

Challenges, Perspectives, and Recommendations for Online Instrumental Music Education among College Students in Shanxi, China

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Abstract

With the rise of digital technologies, remote instrumental music education has received a great deal of attention. This study addresses key aspects of remote music education and its impact on student learning. By examining teaching methods, technological challenges, and cultural differences, the study highlights the inherent diversity and complexity of online music education. A key finding is that while interactive design and the use of educational resources are essential for effective learning, they also present several challenges. These challenges include technical challenges such as network latency, audio distortion, and the necessity to adapt to a variety of online tools and platforms. In addition, cultural differences play a significant role in how effectively students understand and participate in class, further affecting the overall learning experience. The study highlights that both teachers and students in remote music education face significant challenges, both technological and cultural. However, with the implementation of innovative teaching methods and technological solutions, remote instrumental music education has the potential to provide rich and diverse learning experiences, providing valuable insights for future educational developments.

Keywords: Distance Learning, Music Education, Online Music Course, Instrumental Learning, Online Learning Challenges

Introduction

Over the past decade, online distance education has dramatically changed the educational landscape, and the COVID-19 pandemic has only accelerated this shift. To keep education going and to stop the spread of the virus, schools around the world had to quickly move to online teaching (Donohue&Miller, 2020; Sobaih et al., 2021). With the rise of technology-driven globalization, online platforms have not only broken down traditional geographical barriers, allowing education to reach a wider audience, but they've also made it easier for students from diverse cultural, ethnic, and linguistic backgrounds to access educational resources (Tu & Mclsaac, 2002; Jarvis, 1999). In response to these changes, the education

system is increasingly adopting an “Internet +” approach, which integrates internet technologies with traditional educational practices to enhance the learning experience. This approach involves using online tools, platforms, and resources to create a more interactive, flexible, and connected learning environment, ultimately rethinking the higher education model (Baker and Cohen, 2017; John, 2017).

This shift brings new challenges, especially in music education, where digital tools are crucial for delivering content and fostering cross-cultural understanding through culturally responsive teaching strategies (Gay, 2015; Anderson & Campbell, 2010). However, despite the potential these developments offer, research shows that there is still a strong need for targeted teacher preparation. This preparation involves not only equipping teachers with the skills to use digital resources effectively but also training them to address the specific challenges that come with cultural and linguistic diversity in online learning environments. Effective teacher preparation is essential for creating a learning environment that is inclusive and engaging for all students (Selwyn et al., 2017; Lee & Rice, 2007).

The impact of the pandemic has been particularly noticeable in professional music courses. Traditional music education had to quickly move online (Strenáčiková, 2023), as was the case in Shanxi, where schools relied on technology to continue teaching during widespread closures (Hu, 2021). However, problems like network lag, audio transmission issues, and limited teacher-student interaction still persisted, even with the increased use of platforms like Zoom (Thiyagarajan & Sarala, 2022). For international students, especially those from different language backgrounds, social and language barriers made learning even more challenging (MU & NEMETZ, 2019). Moreover, unequal access to digital resources, particularly in economically disadvantaged areas, has further widened educational gaps (Czerniewicz, 2018; Fong, 2009). Therefore, online music education worldwide needs a more comprehensive approach to improve its effectiveness and inclusivity. This means adopting innovative teaching methods, improving technology integration, and developing a deeper understanding of students’ diverse cultural backgrounds. This study investigates these challenges in the context of distance instrumental music education, focusing on how they affect student learning and exploring potential solutions.

Methodology

This research was a qualitative study employing the descriptive phenomenology approach as outlined by Giorgi (2009). Instead of merely describing existing conditions, this study sought to identify and address the challenges faced by instrumental music students engaged in online learning, with the goal of improving their educational experience. By focusing on the subjective perspectives of these students, the research aimed to uncover specific issues and propose actionable solutions that could enhance the effectiveness of online music education. This approach aligns with Giorgi's (2009) emphasis on understanding phenomena as they are experienced by individuals, providing rich, detailed descriptions that can inform practical changes. Through this lens, the study aimed to contribute to the evolution of online music education by highlighting the impact of technology, cultural differences, and teaching methods on students' learning outcomes and suggesting ways to improve these areas.

The framework for this study focuses on the main factors that influence remote music education. It examines how technological materials, cultural differences, teaching methods,

student engagement, and online platforms play a role in shaping the learning experience. By diving into each of these areas, the framework helps us understand how everything connects together—like how the right technology can improve engagement, or how understanding cultural differences can make teaching more effective. It's all about finding the balance between these elements to improve online music education. The framework shows how these topics work together, revealing core dynamics that can help or hinder the learning process. Figure 1 gives a visual of this setup, showing how these key factors intertwine to influence the outcomes of online music courses.

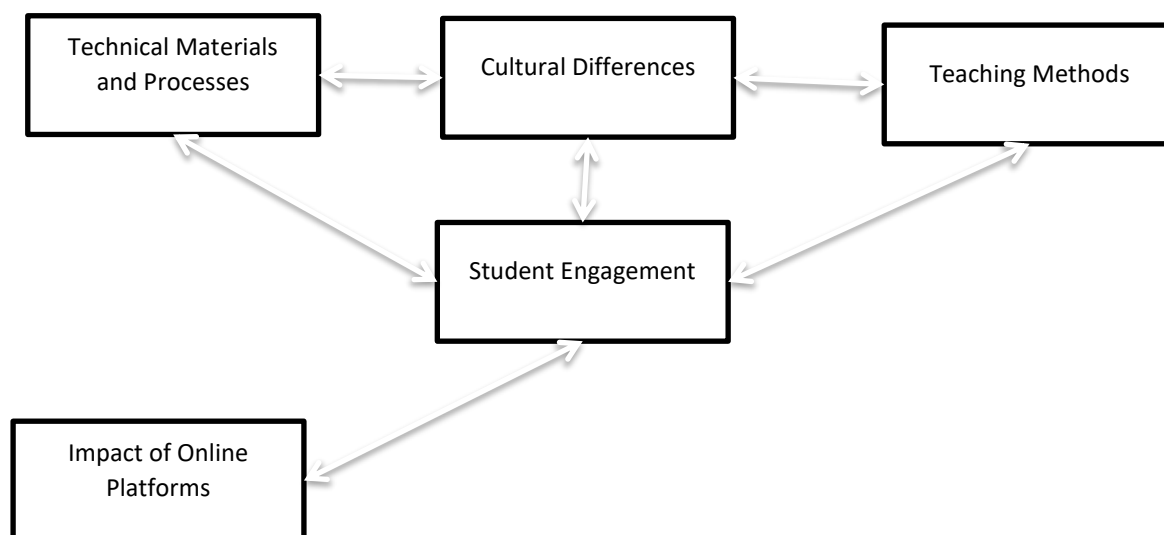


Figure1: Conceptual framework for this study

Participants and Participant Recruitment

Participants were recruited using a convenience sampling strategy, based on recommendations from friends and colleagues within the music education community in Shanxi Province, China. The researcher identified potential participants from among students enrolled in distance instrumental music courses at various higher education academies. Participants were selected based on specific criteria, including currently being enrolled in an online instrumental music course, having at least one full semester of online learning experience, studying under a foreign instructor remotely, and being willing to participate in in-depth interviews to discuss their experiences with online music education.

The decision to use convenience sampling was informed by its practical advantages in qualitative research. As noted by Oliver C. Robinson (2014), the best way to use convenience sampling is to define the sample range as demographically and geographically local, thereby limiting generalizations to that local level. For example, if the convenience sample consists of instrumental music students from a specific university in Shanxi who are studying remotely with foreign instructors, then by defining the sample range as university students in Shanxi receiving instrumental music education from foreign teachers via distance learning, rather than the general population, the connection between the sample and the target population is strengthened, making it more logically sound.

A total of five students were selected to participate in one-on-one semi-structured interviews. The participants were drawn from a range of academies that offer music majors,

ensuring a diversity of perspectives and experiences. This included students specializing in different instruments such as piano, violin, cello, and double bass. The selection was aimed at capturing a broad understanding of the challenges and advantages associated with online music education in Shanxi, particularly in the context of learning from foreign instructors remotely.

This approach ensured that the data collected would be rich and varied, providing valuable insights into the unique experiences of students across different instruments and educational backgrounds. The demographic information of the participants is presented in the following table 1.

Table 1

Participant basic information table

Participant Code	Age	Gender	Major	Time of Online Study	Instructor's Nationality
1	29	Male	Piano	1 year	Lithuanian
2	27	Female	Piano (Impromptu Accompaniment)	6 months	Russian
3	30	Female	Violin	6 months	Russian
4	28	Female	Cello	3 months	Russian
5	27	Female	Double Bass	9 months	American

This diverse selection of participants, recommended by trusted contacts within the music education community, was designed to ensure a comprehensive exploration of the online learning experiences in Shanxi's music education context, with a particular focus on the influence of learning from instructors of different nationalities.

Data Collection

Semi-structured interviews were employed for data collection in this study. The researcher conducted a pilot study with five instrumental music students to refine the interview guidelines, ensuring they were aligned with the study's objectives (as shown in Appendix 1). Interviews were designed to be comprehensive yet concise, with each one-on-one interview lasting no more than 30 minutes. This approach is consistent with William C. Adams' (2015) viewpoint that longer interviews may lead to participant fatigue and reduced engagement, potentially impacting the quality of the data collected. The interviews focused on participants' experiences with online instrumental music education, their interactions with foreign instructors, and the challenges they faced.

Interviews were conducted via video conferencing tools, such as Zoom or Tencent Meeting, in a comfortable and private setting to ensure a relaxed and trustworthy environment for the participants. To maintain the integrity and accuracy of the data, the entire interview process was audio-recorded, with strict confidentiality measures in place and

consent obtained from all participants. The data collected was used exclusively for this study, and all participants were anonymized in this paper (e.g., Participant 1, Participant 2).

Data Analysis

This study employed thematic analysis of interview data to identify themes and patterns related to the social, educational, and technological aspects of college students' remote music courses. The analysis followed these steps:

1. **Data Familiarization:** The first step involved thoroughly reviewing the interview data to become familiar with the content (Braun & Clarke, 2006).
2. **Identification and Labeling:** Relevant passages were identified and labeled with appropriate codes to capture significant themes.
3. **Organizing into Categories:** The labeled data were organized into categories that reflected emerging themes within the data.
4. **Refining Themes:** Following the coding process described by Glaser and Strauss (1968), these categories were refined to identify broader themes and provide case-specific insights.

This analytical method is widely applicable across various research areas, including online learning, music education, and intercultural teaching. By following these steps, the study ensured a comprehensive exploration of the themes that emerged from the participants' experiences.

Reliability

To ensure the reliability of the research, the researcher carefully selected participants based on specific criteria, ensuring that they met the study's requirements. The interview guide was meticulously designed to align with the research objectives, and interviews were conducted in a comfortable and appropriate environment, allowing for the collection of accurate, reliable, and in-depth data. After each interview, the researcher provided the participants with the transcribed content for their review and confirmation, which further enhanced the credibility of the findings. Additionally, throughout the research process, the researcher maintained close communication with academic advisors, experienced music educators, and technology experts. Feedback from these professionals was carefully considered, and their guidance was actively sought to ensure the integrity and accuracy of the study's results.

Results & Discussion

The study delves into the dynamics of distance online music courses, exploring how cutting-edge technology and adaptive teaching methods impact instructional effectiveness. Through a combination of qualitative analysis and participant feedback, several key themes emerged, highlighting both the benefits and challenges of remote music education.

Utilization of Technical Materials and Processes

Distance online music courses have significantly transformed music education by leveraging advanced technical tools like real-time video conferencing platforms such as Zoom. These platforms enable critical features like screen sharing, high-quality audio and video transmission, and virtual whiteboards, allowing teachers to explain musical concepts more dynamically. Despite these advancements, the study identified several challenges that continue to impact the learning experiences of college students.

Key Challenges

Network Latency: Audiovisual delays caused by network latency remain a major obstacle, particularly during live performances and demonstrations. These delays disrupt the synchronization between students and teachers, making it difficult for students to grasp intricate musical details.

Audio Transmission Issues: Problems such as sound distortion, often due to data compression and poor internet connections, hinder the accurate reproduction of musical tones and dynamics, which are essential for effective music instruction.

Field of View Limitation: The narrow field of view provided by standard webcam setups limits students' ability to observe the precise movements and posture necessary for mastering instrumental techniques.

Language and cultural differences further exacerbate these technical challenges, especially in diverse international student groups, leading to miscommunication and misunderstandings. These issues underscore the need for a more flexible teaching approach that respects the diverse linguistic and cultural backgrounds of students, fostering a more inclusive and productive learning environment.

Factors Contributing to an Engaging Online Learning Experience

Creating an engaging and interactive online learning environment in music education requires a strong technical foundation and flexible teaching strategies. Platforms like Zoom play a critical role by enabling real-time interactivity and smooth audiovisual communication, which are vital for music instruction. These platforms cater to the specific needs of music education, such as clear visual and auditory transmission, and allow students to participate from various locations, which is particularly beneficial for those handling large or heavy instruments.

Contributing Factors

Technical Foundation: The robust infrastructure provided by platforms like Zoom ensures that the essential elements of music education—such as clear sound and visual quality—are maintained.

Flexible Teaching Strategies: Teachers are increasingly using tools like screen sharing, virtual whiteboards, and pre-recorded videos to enhance the instruction of complex musical concepts and techniques. This flexibility allows for in-depth theoretical explanations and practical demonstrations that go beyond the limitations of a traditional classroom setting.

Enhanced Interaction: Removing geographical barriers fosters greater participation and interaction, giving students more opportunities to engage with teachers and peers. This increased engagement supports a personalized learning environment where teachers can use techniques like cognitive apprenticeships and scaffolding to meet each student's needs, providing immediate feedback.

Distance music courses transcend conventional educational boundaries by integrating these components, creating a productive and participatory learning environment that promotes student independence and deeper interest in the subject matter.

Student Perceptions and Experiences with Technological Materials

Students' perceptions of technology in remote music courses significantly influence the quality of their learning experiences. While students appreciate the convenience and flexibility of online learning, several obstacles prevent them from fully engaging and communicating with their instructors.

Challenges Identified

Network Latency: Delays and interruptions caused by network issues disrupt the teaching process, making it difficult for students to maintain focus and comprehension.

Audio Transmission Issues: Distortions and poor sound quality impede the ability to detect musical nuances, affecting the accuracy of performances and the clarity of instructional content.

Field of View Limitation: The limited viewing angle of standard webcams hinders students' ability to observe and replicate proper technique and musical expression.

Student Recommendations

High-Quality Audio Equipment: Using high-quality audio devices in the classroom can enhance the clarity and quality of remote music instruction.

Stable Network Connection: Maintaining a consistent network connection is crucial to avoiding interruptions and ensuring smooth communication during lessons.

Multiple Camera Angles: Providing different views of the instructor's demonstrations can improve students' understanding of techniques.

Cultural Sensitivity: Slowing down the speaking pace and increasing interaction can help overcome language barriers, making the learning experience more accessible and effective.

These insights highlight the need to eliminate challenges related to technology, language, and culture, creating a virtual classroom that is engaging and supportive, ultimately improving learning outcomes. The table2 below summarizes the specific issues and recommendations identified by each participant:

Table 2

Participant Feedback Table

Participant code	Network Latency Issues	Cultural Differences	Field of View Limitation	Teaching Methods	Classroom Focus	Audio Transmission Issues
1	√		√	√		√
2		√	√	√		√
3	√		√		√	√
4	√	√			√	√

5					v	v
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The following bar chart visually represents the percentage of participants who reported each issue or made each recommendation, providing a clear overview of the most common challenges and suggested improvements. Figure 2 highlights the most difficult challenges encountered by participants, as well as key areas for improvement in remote instrumental music education.

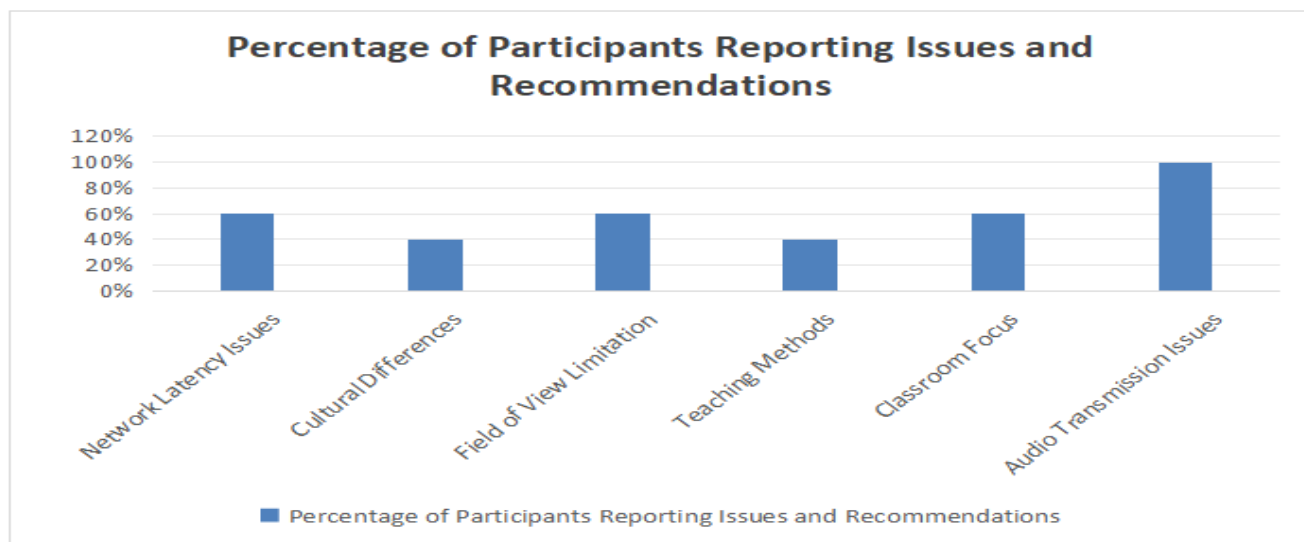


Figure 2: Percentage of Participants Reporting Issues and Recommendations

Recommendations and Improvements

Participants in the study offered several recommendations to improve the efficiency and quality of remote instrumental music education:

Pre-recorded Videos: Teachers can help students prepare by sharing demonstration videos in advance, allowing them to familiarize themselves with the material before the lesson.

Stable Network Environment: Ensuring a stable network connection is essential to avoid disruptions during live sessions.

Increased Interaction: Enhancing teacher-student interaction through more frequent feedback and engagement can significantly improve the learning experience.

These suggestions aim to address the technological and interactive challenges highlighted in the study, with the goal of creating a more effective and engaging online learning environment. The study emphasizes that while distance music courses have the potential to transcend traditional educational boundaries, ongoing improvements in technology integration, teaching strategies, and cultural sensitivity are crucial to enhancing the overall effectiveness and inclusivity of online music education.

Conclusion

This study sheds light on the real challenges of teaching instrumental music remotely by listening to students' experiences. Students pointed out that things like network delays, audio

issues, and limited camera angles make online lessons less effective. To tackle these problems, we should be thinking about using tools like multi-angle cameras, faster streaming options, and pre-recorded lesson videos. The study also highlights the need for teachers to be mindful of cultural and language differences to avoid misunderstandings.

Looking ahead, it's crucial to explore how remote music education impacts students over the long term and to dive into the potential of emerging technologies like AI and VR. By embracing advanced tech and cultural diversity, teachers can craft online learning spaces that break down geographical barriers and truly nurture students' musical talents and creativity. This approach could really transform music education in the digital age, making it more engaging and effective for both teachers and students.

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Appendix 1: Interview Guide

1. Can you briefly introduce yourself and tell me how long you have been learning your instrument online?
2. Can you describe the typical process of your online music classes? Which software or online tools does your teacher use during lessons?
3. Have you encountered any cultural or linguistic challenges when taking online classes with foreign teachers? If so, can you describe them?
4. After spending some time learning your instrument online, how do you feel about the technology (software) used by your teacher? What do you think about the teaching methods and overall classroom experience?
5. During your online learning experience, have you faced any technical challenges? What do you feel are the shortcomings of the technology used?
6. What factors do you believe influence your focus and learning efficiency during online classes? How do these factors affect your ability to achieve the teacher's objectives?
7. In your opinion, what teaching methods or classroom designs would help you stay more focused and learn more effectively during online lessons?
8. Based on your experience, what suggestions do you have for improving online instrumental music lessons. What do you think could be done to enhance your learning experience?
9. Do you think online instrumental music lessons can continue to be a viable option post-COVID-19? Why or why not?