part prompt was designed to guide

ChatGPT to produce a response that thoroughly and precisely answered a question. The steps included:

- 1. Context.** This is the role or the persona that ChatGPT is to assume as it generates its response.
- 2. Task.** This is the job it is to perform.
- 3. Instructions.** These are the specific points to be included.
- 4. Clarification.** This is the point at which the AI is allowed to ask the user questions.
- 5. Refine.** Once ChatGPT has generated its response, this step allows the user to engage in conversation with the AI by asking follow-up questions to clarify aspects of the bot's response, gather additional information, or generate another prompt with different parameters.

Figure 1

The Prompt that was Constructed, Based on the Formula, to Create the Syllabus.

D You are a college professor in a performing arts department. Create a course syllabus for an introductory class on 20th century music for undergraduates. The course is thirteen weeks long. Break down the content into thirteen-week segments. The course must include post-romantic music and artificial intelligence in music

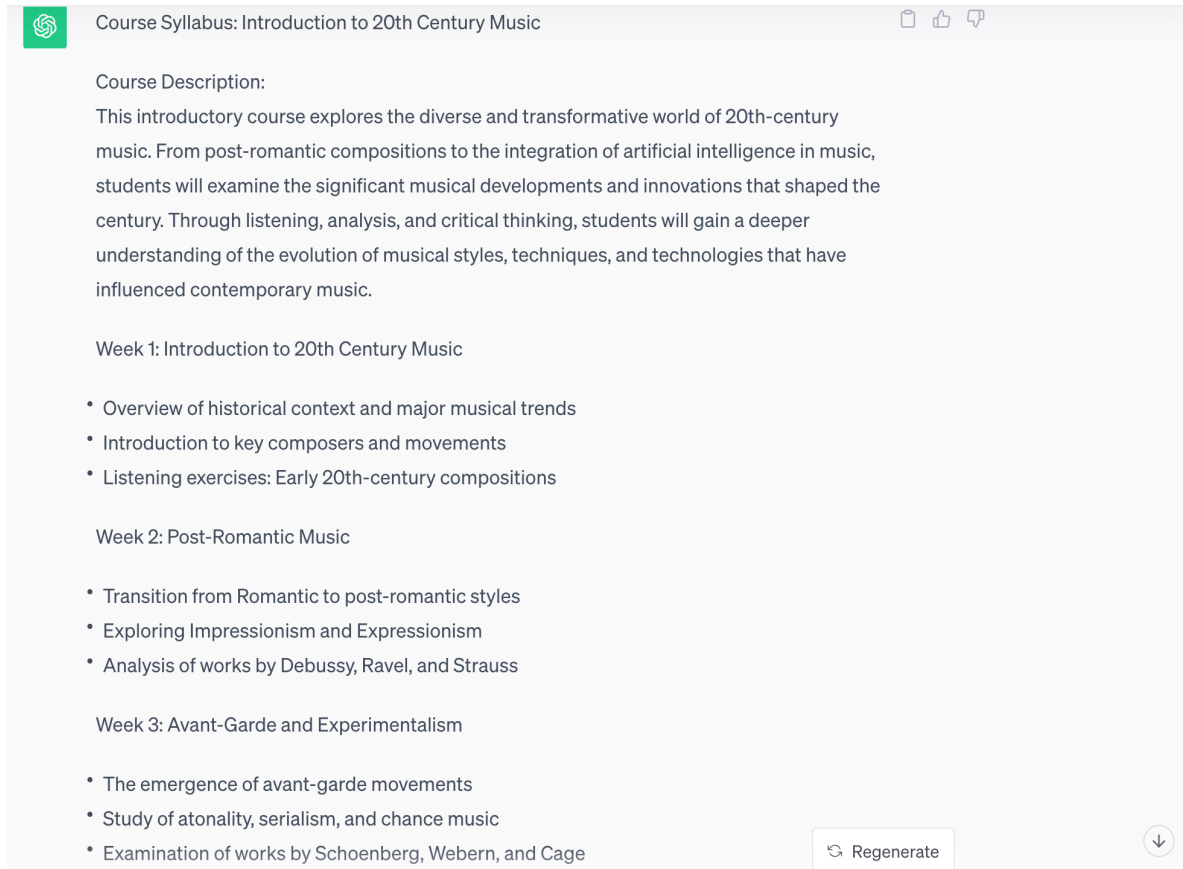
The first sentence provided the context in which ChatGPT would respond: through the context of being a college professor. The second sentence stated the task and reiterated the level: to create a course syllabus for a history course on 20th century music for tertiary-level students. Specifying the context was crucial, as it utilized ChatGPT's ability to create content suitable for the cognitive level of undergraduate

students. Sentences 3–5 specified the length of the semester, 13 weeks. The instructions provided in sentences 4 and 5 requested that the content be presented in 13-week segments and specified 2 topics that were required in this context: Post-Romantic music and AI in Music.

ChatGPT's response is shown in Fig. 2.

Figure 2

Course Syllabus Generated by ChatGPT, June 2023



The screenshot shows a ChatGPT interface with a green sidebar icon on the left. The main content area has a light gray background and contains the following text:

Course Syllabus: Introduction to 20th Century Music

Course Description:
This introductory course explores the diverse and transformative world of 20th-century music. From post-romantic compositions to the integration of artificial intelligence in music, students will examine the significant musical developments and innovations that shaped the century. Through listening, analysis, and critical thinking, students will gain a deeper understanding of the evolution of musical styles, techniques, and technologies that have influenced contemporary music.

Week 1: Introduction to 20th Century Music

- Overview of historical context and major musical trends
- Introduction to key composers and movements
- Listening exercises: Early 20th-century compositions

Week 2: Post-Romantic Music

- Transition from Romantic to post-romantic styles
- Exploring Impressionism and Expressionism
- Analysis of works by Debussy, Ravel, and Strauss

Week 3: Avant-Garde and Experimentalism

- The emergence of avant-garde movements
- Study of atonality, serialism, and chance music
- Examination of works by Schoenberg, Webern, and Cage

At the bottom right of the content area, there is a 'Regenerate' button with a circular arrow icon and a downward arrow icon.

The term “20th century music” is a very broad term that encapsulates world, indigenous, folk, fusion, and western classical music. By prompting ChatGPT with the keyword “Post-Romantic Music,” the bot responded with a syllabus that focused on western classical music and included a section on Post-Romantic Music and AI in music. Jazz, however, did play a significant role in the music of Classical genres of the period, and ChatGPT included a section on this cross-fertilization in the syllabus in Week 4 (see Appendix 1 for the entire syllabus). Week 1 offered an overview of the context of 20th century music, and illustrated the diversity of musical styles through the suggested listening exercises.

The ways of presenting course content in a history course on 20th century music are as diverse as the actual content included in such courses. ChatGPT presented the content according to topics rather than chronologically or by contributions of

various countries. The drawback to using ChatGPT to create the syllabus was that the content was not presented in the order in which it occurred in the course textbook. The author chose not to ask the AI to organize the content chronologically because that was the conventional way in which history was presented in texts and taught (Turan, 2020). Using this syllabus required students to jump to pertinent sections of the text for some weeks. Despite ChatGPT’s impressive output, it was necessary to move to step five in Kotzeva and Anders (2023) formula: the refining process.

The refining process was undertaken without the help of GenAI. As this syllabus would be used in an actual classroom, the subheading under Week 2 titled, “Transition from Romantic Music to Post-Romantic Music” was changed to “Post-Romantic to early 20th century,” and Richard Wagner was added before Richard Strauss in Week 2. Impressionism and Expressionism were two separate artistic styles

grounded in differing ideologies. It was for that reason that Expressionism was removed from Week 2 and added to the following week.

These changes were necessary because the students had already taken a course in Romantic music, and to provide an overview of the transition from Romantic to Post-Romantic styles, as ChatGPT suggested, would take up much of the 2 hours allotted to the class. The critical study for that week (and the one that would set the tone for the remainder of the course) was how musical styles evolved from Post-Romanticism to produce the diverse ideologies and practices in the music that characterized the 20th century. Richard Wagner was a significant composer who not only represented the culmination of Post-Romanticism, but opened the way for new trends in the 20th century. Any discussion of this stylistic shift necessarily included his contributions, alongside those of his contemporary, Richard Strauss. Expressionism was associated with the Avant-Garde, specifically with the Serialism of Schoenberg, who was not only a composer, but also a painter whose visual art embodied the Expressionist style.

The next step was to create a lesson plan for Week 1 of the syllabus. It was not necessary to follow all of the steps of Kotzeva and Anders's (2023) formula because the conversation was an ongoing one with the bot. Figure 3 provides the final page of the lesson plan.

ChatGPT's response required extensive refining. The lesson plan included all the elements that one would expect: course objectives, learning outcomes, and materials needed (see Appendix II for the entire lesson plan). The syllabus specified that Week 1 should include an "overview of historical context [sic] and major musical trends". It lacked content to fulfill this requirement. The course instructor gathered information from journal articles and the course textbook for the overview. ChatGPT did supply an extensive listening list in support of the listening exercises for the week, and divided them into 15-minute segments. However, it was too long to fit within a 2-hour class, that necessarily included an overview of the historical context for this music.

The instructor had to decide which pieces would be culled from the list. Appendix II shows the abbreviated listening list, which allowed more time to do the listening and discussion portions of the class. Reducing the number of listening exercises to a manageable size provided greater cohesion to the class structure, as students could then connect definitions and explanations with the actual music. The ensuing discussions that inevitably became part of the listening exercises generated lively responses.

For students to complete the instructions enclosed in the box in Figure 3, they would need to have the necessary vocabulary to articulate what they heard in the music. Much of the repertoire would be new to the students, and while they would most likely be able to aurally detect the musical events within a composition, they would not have the vocabulary to discuss the music. A glossary was therefore deemed necessary. Figure 4 shows a sample page from the glossary.

ChatGPT's extensive glossary did not prove helpful for students to orally articulate their aural experience. For example, both a tone poem and an excerpt from a ballet in numbers 5 and 10 in the glossary are purely instrumental forms; and, unless the students happened to be familiar with the music chosen for the listening exercise, both genres would be indistinguishable to them. The definition for "harmony", number 13, where the chord structure supports the melodic line best describes the music of 1650–1913. That definition would not be helpful in discussions of much of the experimental music, such as Serialism and electronic music of the 20th century. The prescribed course textbook had a more useful definition for harmony as a series of vertical sounds that focused on intervallic relationships.

ChatGPT omitted a few items from the glossary. The course outline, for example, included a section on Minimalism in Week 7, but the term was omitted from the glossary. Minimalistic pieces have a distinctive, almost hypnotic sound. ChatGPT omitted that genre's representative music from the listening exercises it generated for the Week 1 lesson plan. Minimalism influences

Figure 3*Listening List*

4. Igor Stravinsky - "The Rite of Spring" (1913)
 - One of the most revolutionary and controversial ballets of its time, this piece by Stravinsky marks a significant departure from traditional harmony and rhythm, leading to the rise of modernism.
5. Arnold Schoenberg - "Pierrot Lunaire" (1912)
 - An important work in atonal music, "Pierrot Lunaire" employs sprechgesang (spoken singing) and showcases Schoenberg's development of his twelve-tone technique.
6. Béla Bartók - "Music for Strings, Percussion, and Celesta" (1936)
 - Demonstrating Bartók's fascination with folk music and use of contrasting timbres, this piece exemplifies the fusion of folk elements with modern compositional techniques.
7. Claude Debussy - "Prelude to the Afternoon of a Faun" (1894)
 - Another significant Impressionist piece, this orchestral work reflects Debussy's innovative approach to melody and form.
8. Sergei Rachmaninoff - Piano Concerto No. 2 in C minor (1901)
 - Rachmaninoff's lush and expressive romantic style can be heard in this concerto, representing the lingering influence of the Romantic era into the 20th century.

During the listening exercises, encourage students to take notes on the stylistic features, emotions evoked, and the composer's intentions. After each piece, hold discussions to analyze the musical elements and discuss the connections between these early 20th-century compositions and the broader musical context of the time.

🔄 Regenerate response

many compositions of the 21st century, and the term has also been adopted by society as a way to describe a lifestyle. The term needed to be added to the glossary. The textbook's definition of minimalism highlighted the short repetitive rhythmic or melodic patterns that were repeated throughout the composition.

The textbook offered more helpful definitions than ChatGPT, and it was for that reason that the AI-generated glossary was abandoned in favor of the one supplied in the text. In a future offering of the course, a summative assessment could involve taking this AI-generated glossary and asking students to expand it to serve as an aural guide for listening to this repertoire. The exercise could require students to include one representative piece from the repertoire, and include a few salient features. To complete the task, students would be required to apply the information from the course lectures and textbook. They would need to analyze the representative music from the listening exercises and any other

music presented during the lectures, evaluate ChatGPT's glossary, then create a glossary that would help students aurally recognize differences in styles and genres.

Kotzeva and Anders's (2023) prompt formula was used to generate a second syllabus in August of the same year. The result was an improvement over the one discussed above. Figure 5 shows a section of the later response.

An "Introduction to Post-Romantic Music and its Characteristics" replaced the "Listening Exercises: Early 20th century Composition" listed as the third bullet point in week one of the original syllabus. This is shown in Figure 5. This was significant because students had already taken a course in Romantic music in a previous semester, and the critical study here was the movement from Post-Romantic Music to the 20th century. ChatGPT added the composers Mahler and Rachmaninoff to Week 2. Wagner was still omitted, and Expressionism remained

Figure 4

Glossary

5. **Tone Poem:** A piece of orchestral music that tells a story or evokes a mood or scene through music. It often follows a narrative or extra-musical idea.
6. **Orchestration:** The art of assigning musical ideas to different instruments or sections of an orchestra to create specific colors and textures.
7. **Modernism:** A broad cultural and artistic movement that challenges traditional norms and embraces experimentation and innovation. In music, it led to new styles and techniques that broke away from the conventions of the past.
8. **Sprechgesang:** Also known as "speech-song," it is a vocal technique where the performer partially speaks and partially sings the text, creating a unique expressive quality.
9. **Folk Music:** Traditional music of a particular culture or community, often passed down through generations by oral tradition.
10. **Ballet:** A theatrical dance form with a specific storyline, characters, and music. Ballet often combines dance, music, and stage design to create a cohesive performance.
11. **Timbre:** The quality of a sound that distinguishes one instrument or voice from another. Timbre contributes to the overall color and character of the music.
12. **Melody:** A series of single pitches that create a musical line and serve as the main focus of a piece.
13. **Harmony:** The combination of simultaneous musical pitches to create chords and progressions that support the melody.

beside Impressionism. The refining process to the first syllabus was done without the aid of AI. That could account for the reappearance of the same problems as in the earlier version. The AI devoted two weeks to AI in Music in the updated syllabus instead of the single week in the original one. See Appendix III for the complete syllabus.

Discussion and Limitations

Despite its limitations, ChatGPT proved a useful tool for creating a syllabus. In response to Research Question 1 (What are some of the issues that surfaced when using ChatGPT to create a course syllabus and lesson plan?), the

bot presented the material according to topics rather than chronologically. While this provided cohesion to an otherwise disparate set of ideologies and practices that characterized 20th century music, the syllabus did not align with the way that the material was presented in the course textbook. This would require the student to be selective with their reading and make extensive use of the book's index. The output was also unstable, as was demonstrated in the differences between the two iterations of the course syllabus at different time points. The bot did not distinguish between certain movements prevalent in 20th century music history, such as Impressionism and Expressionism, and instead

Figure 5*Course syllabus generated in August 2023*

Course Title: Introduction to 20th-Century Music

Course Description:

This course provides an overview of the significant developments and trends in 20th-century music, focusing on post-romantic music and the role of artificial intelligence in shaping musical creation and performance. Through listening, analysis, and discussion, students will gain a deeper understanding of the diverse styles and techniques that have emerged during this dynamic era.

Week 1: Introduction to 20th-Century Music

- Overview of the historical context and major movements in the 20th century
- Key composers and their contributions
- Introduction to post-romantic music and its characteristics

Week 2: Post-Romantic Music

- Late Romanticism and its transition to post-romanticism
- Analysis of post-romantic works from composers like Mahler, Strauss, and Rachmaninoff

Week 3: Early 20th-Century Avant-garde

- Exploring the emergence of impressionism and expressionism
- Debussy and his influence on the 20th century

 Regenerate

grouped them. Some significant composers and movements were omitted altogether.

The syllabus proved more problematic in that it lacked the specific content and learning activities to fulfill the objective of presenting an overview. The instructor would need to use an iterative process to extract the needed information, bearing in mind that they would also be training the bot in the process. This raises issues of intellectual property. An alternative would be for the instructor to use their expertise

and personal resources to supply the missing content. It is for these reasons that using ChatGPT to create a lesson plan does not necessarily save time, but it gets the process started by providing a foundation on which the instructor can build.

In response to Research Question 2 (Is ChatGPT useful to the Western Classical music domain and worth integrating into the music history classroom?), the limitations of ChatGPT could be a useful tool for teaching critical analysis with thoughtful implementation by the

instructor. The findings of this study align with those of Guo (2024) and Washburn and McCutchen (2024) that ChatGPT lacks the nuanced insights that are required in humanities studies. Much of this Guo attributes to the paucity of open sources in the humanities. Much of the peer-reviewed research in the humanities, such as music, reside behind a paywall (Quigley, 2021) and as such is inaccessible to AI. This inaccessibility means that LLMs such as ChatGPT cannot train on the scholarly literature; consequently, AI trains on what it can access: blogs, wikis, websites, and open source articles – resulting in AI outputs that could be shallow, biased, or incorrect (Ferrara, 2024).

Some of ChatGPT's characteristics (such as its neural networks that bear affinities to the human brain, making it capable of generating human-like responses), while impressive, do not allow it to usurp the role of teachers in either online or blended classes. The bot is incapable of generating new knowledge, but merely recycles what it has learned on the web. Lund et al., (2023) have shown that ChatGPT will reproduce biases that it learns from web sources. It cannot read or interpret human emotions. According to the IBM website, there are three types of AI: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI) (IBM Data and AI Team, 2023). The first is used to complete a specific task, like ChatGPT, and is considered a weak form of AI. The other two mimic human behaviors and emotions and perform on par (AGI), or surpass human intellect (ASI). The latter two do not currently exist, and humans still outperform existing AI. The next step in AI's development is AGI followed by ASI, but developments for AGI are still in their formative stages (Joshi, 2024). Although there are speculations about when AGI will come about, with dates ranging from 2025 to mid-century, most of these speculations lack supporting data (Eliot, 2025). Human beings' critical thinking skills, logic, and contextual sense are still required to effectively use AI. GenAI, such as ChatGPT, remains a useful tool for education and other industries.

While ChatGPT and other forms of GenAI are useful tools for many industries, it is just that: a tool. The user must have critical thinking skills and logic to manipulate the data to produce

results that are usable and accurate. Ironically, it is the very limitations of ChatGPT that make it a valuable teaching tool. It provides an opportunity for educators to model the necessary skills for their students by using it in their course preparation, and in their teaching. Until we arrive at ASI, which is anticipated to follow AGI (Joshi, 2024), educators will always have a place in the classroom.

The use of ChatGPT in the classroom does not preclude the use of traditional ways of learning, but rather, enhances them. It can be used alongside textbooks, journal articles, monographs, and laboratory experiments to teach students how to evaluate, correct, and present information and develop presentation skills as advocated by Halaweh (2023). ChatGPT can not only drive student engagement, but also promote the development of higher-order cognitive skills as outlined in Bloom's Revised Taxonomy – such as creating and refining prompts and evaluating AI's output (Elim, 2024).

This study is limited to the experiences of an individual, and as such, cannot be generalizable to a larger population. It was also limited to ChatGPT. Further studies could include comparing ChatGPT with another LLM, or by comparing several of the newer LLMs such as Claude and DeepSeek. Such a study could be a quantitative one that uses a larger sample drawn from faculty members from several music departments within a region.

Conclusion

This paper outlined the ways that ChatGPT could assist teachers in their coursework preparation, by creating a course syllabus and writing a lesson plan. Despite its limitations in the music history domain, ChatGPT provides a helpful foundational course syllabus and lesson plan that the instructor can tailor to their specific context. The AI's limitations by no means diminished its value to either educators or students, but required critical thinking, logic, and expertise within the domain to use it effectively. The rapid development of GenAI does not preclude traditional methods of teaching and learning, but serves as an important adjunct. As it permeates daily life, AI literacy can no longer be the sole

preserve of students and professionals in the STEM domains, but must now be embraced, albeit cautiously, in the humanities, including music history. In a gray paper published by UNESCO, Simmons and Davis (2024) identified an AI-literate and skilled workforce among all sectors as one of the four pillars of AI integration in the Caribbean. To accomplish this, AI-literacy must extend beyond STEM domains. Such shifts will require educators to re-imagine education to drive transformation, create resilience in this rapidly changing technological culture, and create a future workforce that will not only survive, but thrive.

Debra-Ann Davidson is a doctoral candidate in Instructional Technology at the American College of Education, with a research interest in artificial intelligence for teaching and learning. She designs learner-centered online and blended courses and is on faculty in the theory and musicology department at the Edna Manley College for the Visual and Performing Arts.

Email: debra-ann.davidson@emc.edu.jm

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Appendix I

Complete Course Syllabus for Introduction to 20th-Century Music generated June 2023

Course Syllabus: Introduction to 20th Century Music

Course Description:

This introductory course explores the diverse and transformative world of 20th-century music. From post-romantic compositions to the integration of artificial intelligence in music, students will examine the significant musical developments and innovations that shaped the century. Through listening, analysis, and critical thinking, students will gain a deeper understanding of the evolution of musical styles, techniques, and technologies that have influenced contemporary music.

Week 1: Introduction to 20th Century Music

- Overview of historical context and major musical trends
- Introduction to key composers and movements
- Listening exercises: Early 20th-century compositions

Week 2: Post-Romantic Music

- Transition from Romantic to post-romantic styles
- Exploring Impressionism and Expressionism
- Analysis of works by Debussy, Ravel, and Strauss

Week 3: Avant-Garde and Experimentalism

- The emergence of avant-garde movements
- Study of atonality, serialism, and chance music
- Examination of works by Schoenberg, Webern, and Cage

Week 4: Jazz and Blues

- The influence of jazz on classical music
- The Blues as a musical form and its impact on 20th-century compositions
- Listening to jazz-inspired pieces by Gershwin and Copland

Week 5: The Birth of Recording Technology

- The impact of phonographs and radio on music dissemination
- Early experiments in electronic music
- Introduction to musique concrète and its pioneers

Appendix 1 continued

Week 6: Neoclassicism

- Revisiting classical forms and structures in the 20th century
- Works by Stravinsky, Prokofiev, and Hindemith
- Integration of folk elements in neoclassical compositions

Week 7: American Experimentalism

- The American Experimental music scene
- Exploration of minimalism and its characteristics
- Listening to works by Steve Reich and Philip Glass

Week 8: Post-World War II Music

- Musical responses to World War II and its aftermath
- Analysis of works by Messiaen and Shostakovich
- Music of the Holocaust and its impact on composers

Week 9: Music and Politics

- Examining the role of music in political movements
- The protest songs of the Civil Rights era and anti-war music
- Music censorship and its impact on artistic expression

Week 10: Electronic Music and Synthesizers

- The rise of electronic music and synthesizers
- Exploring the works of Stockhausen and Wendy Carlos
- Introduction to algorithmic composition

Week 11: Artificial Intelligence in Music

- Understanding the basics of artificial intelligence and machine learning
- AI-generated music and its implications
- Demonstrations of AI-based music composition tools

Appendix 1 continued

Week 12: Contemporary Classical Music

- Contemporary trends in classical music
- Study of post-minimalism and spectralism
- Listening to works by John Adams and Kaija Saariaho

Week 13: Integration of AI and Human Creativity

- The role of AI as a collaborator in music creation
- Ethical considerations in AI-generated art
- Final project presentations and reflections

Assessment:

- Weekly listening assignments and reflections
- Quizzes on historical context and musical concepts
- Mid-term exam covering major composers and movements
- Final project: Students can choose to compose a piece using AI tools, write a research paper on a specific 20th-century composer or movement, or present a comparative analysis of AI-generated music and human-created music.

Note: This syllabus is designed to be flexible, and the topics can be adjusted based on students' interests and the availability of resources. The course aims to provide a comprehensive introduction to 20th



Appendix II

Lesson Plan



ChatGPT

Week 1: Introduction to 20th Century Music

Lesson Plan

Objective: To provide an overview of early 20th-century music, introduce key composers and movements, and discuss the stylistic features of selected pieces through listening exercises.

Duration: 2 hours

Materials:

1. Audio playback equipment
2. Projector or whiteboard for visual aids
3. Handout with vocabulary terms

Introduction (15 minutes):

1. Greet the students and provide an overview of the course.
2. Explain the importance of studying 20th-century music and its impact on contemporary musical styles.
3. Distribute the handout with vocabulary terms and briefly discuss their meanings.

Listening Exercise 1 (30 minutes): Impressionism and Post-Romantic Music

1. Play Claude Debussy's "Clair de Lune."
2. After the listening, lead a class discussion:
 - Ask students how the piece made them feel and what emotions or images it evoked.
 - Discuss the characteristics of Impressionism, such as its focus on color, texture, and atmosphere.
 - Highlight Debussy's innovative use of harmonic progressions and tonal ambiguity.
3. Play Maurice Ravel's "Boléro."
4. Repeat the discussion process, this time comparing the piece to Debussy's "Clair de Lune."
 - Encourage students to identify similarities and differences in style and emotional impact.
 - Discuss Ravel's orchestration and the gradual build-up of intensity throughout the piece.

*Appendix 2 continued***Listening Exercise 2 (30 minutes): Expressionism and Atonality**

1. Play Arnold Schoenberg's "Pierrot Lunaire" (selected sections).
2. Lead a class discussion:
 - Discuss the emotional intensity of the music and the use of sprechgesang.
 - Explore the concept of atonality and how it differs from traditional tonal music.
 - Encourage students to analyze the effect of the vocal delivery and the use of instrumental accompaniment.

Break (10 minutes): Provide students with a short break to refresh before the next segment.

Listening Exercise 3 (30 minutes): Stravinsky and Early 20th Century Ballet

1. Play Igor Stravinsky's "The Rite of Spring" (selected sections).
2. After the listening, facilitate a class discussion:
 - Discuss the significance of the ballet's premiere and its impact on the development of modernism.
 - Explore Stravinsky's use of rhythm, dissonance, and irregular meters.
 - Encourage students to share their interpretations of the music's primal and revolutionary qualities.

Conclusion (15 minutes):

1. Summarize the main points covered during the listening exercises.
2. Emphasize the diversity of styles and innovations present in early 20th-century music.
3. Encourage students to continue exploring the provided vocabulary terms and applying them in future discussions and assignments.

Homework Assignment:

Ask students to select one of the pieces discussed in class and write a short reflection paper (approximately 300-500 words) discussing its stylistic features, emotional impact, and its relevance in the context of 20th-century music. Encourage them to use the vocabulary terms provided in class to articulate their analysis effectively.

Note: Depending on the class size and level of engagement, you may adjust the duration of the listening exercises and discussions accordingly. Be flexible to encourage active participation and meaningful learning experiences.

Appendix III

Syllabus generated in August 2023

**You**

You are a college professor in a performing arts department. Create a course syllabus for an introductory class on 20th century music for undergraduates. The course is thirteen weeks long. Break down the content into thirteen-week segments. The course must include post-romantic music and artificial intelligence in music. Do you understand?

**ChatGPT**

Absolutely, I understand! Below is a course syllabus for an introductory 13-week class on 20th-century music for undergraduate students in a performing arts department. The course covers various topics, including post-romantic music and artificial intelligence in music.

Course Title: Introduction to 20th-Century Music

Course Description:

This course provides an overview of the significant developments and trends in 20th-century music, focusing on post-romantic music and the role of artificial intelligence in shaping musical creation and performance. Through listening, analysis, and discussion, students will gain a deeper understanding of the diverse styles and techniques that have emerged during this dynamic era.

Week 1: Introduction to 20th-Century Music

- Overview of the historical context and major movements in the 20th century
- Key composers and their contributions
- Introduction to post-romantic music and its characteristics

Week 2: Post-Romantic Music

- Late Romanticism and its transition to post-romanticism
- Analysis of post-romantic works from composers like Mahler, Strauss, and Rachmaninoff

Week 3: Early 20th-Century Avant-garde

- Exploring the emergence of impressionism and expressionism
- Debussy and his influence on the 20th century

Week 4: Stravinsky and Neoclassicism

- The Rite of Spring and its impact on music and dance
- Neoclassical trends in the 20th century

Appendix 3 continued

2. Lead a class discussion:

- Discuss the emotional intensity of the music and the use of sprechgesang.
- Explore the concept of atonality and how it differs from traditional tonal music.

Week 5: The Second Viennese School

- Introduction to Schoenberg, Berg, and Webern
- Atonality, serialism, and twelve-tone technique

Week 6: Jazz and Blues

- The influence of jazz and blues on classical music
- Gershwin and other crossover composers

Week 7: Mid-century American Music

- Copland and the American sound
- Other American composers and their distinctive styles

Week 8: Electronic Music and Technology

- The advent of electronic music and its impact on composition
- Introduction to early electronic music pioneers

Week 9: Artificial Intelligence in Music - Part 1

- The intersection of music and technology
- How AI is used in music composition and production

Week 10: Artificial Intelligence in Music - Part 2

- Class participation and engagement in discussions (10%)
- Listening quizzes and analysis exercises (20%)
- Written assignments on specific musical topics (30%)
- Final project presentation (20%)

Appendix 3 continued

- AI-generated music and its implications on creativity and artistic expression
- Ethical considerations surrounding AI in music

Week 11: Minimalism

- The rise of minimalism and its prominent composers (e.g., Reich, Glass)
- Analysis of minimalist works

Week 12: Postmodernism and Global Influences

- Diversity in 20th-century music
- Exploration of world music influences and cross-cultural compositions

Week 13: Wrap-Up and Final Projects

- Review of the course material
- Student presentations on AI-generated compositions or analysis of a post-romantic piece

Assessment:

- Class participation and engagement in discussions (10%)
- Listening quizzes and analysis exercises (20%)
- Written assignments on specific musical topics (30%)
- Final project presentation (20%)
- Final exam (20%)

Note: This syllabus is designed to be flexible, and the specific pieces and composers can be adjusted to accommodate the interests of the students and the availability of resources. It provides a well-rounded exploration of 20th-century music, including post-romantic music and its connection to artificial intelligence in music.

