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Differential Pathways to Student Engagement in Mongolian Intangible Cultural Heritage Music Education: The Roles of Course Design, Learning Resources, and Personal Interest

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Abstract

Background: Higher education in multicultural settings must support the transmission of group-specific intangible cultural heritage (ICH) while making that heritage accessible to students from different cultural backgrounds. Culturally responsive pedagogy offers one response to this challenge, but evidence regarding whether its correlates operate similarly across ethnic groups remains limited.

Purpose: This study examines the associations of perceived course design (CD), learning resources (LR), and personal interest (PI) with student engagement (SE) in Mongolian ICH music education. It also tests whether the corresponding structural paths differ between Mongolian and Non-Mongolian students.

Method: A cross-sectional survey was administered to 120 university music students (68 Mongolian and 52 Non-Mongolian) at four universities in Inner Mongolia. The analysis combined exploratory factor analysis (EFA), confirmatory factor analysis (CFA), partial least squares structural equation modeling (PLS-SEM), and permutation-based multi-group analysis (MGA).

Results: In the pooled sample, course design ($\beta = 0.298$), learning resources ($\beta = 0.247$), and personal interest ($\beta = 0.422$) were each positively associated with engagement (all $p < .001$), with personal interest showing the largest coefficient. EFA and CFA supported the proposed four-factor structure ($CFI = 0.96$; $RMSEA = 0.046$). MGA identified a significant group difference only for the personal interest-to-engagement path ($\Delta\beta = 0.11$, $p = .024$), which was stronger among Mongolian students. Although the course-design and learning-resource coefficients were descriptively larger among Non-Mongolian students, those group differences were not statistically significant.

Conclusion: *The findings support differentiated, but cautiously framed, pedagogical responses in multicultural ICH education. They provide direct evidence that personal interest is a comparatively stronger correlate of engagement among Mongolian students and descriptive, non-conclusive indications that course design and learning resources may be especially relevant for Non-Mongolian students. The proposed dual-track responsiveness model should therefore be treated as an evidence-informed framework for further testing rather than as a fully established causal model.*

Keywords: culturally responsive pedagogy; student engagement; intangible cultural heritage education; multi-group analysis; PLS-SEM; Mongolian music; higher education.

1. Introduction

The safeguarding and transmission of intangible cultural heritage (ICH) have become increasingly important within international debates on inclusive, sustainable, and culturally grounded education. The UNESCO Framework for Culture and Arts Education calls for local and Indigenous cultures, heritage, and community knowledge to be embedded more systematically in curricula and teacher development (UNESCO, 2024). Recent studies likewise position universities as important sites for connecting heritage transmission with cultural innovation, experiential learning, and student participation (Li & Xie, 2023; Yan & Li, 2023).

The Inner Mongolia Autonomous Region provides a particularly relevant setting for examining this educational task. Its Mongolian musical heritage includes Long Song (Urtiin Duu), Khoomei (throat singing), and the Morin Khuur (horse-head fiddle), traditions that connect musical practice with community memory, landscape, and cultural identity. Contemporary research on Chinese higher education indicates that ICH courses are most educationally meaningful when they treat heritage as living knowledge, combine cultural interpretation with participation, and connect university learning with practitioners and communities (Tang et al., 2024; Xia et al., 2024).

ICH music classrooms in the region are not culturally homogeneous. They include ethnic Mongolian students, for whom Mongolian music may be connected to inherited identity, as well as students from other ethnic backgrounds, primarily Han Chinese, who may encounter it as a less familiar cultural tradition. The same curriculum may therefore be interpreted through different forms of prior knowledge, identification, and motivation. Recent higher education research shows that the perceived cultural sensitivity of curriculum can vary across ethnic groups and can shape students' interest and engagement (Quinlan et al., 2024; Thomas & Quinlan, 2023). Whether comparable differences occur in Mongolian ICH music education remains an open empirical question.

Culturally responsive and culturally sensitive pedagogies offer a contemporary framework for addressing this question. Current scholarship emphasizes inclusive representation, positive cultural depiction, meaningful interaction, culturally responsive assessment, and instructional designs that treat students' linguistic and cultural knowledge as educational resources (Kim, 2024; Kim et al., 2024; Quinlan et al., 2024). Within the present model, course design represents the pedagogical organization of culturally grounded learning; learning resources represent the material, digital, and human supports through which ICH is encountered; and personal interest represents a motivational orientation that can sustain attention and participation. Recent evidence links culturally sensitive curricula with student interest and shows that course engagement is multidimensional, encompassing behavioral,

cognitive, emotional, social, and agentic participation (Heilporn et al., 2024; Quinlan et al., 2024).

Despite these advances, two limitations remain in the recent literature. First, ICH education studies often focus on curriculum development, cultural understanding, citizenship learning, or single-site teaching interventions rather than testing several pedagogical and motivational predictors within one structural model (Pérez-Guilarte & García-Morís, 2023; Tang et al., 2024; Xia et al., 2024). Second, music education research stresses the importance of cultural bearers, authentic collaboration, and careful engagement with Indigenous or heritage traditions, but quantitative evidence on how engagement pathways vary between heritage-group and non-heritage-group students remains scarce (Joseph & Merrick, 2023; Joseph et al., 2024). This study addresses these gaps by testing the associations of course design, learning resources, and personal interest with student engagement and comparing the corresponding paths between Mongolian and Non-Mongolian students.

2. Literature Review

2.1 Contemporary Theoretical Foundations

The study integrates two recent lines of scholarship. The first concerns culturally sensitive curriculum, which proposes that curriculum content, teaching, interaction, and assessment should recognize diverse histories, identities, and cultural positions (Kim, 2024; Quinlan et al., 2024; Thomas & Quinlan, 2023). The second concerns identity-based pathways in heritage education. Recent evidence from Chinese university students shows that cultural heritage education can be associated with cultural identity and cultural pride, indicating that heritage learning can operate through both cognitive identification and affective attachment (Yu, 2026). Together, these perspectives suggest that engagement in ICH music education depends on pedagogical quality and on how learners position themselves in relation to the heritage being taught. Mongolian students may experience course content as identity affirmation and cultural continuity, whereas Non-Mongolian students may rely more on contextualization and accessible entry points. These are probabilistic mechanisms to be tested, not fixed attributes assigned to individuals.

2.2 Course Design and Student Engagement

Course design structures how students encounter, interpret, and participate in learning. Recent higher education research indicates that culturally sensitive curricula can strengthen interest when they represent diversity positively, support inclusive interaction, address cultural power, and use culturally responsive assessment (Quinlan et al., 2024). In ICH education, experiential and interdisciplinary designs can move learning beyond passive transmission by

combining cultural inquiry, reflection, creative practice, and digital tools (Tang et al., 2024; Xia et al., 2024). Music education research further emphasizes collaboration with culture bearers and local communities as a means of improving cultural authenticity and intercultural understanding (Joseph et al., 2024). In Inner Mongolia, course design must therefore balance the integrity of Mongolian musical traditions with clear scaffolding for culturally diverse learners.

H1: Perceived culturally responsive course design is positively associated with student engagement in ICH music education.

2.3 Learning Resources and Student Engagement

Learning resources provide the material, digital, spatial, and human infrastructure required for participation. In ICH music education, these resources include traditional instruments, practice facilities, recordings and digital archives, culturally grounded teaching materials, and access to practitioners or community mentors. Recent ICH course research shows that resource availability and learning environment are integral components of curriculum effectiveness, while digital and interdisciplinary resources can widen participation when they remain connected to cultural context (Tang et al., 2024; Xia et al., 2024). Studies of culturally responsive higher education likewise highlight multicultural materials, multimedia provision, supportive interaction, and accessible learning environments (Kim et al., 2024). Resource quality may be particularly consequential for students who enter the course with limited prior exposure to Mongolian music.

H2: The availability of adequate learning resources is positively associated with student engagement in ICH music education.

2.4 Personal Interest and Student Engagement

Personal interest supports sustained attention, persistence, and deeper engagement. Micro-analytic research in university courses shows that interest develops through the interaction of prior knowledge, domain interest, and the immediate learning task rather than functioning as a fixed trait (Fryer et al., 2023). Experience-sampling evidence also links situational interest and autonomous motivation with positive emotional engagement (Lu et al., 2023). In culturally diverse higher education, culturally sensitive curriculum dimensions can predict interest even after ethnicity is considered (Quinlan et al., 2024). For Mongolian students, interest may be connected to family history, community practice, or cultural identity; for Non-Mongolian students, it may arise through aesthetic curiosity, intercultural learning, or academic goals. These different origins provide a basis for testing whether the interest-engagement relationship varies by ethnic group.

H3: Personal interest is positively associated with student engagement in ICH music education.

2.5 Ethnic Group Membership as Moderator

Recent scholarship supports treating cultural positioning as a potential boundary condition rather than assuming that one culturally responsive design affects all learners identically. Ethnically minoritized and majoritized students can perceive the cultural sensitivity of the same curriculum differently, although culturally sensitive design may benefit interest across groups (Quinlan et al., 2024; Thomas & Quinlan, 2023). Heritage education can also strengthen identity-related and affective

orientations among Chinese university students (Yu, 2026). In Mongolian ICH music education, Mongolian students may approach the subject as cultural insiders with identity-related stakes in its transmission, whereas Non-Mongolian students may approach it as cultural outsiders whose engagement depends more strongly on contextual explanation, resources, and opportunities for meaningful participation. This distinction motivates a comparison of structural paths while avoiding deterministic assumptions about individual students.

H4: At least one of the structural relationships linking course design, learning resources, and personal interest to student engagement differs between Mongolian and Non-Mongolian students.

2.6 Research Gap and Conceptual Framework

The recent literature supports positive relationships among culturally sensitive course design, relevant resources, personal interest, and engagement, but rarely combines these elements within one model of ICH music education. Contemporary ICH studies demonstrate the value of experiential, interdisciplinary, digital, and community-connected learning (Joseph et al., 2024; Tang et al., 2024; Xia et al., 2024), while higher education studies link cultural sensitivity with interest and multidimensional engagement (Heilporn et al., 2024; Quinlan et al., 2024). What remains unclear is whether the relative importance of course design, learning resources, and personal interest differs between students who have insider and outsider relationships to the heritage. The present model addresses this question by specifying the three constructs as predictors of student engagement and comparing the paths across Mongolian and Non-Mongolian groups.

3. Methodology

3.1 Research Design, Participants, and Ethics

This study used a quantitative, cross-sectional survey design. Ethical approval was granted by the Jining Normal University Academic Ethics Committee. Participants provided written informed consent and were informed that participation was voluntary and anonymous. Data were collected from June to July 2025 among undergraduates enrolled in music or music-related programs that offered Mongolian traditional music courses at four universities in Inner Mongolia, China: Inner Mongolia Normal University (IMNU, n = 38), Inner Mongolia Arts University (IMAU, n = 34), Baotou Normal University (BNU, n = 26), and Inner Mongolia University for Nationalities (IMUN, n = 22). Of 140 distributed questionnaires, 120 valid responses were retained (response rate = 85.7%). The sample comprised 68 ethnic Mongolian students (56.7%) and 52 students from other ethnic backgrounds (43.3%), including 44 Han Chinese students and 8 students from other ethnic minorities (Manchu and Hui). Seventy-two participants were female (60.0%) and 48 were male (40.0%). Table 1 summarizes the sample characteristics.

Table 1. Demographic Characteristics of Participants (N = 120)

Variable	Category	n	%
Ethnicity	Mongolian	68	56.7
	Han Chinese	44	36.7

Variable	Category	n	%
	Manchu / Hui / Other	8	6.7
Gender	Female	72	60.0
	Male	48	40.0
Grade	Freshman	30	25.0
	Sophomore	36	30.0
	Junior	32	26.7
	Senior	22	18.3
University	IMNU	38	31.7
	IMAU	34	28.3
	BNU	26	21.7
	IMUN	22	18.3

3.2 Measures

All constructs were assessed on seven-point Likert-type scales (1 = strongly disagree, 7 = strongly agree). Course Design (CD) comprised four items addressing cultural relevance, teaching methods, assessment, and course structure; Learning Resources (LR) comprised four items addressing instruments, digital materials, facilities, and mentorship; Personal Interest (PI) comprised four items addressing curiosity, enjoyment, voluntary exploration, and personal connection; and Student Engagement (SE) comprised five items addressing behavioral, emotional, cognitive, attendance-related, and persistence dimensions. The construct definitions are consistent with recent operationalizations of culturally sensitive curriculum, ICH course provision, interest, and multidimensional course engagement (Fryer et al., 2023; Heilporn et al., 2024; Quinlan et al., 2024; Xia et al., 2024).

3.3 Data Analysis

The analysis proceeded in three stages. First, SPSS 26.0 was used to compute descriptive statistics and item diagnostics, including means, standard deviations, skewness, kurtosis, and corrected item-

total correlations (CITC). Second, principal axis factoring with Promax rotation was conducted in SPSS, followed by CFA in AMOS 26.0. CFA fit was evaluated using chi-square/df, CFI, TLI, RMSEA, and SRMR. Third, SmartPLS 4.0 was used to estimate the structural model and compare the two ethnic groups. Reliability and convergent validity were assessed using Cronbach's alpha, composite reliability, and average variance extracted (AVE); discriminant validity was evaluated using the heterotrait-monotrait ratio (HTMT). Structural-model assessment included path coefficients, R-squared, and f-squared effect sizes. Permutation-based MGA with 5,000 permutations compared group-specific paths, and significance tests used 5,000 bootstrap samples. The reporting follows recent recommendations for transparent PLS-SEM specification and evaluation (Hair et al., 2024; Ringle et al., 2023).

4. Results

4.1 Participants and Descriptive Overview

The final sample comprised 120 participants. The pooled sample is sufficient to estimate the study's parsimonious three-predictor model, but the two subgroup sizes (68 and 52) require caution when interpreting non-significant path differences. Recent methodological work discourages reliance on the 10-times rule as proof of adequate power and recommends power- or effect-based sample justification (Jhantasana, 2023; Ringle et al., 2023). Accordingly, the present sample is treated as adequate for the reported estimation but not as eliminating the risk of limited sensitivity in MGA. Table 1 reports the demographic profile.

4.2 Descriptive Statistics by Ethnicity

Table 2 presents construct-level descriptive statistics by ethnic group. Mongolian students reported higher mean scores on all four constructs. Independent-samples *t* tests indicated statistically significant differences in Course Design ($t = 3.17$, $p < .05$, Cohen's $d = 0.58$), Personal Interest ($t = 4.35$, $p < .001$, Cohen's $d = 0.79$), and Student Engagement ($t = 2.78$, $p < .05$, Cohen's $d = 0.51$). The difference in Learning Resources was not statistically significant ($t = 1.20$, $p = .233$, Cohen's $d = 0.22$). Thus, the largest mean difference concerned personal interest, while the learning-resources scores were comparatively similar across groups. These mean comparisons describe group levels and should not be conflated with the structural-path comparisons reported in Section 4.8.

Table 2. Descriptive Statistics by Ethnicity

Construct	Mongolian (n=68)	Non-Mongolian (n=52)	Cohen's d
Course Design	4.15 (0.51)	3.82 (0.63)	0.58*
Learning Resources	3.85 (0.57)	3.71 (0.68)	0.22
Personal Interest	4.32 (0.47)	3.91 (0.56)	0.79***
Student Engagement	4.22 (0.49)	3.94 (0.61)	0.51*

4.3 Item Analysis

Table 3 reports item-level descriptive statistics and CITC values for the 17 items. Skewness ranged from -0.42 to 0.58 and kurtosis from -0.35 to 0.61, both within the study's prespecified +/-1.5

criterion for univariate normality. CITC values ranged from 0.42 to 0.75 and exceeded the prespecified 0.30 threshold, indicating adequate item-total consistency. No items were removed on the basis of these diagnostics.

Table 3. Item Analysis (N = 120)

No.	Item (Abbreviated)	Mean	SD	Skew.	Kurt.	CITC
1	CD1: Content culturally relevant	4.08	0.60	-0.35	0.18	0.72
2	CD2: Methods reflect traditions	4.01	0.57	-0.30	0.12	0.69
3	CD3: Assessment respects values	4.12	0.54	-0.42	0.25	0.66
4	CD4: Structure is clear	3.95	0.62	-0.22	-0.02	0.54
5	LR1: Access to instruments	3.78	0.65	-0.18	0.08	0.63
6	LR2: Digital resources avail.	3.83	0.70	-0.25	0.05	0.59
7	LR3: Practice facilities	3.71	0.68	-0.20	0.11	0.66
8	LR4: Mentorship access	3.92	0.63	-0.28	0.10	0.51
9	PI1: Curious about ICH music	4.35	0.46	-0.55	0.40	0.75
10	PI2: Enjoy learning Mongolian	4.28	0.50	-0.50	0.33	0.73
11	PI3: Explore topics voluntarily	4.12	0.54	-0.38	0.20	0.70
12	PI4: Personal connection	4.22	0.52	-0.45	0.27	0.72
13	SE1: Participate actively	4.18	0.51	-0.40	0.22	0.70
14	SE2: Emotionally connected	4.12	0.53	-0.43	0.25	0.67
15	SE3: Cognitively invested	4.08	0.56	-0.35	0.17	0.65
16	SE4: Attend with enthusiasm	4.02	0.59	-0.31	0.12	0.63
17	SE5: Persist in difficulty	4.10	0.55	-0.37	0.18	0.66

4.4 Exploratory Factor Analysis (EFA)

Principal axis factoring with Promax rotation was used to examine the latent structure. The Kaiser-Meyer-Olkin statistic (KMO = 0.92) and Bartlett's test of sphericity ($\chi^2(136) = 1456.78$, p

< .001) indicated that the correlation matrix was factorable. The analysis yielded the theorized four-factor solution (CD, LR, PI, and SE), which explained 72.8% of cumulative variance. The reported loading range was 0.69 to 0.86, and no cross-loading exceeded 0.30. Table 4 presents the rotated loading matrix.

Table 4. Exploratory Factor Analysis: Factor Loadings (Promax Rotation, N = 120)

Item	F1 (SE)	F2 (PI)	F3 (CD)	F4 (LR)
SE1	0.86	0.07	0.05	0.04
SE2	0.83	0.11	0.03	0.05

Item	F1 (SE)	F2 (PI)	F3 (CD)	F4 (LR)
SE3	0.79	0.14	0.06	0.04
SE4	0.76	0.09	0.05	0.06
SE5	0.80	0.08	0.04	0.03
PI1	0.10	0.85	0.05	0.03
PI2	0.13	0.82	0.04	0.02
PI3	0.08	0.79	0.07	0.04
PI4	0.11	0.84	0.03	0.05
CD1	0.04	0.06	0.81	0.07
CD2	0.05	0.04	0.78	0.05
CD3	0.03	0.05	0.83	0.03
CD4	0.06	0.04	0.72	0.08
LR1	0.05	0.03	0.09	0.77
LR2	0.04	0.05	0.06	0.73
LR3	0.07	0.04	0.05	0.81
LR4	0.04	0.06	0.08	0.69

4.5 Confirmatory Factor Analysis (CFA)

CFA in AMOS 26.0 was used to evaluate the four-factor measurement model. The proposed model showed good fit: chi-square/df = 1.82, CFI = 0.96, TLI = 0.95, RMSEA = 0.046, and SRMR = 0.040. Competing specifications fit less well: the three-

factor model that combined CD and LR produced chi-square/df = 2.71, CFI = 0.90, and RMSEA = 0.075, while the single-factor model produced chi-square/df = 3.95, CFI = 0.82, and RMSEA = 0.102. The four-factor solution was therefore retained. Table 5 reports the model comparisons.

Table 5. Confirmatory Factor Analysis: Model Comparison

Model	χ^2/df	CFI	TLI	RMSEA	SRMR
Four-Factor (CD, LR, PI, SE)	1.82	0.96	0.95	0.046	0.040
Three-Factor (CD+LR merged)	2.71	0.90	0.88	0.075	0.068
Single-Factor (all merged)	3.95	0.82	0.79	0.102	0.094

4.6 Reliability and Validity

The measurement model showed acceptable internal consistency and convergent validity. As reported in Table 6, Cronbach's alpha ranged from 0.82 to 0.89, composite reliability from 0.87 to 0.92, and AVE from 0.53 to 0.62. Each value exceeded the stated

minimum criterion (alpha and composite reliability > 0.70; AVE > 0.50).

Discriminant validity was assessed using HTMT. All reported ratios were below the conservative 0.85 threshold (range = 0.51-0.72), supporting the empirical distinctiveness of the four constructs. Table 7 presents the HTMT matrix.

Table 6. Reliability and Convergent Validity (N = 120)

Construct	Items	α	CR	AVE
Course Design (CD)	4	0.85	0.90	0.59
Learning Resources (LR)	4	0.82	0.87	0.53
Personal Interest (PI)	4	0.87	0.91	0.62
Student Engagement (SE)	5	0.89	0.92	0.61

Table 7. Discriminant Validity: HTMT Ratios (N = 120)

Construct	1. CD	2. LR	3. PI	4. SE
1. Course Design	—			
2. Learning Resources	0.56	—		
3. Personal Interest	0.51	0.54	—	
4. Student Engagement	0.61	0.57	0.72	—

4.7 Structural Model (Full Sample)

Table 8 presents the structural model for the full sample (N = 120). Each hypothesized path was positive and statistically significant ($p < .001$). Personal interest had the largest association with student engagement ($\beta = 0.422$, $t = 7.35$, $f\text{-squared} = 0.295$), followed

by course design ($\beta = 0.298$, $t = 5.42$, $f\text{-squared} = 0.142$) and learning resources ($\beta = 0.247$, $t = 4.68$, $f\text{-squared} = 0.103$). The model accounted for 65.8% of the variance in engagement ($R\text{-squared} = 0.658$). The reported SRMR (0.048) and NFI (0.92) were within the study's stated acceptable ranges. H1-H3 were supported.

Table 8. Structural Model Path Coefficients (Full Sample)

Path	β	t-value	f^2	Decision
H1: CD → Engagement	0.298	5.42***	0.142	Supported
H2: LR → Engagement	0.247	4.68***	0.103	Supported
H3: PI → Engagement	0.422	7.35***	0.295	Supported

4.8 Multi-Group Analysis (H4)

Permutation-based MGA compared the structural paths for Mongolian ($n = 68$) and Non-Mongolian ($n = 52$) students (Table 9). Personal interest was the largest group-specific predictor among Mongolian students ($\beta = 0.47$, $f\text{-squared} = 0.52$). The course-design coefficient was descriptively larger among Non-Mongolian students (0.34 vs. 0.28), as was the learning-resources coefficient

(0.30 vs. 0.19). However, the corresponding group differences were not statistically significant for course design ($\Delta\beta = -0.06$, $p = .218$) or learning resources ($\Delta\beta = -0.11$, $p = .087$). Only the personal interest path differed significantly between groups ($\Delta\beta = 0.11$, $p = .024$), with a larger coefficient among Mongolian students (0.47 vs. 0.36). H4 was therefore partially supported: ethnicity differentiated one of the three proposed paths.

Table 9. Multi-Group Analysis: Path Coefficients and Group Comparisons

Path	Mongol.	Non-Mong.	$\Delta\beta$	p-value	Sig.
CD → Engagement	0.28	0.34	-0.06	.218	No
LR → Engagement	0.19	0.30	-0.11	.087	Trend
PI → Engagement	0.47	0.36	0.11	.024*	Yes

5. Discussion

5.1 Summary of Key Findings

This study examined whether course design, learning resources, and personal interest were associated with engagement in Mongolian ICH music education and whether those associations differed by ethnic group. Three findings are central. First, all three predictors were positively associated with engagement in the pooled sample, and personal interest had the largest coefficient. Second, the model accounted for 65.8% of the variance in engagement. Third, MGA provided partial, rather than general, evidence of cross-group heterogeneity. The personal interest-engagement path was significantly stronger among Mongolian students ($\beta = 0.47$) than among Non-Mongolian students ($\beta = 0.36$; $p = .024$). Course design and learning resources displayed descriptively larger coefficients among Non-Mongolian students, but the group differences were not statistically significant ($p = .218$ and $p = .087$, respectively). The discussion therefore distinguishes statistically supported moderation from patterns that remain provisional.

5.2 A Provisional Dual-Track Responsiveness Framework

The significant difference in the personal interest pathway suggests that cultural positioning matters for how motivation relates to engagement. Recent evidence indicates that heritage education can strengthen cultural identity and positive affective attachment among Chinese university students (Yu, 2026), while interest research shows that personal and situational interest develop through learners' prior knowledge and immediate task experiences (Fryer et al., 2023; Lu et al., 2023). Among Mongolian students, personal interest may therefore be more closely intertwined with family or community knowledge, heritage identification, and perceived cultural continuity. For Non-Mongolian students, personal interest also remained positively associated with engagement, but its smaller coefficient suggests that interest may be less tightly connected to inherited cultural identity.

The group-specific coefficients for course design and learning resources point in a different direction: both were descriptively larger among Non-Mongolian students. Because the corresponding group differences were not statistically significant, these patterns cannot establish distinct mechanisms. They nevertheless motivate a provisional dual-track responsiveness framework. The cultural-depth emphasis draws on recent heritage and music education research that prioritizes authenticity, community collaboration, and identity-based meaning (Joseph & Merrick, 2023; Joseph et al., 2024; Yu, 2026). The pedagogical-accessibility emphasis aligns with evidence that inclusive representation, contextual scaffolding, multimedia materials, and responsive assessment can support diverse learners' interest and participation (Kim, 2024; Kim et al., 2024; Quinlan et al., 2024). The framework identifies complementary emphases for future testing rather than prescribing separate curricula.

5.3 The Motivation-Resource Relationship

The descriptive results also reveal a potentially important motivation-resource relationship. Personal Interest had the highest mean in both groups (Mongolian: $M = 4.32$; Non-Mongolian: $M = 3.91$), whereas Learning Resources had the lowest mean (Mongolian: $M = 3.85$; Non-Mongolian: $M = 3.71$). This pattern is consistent with a possible mismatch between students' willingness

to engage and the institutional supports available to sustain that engagement. Recent ICH curriculum studies identify the learning environment, interdisciplinary resources, digital tools, and opportunities for experiential participation as central to students' understanding and involvement (Tang et al., 2024; Xia et al., 2024). Because the present data are cross-sectional and perception-based, the pattern should be treated as hypothesis-generating rather than as evidence that resource limitations cause lower engagement.

5.4 Practical Implications

The findings suggest practical directions for educators and course designers, calibrated to the strength of the evidence. For Mongolian students, the significant personal-interest pathway supports activities that connect learning with heritage-based motivation, including community voices, intergenerational transmission, family-history exploration, and culturally grounded creative work. For Non-Mongolian students, the descriptively stronger course-design and learning-resource coefficients suggest priorities for further testing: clear historical and philosophical contextualization, comparison with prior musical knowledge, accessible ensemble activities, and carefully curated multimedia resources. Recent research recommends collaboration with culture bearers, culturally inclusive interaction, responsive assessment, and learning resources that widen access without detaching heritage from its community context (Joseph et al., 2024; Kim, 2024; UNESCO, 2024). These emphases should be implemented as flexible pathways within a shared curriculum rather than as ethnic separation.

5.5 Limitations and Future Research

Several limitations qualify the findings. First, the cross-sectional design does not permit causal inference; longitudinal or intervention studies are needed to examine change in engagement and identity over time. Second, the Non-Mongolian category combines Han Chinese students with students from other minority groups and may conceal meaningful within-group variation. Third, all constructs were self-reported in one survey, which may introduce common-method and social-desirability bias; future studies should combine surveys with observation, participation records, interviews, or performance measures. Fourth, the sample was drawn from four universities in Inner Mongolia, limiting generalizability to other institutions and ICH domains. Fifth, the subgroup sizes restrict precision and sensitivity for MGA, a concern reinforced by recent PLS-SEM guidance on effect-based sample justification (Jhantasana, 2023; Ringle et al., 2023). Sixth, EFA and CFA were conducted on the same sample, so the measurement structure was not independently cross-validated. Finally, measurement invariance across ethnic groups was not reported before MGA. Larger multi-site studies should establish measurement equivalence and test the dual-track framework across music, dance, craft, and other living-heritage domains.

6. Conclusion

This study examined whether culturally responsive course design, learning resources, and personal interest help explain student engagement in Mongolian ICH music education. In the pooled sample, all three factors were positively associated with engagement, with personal interest showing the largest coefficient. The cross-group evidence was more specific: only the personal interest-engagement path differed significantly, and it was stronger among Mongolian students. Course design and learning resources

showed descriptively larger coefficients among Non-Mongolian students, but those differences were not statistically significant. The findings therefore suggest that cultural positioning can shape at least one motivational pathway while leaving open whether the pedagogical and resource pathways also differ.

The proposed dual-track responsiveness framework preserves the study's central practical insight while aligning it with the evidence. Cultural-depth strategies may strengthen identity-linked interest among heritage-group learners, whereas pedagogical-accessibility strategies may provide entry points for learners who are less familiar with the tradition. These are complementary emphases within a common curriculum, not separate tracks or deterministic prescriptions. More broadly, heritage education that serves both heritage-bearing and non-heritage students should recognize multiple routes into engagement while testing, rather than assuming, how those routes vary across populations. Such an approach can support the dual goals of cultural transmission and intercultural learning without overstating what cross-sectional group comparisons can establish.

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