

**Integrating Music into Classroom Activities:  
Strategies for Creating an Enjoyable Learning  
Environment and Enhancing Academic  
Achievement in Secondary Schools  
— A literature review**

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**Subsidized Unit : The Laidlaw Undergraduate Research Scholarship**

**Word count: 3764 (excluding abstract, acknowledgements and references)**

## **Abstract**

This literature review explores the integration of music into classroom activities, focusing on its potential to create an enjoyable learning environment and enhance academic achievement in secondary schools. By examining the benefits of music integration, the review highlights its role in fostering student engagement, improving social interaction, and enhancing cognitive skills. Additionally, the challenges associated with implementing music in educational settings, such as varied student preferences and resource limitations, are discussed, along with potential solutions.

Further, the review identifies existing contradictions and gaps in research, such as the varying effects of different types of music on cognitive performance and the influence of individual differences among students. Insights from stakeholders, including teachers and students, affirm the positive impact of music on learning outcomes while emphasizing the need for administrative support for effective integration.

Finally, this review proposes effective teaching strategies for embedding music in various subjects, thereby advocating for a more holistic educational approach that aligns with current educational reforms. Such strategies aim to leverage the transformative potential of music to enhance both teaching practices and student experiences in secondary education.

**Keywords:** Music Integration, Student Engagement, Educational Practices, Interdisciplinary Learning

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# **I. Introduction**

## **A. Background**

Creating an engaging and enjoyable learning environment is crucial for students' holistic development. Traditional educational practices often overlook students' emotional and psychological needs, resulting in anxiety, disengagement, and poor academic performance. To address these issues, diverse teaching methods are essential. Integrating music into the classroom holds untapped potential to enhance adaptability in education by fostering psychological well-being, socio-emotional growth, and interactive engagement. As Plato observed, "Music is a more potent instrument than any other for education, because rhythm and harmony find their way into the inward places of the soul" (Nelson et al., 2016).

Incorporating music into classroom teaching, especially at the secondary school level, has the potential to significantly improve student well-being and engagement. Although the concept of integrating music with other subjects was introduced over a century ago at The Music Educators National Conference, interdisciplinary collaborations involving music remain underutilized in educational practices (Bresler, 2002).

Recent educational reforms in China highlight the growing relevance of music integration. In response to the "double reduction" policy, which seeks to reduce excessive homework and improve its quality, the 2022 compulsory education curriculum scheme mandates that at least 10% of instructional hours be allocated to cross-disciplinary thematic learning (Huang, n.d.). This reform aims to strengthen connections between curriculum content, students' experiences, and social contexts, as well as to promote interdisciplinary knowledge integration. The updated Chinese language curriculum standard echoes this, dedicating specific sections to interdisciplinary learning (Ministry of Education, 2022).

Given these developments, integrating music into education aligns well with recent trends in Chinese education and holds promising prospects for future growth.

## **B. Research Objectives**

This study aims to critically explore the role of music in secondary education by examining its impact on student engagement, learning outcomes, and classroom atmosphere. Additionally, the study will assess stakeholder perceptions and identify effective strategies for integrating music across different subjects to enhance the overall educational experience.

## **C. Research Questions**

1. What are the benefits and challenges of using music to enhance learning and engagement in secondary school classrooms?
2. How do students, educators, and parents perceive the impact of music integration on learning and classroom atmosphere?
3. What strategies can effectively integrate music into various subjects to optimize both learning and enjoyment?

## **D. Importance and Significance of Literature Review**

The literature review plays a pivotal role in this study by providing a comprehensive understanding of existing research. It serves as a foundational element that consolidates diverse perspectives and findings related to the integration of music into various educational subjects, particularly considering the influences of specific cultural (Chinese/Western) musical traditions and their varying degrees of familiarity among different groups. Through this review, crucial insights into the educational implications and cultural impacts of music are uncovered. Moreover, by identifying gaps and contradictions in current knowledge, the literature review guides the formulation of research questions aimed at addressing these gaps and enriching the discourse on effective educational practices. This critical analysis not only informs the direction of future research endeavours but also enhances educational strategies by advocating for culturally sensitive approaches that promote cross-cultural understanding and engagement through music.

## **E. Research Methodology**

### **1. Literature Analysis**

A systematic review of existing literature on the integration of music in education will be conducted. This review aims to comprehensively examine and synthesize key themes, benefits, challenges, and effective strategies associated with music integration.

### **2. Case Study Method**

By selecting typical cases for in-depth analysis and comparison and examining specific examples of successful music integration in classroom settings, this review will facilitate a comparative analysis of different approaches and their outcomes across diverse cultural contexts.

## **II. Literature Review**

### **A. Benefits of Music Integration**

#### **1. Social and Cultural Benefits**

Music has the unique ability to bring people together (Cornett, 2003). Singing and choral activities, in particular, enhance social presence and develop emotional expression skills, which contribute to social interaction (Dunlap & Lowenthal, 2010; Ilari et al., 2013). Additionally, collaborative projects that incorporate music into education, such as the Sounds of Silk project, foster the development of students' social skills (Chen-Hafteck, 2007).

From a cultural perspective, integrating songs from around the world into the curriculum helps enhance cultural understanding and challenge stereotypes or prejudices about different regions (Ilari et al., 2013). Research indicates that this approach is especially effective for older children, aligning well with the focus of this review on secondary school

students (Ilari et al., 2013). Furthermore, music integration helps cultivate students' positive attitudes toward both music and diverse cultures (Chen-Hafteck, 2007; Ilari et al., 2013).

## **2. Cognitive and Academic Benefits**

The Arousal-Mood Theory suggests that low-arousal, moderately stimulating, and non-lyrical background music can facilitate better information encoding and item recognition during language memory tasks, thereby enhancing attention and memory retention. However, while this type of music can aid learning, popular lyrical songs may disrupt reading comprehension, making them unsuitable for background music in educational settings (Waters et al., 2022). This distinction is crucial when considering how different types of music can impact cognitive performance.

Beyond memory enhancement, music encourages creativity and engagement by providing students with an avenue to express their thoughts and emotions, which in turn fosters a stronger sense of self-identity (Ilari et al., 2013). For example, in a classroom setting where students listened to meditative pieces like *Flowing Water*, their ability to express their emotional responses using metaphorical language became evident (Chen-Hafteck, 2007). This demonstrates music's capacity to inspire abstract thinking and deepen emotional reflection.

In addition to fostering creativity, music also plays a significant role in enhancing cognitive skills such as spatial processing, reasoning, and vigilance. Several studies have confirmed that exposure to music positively impacts these abilities (Angel et al., 2010; Miller & Schyb, 1989; Corhan & Gounard, 1976; Davies et al., 1973; Fontaine & Schwalm, 1979; Woods et al., 2019, as cited in Kiss & Linnell, 2023). For instance, students exhibited improved spatial-temporal task performance, such as drawing, after listening to Mozart—a phenomenon widely referred to as the "Mozart effect" (Rauscher, Shaw, & Ky, 1993, as cited in Dunlap & Lowenthal, 2010). This highlights how music can influence not only spatial abilities but also creativity, depending on the nature of the task at hand.

Moreover, moderate background noise levels (around 70 dB), typical of environments like restaurants or distant traffic, have been shown to enhance problem-solving and creative tasks. This occurs by promoting abstract thinking and a more diffuse associative process, which supports cognitive disfluency and facilitates complex tasks such as "problem reorganization" (Threadgold et al., 2019). The subtle presence of sound thus creates an environment conducive to innovative thought processes.

Further supporting academic achievement, music education has been consistently linked to improved performance in subjects such as math, language, and the arts. In particular, adult learners in intensive language courses have demonstrated enhanced language acquisition when exposed to instrumental music (Puhl, 1989, as cited in Dunlap & Lowenthal, 2010). This underscores the cross-disciplinary value of music, especially in language learning contexts.

When music is integrated with language instruction, students not only improve their linguistic abilities but also gain a more comprehensive understanding of how to apply these skills in real-life scenarios. For beginners or non-native speakers, music enhances both listening and speaking abilities, making it a powerful tool for language acquisition. Students

with a natural aptitude for music often report that setting vocabulary to music helps them memorize words more effectively and quickly (Paquette & Rieg, 2008).

### **3. Emotional and Psychological Benefits**

Using classical or self-selected background music during learning can significantly reduce anxiety and enhance positive emotions, with the exception of quiet or heavy metal music, which may have less beneficial effects (Waters et al., 2022; Threadgold et al., 2019). This emotional uplift creates a more relaxed learning environment, fostering student well-being.

Music also contributes to a multisensory learning environment, which enhances motivation and boosts student confidence (Rauscher, Shaw, & Ky, 1993, as cited in Dunlap & Lowenthal, 2010). In online courses, digital music integration has been shown to improve student engagement and self-assurance, further emphasizing its role in promoting emotional resilience.

Additionally, when performing monotonous tasks, such as driving, music can increase arousal to an optimal level, leading to heightened energy and motivation for task completion (Kiss & Linnell, 2023). This demonstrates music's potential to invigorate learners, making even repetitive activities more engaging and enjoyable.

### **4. Benefits for SEN students**

For students with Attention-Deficit Hyperactivity Disorder (ADHD), external stimulation through music effectively regulates arousal levels during monotonous tasks, leading to enhanced autonomous responses and significantly improved reading comprehension (Madjar et al., 2020). Different music genres have shown varied impacts on ADHD students; rock music reduces skeletal muscle tension and enhances brain arousal, thereby reducing motor activity and environmental distractions (Pelham et al., 2011; Cripe, 1986; Kiss & Linnell, 2023). Relaxing music and white noise are more effective than silence in maintaining focus, benefiting tasks such as speech recognition, reading, writing speed, and working memory among ADHD students (Aydinli et al., 2018; Pickens et al., 2019). Classical music, like compositions by Beethoven or Mozart, captures ADHD children's attention and alleviates negative emotions, while slower-tempo music improves cognitive and behavioral performance (Madjar et al., 2020). Incorporating background music emerges as a cost-effective strategy to enhance learning outcomes for students with ADHD (Madjar et al., 2020).

For students with Autism Spectrum Disorder (ASD) and severe intellectual disabilities, integrating music into classroom activities, distinct from formal therapy, enhances social skills and reduces anxiety (Martin-Moratinos et al., 2023). Technological tools for music creation further promote social communication skills in these students (Martin-Moratinos et al., 2023). Tailoring classroom activities to incorporate students' preferred instruments, such as drums or guitars for ADHD and piano for children with dyslexia, enhances engagement and motivation (Martin-Moratinos et al., 2023).

Furthermore, experiments demonstrating accelerated language learning outcomes among students using music underscore its effectiveness. Music-enhanced groups

consistently outperform non-music groups, showing higher rates of progress and more uniform improvement, making music integration particularly suitable for inclusive classrooms (Legg, 2009).

In conclusion, music serves as a powerful pedagogical tool that significantly enhances focus, mood, and engagement among SEN students, supporting both their educational and emotional development.

## 5. Broader Impacts : Long-term Benefits for Students

Music education not only fosters a positive attitude towards integrating music into learning but also nurtures lifelong learning skills (Chen-Hafteck, 2007). This is particularly crucial in today's digital age where vast internet resources remain largely untapped potentials for natural learning (Brahimi & Sarirete, 2015). Emphasizing intrinsic motivation over skills assessed through tests is paramount, as highlighted in recent research (Hamilton et al., 2018, as cited in Laato et al., 2019).

Integrating music into subjects such as history not only enhances understanding of cultural diversity but also develops comprehensive skills that can be flexibly applied across disciplines and in daily life, leading to greater future gains and achievements (Bresler, 2002). Furthermore, art integration projects allow students to explore their identities and recognize the profound connection between their creations and personal expression (Bresler, 2002). For instance, a high school student's reflection underscores the necessity of integrating academic courses with artistic pursuits to fully engage in the learning process (Bresler, 2002).

## B. Challenges of Music Integration and Solutions

Challenges	Explanation	Solutions
<b>1. Student Preferences</b>	<ul style="list-style-type: none"> <li>- Difficulty predicting student enjoyment, e.g., "Sounds of Silk" project (Chen-Hafteck, 2007).</li> <li>- Some students may find music integration tedious or dislike it.</li> </ul>	<ul style="list-style-type: none"> <li>- Pre-assess student interest and adapt activities accordingly (Dunlap &amp; Lowenthal, 2010).</li> <li>- Maintain flexibility in music selection to enhance engagement.</li> <li>- Balance the use of music to meet diverse student needs.</li> </ul>
<b>2. Resource and Policy Limitations</b>	<ul style="list-style-type: none"> <li>-Lack of resources and support for music integration and multicultural education: Schools often face shortages in funding and access to necessary equipment for music integration (Ilari et al., 2013).</li> </ul>	<ul style="list-style-type: none"> <li>- Teachers can share and promote successful cases and best practices of music integration in teaching to inspire other educators to try new music teaching strategies and provide practical advice and guidance.</li> </ul>

	<p>-Financial constraints hinder restructuring existing educational frameworks: Strategies such as reallocating existing budgets and seeking private sector partnerships (Laato et al., 2019).</p> <p>- Dependence on inaccessible technology in public schools: Tools integrating math and music frequently require advanced technology that is unavailable in many public schools (Laato et al., 2019).</p> <p>-Absence of curriculum models specifically for music integration in secondary education: Establishing standardized frameworks and guidelines for integrating music across subjects (Laato et al., 2019).</p> <p>-Restrictive policies enforce rigid curricula and assessment methods: Updating educational policies to include flexibility for innovative teaching practices (Henriksen &amp; Mishra, 2015).</p>	<p>- Schools can mandate pre-service teacher training programs that include participation in arts, music, or design courses to develop educators' creativity and interdisciplinary knowledge (Henriksen &amp; Mishra, 2015). Alternatively, they can offer supplementary online courses for teachers (Gynther, 2016, as cited in Laato et al., 2019).</p> <p>- Establish support systems in various subjects, such as designing small online courses, professional communities, expert consultations, and resource sharing platforms focused on integrating music into different subjects. Provide detailed guidelines or frameworks for teachers to make teaching methods practical. Networked training programs can minimize the resources needed to establish systems, reduce resource constraints, and maximize the possibility of training teachers to provide the support and guidance they need to overcome challenges in integrating music into teaching.</p> <p>- Update national policies to include creative courses in the curriculum, embedding these courses at the policy level to better support schools in adopting and maintaining innovative teaching practices (Henriksen &amp; Mishra, 2015).</p>
<p><b>3. Teachers' willingness</b></p>	<p>- Education curriculum developers and teachers often find it challenging to be convinced of and interested in supporting music integration (Laato et al., 2019).</p> <p>- Differences in teachers' perceptions of the essence of music lead to divergent opinions: Some teachers believe that</p>	<p>- Some teachers appreciate integrating music into other subjects but lack confidence, especially those without music experience or background. Adopt collaborative teaching models where teachers work with peers or professionals to co-design courses, share resources, and provide</p>

	<p>interdisciplinary learning involving music can enhance students' understanding of musical works and improve performance skills, whereas others argue it may undermine learning of technical music skills (Bresler, 2002).</p> <p>- Scholars suggest that arts, humanities, and cultural studies can foster critical thinking, linking creative and critical thinking (Dumitru, 2019, as cited in Laato et al., 2019). This viewpoint supports integrating music into higher education, highlighting its importance. However, biases against integrating music into education persist among educators due to hierarchical subject perceptions (Legg, 2009).</p>	<p>mutual support and feedback in teaching practices.</p> <p>-Collaboration among interdisciplinary teachers should be encouraged within vibrant school communities that support mutual professional growth. This approach fosters open exploration and discovery to enhance educational practices (Bresler, 2002).</p> <p>- To promote music integration in education, supportive administrators who are interested in teachers' ideas and encourage experimentation are crucial.</p> <p>- National policies should also be updated to include creative courses within the curriculum, embedding these courses at the policy level to better support schools in adopting and maintaining innovative teaching practices (Henriksen &amp; Mishra, 2015).</p>
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## C. Contradictions and Gaps in Research

### 1. Varying Effects of Background Music on Cognitive Tasks

The effects of background music on cognitive tasks vary depending on the task type. For instance, when solving verbal insight problems such as Compound Remote Associate Tasks (CRAT), changes in auditory sequences can impair language processing and memory recall, thus decreasing performance (Threadgold et al., 2019). Background music, regardless of lyrics or familiarity, can interfere with language working memory critical for creative problem-solving, contradicting the notion that it enhances abstract thinking and creativity (Bresler, 2002).

Moreover, familiar music with lyrics can increase emotional arousal but decrease problem-solving performance. Therefore, environments characterized by quiet or soft background sounds, such as distant and unintelligible speech, may better support cognitive performance across these tasks (Threadgold et al., 2019).

### 2. Consideration of Individual Differences

Broad conclusions about integrating music into education oversimplify its effectiveness without considering factors like music genre, individual differences (e.g., musical preferences, familiarity), and task nature (Dong et al., 2022). For instance, while

background music (BGM) can reduce reading anxiety and enhance environmental comfort (Fassbender et al., 2012; Lehmann & Seufert, 2017; Standley, 2008), it may also slow reading progress and provide minimal benefits (Jäncke & Sandmann, 2010; Kallinen, 2002; Thompson et al., 2012, as cited in Dong et al., 2022).

Specific factors such as faster tempos (Jäncke & Sandmann, 2010), louder volumes (Thompson et al., 2012), and the presence of lyrics (Shih et al., 2012) tend to impair reading comprehension (Dong et al., 2022). Individual differences play a crucial role; for instance, BGM can hinder comprehension when it conflicts with students' interests or is overly familiar (Cassidy & MacDonald, 2007; Du et al., 2020, as cited in Dong et al., 2022).

### 3. Gender, Personality and Music Training Effects

Gender differences are notable, with males being more easily aroused by music and having poorer arousal regulation skills compared to females, who excel in processing emotional prosody in text (Kiss & Linnell, 2023). Additionally, students with music training exhibit higher emotional arousal levels when listening to music and prefer less arousing music (Kiss & Linnell, 2023).

Extroverted individuals tend to seek stimulating music to enhance arousal levels, thereby improving performance in tasks like reading comprehension and problem-solving under BGM. In contrast, introverts prefer quieter, less stimulating BGM environments to avoid over-stimulation and perform better in cognitive tasks (Eysenck, 1981, as cited in Kiss & Linnell, 2023).

### 4. Recommendations for Educational Practice

Given these individual differences, educators are advised to use instrumental music as a background stimulus to optimize task performance in diverse learning environments.  
Effectiveness in Specific Learning Contexts

Not all music genres benefit students with ADHD; for example, binaural sounds can reduce attention, and fast-tempo music may negatively impact performance (Martin-Moratinos et al., 2023). Silence, however, may lead to heightened novelty-seeking behaviors or distressing mood states during periods of inactivity (Zimmermann et al., 2019). The effectiveness of music for students with ADHD varies with task complexity; more complex tasks may be further impaired by external stimulation from music (Abikoff et al., 1996, as cited in Martin-Moratinos et al., 2023).

Educators should carefully select and integrate appropriate music types based on specific learning task demands to optimize learning outcomes.

### D. Effective Teaching Methods

Method	Description	Explanation & Concluding Remarks
1. Engaging Activities	- Providing students with ownership of learning through public platforms like blogs or wikis allows for peer and expert feedback, enhancing work	- It is found that giving students autonomy was an effective way to integrate music into the classroom.

	<p>quality (Kapp, 2016; Dunlap &amp; Lowenthal, 2010). It is important to note that teachers need to help students develop the mental construct of being aware of the positive/negative comments that may be received by publishing to public outlets (Dunlap &amp; Lowenthal, 2010).</p> <p>- Think-Pair-Share”, divide students into 2 groups to think about different problems, first let them use 1 minute to think independently, then use 2 minutes to exchange ideas and reasons, and then pair up to think about different problems students then exchange to encourage peer evaluation and collaborative problem-solving (Kapp, 2016)</p> <p>-Role-playing to demonstrate knowledge application in real-life scenarios. students are also able to better understand the opinions and perspectives of different characters as a result (Kapp, 2016).</p> <p>- According to the study, 23% of the participants had a preference for learning on “mobile devices”, so it is possible to promote learning in offline mode while integrating music into teaching, such as designing mobile learning apps. e.g., creating learning song lists and merging them into learning apps (Zhang, 2023).</p>	<p>For example, in the Silk project, students engage in self-directed, creative activities influenced by their interests and cultural awareness. Using tools like the "KWL chart," teachers and students collaboratively shape the curriculum to explore diverse cultural songs and learn about musical and extramusical aspects. This includes ethnicity, geography, language, belief systems, history, customs, emotions, thinking styles, and cultural celebrations—topics from social research. Students then rehearse and present these songs, fostering enjoyment and unity among them, enhancing their learning satisfaction (Ilari et al., 2013).</p> <p>Even when curriculum goals limit full autonomy, providing multiple choices, such as selecting between two songs to study lyrics, can still boost student motivation.</p> <p>- Notably, six of the eight teachers emphasized that physical activity significantly increased their creativity in teaching, with Mia stating that running was key to sparking ideas, suggesting that movement, like music, drives innovative pedagogy (Henriksen &amp; Mishra, 2015).</p>
<p>2. Gamification of Learning</p>	<p>- Gamification of learning involves the use of game elements, such as hints, clues, points, and task lists, to reduce learning fatigue and create emotionally-connected “contextual memories”. (Kapp, 2016)</p> <p>- Teachers design challenges and risks to stimulate students' interest, such as requiring students to answer multiple questions in a music performance or theory quiz in a row</p>	<p>-Gamification of learning can dramatically increase student engagement (Kapp, 2016). By incorporating gamification strategies into music teaching, teachers can create a more engaging and participatory teaching environment, ultimately leading to improved learning outcomes.</p>

	<p>or complete additional challenges for each question answered incorrectly.</p> <p>-Teachers create leaderboards or badge systems to encourage interaction and cooperation among students and promote a sense of social connection. Providing points and rewards for tasks can make otherwise unattractive musical tasks more interesting and, combined with timely feedback from the teacher, enhance students' intrinsic motivation to learn and achieve a balance between intrinsic and extrinsic motivation (Kapp, 2016).</p>	
3. Long-Term programme	<p>- The Teacher in Residence program in Gardner Museum at the Boston school: Ancient History teacher (Rebecca Knowles) accompanies students on a free museum visit. (Bresler, 2002).</p> <p>- Teachers utilize the architectural features of the museum, guiding middle school students to the museum's exquisite gardens/upper balconies to deliver a verbal presentation of Shakespeare's "Julius Caesar" scenes while dressed in costume, imitating the style of ancient Roman orators with solemn voice and gestures. (Bresler, 2002).</p>	-Requires appropriate student supervision arrangements and the teacher's sense of "control" over the scenes (Bresler, 2002).
4. Special Education Integration	- Music in electronic games is often beneficial for individuals with ADHD, as it can improve timing skills, immersion, and flow during gameplay (Martin-Moratinos et al., 2023).	-When teachers design classroom teaching games , they can incorporate background music from electronic games.
5. Cross-Disciplinary Assignments & Approaches	/	/

5.1.  
Common  
approach  
across  
subjects

Incorporating Music into Educational Activities through "Representational Soundtrack" Assignments:

- Introduce key concepts and guidelines for song selection, such as prohibiting explicit content, to enrich discussions with diverse perspectives.

- Students can select songs like ABBA's "Money, Money, Money" or Bob Dylan's "Union Sundown" to explore economic themes.

- Analyze metaphorical language effectiveness using songs like Kansas' "Dust in the Wind" or The Verve's "Bittersweet Symphony."

- Curate a playlist and share it with the class using online jukebox tools like Songza or Blip.fm.

- Provide the playlist URL as a course artifact at the conclusion of the unit (Dunlap & Lowenthal, 2010).

Pedagogical Use of Music Video Creation to Deepen Conceptual Understanding:

- Assign thematic projects where students visually convey key concepts by curating images aligned with a selected song.

For instance, in a sociology course, students might be tasked with producing a music video to critically analyze and represent early 21st-century American society using selected music and visual elements (see Figure 1 for a visual representation).

- Recommend easy-to-use software like Voice Thread, Jing, Microsoft PPT, or YouTube for student projects.



(Dunlap & Lowenthal, 2010)

*Figure 1. Screenshot from Dunlap and Lowenthal's (2018) student-created music video: Exploring Diversity and Social Justice, with music set to 'Shed a Little Light' by James Taylor*

	<ul style="list-style-type: none"> <li>- Educate students on obtaining free use and royalty-free licenses for music sharing.</li> <li>- Maintain student interest by incorporating music-driven teaching activities 1-3 times in a 3-4 month course.</li> <li>- Provide examples of final products and music genres to clarify all genres are acceptable for assignments (Dunlap &amp; Lowenthal, 2010).</li> </ul>	
<p>5.2. Art and Music Integration</p>	<ul style="list-style-type: none"> <li>- Collaborating music and visual art in the classroom provides students with a new perspective to experience art concepts like color, repetition, line, and movement, fostering synesthesia and promoting interdisciplinary learning (Burrack &amp; McKenzie, 2005).</li> <li>- Integrating music into art creation can guide students' creative process without the necessity of introducing complex professional concepts or theories, thus enhancing their cultural understanding through the incorporation of music elements (Chen-Hafteck, 2007).</li> </ul>	<ul style="list-style-type: none"> <li>- For example, by listening to the sharp music and describing the tapping sound of the crab's claws, students capture the essence of the crab and use impressionistic techniques to visually represent the sound through sharp rocks or lines, illustrating how music guides artistic creativity (Burrack &amp; McKenzie, 2005).</li> </ul>
<p>5.3. Language , literature and Music Integration</p>	<p><u>Common Structural Elements:</u> Rhythm &amp; Structure</p> <ul style="list-style-type: none"> <li>-<b>Rhythm:</b> The beats and rhythms of music can aid in understanding the length and structure of literary segments.</li> <li>-<b>Structure:</b> Techniques from music, such as variation and repetition, can be utilized to build narratives in literature, enhancing expression and creativity.</li> </ul> <p><u>Creative Learning:</u> Enhancing Vocabulary and Language Skills Through Music:</p>	<ul style="list-style-type: none"> <li>- For instance, analyze the ABAB structure or the effects of free verse and sonnet forms on expression.</li> </ul>

	<p>- Teachers can ask students to rewrite selected pop songs to remove metaphors and similes or to perform the songs, engaging them in music-driven generative instructional activities (Dunlap &amp; Lowenthal, 2010).</p> <p>Analyzing Classical Works:</p> <p>-When teaching Debussy's piece "Reverie," instructors can first analyze the work's meaning with students, discuss the term "reverie," and then have students create new poetry inspired by "Reverie" (Burrack &amp; McKenzie, 2005).</p> <p><u>Analytical Learning:</u></p> <p>-Teachers can assign students to analyze literary elements such as symbolism, metaphor, and simile in songs. For example, examining The Beatles' "The Long and Winding Road" (Dunlap &amp; Lowenthal, 2010).</p> <p>-Students can learn about rhyme by using local rhythms and melodies (folk songs) and involving clapping or real instruments (Laato et al., 2019).</p> <p><u>Integration of Chinese Classical Poetry with Contemporary Music:</u></p> <p>-When teaching Chinese classical poetry, contemporary music can be integrated to express common thematic emotions in literature and music.</p>	<p>- Example: Have students create poems and recite them at a music event, using a band as background music.</p> <p>-By comparing versions of the poems, the teacher can help improve student writing skills.</p> <p>-Example: A teacher playing meditation music such as "Flowing Water" allows students to express feelings, helping them identify "metaphorical language" (Chen-Hafteck, 2007).</p> <p>-Case study: Sandra, a language arts teacher who won the National Teacher of the Year (NTOTY) Award, used Billy Joel's music to draw parallels between movements in text and music, highlighting their similarities in emotional progression to enhance her students' understanding of Kafka's "The Metamorphosis" (Henriksen &amp; Mishra, 2015).</p> <p>- For instance, Li Bai's poems about the love of wine and adventure align with themes of romanticism, freedom, and rebellion found in the band Beyond's songs (Peng &amp; Jung, 2021; Zhang, 2023).</p>
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	<p>-After finding well-matched poetry and music, teachers can encourage students to compare the emotions and techniques used in each, bridging the gap between traditional literary heritage and modern cultural self-expression.</p> <p><u>Interactive Learning Activities:</u></p> <p>-Lyric Fill-in-the-Blank Game: Play a segment of a Chinese song and have students fill in the blanks of the lyrics, aiding their practice in listening and understanding, while also enhancing their memory and creativity.</p>	<p>- Example: Modern singer Jay Chou's song "Chrysanthemum Terrace" includes phrases adapted from the poetry of Wu Wenying, showcasing how traditional poetic imagery can be transformed into modern song lyrics (Zhang, 2023).</p>
<p>5.4 History and Music Integration</p>	<p>-Integration of Blues and Racial Discourse:</p> <p>This method involves using the blues genre as a tool for exploring themes of racial suffering and resilience. By discussing the historical significance of the blues, educators can facilitate discussions about broader racial concepts in the classroom.</p> <p>- Analysis of Jazz as a Reflection of American Society:</p> <p>Educators can use jazz music to help students analyze cultural and social dynamics in American history. This method emphasizes how music serves as a lens through which societal changes can be understood.</p> <p>-Exploration of Timeless Artistic Themes:</p> <p>Focusing on timeless artistic themes—such as struggle, pain, loss, gender issues, and mythology—enhances student learning by linking music to historical narratives. This reflective practice fosters deeper academic engagement.</p>	<p>-The blues, which emerged in the late 19th and early 20th century, reflects the experiences of African Americans during slavery and segregation, providing rich context for classroom dialogue about race (Bresler, 2002).</p> <p>-For instance, jazz, often accompanied by forms such as tap dance, enables students to examine the evolution of American culture and its social implications (Bresler, 2002).</p> <p>-Bresler (2002) argues that comparing historical contexts with musical expressions allows students to engage meaningfully with both disciplines, resulting in powerful learning outcomes.</p>

<p>5.5 Mathematics and music integration</p>	<p>Integration of Music into Mathematics:</p> <ul style="list-style-type: none"> <li>-incorporating musical elements to teach mathematical concepts, leveraging the rhythmic and structural parallels between the two fields.</li> </ul> <p>Creation of Original Musical Compositions:</p> <ul style="list-style-type: none"> <li>-Students are encouraged to compose their own songs or raps that incorporate mathematical concepts, promoting creativity and reinforcing learning.</li> </ul> <p>Higher-Order Thinking through Music Analysis:</p> <ul style="list-style-type: none"> <li>-Students analyze and create music using mathematical principles, fostering advanced cognitive skills by connecting mathematics to musical structure and composition.</li> </ul> <p>Use of Educational Technology:</p> <ul style="list-style-type: none"> <li>-Implementing technology such as music composition software helps students to visualize and explore the connections between math and music.</li> </ul>	<ul style="list-style-type: none"> <li>- For instance, a middle school math teacher, Adam, created the "Rappin' Mathematician CD," using original rap songs focused on school and math themes to engage students and enhance their understanding (Henriksen &amp; Mishra, 2015).</li> <li>- This method allows students to express their understanding of math through music, making the content more relatable and enjoyable.</li> <li>- Laato (2019) suggests that this method moves beyond merely counting beats to engaging with the mathematical relationships found in music, prompting deeper analytical thinking.</li> <li>- For instance, the "Harmony Hipp" software can be used in classrooms to facilitate the creation of music based on mathematical concepts, allowing for experiential learning (Laato, 2017, as cited in Laato et al., 2019).</li> </ul>
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## E. Stakeholder Perceptions

This section examines the perceptions of stakeholders—teachers, principals, and students—regarding the integration of music into classroom activities to enhance learning outcomes. Notably, parental perspectives and dissenting viewpoints were not included, which may limit the comprehensiveness of these findings.

In the first video, a consortium of physics and chemistry teachers, known as "Ke Chuang Li Lin," employs music by rewriting existing lyrics to facilitate the teaching of science concepts. One teacher articulated that an expansion of this pedagogical method among educators could transform the educational landscape, allowing students to learn in an engaging environment. The teacher stated, "Students could acquire knowledge while listening

to and singing songs" (Interdisciplinary Aesthetic Education, 2018). This underscores the potential of music to cultivate a positive educational atmosphere.

The second video features National Pingtung Senior High School's innovative approach of integrating natural sciences with music education. Students engage in research on scientific principles that they subsequently incorporate into original lyrics and compositions. This student-centered paradigm positions learners as the primary agents of knowledge construction, while teachers assume a facilitative role. A student remarked, "This approach is engaging; I find myself drawn to the rhythm and bass of rap. This novel challenge is exciting, and I hope to see more interdisciplinary courses. I was surprised by how seamlessly natural sciences merge with music. For those unfamiliar with science, this method addresses knowledge gaps, and for those unacquainted with music, it fosters greater understanding" (Smart Parents, 2017).

The principal emphasized, "Aesthetic experiences significantly impact students' autonomy, creativity, and self-expression. Administrative support is imperative; the institution must provide an adequate platform." Additionally, teachers noted the comprehensive skill set gained through interdisciplinary instruction, with one asserting, "Students demonstrate high levels of initiative and perceive interdisciplinary learning as a contemporary trend. Effective communication among teachers is essential, as this process involves reconciling diverse ideas. Witnessing students' smiles during the final outcomes affirms the rigorous journey, yielding profoundly gratifying experiences that exemplify the beauty of music." (Smart Parents, 2017)

This analysis of stakeholder perceptions indicates that the integration of music into educational practices not only enhances creativity and engagement but also necessitates collaborative support within the educational framework.

### **III. Research Findings and Conclusions**

#### **A. Summary of Findings**

The integration of music into classroom activities offers significant benefits that enhance student engagement and academic achievement while fostering a positive learning environment. Key advantages include improved social interaction and emotional expression through musical collaboration, which strengthens students' social skills and cultural understanding (Dunlap & Lowenthal, 2010; Ilari et al., 2013). Additionally, background music, particularly in non-lyrical forms, has been shown to enhance memory retention and creativity (Waters et al., 2022).

However, challenges remain, such as varied student preferences and resource limitations. Not all students engage positively with music, necessitating approaches that assess interests and provide diverse musical options (Chen-Hafteck, 2007; Dunlap & Lowenthal, 2010). Moreover, contradictions in research regarding music's impact on cognitive performance highlight the need for careful selection based on individual differences and context (Dong et al., 2022; Threadgold et al., 2019).

Stakeholder insights further emphasize the positive impact of music, noting its ability to enhance creativity and engagement but also indicating the need for strong administrative support to facilitate its integration (Interdisciplinary Aesthetic Education, 2018; Smart Parents, 2017).

In summary, the findings affirm that effective music integration in education can substantially enrich learning experiences. Continued research is essential to address existing challenges and optimize strategies for implementing music in classrooms.

## **B. Implications for Future Research**

As the integration of music into classroom activities shows promise in enhancing the learning experience, several areas warrant further exploration. One important avenue is to investigate the impact of various types and styles of music on learning outcomes. Differentiating between melodies and harmonies will allow researchers to draw more meaningful conclusions regarding their specific effects on students' comprehension and engagement (Waters et al., Year; Yang et al., 2022).

In addition, understanding the optimal volume range for background music during learning is crucial, as it may significantly influence student concentration and retention of information. By assessing this factor, educators can create more conducive learning environments that effectively harness the benefits of musical integration (Yang et al., 2022).

Furthermore, examining the emotional correlations between different music genres and the themes presented in poetry can yield valuable insights. Specifically, researchers might investigate whether conflicting emotions between music and text relate to student reading comprehension, thereby enhancing instructional strategies (Johansson et al., 2012; Yang et al., 2022).

To establish a clearer understanding of the effects of music, it is advisable to conduct experiments where music serves as the sole variable in learning contexts. This approach can elucidate the role of music as a critical factor influencing educational outcomes, particularly in understanding how teachers' enthusiasm during music-related lessons may enhance student engagement (Waters et al., 2022). Longitudinal studies will also be essential to explore the long-term effects of music on language acquisition. These studies can help mitigate the novelty factor that may influence shorter-term findings, providing a more accurate depiction of music's lasting impact on learning (Waters et al., 2022).

Moreover, understanding the role of students' cultural backgrounds and familiarity with specific music genres is imperative for assessing their effects on learning outcomes. For example, employing specific cultural music, such as Chinese versus Western styles, could provide insights into different learning dynamics. This may include analyzing differences in baseline arousal levels through methods like electroencephalography (EEG) (Lim & McClelland, 2022).

In light of these considerations, future research should focus on creatively integrating these findings into Chinese language instruction at international schools in Hong Kong. By doing so, there is an opportunity to refine teaching practices relevant to the Hong Kong

Diploma of Secondary Education (HKDSE) Chinese curriculum, designing innovative lesson plans that effectively incorporate music. Ultimately, this structured approach underscores the essential role of continued research in improving educational practices and enriching the overall learning experience through music integration.

## Personal Reflection

I am incredibly grateful for the opportunity to conduct my research in the UK—a place renowned for its inclusivity, diverse teaching methods, and an education system that embraces non-exam-centered elements. This journey has been nothing short of enlightening, teaching me invaluable research skills such as how to effectively search for keywords, filter relevant literature, and organize my findings using Excel. I've learned the importance of setting achievable goals and the need to balance ambition with practicality—turns out, trying to cover the entire field of education in one project is a surefire way to invite chaos!

Beyond academic skills, immersing myself in British culture has been a delightful adventure. I've discovered the art of complimenting everything, understanding the power of teacher expectations, and mastering the delicate dance of cheerful small talk. It's essential, especially when confronting workload, uncertainty, and fear, to maintain a sense of composure and self-acceptance. Sure, I might not have had a research partner to rely on, but my self-discipline has become my steadfast companion.

My eyes have been opened to the vibrant cultural tapestry of British society and its liberating educational atmosphere. Whether it was witnessing a group of students surrounding a Van Gogh self-portrait in an art class, marveling at the dinosaurs at the London Natural History Museum, or watching street musicians pouring their souls into performances in the tube stations and outside the National Gallery, each moment was a reminder of the joy of discovery. I even encountered a parent at a children's carnival explaining to their child, "If you don't like that pattern, you can say no. That's the reason I brought you to London." Such experiences are too numerous to capture in mere words, yet they have profoundly shaped my time here.

In conclusion, my experience in the UK has profoundly enriched my understanding of education and cultural integration. This journey has not only honed my research skills and broadened my academic perspective but has also deepened my appreciation for the role of music in fostering an inclusive and dynamic learning environment.

The insights gained from engaging with diverse educational practices and embracing the cultural richness of the UK have been invaluable. I have come to recognize that incorporating music into teaching is not merely a pedagogical strategy but a powerful means of connecting with students on a deeper level, enhancing their engagement and overall learning experience.

As I return home, I carry with me a renewed commitment to applying these lessons in my future endeavors. I am determined to advocate for and implement innovative teaching methods that embrace the transformative potential of music in the classroom. This journey has undeniably shaped my professional path, and I look forward to contributing to an educational landscape that prioritizes creativity, inclusivity, and genuine connection.

## **Acknowledgements**

I would like to express my heartfelt gratitude to Professor Karen Burland at the University of Leeds for her invaluable guidance, as well as to my HKU supervisor, Dr. Lee Queeny A. Y., for her unwavering support throughout this project. I am also grateful to my fellow Laidlaw Scholars for their collaborative spirit and the enriching discussions we shared, both in person and virtually. Additionally, I extend my thanks to the Laidlaw teams at both the University of Hong Kong and the University of Leeds for their constant support and dedication. Your efforts and commitment have made this journey possible, and I deeply appreciate all you have done to facilitate this experience.

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