

Digital Audio Archives as Pedagogical Tools in Cross-Cultural Music Teaching: A Study of University Music Departments

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Abstract

Purpose: The surge of the digital advancement and technologies poses a remarkable shift in the traditional cross-cultural music teaching practices, hence reshaping how the instructors teach and students engage with the diverse music traditions. In response to this, music education practices are gradually incorporating digital tools and technologies, causing an environment of more interactive and diverse in musical traditions. This study, by focusing on the same context, investigates the digital audio archives as pedagogical tools in cross-culture music teaching. It further combines how the instructor's technological proficiency influences the relationship between DAUR or Digital Audio Archives, and TLOU or Teaching and Learning Outcomes. *Design/Approach:* the study employs both the quantitative and qualitative research methodologies. A sample of 216 faculty members from various universities was surveyed by using the covariance based structural equation modelling (CB-SEM) to examine the direct and moderating effect of DAUR and TPOI on teaching and learning outcomes with the specific context of cross-culture music teaching. Addition to this, qualitative interviews were conducted with five departmental heads in music departmental heads, providing a detailed insight into challenges, opportunities and pedagogical strategies linked with

the DAUR in the field of cross culture music education. Results: The quantitative analysis confirms significant and direct effects of both DAUR and TPOI on TLOU among which the latter is showing much strong impact. The moderating effect of TPOI on the relationship between DAUR and TLOU demonstrates that technological efficiency of the instructor enhances the effectiveness of the digital audio archives. On qualitative grounds, interviews highlight some of the challenges of technological limitations context of the cultures and need effective training programmes for the instructors. *Limitations/contributions:* The limitations of the study specify the specific sample, and the results may not capture the broader academic landscape in the domain of cross-culture music. The study contributes to the growing body of research on digital tools in music education with the help of mixed methods of analysis.

Keywords: Digital Audio, Cross-Culture, Music Teaching, Technological Proficiency, Education.

Introduction

Pedagogical tools are created to impart the key lessons and help the individuals for deepening their understanding of a particular task or an issue. These resources are utilized to support and facilitate the teaching and learning process (Knight and Robinson, 2019). Pedagogical tools are fundamental in transforming passive learning into an active, dynamic experience. They create pathways for learners to engage directly with content (Bakar, 2021). By accommodating diverse learning styles,

these tools ensure that each student can grasp complex ideas in their own way. Furthermore, they serve as bridges between theoretical knowledge and real-world application. The proliferation of the digital archive and online resources has become a driving force for both the educational and cultural growth. It seems as a democratic responsibility to easy and broad access to key moments in the modern music culture. This is evident for the future generation. This responsibility includes the development of advanced tools for acquisition, conservation and dissemination of the knowledge (Navbakhor, 2020). However, due to their varied nature and challenges linked, the process of preserving and accessing the digital audio archive is not as simple as it looks.

The cross-culture music teaching refers to the educational approach that focuses on teaching the music from diversified cultural background (Bolívar-Chávez et al., 2021; Cui and Ju, 2024). It describes fostering and understanding musical traditions from different parts of the world. It involves various forms, instruments, styles, and rhythms that make a global music tradition. It encourages the students to learn about the culture outside their own region (Schippers, 2009). The goal of cross culture is to impart the knowledge about various different music traditions (Trehub et al., 2015). It further cultivates the empathy, global awareness and respect among the students. It helps to connect different people from different societies. This approach often incorporates different elements such as diverse music styles, cultural context, comparative approaches for different music, and interactive learning by using hands-on-activities. As the globalization increases, the communication among different cultures and interactions are also increasingly prevalent. Therefore, as a borderless art, music plays a different role in promoting the cultural exchange and international understanding (Fan, 2021). To enhance the national identity, cultural values and to train the music professions, music education is an essential tool. In advancing its global acceptance and development, music education has got an immense value. Moreover, through conducting a comparison, we can easily identify the teaching methods and concepts which are identical and unique in cross-culture music teaching.

The proficiency in technology is the ability to communicate in both effective and professional manner. It reflects the organization of the information with the thinking skills (Saad and

Sankaran, 2020). In the setting of classroom, technology proficiency refers to ability of the instructors to integrate the technology for teaching, learning, productivity and performance (Torrato et al., 2020). In the technological time span, these abilities are essential where technological proficiency enables the teacher to identify and explore a variety of tools and devices. Among the teaching faculty, the basic proficiency in the domain of information technology is typically used to communicate with the students electronically. It further helps with organizing the activities and information and in documents creation. Both current and future educators face the growing demand to meet the challenges posed by technological advancements in education. Teachers are expected to develop creative ways to incorporate technology into the learning process, enhancing both their teaching and their students' educational experiences (Drent and Meelissen, 2008). Additionally, technology itself has become an essential learning goal; educators must foster technological literacy in students to equip them for the demands of the twenty-first century (DeSantis, 2016). By doing so, they can help students build essential skills for collaboration, communication, problem-solving, and continuous learning (UNESCO, 2011).

The main purpose of this study is to explore the influence of the digital audio archives as pedagogical tools in cross-culture music teaching in different universities. The specific goals are discussing and analyzing the education of music in different cultures based on the digital audio archive tools; covering the perspective of technological proficiency of the instructors as a direct and indirect means to promote the cross-culture teaching of music; critically analyzing the key challenges related to such education and policies to overcome them. So, overall, we have focused on these research questions:

- a) How can digital audio archives be used as pedagogical tools to enhance cross-cultural music teaching in university music departments?
- b) How does the technological proficiency of instructors moderate the relationship between the use of digital audio archives and cross-cultural music teaching outcomes in university music departments?

Review of Literature

In formal music classrooms, the inclusion of digital audio technology for editing, sampling and mixing is now a needed area of expansion across

music learning and teaching landscape. Research studies suggest that music technology has been disregarded in many music classrooms. However, in the digital age, the ubiquity of music technology covers its relevance. Across all levels of instruction, Kladder (Kladder, 2020) has surveyed the current climate of music education. By using the MIDI controls and audio production techniques, a survey was conducted in the United States. Sample was 83 and the results generated confirm that participants were taught few concepts in the digital audio as they rely most on the outdated hardware. The study highlighted the implication of music education with the additional resources. According to Walzer (Walzer, 2016), digital storytelling is a method of reflective practices used through simple multimedia provides highly useful, and multidisciplinary option across different educational spectrum and other programs in the community. Although this tool has been emerged recently, digital storytelling remains as explored domain in the audio and music education. Walzer (Walzer, 2016) examines the digital storytelling as a key part of the central curricular design and technology-based music courses. The final part of the paper covers some pedagogical suggestions that university teachers can use to promote the reflective practices of the students through digital devices. Now more universities are offering degrees and certificate programs in the field of music technology, college educators can get reasonable profit from considering such benefits. Although students might take advantage of such advanced technologies, educators can choose to introduce a series of questions about artists while recording the modern popular music.

Giddings (Giddings, 2020) review addresses the two major queries: (1) how the past research guide approaches to teach the western classical music in online setting regarding the cross-culture learning? (2) what is the evidence about the Chinese students' experience with the western instrumental teaching and learning through online mode? The authors review over 100 articles over the past 20 years and highlight the cultural difference among the teaching methods. In China, the new teaching approaches are based on the Confucian and Deweyan philosophies, which are further influenced by the German, Russian and Chinese tradition. Since its opened in 1969, the University of Victoria, school of Music has aimed to create the audio archive of school performance in different formats (McNally, 2015). The archived

were greatly helpful for improving the infrastructure and workflow. However, there comes an unexpected outcome with the rise of copyright, sharing of files and access to concert recordings in the school.

Among others, technological proficiency of the teachers is another indicator to define the learning and teaching outcomes. As per the views of Uerz et al. (Uerz et al., 2018), the development in the technology has been changing for the teachers in several ways. Firstly, there is an increasing expectation that teachers use the technology for both the learning and teaching. Teacher educators are playing key role in preparing the student teachers for integrating the technology in the classrooms. They provide a review about the teachers' competency to teach their students by using the technology. Overall, 26 relevant studies were selected. Overall, four different domains were selected: competence in the technology, pedagogical and educational technology use as a competence, learning and competence in the professional learning and overall beliefs about teaching. In the same domain, Saubern et al. (Saubern et al., 2020) contribute the theoretical framing of the technology pedagogical content knowledge in terms of what is meant for the teachers. Through providing detailed description about the lower and higher proficiency levels, researchers can develop and test the hypotheses regarding teachers' acquisition of technological pedagogical content knowledge.

Methodology

In this study, both quantitative and qualitative methods were used to provide a comprehensive analysis of the use of DAUR in cross-cultural music teaching. The quantitative component involved a self-developed questionnaire which was latterly distributed to 216 respondents from various universities, including faculty members with different academic ranks and years of experience. The questionnaire collected data on the use of DAUR in music teaching, the TPOI, and its perceived impact on teaching and learning outcomes. Demographic information such as age, gender, academic rank, and years of teaching experience was also gathered to understand potential variations in responses. The data were analyzed using CB-SEM to assess the relationships between DAUR usage, TPOI, and teaching outcomes. The questionnaire being used in the study is well presented in Appendix-A.

The qualitative phase of the study involved in-depth interviews with five departmental heads from

different music departments at universities. These interviews provided valuable insights into how DAUR is integrated into music curricula, the challenges faced in its use, and its impact on students' learning, particularly in cross-cultural music education. The interview data were analyzed thematically, focusing on key areas such as the accessibility and effectiveness of DAUR,

technological barriers, and the broader cultural and pedagogical implications of using digital tools in teaching. This mixed-methods approach allowed for a holistic understanding of the role of DAUR in enhancing cross-cultural music teaching. The following flow chart (see Figure 1) depicts the methodological steps being adopted for completing this study.

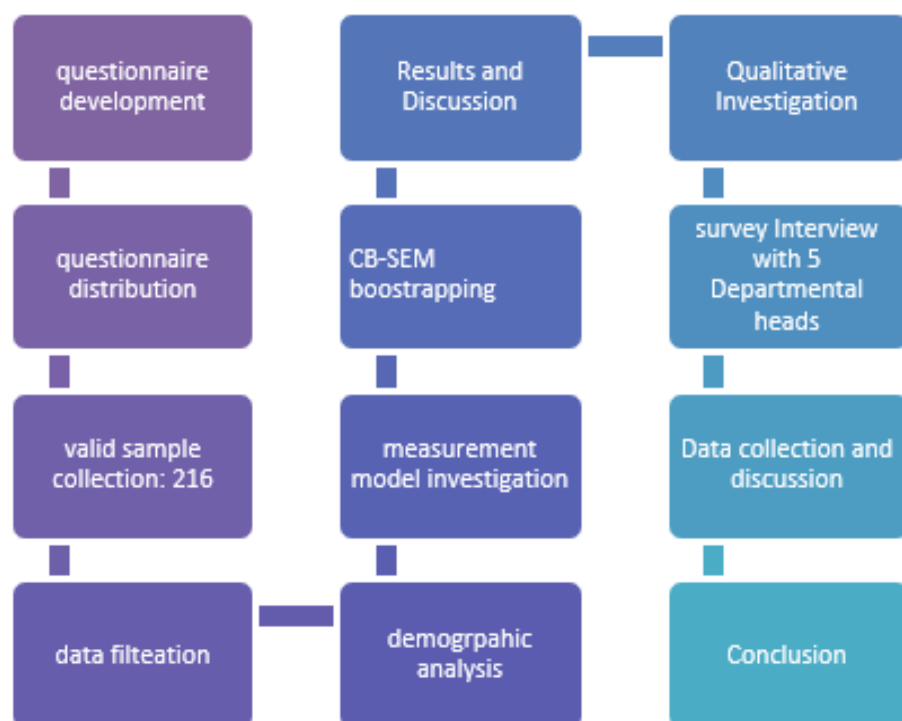


Figure 1: Methodological Flow Chart.

Results

Quantitative Findings

The age distribution of the participants shows a predominantly young to middle-age faculty being targeted. A notable 72 respondents fall into the age group of 30-39 years. Conversely, 28 participants are under 30 years of age. Although younger age faculty have participated yet they did not dominate in the responses collected. Overall, this diversity in the age group could signify a healthy balance between different age groups. Gender distribution represents slightly domination from the males with 121 members as compared to 82 females.

The share of 13 participants reflecting “prefer not to say” highlight the need for an increased attention towards the privacy in the survey. The academic rank distribution showcases reflect

significant middle-level portion of the faculty (assistant and associate professors). This distribution suggests that academic hierarchy is being dominated by the experienced faculty. The year of teaching experience distribution confirms a highest participation from those covering 5-10 years which are 124 in total. However, we observed 45 faculty members with 11-20 years of experience. The educational qualification is showing 92 PhD holders. This suggests that most teaching faculty in music department are highly qualified. Another notable point is 32 individuals holding a bachelor's degree, though few in numbers, could signal a presence of teaching assistants or similar with less formal academic degrees. Regarding the use of digital audio archives in teaching, a larger number of the faculty (159 teachers) are using it, whereas 33 are those who are using them occasionally. All this distribution is well presented in Table 1.

Table 1: Respondents Overview.

Age					
Under 30	30-39	40-49	50-59	60 or above	Total
28	72	22	35	59	216
Gender					
Male	Female	Non-Binary	Prefer Not to Say		
121	82	0	13		216
Academic Rank					
Lecturer	Assistant Professor	Associate Professor	Professor	Other	
22	68	63	37	26	216
Years of Experience in Teaching Music					
Less than 5 years	5-10 years	11-20 years	21-30 years		
11	124	45	36		216
Educational Qualification					
Bachelor's Degree	Master's Degree	Ph.D.	Postdoctoral Research		
32	81	92	11		216
Do you use Digital Audio Archives in your Teaching?					
Yes, regularly	Yes, occasionally	No, but I plan to	Not applicable		
159	33	24	0		216

The complex causal relationships between the variables can be estimated either by using the CB-SEM or PLS-SEM technique. However, we selected the CB-SEM technique which leverages the covariance matrix for estimating the parameters of the model. It not only provides the framework for testing the theoretical constructs but also to validate the hypotheses. Figure 2 shows an example of CB-SEM framework reflecting the covariance-based relationships between these variables. A regression weight one has been assigned to one item in each of the given constructs. Each item has a linked error term. This model is developed to run a basic CB-SEM algorithm to generate the factor loadings of

each item, reliability and validity (convergent and discriminant). Ten items for Digital Audio Archives and teaching and learning outcomes were modeled. The moderating variable “Technological Proficiency of Instructor” has six items in the same model. After running this model in using the CB-SEM method, loadings for each item have been generated along with the error terms.

This is well presented in Figure 3. We also observed that some items are with the relative loadings which are not acceptable and are less than 0.50. for example, the loading of TPOI6 is -0.024, and loadings for the TLOU10 is 0.458. moreover, some items for the DAUR also need to be removed.

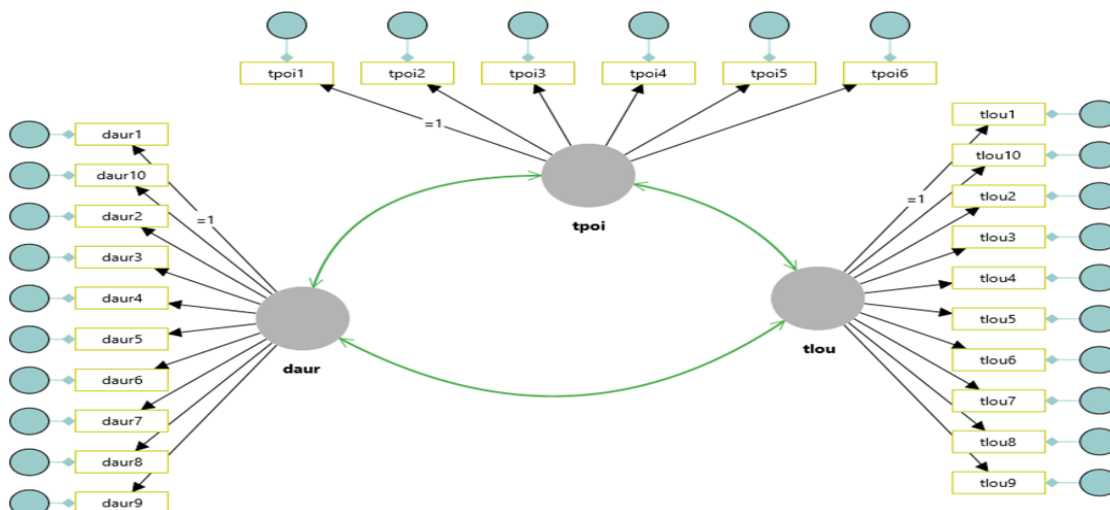


Figure 2: CB-SEM Sample Diagram using Smart PLS with Output.

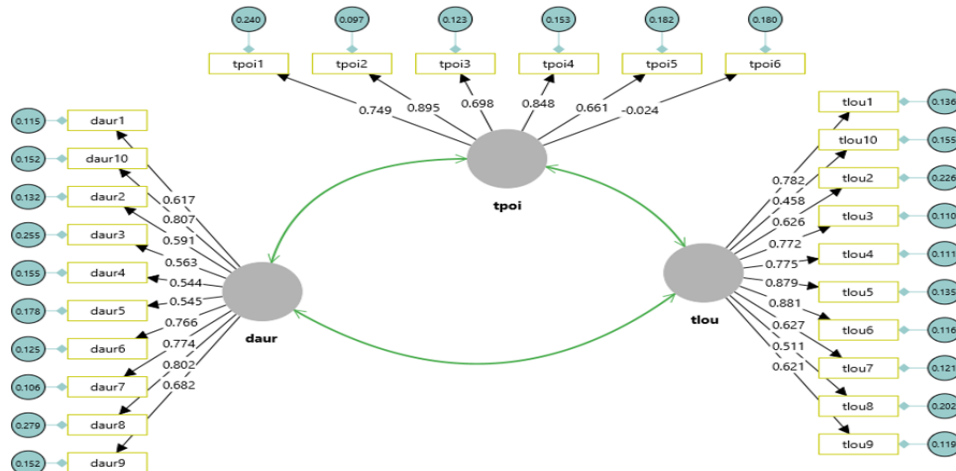


Figure 3: CB-SEM Sample Diagram using Smart PLS with Output.

The items with some problematic loadings were removed and model was again run through CB-SEM technique. The new model is presented in Figure 4 and only items with the reasonable loadings of above 0.50 were there in the same model. Moreover, the correlation between the variables was also generated by using the double headed arrows. The reasonable values of the loadings lead to the generation of standardized and unstandardized alpha scores, composite reliability and AVE which is the main driver of measuring the variance captured by each variable. This is well presented in Table 2. The both measures of alpha like standardized and non-standardized are 0.898 to 0.879 for DAUR, 0.914 to 0.910 for TLOUR and 0.878 to 0.873 for TPOI. As the scores are already crossing the minimum level, which is 0.70, we are admitting the presence of reliability for these variables. Similarly, the amount of variance for these variables is above 0.50, so convergent validity exists.

In addition, the HTMT ratio is the more

refined approach than the simple correlation coefficients among the variables when accessing the discriminant validity.

The threshold level is 0.90 and above this level clearly indicates the potential issues with the discriminant validity. This means that the constructs are similar and are failing to provide the evidence of distinct in nature. Therefore, the value of HTMT less than 0.90 generally confirms that the constructs are discriminating well. In our case, HTMT between DAUR, TLOUR is 0.767 is indicating that although both of them are related but a clear distinction can be inferred.

Moreover, the HTMT between DAUR and TPOI is 0.546 which is weaker correlation, moving to finalize a moderate level of relationship but totally discriminate to each other. On final grounds, the correlation TLOU and TPOI is 0.599 is also somewhere to moderate linkage but clearly providing the path for confirming the discrimination to each other. All these results are well depicted in Table 2.

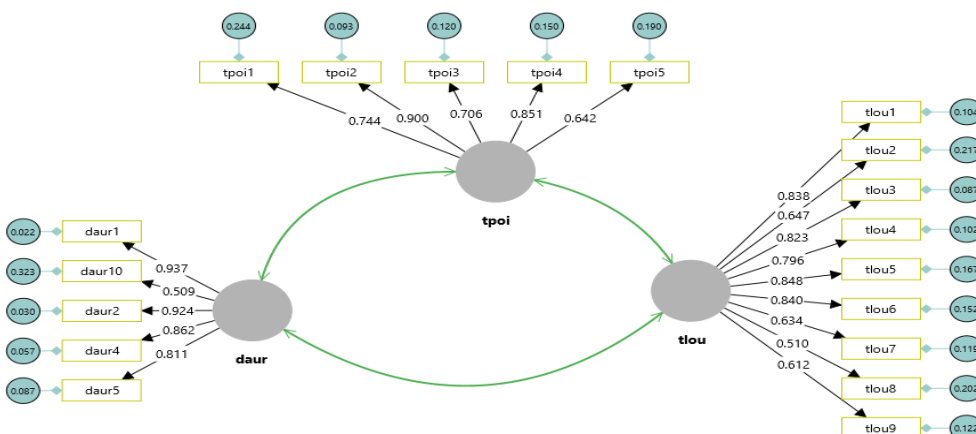


Figure 4: Final Model Output with Considered Loadings.

Table 2: Constructs Evaluation for Reliability and validity.

Var List	Cronbach's Alpha (Standardized)	Cronbach's Alpha (Unstandardized)	Composite Reliability (Rho_C)	Average Variance Extracted (Ave)
DAUR	0.898	0.874	0.882	0.679
TLOU	0.914	0.910	0.920	0.544
TPOI	0.878	0.873	0.888	0.599
HTMT	DAUR	TLOU	TPOI	
DAUR				
TLOU	0.767			
TPOI	0.546	0.599		

The path model shows the DAUR on the left side, TPOI on the top and TLOU on the right side below in Figure 5. We also created the direct and indirect arrows where the role of TPOI is not only as an independent variable but also as a moderating variable. The same model is finally applied for

generating the path coefficients, t-values and p-values to inference the statistical significance of the given model. The model shows the R-square value as 0.907, reflecting that both the DAUR and TPOI are good determinants of causing a productive change of 90% in the TLOU

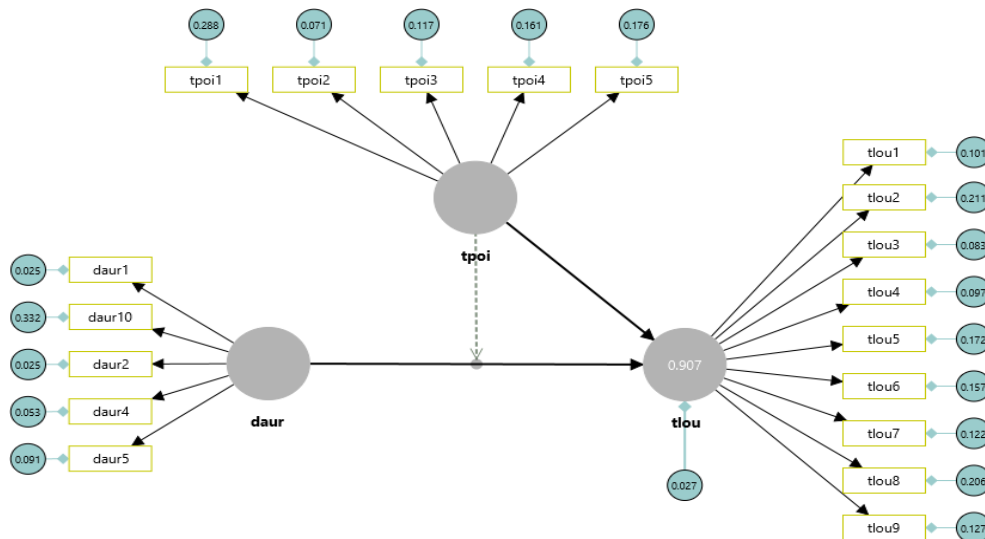


Figure 5: Final Path Model with R-Square Being Found.

The path results of above Figure 5 are covering both the direct and moderating effect (See Table 3 for more clarity). These results show the relationships and interactions among these factors with the help of following details:

DAUR → TLOU (Direct Effect)

The direct effect of digital audio archives on teaching and learning outcomes is significant, with the estimated value of the parameter as 0.103. This means that for every single unit increase in the digital audio archives, teaching and learning outcomes increases by 0.103 units, representing a possible error of 0.01. This value is very low, hence suggests a higher level of precision in this estimated result. T-value is 10.300 further suggests that this relationship

is significant statistically. Finally, we can claim that digital audio archives have positive and significant impact on teaching and learning outcomes when the consideration has been given to cross-cultural music teaching.

TPOI → TLOU (Direct Effect)

The direct effect of technological proficiency of the instructor on the teaching and learning outcome is 0.419. This confirms that an increase in the TPOI leads to a higher improvement in the teaching and learning outcomes. This effect is much larger than what we have observed in the first path analysis between DAUR and TLOU. The standard error is 0.103 and T-value of 4.068 highlights the confirmation of the significance of this relationship

($p < 0.000$). This means that instructor’s proficiency in using the technology is strongly related to the positive outcomes in teaching and learning when the focus is on the cross-cultural music teaching.

TPOI X DAUR → TLOU (Moderating Effect)

This is the main interaction effect as investigated. The interaction term between TPOI and DAUR on the TLOU is 0.161. this covers the moderating effect of TPOI in the association between the digital audio archives and teaching and learning outcomes for the cross-cultural music teaching. A detailed review shows a standard error of 0.057 and

t-value of 2.818. this result shows that TPOI significant influences the path between the DAUR and TLOU. In other words, with the presence of the technological proficiency of the instructors, the impact of DAUR on teaching and learning outcomes in cross-culture music teaching is much stronger as compared to its direct effect. This moderation is also presented using the two-way interaction plot (see Figure 6). It shows that TPOI aims to strengthen the positive relationship between the DAUR and TLOU, where this moderation is more efficient in case where the technological proficiency of the instructor is high (red line) as compared to the case where such proficiency is low (blue line).

Table 3: Direct and Indirect Analysis.

Direct and Moderating Effects	Parameter Estimates	Standard Errors	T Values	P Values
1. DAUR -> TLOU	0.103	0.01	10.300	0.000
2. TPOI -> TLOU	0.419	0.103	4.068	0.000
3. TPOI X DAUR -> TLOU	0.161	0.057	2.818	0.005

DAUR; Digital Audio Archives, TLOU; Teaching and Learning Outcomes; TPOI, TPOI; Technological Proficiency of Instructor.

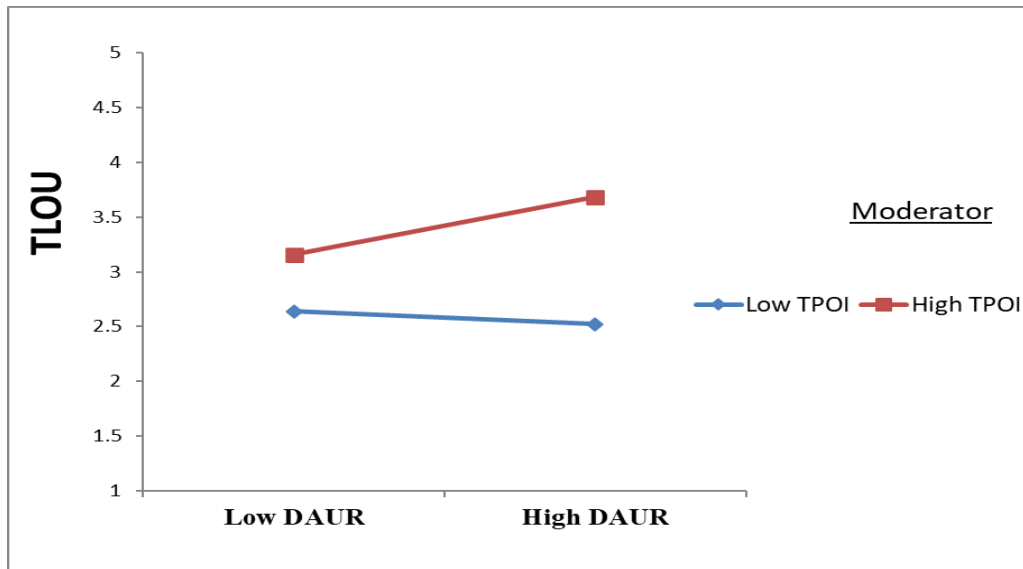


Figure 6: Interaction Graph (Low and Higher Technological Proficiency of Instructors).

Discussion

This section aims to discuss the nexus between the above stated variables. The relationship between the digital audio archives, teaching and learning outcomes, and technological proficiency of the instructor in cross-culture music teaching reveals significant debatable ideas into how both the technology and resources are evidently playing their

role. This study explores the direct effect of DAUR and TPOI on TLOU, alongside the moderating impact of the TPOI on the DAUR and TLOU relationship. The direct effect of digital audio archives on teaching and learning outcomes is significant with the estimated value of the parameter as 0.103. digital audio archives are accessible and flexible resources and allowing the students to engage with the learning materials outside the

classroom setting. Through providing diverse and multimedia contents to the students, DAUR enhances the experience of learning. The auditory nature of the digital audio archives allows for the repeated exposure to more complex concepts, fostering a deeper understanding and retention of the ideas. Additionally, DAUR also facilitates the asynchronous learning of students and enables them to revisit the lecture series and materials at their own pace. This model of flexibility and accessibility creates a more inclusive and interactive learning environment. Ultimately, there is a better output in the shape of teaching and learning in the cross-culture music.

In contrast, the direct effect of TPOI on TLOU is more impactful as the estimated parameter value is 0.419. This provides a paramount importance about the competency of the instructor related to the technology in shaping the cross-culture music teaching and learning. The robust relationship between TPOI and TLOU suggests that instructors with higher level of such competencies are more than a blessing to provide a better learning and teaching environment to the students in the cross-culture music class. Thus, we are forced to claim that technological adeptness among the instructors is essential for boosting the potential of digital resources to enhance the learning and teaching proficiency.

The moderating effect of technological proficiency of the instructor on the relationship between DAUR and TLOU further focuses on the importance of the instructors skills linked with the technology. With an estimated parameter of 0.616, this effect suggests that influence of digital resources on teaching outcomes for the cultural music is significantly improved. Therefore, it is not simply the availability of the digital resources but also the skills of the instructor in using those resources that effectively determines the success of integration into the learning environment.

Qualitative Findings

Study on Digital Audio Archives (DAUR) in Cross-Cultural Music Teaching

This is the second part of the analysis, covering the qualitative survey interview and subsequent analysis. The investigation aimed to understand how digital audio archives are used in university music departments to teach cross-cultural

music. The study involved interviews with five individuals who manage music departments at different universities. Their responses provided insights into how DAUR is integrated into music curricula, the challenges faced, and the impact it has on the learning of the students.

Integration of DAUR in Music Teaching

The respondents noted that DAUR plays a crucial role in making the global music more accessible for the students. For example, one respondent explained that DAUR allows students to listen to music from various cultures anytime, which supports independent learning among them. This access to diverse music has helped enrich the curriculum by incorporating a wider variety of music genres and traditions, giving students the opportunity to explore and learn about different cultures in depth.

Challenges in Using DAUR

While DAUR offers significant educational benefits, the respondents identified several challenges in its use. The challenges are prescribed below:

- **Technological Barriers:** Some departments face infrastructure issues such as unreliable internet connections and lack of proper devices. These problems prevent the full utilization of DAUR, especially for students who do not have access to the necessary resources at home.
- **Cultural Contextualization:** Another challenge is ensuring that music presented through DAUR is properly contextualized. Without the appropriate background information, students may misinterpret the music or miss its deeper cultural significance. This has led some universities to develop supplemental materials or discussions to provide context alongside the audio resources.

Impact of DAUR on Students' Learning

Overall, the respondents agreed that DAUR has had a positive effect on students' understanding of cross-cultural music. They highlighted several key impacts:

- **Increased Cultural Awareness:** DAUR has helped students better understand and appreciate music from different parts of the

world. By listening to a wide variety of music, students gain exposure to global music traditions that they would otherwise not encounter in a traditional classroom setting.

- **Engagement and Active Learning:** Students are more engaged when they could explore music on their own. Instead of passively receiving information in lectures, they can

interact with DAUR and develop their own insights about the music. This active engagement has fostered a deeper connection with the material and enhanced overall learning outcomes.

Overall, the theme and sub-themes along with the key insights are prescribed in the Table 4.

Table 4: Theme, Sub-Theme and Key Insights.

Theme	Sub-Theme	Key Insights
Integration of DAUR	Enhanced Accessibility	DAUR offers flexible access to diverse music from different cultures, enabling independent learning.
	Curriculum Enrichment	It enriches the curriculum by allowing for exploration of global music, which was previously limited.
Challenges in using DAUR	Technological Barriers	Some departments face issues with internet access and devices, limiting the effectiveness of DAUR.
	Cultural Contextualization	DAUR sometimes lacks necessary contextual information, leading to potential misinterpretation of music.
Impact on Students' Learning	Increased Cultural Awareness	DAUR enhances students' understanding and appreciation of global music traditions.
	Engagement and Active Learning	Students are more engaged and can explore music actively, which leads to better learning outcomes.

The graph (See Figure 7) visualizes the importance or the frequency of mention for various sub-themes related to digital audio archives in cross-cultural music teaching. It highlights six key areas, with enhanced accessibility and engagement and active learning has been receiving the highest importance scores which is 5. It is indicating that

these aspects are seen as particularly valuable in fostering student engagement and broadening access to global music.

Technological barriers and cultural contextualization were also acknowledged, reflecting the challenges faced in implementing DAUR effectively.

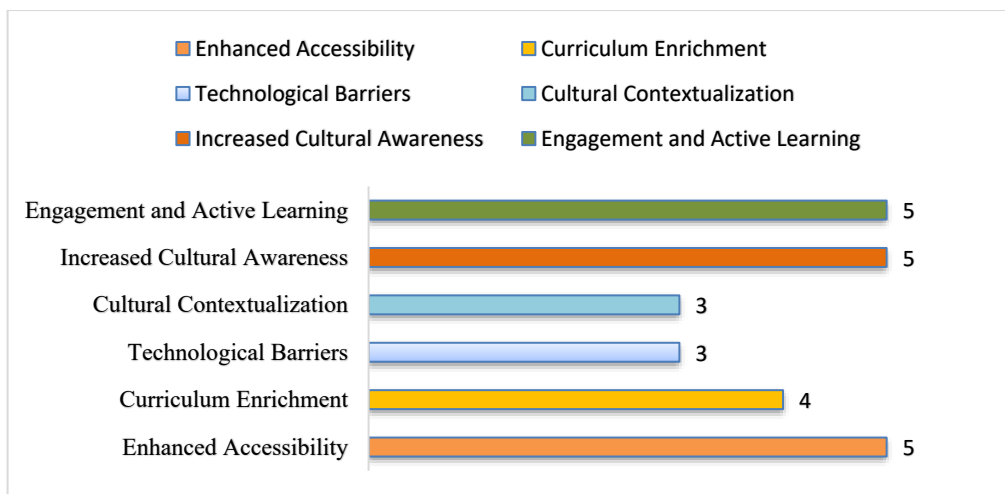


Figure 7: Key Sub-Themes in Cross-Cultural Music Teaching

Conclusion

In conclusion, digital audio archives play a significant role in enhancing the cross-culture music education. This is well covered by focusing on the

accessibility and engagement of the students. Moreover, the moderating role of technological proficiency of the instructor is critical as it aims to amplify the impact of the digital audio archives towards the teaching and learning outcomes. The

reason is that when the teachers are highly equipped with the technological proficiency, the students' understanding is high for the global music. However, this relationship might be linked with several challenges. Like, the limited access to internet and digital resources may hinder the full potential of digital audio archives. Among several, one solution is that universities should invest in upgrading the technology and infrastructure including the higher speed internet with the modern devices and reliable audio system. Another challenge is that the technological proficiency of the instructors significantly which can directly affect the integration of DAUR into the curriculum. This can be tackled through implementing consistent professional development programs for the faculty, focusing on the TPOI. Instead of primarily focusing on the traditional texts or limited music genres, education should incorporate a vast array of authentic global music recordings by using the platforms like digital audio archives. In the meantime, the effectiveness of cross-culture music education on technological proficiency of educators. Therefore, to ensure that instructors can maximize the potential of such digital tools, training programs should be applied. The last debate encompasses the limitations. For example, the study relies only on five managerial respondents to provide their view when dealing with the qualitative investigation. Although they provide some useful information, the sample size many do not capture the full diversity of opinions. Another limitation describes that the effectiveness of DAUR is heavily dependent on availability of the advanced technological resources which may not be the same across all the organizations. The future studies should also pay attention to these limitations while reapplying the similar context of cross-culture musical teaching and learning.

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Appendix-A:

Questionnaire on Digital Audio Archives as Pedagogical Tools in Cross-Cultural Music Teaching

Age				
Under 30	30-39	40-49	50-59	60 or above
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gender				
Male	Female	Non-Binary	Prefer Not to Say	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Academic Rank				
Lecturer	Assistant Professor	Associate Professor	Professor	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Years of Experience in Teaching Music				
Less than 5 years	5-10 years	11-20 years	21-30 years	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Educational Qualification				
Bachelor's Degree	Master's Degree	Ph.D.	Postdoctoral Research	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do you use Digital Audio Archives in your Teaching?				
Yes, regularly	Yes, occasionally	No, but I plan to	Not applicable	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Section 1: Digital Audio Archives

Please rate the following statements based on your experience using a 5-point scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Question	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
1. I regularly use digital audio archives in my music teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Digital audio archives help me in teaching cross-cultural music effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The use of digital audio archives increases the engagement of my students in music lessons.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Digital audio archives provide access to a wide variety of cultural music resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Digital audio archives enhance students' understanding of different music traditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The availability of digital audio archives makes it easier for me to demonstrate complex musical concepts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I find digital audio archives helpful in fostering cross-cultural understanding in my students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The digital audio archive platforms are user-friendly and easy to navigate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I believe that digital audio archives are an essential tool for teaching in the digital age.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Digital audio archives have improved the overall quality of my music teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 2: Teaching and Learning Outcomes

Please rate the following statements based on your experience using a 5-point scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Question	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
1. The use of digital audio archives has enhanced my students' learning outcomes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Students demonstrate a better understanding of music traditions after using digital audio archives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Digital audio archives help students grasp complex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

musical ideas more easily.					
4. The use of digital audio archives leads to increased student participation in class discussions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Students are more motivated to learn when digital audio archives are used in lessons.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Digital audio archives improve students' cross-cultural knowledge of music.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I have observed a positive change in students' academic performance after incorporating digital audio archives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The use of digital audio archives enhances students' critical thinking skills in music education.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Digital audio archives promote collaborative learning among students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The overall quality of my students' musical skills has improved due to the use of digital audio archives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 3: Technological Proficiency of Instructor

Please rate the following statements based on your experience using a 5-point scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Question	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
1. I am comfortable using digital tools in my music teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am confident in using digital audio archives for cross-cultural music teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I regularly integrate technology, including digital audio archives, into my teaching methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am able to troubleshoot technical issues that arise when using digital tools in my classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I actively seek out new technological tools to improve my teaching effectiveness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I believe that my technological proficiency positively impacts the learning experience of my students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for your valuable feedback.