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VALIDATION AND ADAPTATION OF THE INTERCULTURAL INCLUSION SCALE FOR STUDENTS IN MUSICAL CONTEXTS (IISC-M)

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Abstract

This article presents the validation and adaptation of the *Intercultural Inclusion Scale for Students in Musical Contexts* (IISC-M), a questionnaire designed to assess students' perceptions of intercultural inclusion in music classes. This instrument was developed in response to the lack of similar tools and is grounded in the potential of music as a medium for integration and intercultural understanding. A quantitative methodology was employed to ensure precision and generalizability of results, incorporating expert judgment evaluated through the Content Validity Index (CVI), exploratory and confirmatory factor analyses, internal consistency tests (Cronbach's alpha and McDonald's omega), and test-retest procedures to assess temporal reliability. The final instrument comprises 24 items distributed across five dimensions: intercultural inclusion in the music classroom, perceived similarity in musical abilities, intercultural relationships, intercultural conflict resolution, and cultural learning. The sample consisted of 658 students aged 6 to 54 from various educational institutions (primary and secondary schools, music schools, and conservatories) in Andalusia, Ceuta, and Melilla. Statistical analyses revealed a robust factorial structure with satisfactory fit indices (CFI = 0.87, TLI = 0.84, RMSEA = 0.05) and high temporal stability (r = 0.92). The results indicate that music fosters inclusive attitudes, empathy, coexistence, and respect for cultural diversity, highlighting its pedagogical value in building more equitable and cohesive educational environments. The IISC-M is validated as an effective tool for future research and pedagogical practices aimed at promoting inclusion from an intercultural perspective through music education.

Keywords: Intercultural inclusion, Music Education, Student Perceptions, Quantitative analysis, Questionnaire Validation.

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Contribution of this Article to the Literature

The development of this questionnaire represents a significant contribution to research in the field of music education. This instrument serves as a key tool for exploring and deeply understanding music students' perspectives on intercultural inclusion. By collecting direct data from learners engaged in various forms of music education, it provides a detailed and valuable insight that is currently underexplored in the existing literature.

1. Introduction

Educational inclusion is shaped by cultural diversity in music classrooms, presenting both challenges and opportunities for integration and mutual respect (Díaz-Santamaría & Moliner-García, 2020; Martínez-Rodríguez, 2021; Pino, 2022). In this context, fostering a tolerant environment in which music serves as a catalyst becomes a key component (Helton, 2023). To objectively assess music students' perceptions of intercultural inclusion, an ad hoc questionnaire was designed and validated using a quantitative methodology. This approach ensures the accuracy and generalizability of the results while minimizing subjective biases. The validation of the instrument was based on expert judgment, exploratory (EFA) and confirmatory factor analysis (CFA), the assessment of internal consistency (Cronbach's alpha), and test-retest reliability, thereby ensuring both the reliability and validity of the data. By employing numerical data and statistical techniques, the quantitative methodology offers an accurate measurement of students' perceptions, enabling well-founded conclusions that can be applied to broader educational contexts.

2. Literature Review

This section offers a comprehensive review of the literature, analyzing successful approaches and experiences in intercultural music education. It highlights the role of music as a universal language and a means of communication that fosters connections with other cultures, encouraging the understanding of their values and traditions. Additionally, it examines the benefits of music in promoting intercultural inclusion, such as the development of self-esteem, empathy, and respect for diversity (Abril & López-Noguero, 2020; Bate, 2020).

Music facilitates intercultural inclusion and understanding as a universal language (Côrte-Real, 2011; Elias & Mansouri, 2020; Hargreaves, 2022; López-Noguero, 2023; Mateu-Luján, 2021; O'Neill, 2021), connecting cultures through non-verbal communication and fostering a sense of community belonging (Graham et al., 2009; Guan & Matsunobu, 2022; Mansikka et al., 2018; Schroeder et al., 2019). Moreover, musical diversity enhances learning, cultural appreciation, and peer respect (Aguado-Odina et al., 2017; Hajisoteriou & Angelides, 2017; Hernández-Bravo et al., 2017; Rinde & Kenny, 2021; Roiha & Sommier, 2021).

Music also promotes diversity and tolerance (Letts, 1997; Winter, 2004), contributing to various inclusive pedagogical approaches: the cognitive approach, through musical skills (Casas & Pozo, 2008; Knaus, 2021; Luce, 2004; Maróti et al., 2019; Verdi, 2022); the emotional approach, through expression and self-esteem development (Custodio & Cano, 2017; Graham et al., 2009; Rosa-Napal et al., 2021; Talero et al., 2004); and the sociocultural approach, through cultural understanding via diverse musical forms (Cremades-Andreu & García-Sanz, 2022; Karush, 2019; Margulis et al., 2019; Níkleva & Rico-Martín, 2017).

Cultural and religious factors also strongly influence individuals' relationships with music, shaping participation, valuation, and development in various ways (Howard, 2018; VanDeusen, 2019). For instance, cultures and religions that place high value on music in daily life and rituals (Eurich, 2003; Rehfeldt et al., 2021) tend to offer greater exposure, opportunities, and support for

their children's musical learning (Hackett, 2012; Volgsten, 2014).

To better understand the realities of intercultural inclusion in musical contexts, some studies have focused on students' perspectives (Butler et al., 2016; McKoy & Morrison, 2020), often using a narrative approach to explore how they experience this process (Bradley, 2007; Karlsen, 2011; Shaw, 2016). Other research has examined the impact of inclusive methodologies (Hourigan & Hammel, 2017; Salvador & Corbett, 2018), analyzing their direct effect on students' active participation and overall sense of inclusion in music learning environments (Gaunt, 2016; Shaw, 2016; Lundquist & Rauscher, 2019).

Furthermore, numerous studies explore music's role as a cultural bridge, investigating how diverse musical styles and practices can promote mutual understanding and respect among students from different cultural backgrounds (Jellison, 2015; Veblen, 2015; Westerlund & Karlsen, 2017). However, there is a notable absence of quantitative research on students' perceptions of intercultural inclusion within musical contexts—especially among culturally diverse students. Therefore, the objective of this study is to develop an ad hoc instrument to address this gap.

To this end, an exhaustive review of existing instruments was conducted. Among them, several assess inclusion from a therapeutic perspective without considering an intercultural approach. For example, the *Perception of Inclusion Questionnaire* (PIQ) by Kyttälä et al. (2023) analyzed Finnish students' perceptions of inclusion in secondary education across three dimensions: emotional well-being, social inclusion, and academic self-concept. Another example is the questionnaire on the perceived effectiveness of inclusion by VanWeelden and Whipple (2014), aimed at music educators. It evaluates the inclusion of students with special needs through three dimensions: inclusion effectiveness, curricular adaptations/modifications, and student performance in the music education context.

There are also instruments that assess intercultural inclusion but not within musical contexts. For instance, the *Blatant and Subtle Racial Prejudice Scale* by Pettigrew and Mertens (1995), used in recent studies (Bergamaschi, Blaya, Seyedafshin & Arcidiacono, 2023); the questionnaire by Li, Otten, Van der Zande, and Coelen (2023), which evaluates three dimensions—intercultural interactions in group work, the perceived general value of diversity, and the task-specific value of diversity; and the *Diversity Approaches Scale* by Schwarzenthal, Phalet, and Kende (2023), which relates teachers' diversity approaches to students' ethnic attitudes and discriminatory experiences.

Based on all the above, the instrument in this study draws on a combination of two previously mentioned scales—VanWeelden and Whipple (2014) and Li, Otten, Van der Zande, and Coelen (2023)—to ensure that the proposed items accurately reflect music students' perceptions of intercultural inclusion. The main objective of this research is to validate the instrument and verify its psychometric properties.

3. Methodology

3.1. Research Design

This study was conducted following the approval of the Ethics Committee at the University of Granada (Ref. No. 4850/CEIH/2025). Authorization was obtained from the administrative teams of each participating music education center. Additionally, written consent was secured from the legal guardians of all student participants. When necessary, the back-translation method was employed by bilingual experts, ensuring that none of the original items were modified or removed. The instrument was administered in paper format to all students, who were previously informed about the voluntary and anonymous nature of their responses. A member of the research team was present throughout the entire process. Students completed the questionnaire in approximately 45 minutes.

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3.2. Research Population

A purposive sampling strategy was employed, including only those music education institutions that agreed to participate in the study. All selected centers were located in the Autonomous Community of Andalusia and the Autonomous Cities of Ceuta and Melilla, chosen for their cultural diversity in classroom settings.

The sample used for the Exploratory Factor Analysis (EFA) consisted of 347 students. Questionnaires with errors or incomplete responses were excluded from this phase. Participants ranged in age from 11 to 54 years (M = 13.56, SD = 3.70). In terms of gender, 46.7% identified as male, 52.2% as female, and 1.2% as non-binary. Regarding religious affiliation, 21.4% identified as atheist, 60.7% as Catholic, 1.8% as Evangelical Christian, 7.9% as Muslim, and 8.2% as belonging to other religious or cultural traditions (e.g., Buddhism, Hinduism). As for educational level, the majority were enrolled in lower secondary education institutions (93.2%), with 4.9% in primary education and 1.9% in higher music conservatories. Among students in primary and secondary education, 21.7% had attended or were attending music schools or conservatories, compared to 78.3% who had not.

The sample for the Confirmatory Factor Analysis (CFA) consisted of 311 students. As in the previous phase, questionnaires with incomplete or invalid responses were excluded. In this group, participant ages ranged from 6 to 17 years (M = 5.50, SD = 3.71). Gender distribution was 28.5% male, 54.8% female, and 16.7% non-binary. In terms of religious affiliation, 8% identified as atheist, 6.1% as Catholic, 26.7% as Evangelical Christian, 58.5% as Muslim, and 0.6% adhered to other religions (e.g., Buddhism, Hinduism). Regarding educational level, 69.4% were enrolled in secondary education, and 30.6% in primary education. In total, 38.2% had attended or were attending music schools or conservatories, whereas 61.8% reported not being enrolled in any such institutions.

3.3. Instrument

The *Intercultural Inclusion Scale for Students in Musical Contexts* (IISC-M) is an instrument designed to assess inclusion based on cultural, ethnic, or religious grounds within musical learning environments. The original version consisted of 29 items, using a four-point Likert-type scale to measure frequency of agreement with each statement (0 = never, 1 = rarely, 2 = sometimes, 3 = very often).

Following expert review using the content validity index, involving 17 researchers in educational studies and 12 music education teachers, four items were substantially revised, and three were eliminated due to a lack of coherence and alignment with the study's objectives. This process resulted in a 26-item scale divided into five dimensions:

1. Intercultural Inclusion in the Music Classroom
2. Perceived Similarity in Musical Abilities
3. Intercultural Relationships
4. Conflict Resolution in Intercultural Contexts
5. Intercultural Learning in Diverse Contexts

At this stage, Exploratory Factor Analysis (EFA) was conducted, leading to the removal of two additional items.

The final version of the questionnaire contained 24 items, which were then subjected to Confirmatory Factor Analysis (CFA), confirming the structure and dimensionality established during the validation process.

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3.4. Validity and Reliability Tests

A variety of statistical techniques were employed to analyze the collected data. These included Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and internal consistency assessments using Cronbach's alpha and omega coefficients. Additionally, cross-tabulations were performed, and structural equation modeling (SEM) techniques were applied.

To assess model fit, several fit indices were considered. The Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) were interpreted as indicators of good fit when their values approached or exceeded 0.95, following the guidelines by Tucker and Lewis (1973) and Hu and Bentler (1999), respectively. The Root Mean Square Error of Approximation (RMSEA) was used to evaluate model parsimony, with values equal to or below 0.06 considered acceptable. The Standardized Root Mean Square Residual (SRMR) was used to assess the discrepancy between observed and estimated matrices. Additionally, chi-square values with degrees of freedom ratios less than or equal to 5 were deemed acceptable. These metrics enabled a comprehensive evaluation of the quality and robustness of the proposed models.

4. Results

The preliminary analysis of the different items comprising the *Intercultural Inclusion Scale for Students in Musical Contexts* (IISC-M) was followed by the calculation of key statistical dispersion measures. Table 1 presents the decisions made based on the Content Validity Index (CVI), which was calculated through expert judgment considering the relevance, clarity, and representativeness of each item.

As part of the preliminary phase of the study, aimed at the validation and adaptation of the IISC-M, the questionnaire underwent a review process through expert evaluation. The goal was to refine and adjust the initial instrument to ensure its content validity and suitability for the field of music education from an intercultural perspective. A total of 29 experts from various Spanish universities participated, selected for their expertise in developing social skills in students of different ages, nationalities, and cultural backgrounds. Of these, 17 were professionals in educational research and 12 were teachers specialized in topics related to interculturality and music education.

The questionnaires were sent individually via email, and the experts were asked to evaluate each item using a four-point Likert scale (1 = never, 2 = sometimes, 3 = often, 4 = always), assessing its relevance and appropriateness. They were also requested to provide judgments regarding the face validity and readability of the instrument, to ensure its clarity and applicability among immigrant school populations in the context of music education. Additionally, qualitative feedback was collected through open-ended questions, which allowed for both major and minor adjustments to various questionnaire items, in line with the criteria established by Barbero (2006) concerning inter-rater agreement and content clarity.

Based on these responses, several items were modified—some significantly, others more subtly. The revision process followed the criteria proposed by Montenegro-Rueda et al. (2023) for evaluating inter-rater agreement.

The mean value of each item was analyzed, considering items with a mean score equal to or greater than 2.5 as acceptable. The median was used as the representative value for each item. To assess the level of agreement among experts, an ambiguity coefficient was applied using the interquartile range (P75 - P25) as a dispersion indicator. According to this criterion:

- If the difference between the 75th and 25th percentiles was 0.0 or 1, the item was considered acceptable or required only minor adjustments;
- If the difference ranged from 1 to 2, the item needed to be reviewed and reformulated;
- If the difference exceeded 2 points, this indicated a high level of disagreement among

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experts, and the item was to be eliminated.

Following these parameters, three items were excluded due to a lack of consensus among experts, while the remaining items were retained. However, four items showed moderate dispersion (interquartile range between 1 and 2), and thus were revised to improve clarity and appropriateness (Table 1).

Table 1

Results of the expert judgment regarding the Content Validity Coefficient (CVC), based on the level of agreement concerning the relevance and clarity of the questionnaire items.

ITEMS	25	50	75	P 75-25	Decission
1	4,00	4,00	4,00	0,00	Accept
2	4,00	4,00	4,00	0,00	Accept
3	2,25	3,00	4,00	1,75	**Modify**
4	4,00	4,00	4,00	0,00	Accept
5	4,00	4,00	4,00	0,00	Accept
6	4,00	4,00	4,00	0,00	Accept
7	4,00	4,00	4,00	0,00	Accept
8	2,25	3,50	4,00	1,25	**Modify**
9	4,00	4,00	4,00	0,00	Accept
10	4,00	4,00	4,00	0,00	Accept
11	4,00	4,00	4,00	0,00	Accept
12	4,00	4,00	4,00	0,00	Accept
13	4,00	4,00	4,00	0,00	Accept
14	4,00	4,00	4,00	0,00	Accept
15	4,00	4,00	4,00	0,00	Accept
16	4,00	4,00	4,00	0,00	Accept
17	4,00	4,00	4,00	0,00	Accept
18	4,00	4,00	4,00	0,00	Accept
19	4,00	4,00	4,00	0,00	Accept
20	4,00	4,00	4,00	0,00	Accept
21	4,00	4,00	4,00	0,00	Accept
22	4,00	4,00	4,00	0,00	Accept
23	4,00	4,00	4,00	0,00	Accept
24	4,00	4,00	4,00	0,00	Accept
25	2,33	4,00	4,00	1,67	**Modify**
26	3,00	4,00	4,00	1,00	**Modify**
27	1,07	4,00	4,00	2,93	**Eliminate**
28	1,00	4,00	4,00	3,00	**Eliminate**
29	1,08	4,00	4,00	2,92	**Eliminate**

Exploratory Factor Analysis

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In order to identify the underlying dimensions of the items, an exploratory factor analysis (EFA) was conducted (Goretzko, 2023), resulting in a total of five clearly differentiated dimensions. For this analysis, the principal axis factoring method with Oblimin rotation was applied, given that the factors were expected to be correlated (Goretzko, 2021). Prior to this, a principal components extraction method was used, and Kaiser normalization was performed. Only items with communalities ≥ 0.30 were retained (Müller-Schneider, 2022).

Multiple criteria were employed to determine the number of factors to retain and the elimination of items. Items with factor loadings below 0.30 or with a communality coefficient lower than 0.30 were excluded from the analysis (Tickell & Klassen, 2024) (Table 2). After each item was removed, a new exploratory factor analysis and internal consistency check were performed in order to minimize the impact on the factorial structure and the scale's internal reliability (Alotaibi, 2024; Karimian & Chahartangi, 2024).

Table 2

Communalities as a Basis for the Exclusion of Dependent Variables

ITEMS	EXTRACTION
6. Christian religion: easy to work with	0.500
7. Muslim religion: easy to work with	0.676
8. Roma ethnicity: easy to work with	0.424
9. Jewish religion: easy to work with	0.661
10. Black race: easy to work with	0.630
11. Hindu religion: easy to work with	0.729
12. Peers from other cultures: easy group activities	0.356
13. Musical activities with peers from other cultures	0.570
14. Attendance in Music class by students from any culture	0.490
15. Inclusion of content about cultural diversity	0.399
16. Inclusion of activities to promote participation of students from any culture	0.525
17. All students have the same abilities to learn Music	0.482

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18. All students feel the same in Music teachings by the teachers	0.494
19. Customs and traditions influence learning Music	0.379
20. All students express themselves equally in Music class	0.503
21. All students have the same capacity to make friends in Music class	0.433
22. Relating with peers from other cultures in Music class	0.679
23. Feeling comfortable with peers from other cultures in Music class	0.515
24. The teacher resolves conflicts among students from different cultures	0.297
25. Music helps combat discrimination	0.421
26. In Music class, students learn to resolve conflicts between peers from different cultures	0.527
27. Having peers from other cultures is good for learning other musical concepts	0.397
28. In Music class, students learn about the culture and traditions of other peers	0.466
29. Knowledge of songs from other cultures	0.165
30. Interest in learning music from other cultures	0.349
31. In the Music classroom, students learn that differences can unite	0.560

On the other hand, five distinct dimensions were identified through the rotated component matrix:

The first dimension demonstrated optimal internal consistency, with a Cronbach's alpha value of 0.90. This dimension comprises 7 items related to intercultural competence in the school environment. Additionally, to further support the internal consistency of the instrument (Kalkbrenner, 2024), McDonald's omega coefficient was calculated, yielding a value of $\omega \geq 0.90$ for this dimension, confirming the robustness and stability of the scale's measurements.

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The second dimension showed reliability above the minimum required thresholds (Cronbach's alpha of 0.70 / ω ≥ 0.70). It consists of 6 items related to inclusion and cultural diversity in musical learning.

The third dimension also demonstrated acceptable reliability (Cronbach's alpha of 0.70 / ω ≥ 0.70). It is composed of 5 items mostly referring to aspects of educational equality.

The fourth dimension encompasses cultural learning, with 3 items addressing this construct. It showed a reliability of α = 0.60 and an omega coefficient of ω ≥ 0.61.

The final dimension, referred to as social interaction in diverse musical contexts, presented a reliability of α = 0.60 and an omega coefficient of ω ≥ 0.70, achieving higher reliability in this latter analysis.

These dimensions represent a significant contribution to the scientific field, as they had not been previously measured. The results are consistent with previous studies (Castañeda et al., 2024; Demirtaş & Batdal, 2021ñ) that addressed similar dimensions. The factorial analysis results are presented in Table 3.

Table 3
Rotated Component Matrix

	Factors							
Items	**1**	**2**	**3**	**4**	**5**	**Dimension**	**Cronbach**	**Omega de McDonald**
Hindu religion: easy to work with	,827					1	0.90	0.90
Muslim religion: easy to work with	,797							
Jewish religion: easy to work with	,793							
Black race: easy to work with	,777							
Christian religion: easy to work with	,676							
Gypsy ethnicity: easy to work with	,616							
Peers from other cultures: easy to do group activities with	,464							
Inclusion of activities to promote participation of students from any culture		,698				2	0,70	0,70
Inclusion of content about cultural diversity		,587						
Having peers from other cultures is beneficial for learning other musical concepts		,570						
Attendance of music classes by		,558						

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students from any culture								
Music helps combat discrimination		,505						
Interest in learning music from other cultures		,431						
All students feel equal in the teaching of music professors			,696			3	0.70	0,70
All students express themselves equally in music class			,671					
All students have the same abilities to learn music			,667					
All students have the same capabilities to make friends in music class			,590					
Customs and traditions influence music learning			,567					
In the music classroom, it is learned that differences can unite				,741		4	0.60	0.61
In music class, students learn to resolve conflicts among peers from different cultures				,687				
In music class, students learn about the culture and traditions of other peers				,600				
Relating with peers from other cultures in music class					,774	5	0.60	0.70
Musical activities with peers from other cultures					,722			
Feeling comfortable with peers from other cultures in music class					,567			

The suitability of the data for conducting the Exploratory Factor Analysis (EFA) was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test

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of sphericity. The obtained KMO value was high, approaching 1, indicating that the correlations among items were sufficiently strong and compact to justify the use of EFA (Marco-Franco et al., 2022). Additionally, Bartlett's test of sphericity was statistically significant ($p < .05$), allowing rejection of the null hypothesis and assuming a correlation matrix that is adequately coherent and compact, with variances that are genuinely different (Heravian et al., 2023). Finally, the data confirm the presence of an underlying structure suitable for exploration via factor analysis. As a result of the EFA, five dimensions were identified, which together explain 48.54% of the total variance—an acceptable level in social sciences research. This factorial structure demonstrates the internal consistency of the instrument and supports its construct validity (Table 4).

Table 4

Kaiser-Meyer-Olkin (KMO) and Bartlett's tests.

KMO	0.90				
Bartlett's test of sphericity	X^2=4528,190 Sig. ≤ 0.00				
Eigenvalues	3,904	2,520	2,380	2,037	1,781
% Explained variance	15,014	9,691	9,154	7,835	6,849
% Cumulative explained variance	15,014	24,705	33,860	41,69	48,544

Confirmatory Factor Analysis

Following the initial exploratory analysis (EFA), a Confirmatory Factor Analysis (CFA) was conducted to verify the adequacy of the indicators in assessing the latent variables (Nájera et al., 2025; Rodríguez-Armero, 2024; Ulusoy et al., 2023). This analysis was performed with a sample of N = 657 participants and was conducted using AMOS software, version 26 (Figure 1). For the CFA, the CMIN (minimum discrepancy value) was examined using the χ^2 distribution (Table 5).

Table 5

Goodness of fit (1/3)

	NPAR DF P CMIN/DF	**CMIN**	**DF**	**P**	**DF**
Default model	82	766.776	265	.000	3.168
Saturated model	324	.000	0		
Independence model	24	4444.505	300	.000	14.815

Note. CMIN = Cb, minimum discrepancy value.

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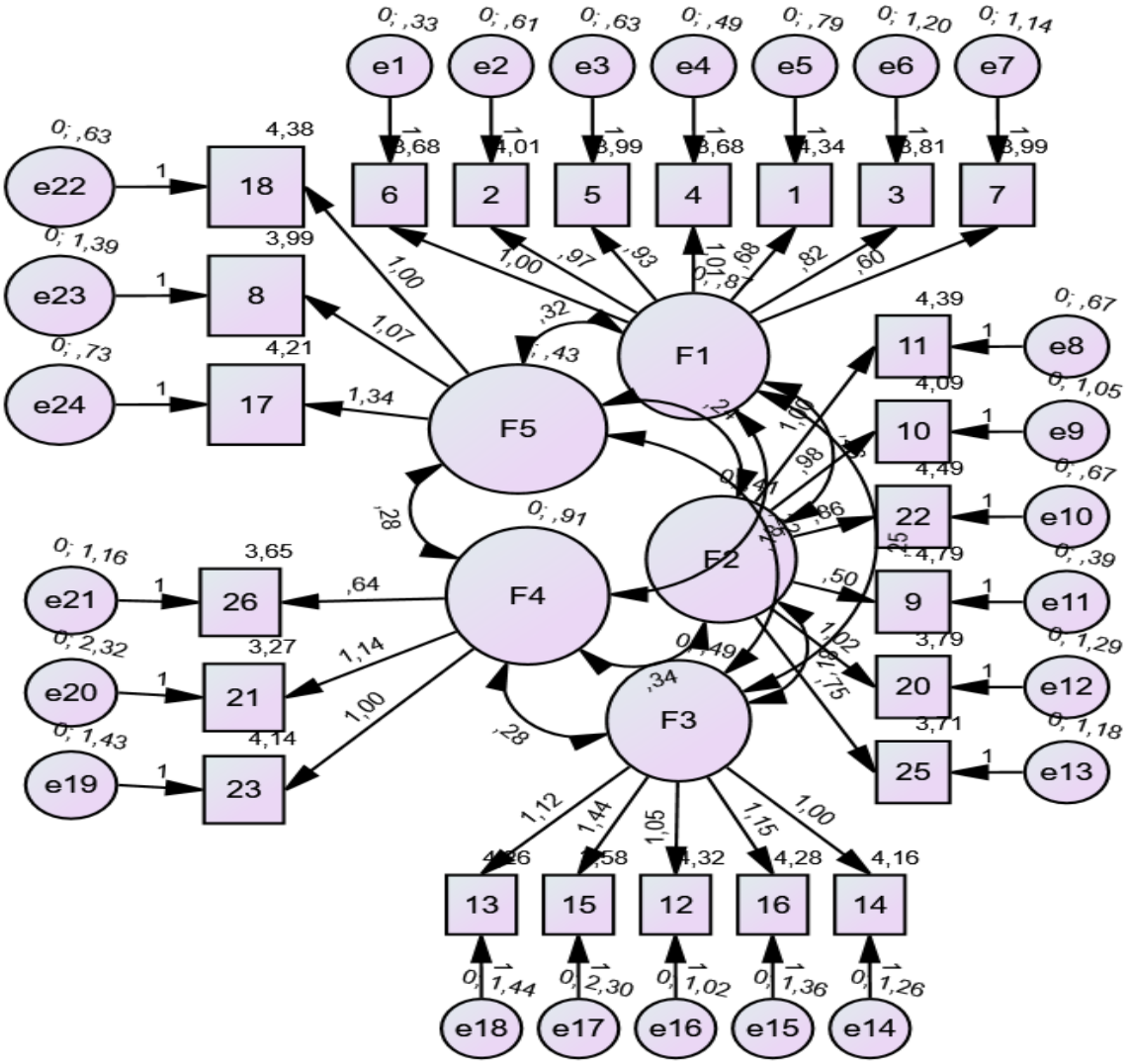
Figure 1
Structural Equation Modeling

Several studies (Chang et al., 2021; Zheng & Bentler, 2024) indicate that the chi-square (χ^2) goodness-of-fit test is often insufficient when sample sizes are large.



Therefore, it is recommended to examine the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) to assess the degree of fit between the observed covariance matrix and the model-predicted matrix, as established by the goodness-of-fit index (Alizadeh & Shafaei, 2024). The obtained values for CFI, TLI, and RMSEA demonstrate good internal consistency of the latent factors (Gong et al., 2023). Moreover, according to Khademi et al. (2023), CFI and TLI are considered adequate when approaching 1, a criterion met in this study with a CFI = 0.87 and a TLI = 0.84 (Table 6).

Table 6
Goodness of fit (2/3)

	NFI	IFI	TLI	CFI
Default model	.83	.88	.84	.87
Saturated model	1.000	1.000		1.000
Independence model	.000	.000	.000	.000

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Note. NFI = normed fit index; IFI = incremental fit index; TLI: = Tucker–Lewis index; CFI = comparative

Regarding the RMSEA value, authors such as Beribisky and Hancock (2023) indicate that a value below 0.06 denotes excellent fit. This criterion was met in the present study, which obtained an RMSEA of 0.05 (Table 7).

Table 7
Goodness of fit (3/3)

MODEL	RMSEA
Default model	0.05
Independence model	0.14

Note. RMSEA = root-mean-square error of approximation.

It can be concluded that the proposed model demonstrates a reasonable fit to the data and confirms the hypothesis of the construct's multidimensionality. The latent variables of the scale (IISC-M) were represented by 24 items (Figure 1).

Scale *Reliability*

Once the CFA was completed and the 24-item structure of the instrument confirmed, internal consistency was reassessed using Cronbach's alpha, yielding an overall reliability coefficient of $\alpha = 0.91$ for the instrument. For the first dimension (Intercultural Competence in the School Environment), $\alpha = 0.90$ (7 items); for the second dimension (Inclusion and Cultural Diversity in Musical Learning), $\alpha = 0.70$ (6 items); for the third dimension (Educational Equality), $\alpha = 0.70$ (5 items); the fourth dimension (Cultural Learning), $\alpha = 0.60$ (3 items); and for the final dimension (Social Interaction in Diverse Musical Contexts), $\alpha = 0.60$ (3 items). Based on the data obtained, the scale demonstrates a reliability coefficient exceeding the threshold of $\alpha \geq 0.80$, meeting the acceptable reliability criteria established in the literature (Aldahadha, 2023; Karimian & Chahartangi, 2024).

Moreover, to further reinforce the instrument's internal consistency, McDonald's omega coefficient was calculated, yielding a value of $\omega \geq 0.84$, confirming the robustness and stability of the measurements provided by the scale (Lamash & Meyer, 2025).

Finally, construct validation was corroborated through structural equation modeling (SEM), which yielded excellent psychometric properties. Furthermore, the results indicate that this instrument is appropriate for application within the target population. In the initial validation phase (EFA), items with strong psychometric performance were identified, and the instrument was structured into four dimensions with adequate levels of intercorrelation, indicating acceptable validity, which was subsequently confirmed through CFA. Therefore, it is concluded that the IISC-M scale is a reliable measurement tool, as it meets the recommended psychometric standards (Elovainio & Kivipelto, 2025).

Test–Retest *Reliability*

To assess the temporal stability of the scale, a test–retest analysis was conducted using data collected in two separate phases of the study, administered at different times. Although the two data collection stages involved partially different samples, a subset of participants who completed the questionnaire in both phases enabled this temporal reliability analysis.

The results demonstrated a high level of stability over time. Specifically, the Pearson correlation coefficient between the two administrations was $r = 0.92$, $p < 0.001$, indicating a strong

positive relationship between responses at both time points. Additionally, the Intraclass Correlation Coefficient (ICC) was 0.90, with a 95% confidence interval ranging from 0.84 to 0.95, confirming excellent agreement between measurements. These findings support the temporal reliability of the IISC-M scale and reinforce its utility as a consistent tool for evaluating educational inclusion among students in musical contexts.

5. Discussion

This study aimed to validate and examine the psychometric properties of the Intercultural Inclusion Scale for Students in Musical Contexts (IISC-M), an instrument designed to measure students' perceptions of cultural inclusion within various types of educational institutions. The need for this scale arises from the recognized importance of music as a universal language and its potential to foster inclusion and intercultural understanding (Côrte-Real, 2011; Elias & Mansouri, 2020; Hargreaves, 2022; López-Noguero, 2023; Mateu-Luján, 2021; O'Neill, 2021). This aligns with the questionnaire's objective to explore musical students' perceptions regarding aspects related to intercultural inclusion.

The validation process, which included expert review as well as exploratory and confirmatory factor analyses, resulted in a 24-item scale structured into five dimensions. These dimensions measure intercultural competence in the school environment, inclusion and cultural diversity in musical learning, educational equity, cultural learning, and social interaction in diverse musical contexts. The identification of these dimensions is consistent with existing literature that highlights music's benefits for intercultural inclusion, such as enhancing self-esteem, empathy, and respect for diversity (Abril & López-Noguero, 2020; Bate, 2020), as well as promoting socialization (Cremades-Andreu & García-Sanz, 2022) and the holistic development of students (Cores-Torres & Rodríguez, 2023; Silverman, 2007).

Results from the exploratory factor analysis (EFA) revealed adequate internal consistency of the dimensions, supported by Cronbach's alpha and McDonald's omega reliability coefficients. Additionally, the confirmatory factor analysis (CFA) supported the factorial structure obtained in the EFA, with model fit indices demonstrating good internal consistency of the latent factors. Test–retest reliability analysis evidenced the temporal stability of the scale, suggesting that the IISC-M is a robust tool for measuring educational inclusion in musical contexts over time.

Therefore, the validation of the IISC-M provides a reliable and valid instrument for research in the field of intercultural music education. This instrument can contribute to future studies investigating how music facilitates inclusion and intercultural understanding, as noted by authors such as Côrte-Real (2011), Elias and Mansouri (2020), Hargreaves (2022), López-Noguero (2023), Mateu-Luján (2021), and O'Neill (2021), and how inclusive pedagogical approaches that promote diversity and tolerance can be designed (Letts, 1997; Winter, 2004).

The development of the IISC-M is crucial because, unlike other instruments (Li, Otten, Van der Zande & Coelen, 2023; Kyttälä et al., 2023; Pettigrew & Mertens, 1995; Schwarzenthal, Phalet & Kende, 2023; VanWeelden & Whipple, 2014), it is the first scale to explicitly measure intercultural inclusion within musical contexts, thus filling an existing research gap. Furthermore, its rigorous design makes it an effective tool for understanding and promoting intercultural inclusion in the musical education field.

6. Conclusions

The present study has successfully validated and confirmed the psychometric properties of the IISC-M, establishing it as an innovative, reliable tool with a solid psychometric foundation. The identified factorial structure—comprising five key dimensions—allows for a precise

exploration of students' perceptions regarding cultural diversity within the context of music education.

In this regard, the IISC-M represents a significant advancement in the study of educational inclusion from an intercultural perspective, providing educators and researchers with a valid instrument to design more inclusive educational interventions, especially in increasingly diverse settings. Furthermore, it contributes to highlighting the importance of music education as a transformative tool within the educational system.

Proposal for Improvement and Future Research Directions

Based on the findings of this study, several proposals are put forward to enrich both the development of the instrument and its applicability in broader and more diverse educational contexts.

First, it is recommended to expand the geographic scope of the sample by administering the IISC-M in other autonomous communities within Spain, as well as in other countries with multicultural realities. This would allow for testing the intercultural validity of the instrument and verifying its adaptability to different educational settings. Such an expansion would also contribute to generating a more robust and representative database.

Additionally, it would be advisable to develop a digital version of the scale, which would facilitate its application in educational contexts with larger student populations and enable more efficient data collection. This digital version could incorporate interactive elements to enhance student engagement and comprehension without compromising the psychometric validity of the instrument.

Finally, another avenue for improvement involves including teachers as part of the evaluation process by creating parallel versions of the questionnaire that capture their perceptions of intercultural inclusion in music education. This approach would allow for contrasting perspectives and support the design of more comprehensive pedagogical interventions.

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