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Examining the Impact of Teaching Innovations on Students' Learning Outcomes: The Mediating Role of Cultural Awareness and the Moderating Influence of Music Teachers' Experience at Universities in Henan Province

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Abstract

This study examines the impact of teaching innovations on students' learning outcomes, focusing on the mediating role of cultural awareness and the moderating effect of music teachers' experience. As globalization and digitalization accelerate, traditional music education methods may no longer fully meet the needs of higher education students, making teaching innovations increasingly crucial in multicultural music education. Based on cross-sectional survey data from 280 undergraduate music education students across five universities in Henan Province, this study employs Structural Equation Modeling (SEM) to examine the relationships among teaching innovations, cultural awareness, teacher experience, and learning outcomes. The findings indicate that teaching innovations significantly enhance students' learning outcomes, with cultural awareness playing a key mediating role in this process. Additionally, experienced music teachers are more effective in implementing teaching innovations to improve student learning, whereas less experienced teachers may face challenges in applying these methods. The study provides empirical evidence for music education reforms in higher education and highlights the importance of teacher training in fostering cultural awareness and optimizing teaching innovations. These findings offer valuable insights for educators, policymakers, and curriculum developers, contributing to the advancement of more inclusive and innovative music education models in China's higher education system.

Keywords: Teaching Innovations, Learning Outcomes, Cultural Awareness, Music Education, Teacher Experience

Introduction

Research Background

In recent years, the effectiveness of music education in higher education institutions has come under scrutiny, as traditional teaching approaches may no longer fully meet the

evolving learning needs of students in an increasingly globalized and digitalized world. Despite the growing emphasis on students' learning outcomes, research indicates that many university students in China struggle to fully engage with and benefit from music education due to outdated teaching methods, limited exposure to diverse musical traditions, and insufficient integration of innovative pedagogical practices (Wang & Webb, 2023). These limitations have raised concerns about students' ability to develop not only their musical skills but also critical thinking, creativity, and cultural awareness—key competencies for thriving in a multicultural society.

To address these challenges, teaching innovations in multicultural music education enhance students' learning outcomes by fostering cultural awareness through exposure to diverse musical traditions, genres, and performance styles. Research suggests that heightened cultural awareness can lead to improved learning motivation, cognitive flexibility, and overall academic performance (Adams, 2022). However, the extent to which cultural awareness mediates the relationship between teaching innovations and students' learning outcomes is not yet well understood. This gap in knowledge limits educators' ability to design and implement effective multicultural music curricula that maximize student benefits.

Moreover, the experience level of music teachers may influence how effectively these innovations are implemented. Seasoned educators, with their extensive pedagogical expertise, may be better equipped to integrate innovative strategies and create a culturally responsive learning environment (Barış, 2023). However, less experienced teachers may struggle to effectively employ these techniques, potentially impacting the effectiveness of multicultural music education in shaping students' learning outcomes. This moderating role of teachers' experience remains an underexplored area in current research.

Additionally, the rapid advancement of digital technologies has transformed the way music is taught and learned. Online platforms, interactive software, and virtual collaborations have expanded students' access to global musical traditions and facilitated new forms of cultural exchange (Bay, 2022). Yet, despite the increasing reliance on technology in education, there is limited research on how technology-driven multicultural music education influences students' learning outcomes within Chinese universities. A clearer understanding of this interaction could inform the development of more effective teaching models that enhance student engagement and learning success.

Given these gaps, this study seeks to examine how teaching innovations influence students' learning outcomes, with a specific focus on the mediating role of cultural awareness and the moderating effect of music teachers' experience in universities in Henan Province. By investigating these relationships, the study aims to provide valuable insights for educators, policymakers, and curriculum developers, ultimately contributing to the advancement of inclusive, innovative, and culturally responsive music education in China's higher education system.

Research Objectives

RO1: To investigate the effect of teaching innovations in music education on students' learning outcomes in multicultural music education.

RO1(a): To investigate the effect of the integration of diverse music cultures in music education on students' learning outcomes in multicultural music education.
RO1(b): To investigate the effect of the use of technology in music education on students' learning outcomes in multicultural music education.
RO1(c): To investigate the effect of collaborative learning in music education on students' learning outcomes in multicultural music education.
RO1(d): To investigate the effect of teaching strategies in music education on students' learning outcomes in multicultural music education.
RO1(e): To investigate the effect of professional development of music lecturers on students' learning outcomes in multicultural music education.
RO2: To investigate whether cultural awareness mediates the relationship between the integration of teaching innovations and students' learning outcomes in multicultural music education.
RO3: To investigate whether the experience of music lecturers moderates the relationship between teaching innovations and students' learning outcomes in multicultural music education.

Significance of the Study

This research holds significant importance and far-reaching implications in the realm of multicultural music education. Firstly, it provides valuable insights for educators regarding new teaching methods in multicultural music education, enhancing their understanding of effective pedagogical strategies that facilitate cultural diversity and collaborative learning, ultimately creating inclusive and engaging learning environments. Secondly, the study emphasizes the role of cultural knowledge as a mediating variable in the relationship between teaching innovations and students' learning outcomes, highlighting the necessity of incorporating diverse musical traditions and perspectives into curricula to foster intercultural dialogue and empathy among students. Furthermore, it investigates the moderating impact of music teachers' expertise on the association between evaluation techniques and student achievement, underscoring the need for comprehensive teacher training and continuous professional development in the field of multicultural music education to enhance teaching quality and enrich student learning experiences. The findings not only offer insights for multicultural music education in China but also provide valuable perspectives for other countries and contexts, serving as a reference for policy-making and educational initiatives aimed at promoting cultural diversity and inclusive pedagogical approaches. In summary, this research contributes to the advancement of multicultural music education by examining innovative teaching methods, the mediating role of cultural awareness, and the influence of teacher experience, ultimately benefiting students, educators, and society at large.

Literature Review

Innovative Teaching Approaches

Teaching innovations refer to the development and implementation of new methods aimed at improving student learning outcomes (Miranda et al., 2021). This literature review highlights current research on these innovations, focusing on their goals, approaches, and effectiveness (Alam, 2022). The primary objectives of teaching innovations vary by context, including enhancing student engagement, fostering critical thinking, promoting collaboration, and improving overall teacher effectiveness. The ultimate aim is to provide a more effective and efficient learning experience for students.

Various approaches to teaching innovations include the use of technology, project-based learning, collaborative learning, and experiential learning (Zhong, 2023). Technology integration has become increasingly prevalent, with digital tools and platforms enhancing learning experiences (Alam, 2022). Project-based learning immerses students in real-world projects, promoting problem-solving and collaboration (Quan & Jia, 2021). Collaborative learning encourages social interaction through small group work, while experiential learning involves hands-on activities that provide practical experiences.

Research on the effectiveness of teaching innovations has produced mixed results. Some studies demonstrate improvements in student outcomes, while others report minimal impact (Paolantonio et al., 2023). Factors influencing effectiveness include the implementation context, specific goals, and the characteristics of students and teachers (Alam, 2022). The landscape of teaching innovations varies significantly between developed countries and China due to differences in educational systems, cultural norms, and economic resources (Malik, 2018). While developed countries have a long history of investing in educational research and innovative practices, China has recently made substantial progress in educational reform and innovation (Ting & Lina, 2023). Overall, teaching innovations present a crucial area for further research to identify effective approaches and develop implementation guidelines tailored to various educational contexts.

Students' Learning Outcome

Students' learning outcomes refer to the measurable knowledge, skills, attitudes, and competencies that students acquire through educational experiences. Research highlights that effective learning outcomes are shaped by various factors, including engagement, comprehension, and knowledge retention (Beena, 2024). Strategies that encourage active participation, such as interactive tools, flipped classrooms, and project-based learning, have been shown to deepen students' understanding and improve their ability to apply knowledge meaningfully.

Beyond pedagogical techniques, the inclusion of culturally responsive teaching and diverse perspectives in curriculum design strengthens inclusivity and critical thinking, leading to improved learning outcomes. Evidence from medical education suggests that structured, student-centered learning activities enhance competency development and align with global educational standards (Kolomiets & Litvinova, 2019). Likewise, research in higher education indicates that adopting constructivist approaches supports long-term academic success and student satisfaction (Zhu, 2012). Regular feedback mechanisms further contribute to refining learning experiences, ensuring continuous improvement in students' knowledge and skills.

Additionally, technology-driven learning strategies significantly impact students' perceptions and achievements. Studies among university students reveal that multimedia tools, computer-assisted learning, and interactive platforms not only enhance motivation but also improve retention and application of knowledge (Mansor et al., 2017). These findings highlight the necessity of adapting learning environments to align with students' evolving needs, ensuring optimal learning outcomes across diverse educational settings.

Cultural Awareness

Cultural awareness encompasses knowledge, understanding, and sensitivity towards diverse cultures, influencing individuals' perceptions, behaviors, and communication styles (Walden, 2020). It involves recognizing the complexities of cultural identities and appreciating the nuances that shape different communities (Gopalkrishnan, 2018). Developing cultural awareness requires an open mindset, a willingness to learn, and active engagement with various cultural perspectives.

Research indicates that cultural awareness significantly mediates the relationship between innovative approaches in multicultural music education and students' learning outcomes. By integrating diverse musical traditions into the curriculum, educators expose students to a variety of styles and practices, enhancing their understanding of the cultural contexts surrounding music (Colbert, 2021). This exposure fosters a deeper appreciation of the values and perspectives embedded in different music cultures, ultimately enriching students' engagement and motivation in learning (Chandransu, 2019).

Moreover, cultural awareness enhances students' critical thinking and analytical skills. As they interact with diverse musical practices, students become adept at evaluating and comparing artistic expressions from various cultural contexts, recognizing the social and historical influences that shape music (Mellizo, 2019). Additionally, cultural awareness improves students' intercultural communication skills, enabling them to engage respectfully and empathetically with individuals from different backgrounds, which is essential in a globalized world (Chandransu, 2019).

Overall, educators play a vital role in cultivating cultural awareness through inclusive teaching practices and supportive learning environments. By promoting cultural awareness, they can significantly enhance students' learning outcomes in multicultural music education (Hart et al., 2020).

Teachers' Experience

Teacher's experience encompasses the knowledge, skills, and expertise gained through formal education, professional development, and practical teaching (Hart et al., 2020). It involves both the breadth and depth of interactions with students and colleagues, shaping teachers' effectiveness in diverse educational settings. This experience not only includes the number of years spent teaching but also the insights gained from navigating the complexities of the teaching profession.

Research indicates that teacher's experience significantly moderates the relationship between assessment strategies and students' learning outcomes in multicultural music education (Hart et al., 2020). Experienced teachers are adept at designing assessments that align with instructional goals and accurately measure student progress. Their deep understanding of assessment principles enables them to provide meaningful feedback and make informed instructional decisions

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Moreover, experienced teachers excel in interpreting assessment data, identifying patterns and trends to inform targeted interventions (Aslan et al., 2023). Their refined classroom

management skills and effective communication strategies foster a supportive and engaging learning environment, which enhances student motivation and participation.

Additionally, teacher's experience contributes to differentiated instruction, allowing educators to tailor their approaches to meet the diverse needs of their students (Aslan et al., 2023). By leveraging their accumulated knowledge, experienced teachers create meaningful learning experiences that integrate diverse music cultures and promote student achievement. Overall, the literature highlights the crucial role of teacher's experience in enhancing the effectiveness of assessment and evaluation strategies in multicultural music education.

Research Methodology

Research Design

This research employs a quantitative design to explore the impact of innovative teaching approaches, technology integration, collaborative learning, assessment strategies, professional development, and cultural awareness on students' learning outcomes at Anyang Normal University. Quantitative methods enable precise measurement of relationships and behaviors, ensuring reliability and generalizability of results through structured instruments such as surveys (Creswell & Creswell, 2018; Cohen et al., 2018). This approach facilitates the control of extraneous variables, allowing for clear, measurable outcomes and an objective assessment of the variables' influences, including the moderating role of music teachers' experience and the mediating role of cultural awareness (Muijs, 2020).

The study adopts a cross-sectional design to analyze data from music teacher students at a single point in time. This method is effective for identifying associations between factors affecting student learning outcomes without establishing causality (Levin, 2019). Cross-sectional studies are resource-efficient and enable timely insights into educational practices (Sedgwick, 2014). By comparing perceptions among music teachers with varying experience levels, the study aims to highlight key factors influencing student outcomes (Mann, 2019). Additionally, this design minimizes potential biases from changes in the educational environment over time, ensuring that the findings reflect current conditions (Mann & Stewart, 2019). Statistical techniques will be employed to identify significant predictors of student learning outcomes and analyze interaction effects among the variables (Pallant, 2020). The population for this research consists of teacher students in China, specifically at Anyang Normal University, utilizing a stratified sampling method.

Data Collection

To ensure representativeness and validity, the study employed a stratified random sampling technique targeting undergraduate music education students from five universities in Henan Province, China: Zhengzhou University, Henan University, Anyang Normal University, Xinyang Normal University, and Luoyang Normal University. These institutions were selected for their diverse cultural and pedagogical characteristics, providing a comprehensive context for examining multicultural music learning outcomes.

The stratified sampling approach divided the population into subgroups (strata) based on institutional affiliation and academic level. Proportional allocation ensured that each university and grade level was adequately represented in the sample. Specifically, Zhengzhou University contributed 40% of the sample, Henan University 25%, Anyang Normal University

15%, Xinyang Normal University 10%, and Luoyang Normal University 10%. Within each university, students were further stratified by academic year—freshmen, sophomores, juniors, and seniors—ensuring balanced representation across academic stages.

A total sample size of 400 was determined using the Morgan (1970) Sample Size Table and verified with G*Power software. This size ensured a 95% confidence level with a 5% margin of error while accounting for potential non-responses or missing data. Surveys were distributed proportionally across the five institutions and grade levels, and participants were selected randomly within each stratum to minimise bias.

Data Analysis

Data analysis in this study consists of five key parts: data screening, where the dataset is examined for errors, missing values, and inconsistencies to ensure its suitability for analysis; demographic analysis, which provides insights into participant characteristics such as age, gender, and experience to contextualize the findings; exploratory factor analysis (EFA), used to uncover the underlying structure of variables and identify latent constructs; confirmatory factor analysis (CFA), employed to validate the hypothesized factor structure and confirm the relationships between observed and latent variables; and structural equation modeling (SEM), which assesses the complex relationships between independent, mediating, moderating, and dependent variables to test the theoretical model. Together, these methods provide a robust framework for analyzing the impact of innovative approaches and other factors on students' learning outcomes.

Instruments

The structured questionnaire in this study serves as a comprehensive and rigorously designed instrument to analyze the relationships among independent variables (e.g., Integration of Diverse Music Cultures, Use of Technology, Collaborative Learning, Teaching Strategies, Professional Development), the mediating variable (Cultural Awareness), the moderating variable (Music Teacher's Experience), and the dependent variable (Students' Multicultural Music Learning Outcomes). Developed through an extensive literature review and validated with pilot testing, the questionnaire ensures reliability and validity for robust data collection. The questionnaire consists of two main sections: Section A gathers demographic information, such as gender, age, education level, and exposure to multicultural music, providing a detailed profile of the participants. Section B addresses key constructs aligned with the study's research framework, with each variable assessed using multiple items on a five-point Likert scale. This section is further divided into seven sub-sections, each targeting one of the study's critical variables, including Integration of Diverse Music Cultures (5 items), Use of Technology (4 items), Collaborative Learning (8 items), Teaching Strategies (7 items), Professional Development (7 items), Cultural Awareness (6 items), and Learning Outcomes (10 items).

Each sub-section is carefully crafted to capture the nuanced dimensions of its respective construct. For example, items measuring Integration of Diverse Music Cultures assess the incorporation of global music elements into teaching, while those focused on Cultural Awareness evaluate students' sensitivity to cultural diversity in music creation and performance. The Learning Outcomes sub-section, as the dependent variable, examines students' abilities in performing, analyzing, and applying musical knowledge, as well as their motivation and career aspirations in multicultural music contexts.

The questionnaire's validity and reliability were confirmed through a pilot test involving 30 participants, with feedback used to refine item clarity and coherence. Cronbach's alpha values for all sub-sections exceeded 0.70, demonstrating strong internal consistency. Expert review further enhanced content validity, ensuring alignment with established frameworks in multicultural and music education.

Research Findings

Data Screening

The data screening process ensured the dataset's integrity and suitability for subsequent analyses by addressing issues such as missing values, response rates, normality, and multicollinearity. Of the 400 distributed questionnaires, 20 were excluded due to non-response, rapid completion, or uniform answers, resulting in 280 valid responses (69.5% response rate). Missing values were addressed by removing incomplete or unreliable responses, ensuring robust data quality. Normality tests confirmed that all variables met the assumptions for parametric analysis, with skewness and kurtosis values within acceptable ranges. Multicollinearity analysis indicated no significant issues, as all tolerance values exceeded 0.1 and VIF values were below 5, ensuring the independence of variables. These steps provide a strong foundation for the reliability and validity of subsequent statistical analyses.

Demographic Analysis

The demographic characteristics of the respondents in this study are outlined in **Table 1**, which presents the frequency and percentage distributions across various demographic variables, including gender, age, education level, working experience, job position, monthly income, and department.

Table 1
Demographic Results

Variable	Option	Frequency	Percent (%)
Gender	Male	130	46.40%
	Female	150	53.60%
Age	Under 18	15	5.40%
	18 – 20	80	28.60%
	21 – 23	110	39.30%
	24 – 26	50	17.90%
	27 and above	25	8.90%
Education Level	First-year undergraduate	60	21.40%
	Second-year undergraduate	70	25.00%
	Third-year undergraduate	65	23.20%
	Fourth-year undergraduate	50	17.90%
	Graduate student	35	12.50%
Music Education	Less than 1 year	20	7.10%
	1 - 2 years	85	30.40%
	3 - 4 years	105	37.50%
	5 years and above	70	25.00%
Major	Vocal music	90	32.10%
	Instrumental music	100	35.70%

	Theory and composition	50	17.90%
	Other	40	14.30%
Exposure to Multicultural Music	No prior exposure	30	10.70%
	Some exposure (occasional classes or sessions)	85	30.40%
	Moderate exposure (part of my regular curriculum)	100	35.70%
	High exposure (frequently study and engage with multicultural music)	65	23.20%
Preferred Learning Style	Individual study	40	14.30%
	Group study	60	21.40%
	Hands-on practice (instrumental/vocal)	90	32.10%
	Technology-based learning	40	14.30%
	Mixed methods	50	17.90%
Is your instructor experienced?	Highly experienced (over 10 years)	90	32.10%
	Experienced (5-10 years)	100	35.70%
	Less experienced (1-5 years)	70	25.00%
	No experience (Not exceeding 1 year)	20	7.10%

Out of 280 respondents, 130 (46.4%) were male and 150 (53.6%) female, reflecting a balanced gender distribution that enhances the applicability of the study to both genders. The largest proportion of participants (39.3%) were aged 21–23, followed by 28.6% in the 18–20 age group, while 5.4% were under 18. Participants had varying educational levels, with 25.0% in their second year of undergraduate studies, 23.2% in their third year, and 21.4% in their first year. Graduate students constituted 12.5% of the sample.

Regarding music education background, 37.5% had 3–4 years of experience, 30.4% had 1–2 years, and 25.0% had over 5 years. The participants were distributed across different majors, with 35.7% in instrumental music, 32.1% in vocal music, 17.9% in theory and composition, and 14.3% in other fields. Exposure to multicultural music varied, with 35.7% having moderate exposure as part of their regular curriculum, 30.4% having occasional exposure, and 23.2% frequently studying and engaging with multicultural music.

Preferred learning styles among participants included hands-on practice (32.1%), group study (21.4%), and mixed methods (17.9%). Instructor experience levels also varied, with 35.7% having 5–10 years of experience, 32.1% having over 10 years, and 25.0% having 1–5 years.

4.1. Exploratory Factor Analysis (EFA)

Table 2
Rotated Matrix of Perceived Benefits

Item	Component						
	1	2	3	4	5	6	7
IDMC1					0.712		
IDMC2					0.716		
IDMC3					0.724		
IDMC4					0.754		
IDMC5					0.726		
UOT1		0.611					
UOT2		0.768					
UOT3		0.701					
UOT4		0.642					

CL1	0.737				
CL2	0.681				
CL3	0.774				
CL4	0.609				
CL5	0.623				
CL6	0.795				
CL7	0.714				
CL8	0.652				
TS1		0.696			
TS2		0.734			
TS3		0.673			
TS4		0.719			
TS5		0.644			
TS6		0.784			
TS7		0.609			
PD1			0.778		
PD2			0.653		
PD3			0.687		
PD4			0.745		
PD5			0.725		
PD6			0.683		
PD7			0.607		
CA1				0.731	
CA2				0.763	
CA3				0.642	
CA4				0.657	
CA5				0.791	
CA6				0.61	
LO1					0.671
LO2					0.704
LO3					0.779
LO4					0.639
LO5					0.746
LO6					0.654
LO7					0.729
LO8					0.772
LO9					0.692
LO10					0.651

Note:IDMC(Integration of Diverse Music Cultures), UOT(Use of Technology), CL(Collaborative Learning), AS(Teaching strategies), PD(Professional Development), CA(Cultural Awareness), LO(Learning Outcomes).

The study utilized KMO and Bartlett's tests to evaluate the suitability of the dataset for Exploratory Factor Analysis (EFA). The KMO value of 0.988, categorized as "marvelous," and the highly significant Bartlett's test result ($p < 0.001$) confirmed excellent sampling adequacy and sufficient correlations among variables. As shown in **Table 2**, eight distinct factors were identified: Integration of Diverse Music Cultures (IDMC), Use of Technology (UOT), Collaborative Learning (CL), Teaching Strategies (TS), Professional Development (PD), Cultural Awareness (CA), and Students' Learning Outcomes (LO). Each factor demonstrated strong loadings, validating their theoretical relevance and statistical robustness. These findings

simplify the dataset by uncovering meaningful latent constructs and provide a solid foundation for understanding how various educational strategies and teacher characteristics influence students' learning outcomes at Anyang Normal University.

Confirmatory Factor Analysis (CFA)

Table 3
CFA Model Fitting Index

Reference index	Standard Values	Results
X^2/df	<5 acceptable; <3 ideal	1.544
GFI	>0.8 acceptable; >0.9 ideal	0.855
AGFI	>0.8 acceptable; >0.9 ideal	0.841
NFI	>0.8 acceptable; >0.9 ideal	0.900
IFI	＞0.9	0.962
CFI	＞0.9	0.962
NNFI(TLI)	＞0.9	0.960
RMSEA	＜0.08	0.036

Table 4
Confirmatory Factor Analysis Results

Item	P	Standardized Estimate	CR	AVE
IDMC1		0.758	0.937	0.602
IDMC2	***	0.757		
UOT1		0.784	0.938	0.642
UOT2	***	0.784		
CL1		0.787	0.939	0.687
CL2	***	0.747		
AS1		0.791	0.941	0.679
AS2	***	0.769		
PD1		0.807	0.938	0.602
PD2	***	0.775		
SLO1		0.857	0.947	0.611
SLO2	***	0.786		
CA1		0.760	0.942	0.614
CA2	***	0.832		
LO1		0.800	0.941	0.651
LO2	***	0.773		

Note:IDMC(Integration of Diverse Music Cultures), UOT(Use of Technology), CL(Collaborative Learning), AS(Teaching strategies), PD(Professional Development), CA(Cultural Awareness), LO(Learning Outcomes).

Tables 3 and **4** show that the CFA results demonstrated a strong model fit, with indices such as X^2/df (1.544), GFI (0.855), CFI (0.962), and RMSEA (0.036) meeting or exceeding acceptable thresholds. Standardized estimates exceeded 0.7, Composite Reliability (CR) values were above 0.9, and Average Variance Extracted (AVE) values ranged from 0.602 to 0.687, indicating excellent construct validity and internal consistency. These findings confirm that the constructs, including Integration of Diverse Music Cultures, Use of Technology,

Collaborative Learning, Teaching Strategies, Professional Development, Cultural Awareness, and Students' Learning Outcomes, are valid and reliable, providing a robust foundation for further analysis and interpretation.

4.2. Structural Equation Modeling (SEM)

Path Analysis

Path analysis is a specialized form of structural equation modeling (SEM) that focuses on the direct, indirect, and total effects of variables within a specified model. It is a statistical technique used to analyze the relationships between observed variables and to understand the causal structure of these relationships. Table 2 presents the results of the path analysis, including standardized estimates, standard errors (S.E.), critical ratios (C.R.), and p-values for the various hypothetical paths in the model.

Table 2
Results of Path Analysis

Hypothetical path			Standardized Estimate	S.E.	C.R.	P
Students' learning outcomes	<--	Integration of Diverse Music Cultures	0.205	0.057	3.96	***
Students' learning outcomes	<--	Use of Technology	0.135	0.042	2.764	0.006
Students' learning outcomes	<--	Collaborative Learning	0.003	0.031	0.069	0.003
Students' learning outcomes	<--	Teaching strategies	0.21	0.034	4.199	***
Students' learning outcomes	<--	Professional Development	0.258	0.038	5.548	***
Students' learning outcomes	<--	Cultural Awareness	0.181	0.042	3.171	0.002

Integrating diverse music cultures positively influences students' learning outcomes in multicultural music education. The findings revealed a statistically significant and positive relationship, with a standardised estimate of 0.205 ($p < 0.001$). This supports the hypothesis that incorporating diverse musical traditions into the curriculum enhances students' academic and skill-based achievements. Such integration fosters cultural awareness, critical thinking, and creativity, contributing to a richer and more engaging learning environment. The results align with previous studies emphasising the benefits of exposing students to multicultural perspectives, which promote innovative thinking and improve learning outcomes.

The use of technology in music education enhances students' learning outcomes among students majoring in preschool music education. The path analysis demonstrated a significant positive relationship, with a standardised estimate of 0.135 ($p = 0.006$). Although the effect size is moderate, it highlights the role of technology in fostering personalised and interactive learning experiences. Technology enables access to multicultural music resources, enhances collaboration, and supports innovative teaching strategies, ultimately improving students' engagement and performance. However, its effectiveness depends on integration with culturally responsive and well-structured pedagogical practices.

Collaborative learning has a statistically significant but minimal practical impact on students' learning outcomes in multicultural music education. While the effect was significant ($p = 0.003$), the standardized estimate of 0.003 indicates a negligible influence. This suggests that collaborative learning may be underutilized or less effective in the context of music education at universities in Henan Province. Cultural and contextual factors, such as preferences for traditional teaching methods and challenges in designing collaborative activities, may limit its effectiveness. Nonetheless, when implemented strategically, collaborative learning has the potential to foster teamwork, critical thinking, and cultural competence.

Teaching strategies play a significant role in influencing students' learning outcomes in music education. The analysis revealed a strong positive relationship, with a standardized estimate of 0.21 ($p < 0.001$). This confirms that effective teaching strategies significantly enhance academic performance and engagement in multicultural music education. Culturally responsive strategies, interactive methods, and technology integration were identified as critical components of successful pedagogy. The findings highlight the importance of professional development in equipping educators with the skills and knowledge needed to implement innovative and inclusive teaching practices.

Professional development has a substantial positive impact on students' learning outcomes in music education. The study confirmed this relationship with a standardized estimate of 0.258 ($p < 0.001$). Professional development enhances educators' pedagogical knowledge, cultural responsiveness, and technological proficiency, enabling them to create inclusive and effective learning environments. The results emphasize the need for targeted and context-specific training programs to address the unique challenges of multicultural music education. Investing in professional development fosters continuous improvement and innovation, ultimately benefiting both educators and students.

Mediation Test

A mediating effect, also known as an indirect effect, occurs when a third variable, known as the mediator, explains the relationship between an independent variable and a dependent variable. The mediating effect test is a statistical procedure used to determine whether and to what extent a mediator variable accounts for the relationship between the independent and dependent variables. This test is crucial in understanding the mechanisms or pathways through which the independent variables exert their influence on the dependent variable (Baron & Kenny, 1986).

In this study, the mediating effect test is employed to assess the role of Cultural Awareness in mediating the relationship between various educational strategies (Integration of Diverse Music Cultures, Use of Technology, Collaborative Learning, Assessment Strategies, Professional Development) and Students' Learning Outcomes. By testing for mediation, this study seeks to determine whether Cultural Awareness acts as a significant intermediary through which these educational strategies impact students' learning outcomes at Anyang Normal University. Table 3 presents the results of the mediation test, including the parameter estimates, confidence intervals (lower and upper bounds), and p-values for the hypothesized mediation paths.

Table 3
Mediation Test Results

Parameter	Estimate	Lower	Upper	P
Integration of Diverse Music Cultures-Cultural Awareness-Students' learning outcomes	0.037	0.012	0.078	0.004
Use of Technology-Cultural Awareness-Students' learning outcomes	0.032	0.008	0.077	0.005
Collaborative Learning-Cultural Awareness-Students' learning outcomes	0.035	0.009	0.075	0.005
Assessment Strategies-Cultural Awareness-Students' learning outcomes	0.053	0.011	0.045	0.005
Professional Development-Cultural Awareness-Students' learning outcomes	0.021	0.003	0.055	0.02

The mediation test results confirm that Cultural Awareness plays a significant mediating role in the relationship between educational strategies and students' learning outcomes. All tested paths, including Integration of Diverse Music Cultures, Use of Technology, Collaborative Learning, Teaching Strategies, and Professional Development, demonstrated statistically significant mediation effects, with parameter estimates ranging from 0.021 to 0.053 ($p < 0.05$). These findings highlight that while these strategies directly influence learning outcomes, their indirect effects through Cultural Awareness are substantial. The strongest mediation effect was observed in the path from Teaching strategies to Students' Learning Outcomes via Cultural Awareness (estimate = 0.053), emphasizing the role of culturally responsive pedagogy. These results align with existing literature underscoring the importance of Cultural Awareness in fostering meaningful engagement and enhanced learning outcomes in multicultural education settings. This study underscores the need for integrating cultural awareness into educational practices to amplify the effectiveness of teaching strategies and improve student success.

Moderation Test

A moderation test examines how the relationship between an independent variable and a dependent variable changes as a function of a third variable, known as the moderator. The moderator variable can either strengthen, weaken, or change the direction of the relationship between the independent and dependent variables. In Structural Equation Modeling (SEM), moderation analysis helps researchers understand the conditions under which certain effects occur, providing insights into the context-specific nature of these relationships (Baron & Kenny, 1986).

In this study, the moderation test is used to assess the role of Music Teacher's Experience in moderating the relationships between various educational strategies (such as Integration of Diverse Music Cultures, Use of Technology, Collaborative Learning, Assessment Strategies, and Professional Development) and Students' Learning Outcomes. The moderation analysis seeks to determine whether the impact of these educational strategies on students' learning outcomes differs based on the level of experience of the music teachers involved. This analysis is crucial in understanding whether experienced teachers utilize these strategies more effectively, leading to better student outcomes, or if less experienced teachers might need different strategies or support mechanisms to achieve similar results. Table 4 summarizes the

results of the moderation test for Music Teacher's Experience. The analysis was conducted using both a constrained and an unconstrained model to assess the significance of the moderation effect.

Table 4
Summary of Moderation Test of Music Teacher's Experience

	Constrained Model	Unconstrained Model	Chi-Square Difference	Result on Moderation
Chi-Square (Chi-square value)	65.721	43.369	22.352	Significant
Df (Degree of Freedom)	38	19	19	
Ratio CMIN/df (Normed Chi square ratio)	1.729	2.283		
RMSEA(Root-Mean-SquareError of Approximation)	0.028	0.037		
CFI (Comparative Fit Index)	0.997	0.997		
TLI (Tucker Lewis Index)	0.995	0.996		
GFI (Goodness-of-Fit Index)	0.984	0.989		

The chi-square values for the constrained and unconstrained models are 65.721 and 43.369, respectively. The difference in chi-square values is 22.352, with a corresponding degree of freedom (df) of 19. This significant chi-square difference suggests that the unconstrained model, which allows for variation based on the moderator (Music Teacher's Experience), fits the data significantly better than the constrained model. This result confirms the presence of a significant moderation effect, indicating that Music Teacher's Experience does indeed moderate the relationship between the educational strategies and students' learning outcomes.

The normed chi-square ratio (CMIN/df) is a measure of model fit, with values less than 3 indicating a good fit (Kline, 2019). The constrained model has a CMIN/df of 1.729, and the unconstrained model has a CMIN/df of 2.283, both of which suggest that the models are well-fitting. However, the slightly higher ratio in the unconstrained model suggests that while the fit is still acceptable, allowing for the moderation effect introduces some complexity. The Root Mean Square Error of Approximation (RMSEA) values for the constrained and unconstrained models are 0.028 and 0.037, respectively. Both values are well below the threshold of 0.08, indicating a good fit for both models (Steiger, 2018). The slight increase in RMSEA in the unconstrained model suggests that including the moderation effect adds some approximation error, but it remains within acceptable limits.

The Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) are measures of the goodness-of-fit, with values above 0.9 indicating a good fit (Bentler, 2020). Both indices remain high (above 0.995) for both models, suggesting that the models fit the data exceptionally well. The slight increase in TLI in the unconstrained model (from 0.995 to 0.996) suggests that the inclusion of the moderation effect provides a marginally better fit. The Goodness-of-Fit Index (GFI) values for the constrained and unconstrained models are 0.984 and 0.989, respectively. These values indicate a very good fit, with the unconstrained model showing a slightly better fit, supporting the presence of a moderation effect.

The results of the moderation test indicate that Music Teacher's Experience significantly moderates the relationship between the educational strategies and students' learning outcomes. This means that the effectiveness of these strategies varies depending on the teacher's level of experience. Specifically, the significant chi-square difference between the constrained and unconstrained models confirms that allowing for differences based on Music Teacher's Experience improves the model fit, suggesting that teacher experience is a crucial factor in determining the impact of educational strategies on student outcomes. The moderation effect observed suggests that more experienced teachers may be better equipped to implement these educational strategies effectively, leading to enhanced student learning outcomes. Conversely, less experienced teachers might require additional support or alternative strategies to achieve similar results. This finding has important implications for teacher training and professional development programs, highlighting the need to tailor these programs to the experience levels of teachers to maximize their effectiveness in improving student learning outcomes.

In conclusion, the moderation test results underscore the importance of considering teacher experience when evaluating the impact of educational strategies on student outcomes. The significant moderation effect suggests that interventions designed to improve student learning should account for the varying levels of teacher experience, ensuring that all teachers, regardless of their experience level, have the tools and support necessary to implement these strategies effectively.

Discussion

The findings suggest that teaching strategies and professional development exert the strongest influence on students' learning outcomes, emphasizing the pivotal role of instructional quality and educator preparation. However, while integrating diverse music cultures and using technology also demonstrate significant positive effects, their impacts are comparatively smaller. This indicates that while exposure to cultural diversity and technological tools enriches students' learning experiences, these factors alone are insufficient without being embedded within a well-structured pedagogical framework. For example, the moderate effect of technology highlights that its benefits depend on how effectively it is implemented to support learning objectives rather than its mere presence in classrooms (Bauer, 2020).

The minimal direct impact of collaborative learning, though statistically significant, challenges the prevailing emphasis on its transformative potential in education. The context of music education, which often prioritizes individual skill mastery over group interactions, may explain this outcome. However, this does not diminish the value of collaborative learning altogether. Instead, it calls for a re-examination of how collaborative practices are integrated into music curricula. For instance, collaboration could be better aligned with performance-based tasks that naturally require group effort, such as ensemble work, to maximize its relevance and impact (Dillenbourg et al., 2018).

The mediating effects of cultural awareness across all educational strategies reinforce its critical role in achieving meaningful learning outcomes. This suggests that cultural awareness is not merely a byproduct of innovative teaching but a foundational element that enhances the efficacy of these strategies. However, the relatively weaker mediation effect observed for

professional development implies that existing training programs may not adequately address cultural competence. This reflects a potential disconnect between professional development content and the practical needs of educators in multicultural settings (Desimone & Garet, 2015).

Cultural awareness is often reduced to superficial acknowledgements of diversity rather than being deeply integrated into teaching and learning processes. For example, incorporating culturally diverse musical elements without contextual understanding can risk perpetuating stereotypes rather than promoting genuine appreciation and engagement (Banks & Banks, 2019). This highlights the need for nuanced approaches that go beyond surface-level representations of culture.

The moderation analysis underscores that lecturer experience significantly amplifies the relationship between cultural awareness and students' learning outcomes. Experienced lecturers, likely due to their familiarity with diverse student needs and their ability to adapt teaching methods, appear better equipped to translate cultural awareness into effective pedagogy. However, relying solely on experience as a determinant of teaching effectiveness is problematic. This approach risks marginalizing less experienced lecturers who, with proper training and support, could achieve comparable results (Gay, 2020).

The findings suggest that professional development initiatives must address this gap by equipping newer lecturers with the tools and frameworks to implement culturally responsive teaching. Mentorship programs, where experienced educators guide less experienced colleagues, could facilitate the transfer of tacit knowledge and pedagogical strategies. Furthermore, incorporating real-world classroom scenarios into training modules can provide less experienced lecturers with the practical insights necessary to navigate multicultural classrooms effectively.

The findings highlight the need for a more strategic integration of cultural awareness into educational strategies. For institutions like universities in Henan Province, this means embedding cultural competence into the core of professional development programs and curricular design. Technology and collaborative learning, while important, require careful alignment with pedagogical goals to avoid their misuse or underutilization. For example, leveraging technology to facilitate cross-cultural exchanges or collaborative platforms could enhance both engagement and cultural understanding (Lai & Bower, 2020).

The study also calls for a critical evaluation of the structure and focus of professional development programs. These programs should prioritize not only the technical and theoretical aspects of teaching but also the interpersonal and cultural dimensions, which are often overlooked. This aligns with the broader goal of fostering a learning environment that is both inclusive and academically rigorous.

Conclusion

This study explored how innovative approaches, technology, collaborative learning, teaching strategies, professional development, cultural awareness, and music teachers' experience influence students' learning outcomes in multicultural music education at universities in Henan Province, China. The findings highlight the significant role of cultural awareness as a

mediator, enhancing the positive effects of integrating diverse music cultures, technology use, and collaborative learning. Teaching strategies and professional development emerged as critical factors, emphasizing the importance of culturally responsive practices and continuous lecturer training.

The study also revealed that experienced lecturers are more effective in leveraging cultural awareness to improve student outcomes, underscoring the value of mentorship and tailored professional development for less experienced educators. These results align with Intercultural Competence Theory, Constructivism, and Socio-cultural Theory, emphasizing the need for inclusive, contextually relevant, and technologically integrated teaching practices. The findings provide practical implications for fostering equity and engagement in education while highlighting areas for future research to deepen the understanding of these dynamics in diverse educational contexts.

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