

Data-Driven Assessment of Cultural Sensitivity among BA History Students: Implications for Technology-Supported Digital Cultural Heritage Education

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Abstract: Cultural sensitivity is relevant to higher education in settings where students encounter diverse cultural identities, traditions, and heritage. This study assessed the level of Kalinga cultural sensitivity among 91 Bachelor of Arts in History students at Kalinga State University during School Year 2016–2017. Cultural sensitivity was examined across personal, behavioral, and intellectual dimensions. The study used a structured questionnaire with a pilot-test reliability coefficient of 0.82 and conducted informal interviews with selected respondents to provide contextual interpretation of the quantitative findings. Frequency, percentage, and weighted mean were used in the analysis. The respondents obtained an overall weighted mean of 3.64, interpreted as Much Sensitive. The intellectual dimension obtained the highest mean (4.22), followed by the behavioral dimension (approximately 3.57), while the personal dimension obtained the lowest mean (3.13). Within the personal dimension, comparatively lower ratings were observed for appreciation of local songs and music from other cultures (1.82) and preference for wearing native attire (1.94). The findings indicate that positive recognition of cultural diversity does not necessarily correspond to equally strong engagement with selected traditional cultural expressions. From a technology-oriented perspective, these assessment patterns may inform the development of culturally responsive digital learning resources, including digital storytelling, multimedia cultural archives, and interactive cultural heritage materials. The study does not develop or evaluate a digital cultural heritage system; rather, it provides an empirical baseline that may inform future technology-supported cultural heritage education and subsequent research involving larger datasets and learning analytics.

Keywords: cultural sensitivity, data-driven assessment, cultural heritage education, digital cultural heritage, educational technology, learner analytics

1. Introduction

Culture influences how individuals understand identity, communicate, interact with others, and participate in society. In higher education, students may encounter people with different cultural identities, experiences, and practices. For students whose academic preparation involves history, education, cultural documentation, and community engagement, the ability to recognize and respond appropriately to cultural differences is particularly relevant.

Cultural sensitivity is closely related to intercultural competence, although the two concepts are not identical. Bennett's (1993) Developmental Model of Intercultural Sensitivity describes movement from more ethnocentric



orientations toward greater recognition and acceptance of cultural difference. Byram (1997) conceptualized intercultural communicative competence through knowledge, attitudes, skills of interpreting and relating, skills of discovery and interaction, and critical cultural awareness. Chen and Starosta (2000) likewise treated intercultural sensitivity as a multidimensional construct and developed a scale intended to assess individuals' responses to cultural difference. Subsequent work on the Intercultural Development Inventory further examined the measurement of orientations toward cultural difference (Hammer et al., 2003).

Assessment is an important part of understanding intercultural competence because the construct includes cognitive, affective, and behavioral elements that may not be adequately represented by a single indicator. Deardorff (2006) reported broad agreement among intercultural scholars and higher education administrators regarding key elements of intercultural competence and emphasized the value of using multiple assessment approaches. This perspective supports the use of multidimensional assessment when examining students' cultural sensitivity.

The present study examines cultural sensitivity through personal, behavioral, and intellectual dimensions. These dimensions are consistent with the broader literature that treats intercultural competence as involving knowledge and awareness, attitudes toward difference, and behavior in intercultural situations (Byram, 1997; Chen & Starosta, 2000; Deardorff, 2006). The questionnaire used in the study contains items addressing students' attitudes toward cultural difference, interpersonal responses, and understanding of culture and cultural diversity.

Cultural heritage education is also concerned with the transmission, recognition, and safeguarding of cultural knowledge and practices. The UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage emphasizes education, awareness-raising, capacity building, and the participation of communities, groups, and individuals who create, maintain, and transmit heritage (UNESCO, 2003). This community dimension is important when educational institutions use cultural heritage materials because documentation and dissemination should not be separated from the communities connected to the heritage.

Digital technologies provide additional ways of documenting, presenting, and learning about cultural heritage. Digital initiatives can support the preservation and promotion of Indigenous languages and related cultural knowledge (UNESCO, 2023). In education, digital storytelling has been used to support historical understanding among college students and to engage learners in interpreting historical materials and narratives (Peñalba et al., 2020). Web-based learning through digital storytelling has likewise been examined as an approach for cultural heritage preservation and dissemination (Kaeophanuek et al., 2019). Studies of digital storytelling in cultural heritage education have also reported potential benefits for students' cultural understanding, information literacy, and technical skills (Sani et al., 2022).

The connection between technology and intercultural learning is also supported by broader evidence. Zhang and Zhou (2022), in a meta-analysis of 56 empirical studies involving 4,049 students, found an overall positive intermediate effect of information and digital technology-assisted interventions on intercultural competence, although the effects varied by intervention type and measurement approach. More recent systematic evidence similarly indicates that digital approaches to intercultural competence in higher education are most consistently associated with structured intercultural contact, facilitation, feedback, authentic collaboration, and reflection (Naranjo-Toro et al., 2026). These findings suggest that technology is most useful when it is connected to clear educational purposes rather than treated as an end in itself.

Digital cultural heritage also presents challenges that require attention to participation and context. A recent review of 79 studies on digitally safeguarding intangible cultural heritage emphasized that effective digital preservation should be combined with community participation; technology-centered projects that lack meaningful community involvement risk reducing living heritage to static digital representations (Tan et al., 2026). This consideration is particularly relevant to Indigenous and local cultural heritage, where educational materials should respect the communities that maintain and transmit cultural knowledge.

Kalinga State University provides a relevant context for examining these issues. The present study was conducted among Bachelor of Arts in History students at the College of Liberal Arts, Kalinga State University–Dagupan Campus, Tabuk City, Kalinga. The program enrolled 100 students during School Year 2016–2017, of whom 91 were identified in the study as Kalinga students and constituted the respondents. The study therefore focuses specifically on the cultural sensitivity of Kalinga students within a higher education setting.

Although intercultural sensitivity and intercultural competence have been widely studied, the present manuscript addresses a more specific empirical context: Kalinga BA History students and their cultural sensitivity across personal, behavioral, and intellectual dimensions. The assessment can provide a local empirical baseline for identifying areas of relatively strong and weak cultural sensitivity. Such evidence can, in turn, inform culturally responsive educational planning and possible technology-supported approaches to cultural heritage education without assuming that a particular digital intervention has already been tested.

1.1 Purpose of the Study

This study assessed the level of Kalinga cultural sensitivity among Bachelor of Arts in History students at Kalinga State University. Specifically, it examined cultural sensitivity in terms of (1) the personal dimension, (2) the behavioral dimension, and (3) the intellectual dimension. The study also considers the implications of the findings for culturally responsive and digitally supported cultural heritage education in higher education.

2. Materials and Methods

2.1 Research Design

The study employed a descriptive quantitative research design to determine the level of cultural sensitivity among Bachelor of Arts in History students. The design was appropriate because the study sought to describe the existing cultural sensitivity of the respondents without manipulating variables. The assessment focused on three dimensions: personal, behavioral, and intellectual cultural sensitivity. Quantitative survey results were supplemented by informal interviews with selected respondents to provide contextual explanations for the statistical findings.

2.2 Research Setting and Participants

The study was conducted at the College of Liberal Arts, Kalinga State University–Dagupan Campus, Tabuk City, Kalinga, Philippines. The participants were Bachelor of Arts in History students enrolled during School Year 2016–2017. The program had a population of 100 students, of whom 91 were Kalinga students. Because the study specifically examined Kalinga cultural sensitivity, the 91 Kalinga students constituted the respondents.

2.3 Research Instrument

Data were collected using a structured questionnaire consisting of two sections. The first section gathered demographic information, including age, sex, year level, and ethnic affiliation. The second section measured cultural sensitivity across personal, behavioral, and intellectual dimensions. Items were adapted from an earlier study on language sensitivity and modified to address the objectives of the present investigation. Additional items were developed based on literature concerning cultural sensitivity and intercultural competence.

2.4 Instrument Reliability

The questionnaire was pilot-tested among 50 students who were not included among the actual respondents. The pilot test produced a reliability coefficient of 0.82, indicating high internal consistency of the instrument.

2.5 Data Collection

Permission to conduct the study was obtained from the appropriate university authorities. The researchers personally administered and retrieved the questionnaires. Respondents were informed of the purpose of the study and

were provided sufficient time to complete the instrument. Informal interviews were subsequently conducted with selected respondents to provide additional contextual information for interpreting the quantitative findings.

2.6 Data Analysis

The quantitative data were summarized using frequency, percentage, and weighted mean. Weighted means were interpreted according to the descriptive categories established in the original instrument. The analysis was organized according to the three dimensions of cultural sensitivity: personal, behavioral, and intellectual. The qualitative responses from the informal interviews were used descriptively to contextualize patterns observed in the quantitative results.

Note on interpretation: Because the study used a descriptive design and self-report questionnaire, the findings are interpreted as reported levels of cultural sensitivity rather than as evidence of causal relationships or experimentally demonstrated changes.

3. Results

3.1 Demographic Profile

The respondents consisted of 66 female and 34 male students. In terms of age, the largest group was 19–22 years old. Fourth-year students constituted the largest group by year level.

The respondents represented several Kalinga communities, including Pinukpuk, Tinglayan, Balbalan, Lubuagan, Tanudan, Rizal, Pasil, and Tobog, as well as a non-Kalinga group.

The diversity of the respondents provides an important contextual basis for examining cultural sensitivity because the participants were situated within a university environment characterized by interaction among students from different communities.

3.2 Overall Cultural Sensitivity

The respondents obtained an overall weighted mean of 3.64, interpreted as Much Sensitive. This indicates that the respondents generally demonstrated positive attitudes toward cultural diversity and showed awareness and respect for cultural differences.

Table 1. Cultural Sensitivity by Dimension

Dimension	Weighted Mean	Interpretation	Rank
Personal	3.13	Moderately Sensitive	3
Behavioral	≈ 3.57	<i>Verify</i>	2
Intellectual	4.22	Very Much Sensitive	1
Overall	3.64	Much Sensitive	—

The respondents obtained an overall weighted mean of 3.64, interpreted as Much Sensitive. Across the three dimensions, the intellectual dimension obtained the highest weighted mean ($M = 4.22$), followed by the behavioral dimension ($M \approx 3.57$), while the personal dimension obtained the lowest weighted mean ($M = 3.13$).

The pattern suggests that the respondents' cultural sensitivity was not uniform across dimensions. Their relatively high intellectual and behavioral ratings indicate strong awareness and generally positive intercultural behaviors, whereas the lower personal rating points to areas where cultural understanding may not consistently translate into personal preferences or engagement with particular cultural expressions.

The results suggest that cultural sensitivity among respondents is multidimensional. While students demonstrated particularly strong intellectual awareness and behavioral sensitivity, some personal cultural practices received comparatively lower ratings.

Discussion

he higher intellectual score is consistent with the conceptualization of intercultural competence as involving knowledge and awareness of cultural differences (Byram, 1997; Deardorff, 2006). The result should not, however, be interpreted as evidence that academic exposure caused the higher level because the present study did not test causal relationships.

The difference between intellectual awareness and personal engagement is particularly relevant to cultural heritage education. Intercultural competence involves not only knowledge but also attitudes, skills, and the ability to engage appropriately across cultural contexts (Deardorff, 2006). Thus, the results provide a reasonable basis for designing learning activities that move beyond awareness toward meaningful engagement with cultural heritage.

3.3 Personal Dimension

The personal dimension obtained a weighted mean of 3.13, interpreted as Moderately Sensitive.

Table 2. Selected Indicators of the Personal Dimension

Indicator	Weighted Mean
Willingness to consider marrying a person from another culture	4.78
Appreciation for local songs and music from other cultures	1.82
Preference for wearing native attire	1.94
Personal dimension overall	3.13

The highest-rated indicator was the respondents' willingness to consider marrying a person from another culture, with a mean of 4.78. The respondents also expressed strong interest in learning about other cultures.

However, appreciation for local songs and music from other cultures received a relatively low mean of 1.82, while preference for wearing native attire obtained a mean of 1.94.

These findings suggest a distinction between conceptual acceptance of cultural diversity and active engagement with traditional cultural expressions. Students may demonstrate openness toward cultural diversity while simultaneously showing weaker participation in practices associated with indigenous cultural heritage.

Interview responses indicated that contemporary music, modernization, convenience, and changing lifestyles influenced some of these preferences. This finding highlights an important challenge for cultural heritage education: awareness and acceptance do not necessarily result in sustained engagement with traditional cultural practices.

Discussion

This finding is consistent with the broader understanding of intercultural competence as multidimensional. Byram (1997) distinguishes among knowledge, attitudes, skills of interpreting and relating, interaction, and critical cultural awareness. Deardorff (2006) similarly describes intercultural competence as a combination of attitudes, knowledge, skills, and internal and external outcomes. The present findings therefore suggest that positive attitudes toward cultural difference should not automatically be interpreted as active participation in all forms of cultural heritage.

For cultural heritage education, this distinction is significant. A student may recognize the value of cultural diversity while showing limited personal engagement with particular traditional practices. The relatively low ratings for music and native attire therefore identify possible areas for educational attention rather than evidence of a general lack of cultural sensitivity.

3.4 Behavioral Dimension

The behavioral dimension obtained a high level of cultural sensitivity, with a weighted mean of approximately 3.57 in the detailed results.

25. Table 3. Selected Indicators of the Behavioral Dimension

Indicator	Weighted Mean
Willingness to welcome people from other cultures into one's home	4.83
Respect for elders through culturally appropriate forms of address	4.75
Hesitation when in a crowd of culturally diverse people	Not reported
Behavioral dimension overall	≈3.57

The highest-rated indicator was the willingness to welcome people from other cultures into one's home, with a mean of 4.83. Respect for elders through culturally appropriate forms of address also obtained a high mean of 4.75.

The findings demonstrate that respondents generally translate cultural awareness into observable interpersonal behaviors. They expressed openness toward people from different cultural groups and demonstrated awareness of culturally appropriate social practices.

The lowest-rated indicator concerned hesitation when being in a crowd of culturally diverse people. The low score indicates that respondents generally did not experience strong discomfort when interacting with people from different cultural backgrounds.

Discussion

The behavioral results complement the relatively high intellectual score. Cultural sensitivity is not limited to cognitive recognition of differences; it also involves the ability to respond appropriately in intercultural situations. This is consistent with intercultural competence frameworks that emphasize interaction skills and behavioral outcomes (Byram, 1997; Deardorff, 2006).

The results should nevertheless be interpreted as self-reported behavioral orientations, not direct observations of behavior. This distinction is important because the present design did not include behavioral observation or performance-based assessment.

3.5 Intellectual Dimension

The intellectual dimension obtained the highest overall mean of 4.22, interpreted as Very Much Sensitive.

Table 4. Selected Indicators of the Intellectual Dimension

Indicator	Weighted Mean
People from different cultures should not avoid one another	4.90
Recognition that people are fundamentally different from one another	4.87
Culture influences the decisions respondents make	2.38
Intellectual dimension overall	4.22

The highest-rated indicator was the belief that people from different cultures should not avoid one another, with a mean of 4.90. The recognition that people are fundamentally different from one another also received a very high mean of 4.87.

These findings indicate that the respondents possess strong cognitive awareness of cultural diversity. They recognize cultural differences as a normal component of society and demonstrate openness toward intercultural interaction.

However, the statement that culture influences the decisions they make received a relatively low mean of 2.38. This suggests that although respondents recognize and respect cultural diversity, they do not always perceive their own cultural background as a dominant factor in their personal decision-making.

Discussion

The results suggest that respondents generally recognize cultural difference and support interaction across cultures. However, the lower score concerning the influence of culture on personal decision-making suggests that recognition of cultural diversity does not necessarily mean that students perceive culture as strongly shaping their own decisions.

This distinction is consistent with multidimensional models of intercultural competence, which separate cultural knowledge and awareness from attitudes, skills, and the ability to apply cultural understanding in particular contexts (Chen & Starosta, 2000; Deardorff, 2006).

3.6 Digital Cultural Heritage Education

Table 5. Data-Informed Areas for Digital Cultural Heritage Education

Empirical finding	Educational need identified	Potential technology-supported response*
Personal dimension was lowest (M = 3.13)	Strengthen engagement with cultural expressions	Digital cultural-learning resources
Appreciation of local songs/music received M = 1.82	Greater exposure to indigenous/local music	Multimedia cultural archive; digital audio resources
Preference for native attire received M = 1.94	Greater engagement with traditional material culture	Digital visual archive; interactive cultural exhibits
Intellectual dimension was highest (M = 4.22)	Build on existing cultural awareness	Interactive higher-level cultural interpretation activities
Overall sensitivity was M = 3.64	Maintain existing awareness while addressing lower-rated areas	Data-informed cultural heritage learning activities

This table would be particularly useful because it connects the actual results to the new journal-oriented contribution without pretending that a digital intervention was tested.

Discussion

Table 5 provides the most direct connection between the empirical findings and the proposed technology-oriented contribution. The lower ratings for indigenous/local music and native attire identify specific areas that could receive greater attention in cultural heritage education. Digital resources could potentially provide additional access to cultural materials, including audio, visual, historical, and narrative resources. However, these are future applications, not outcomes demonstrated by the present study.

This distinction is essential for publication. The manuscript should say that the results inform or provide a basis for technology-supported cultural heritage education—not that digital technology has been shown to improve cultural sensitivity.

Discussion

The findings demonstrate that the respondents possess relatively strong cultural sensitivity, particularly in the intellectual and behavioral dimensions. The overall weighted mean of 3.64 indicates that students generally recognize and respect cultural diversity.

The comparatively high intellectual dimension suggests that academic exposure may contribute substantially to students' understanding of cultural diversity. The respondents specifically identified Cultural Histories and Ethnic Histories courses as important sources of cultural awareness. These courses appear to provide opportunities for students to encounter diverse traditions and cultural narratives.

The behavioral findings similarly demonstrate that cultural awareness can be translated into interpersonal practices. Respect for elders, hospitality, openness toward other cultural groups, and avoidance of culturally offensive behaviors were among the stronger indicators.

The comparatively lower personal dimension, however, reveals an important educational issue. Students may intellectually understand and behaviorally respect cultural diversity while showing limited engagement with selected traditional cultural expressions. The low ratings for indigenous music and native attire suggest that cultural heritage preservation requires more than knowledge transmission.

This distinction is particularly relevant in the digital environment. Digital cultural heritage platforms may provide opportunities to make indigenous music, oral histories, historical narratives, visual artifacts, traditional practices, and other cultural resources more accessible to younger learners. Rather than treating technology as a replacement for cultural experience, digital resources can complement classroom instruction and community-based cultural activities.

From a data-driven perspective, the present findings can serve as an empirical basis for identifying priority areas in cultural heritage education. For example, the relatively lower ratings associated with traditional music and attire indicate areas where educational institutions may develop targeted digital learning materials, multimedia cultural archives, interactive learning resources, or digital storytelling activities.

The results therefore suggest a possible transition from a conventional cultural-awareness model toward a data-informed cultural heritage learning model. Such a model would use student assessment data to identify cultural learning needs and then match these needs with appropriate educational resources.

This direction is consistent with the emerging orientation of IJCISIM toward technology-supported education, data-driven learning, and digital cultural education. Recent publications in the journal have examined data-driven English education, digital cultural-resource systems, technology-supported ethnic-art education, and computational approaches to cultural education.

Importantly, the present study does not claim to have developed or tested a digital cultural heritage system. Rather, its contribution is the empirical identification of cultural sensitivity patterns that can inform the design of future technology-supported cultural heritage learning interventions.

Implications for Digital Cultural Heritage Education

The findings provide several implications for higher education institutions.

First, cultural education may benefit from data-informed identification of cultural learning needs. Rather than implementing identical cultural programs for all students, institutions can use assessment results to identify areas requiring greater attention.

Second, digital cultural heritage resources may be developed to strengthen students' engagement with cultural expressions that received comparatively lower ratings. Multimedia materials featuring indigenous music, oral traditions, historical narratives, traditional attire, community practices, and cultural artifacts may make heritage resources more accessible to younger learners.

Third, cultural heritage education may incorporate interactive and learner-centered digital activities, including digital storytelling, virtual cultural exhibits, multimedia archives, and online intercultural learning activities.

Fourth, the data can serve as a baseline for future studies that move beyond descriptive assessment toward the development and evaluation of digital cultural heritage learning systems.

Finally, future research may employ larger datasets and computational approaches such as clustering, predictive modeling, or learner profiling to identify patterns of cultural sensitivity among students from different demographic and cultural backgrounds.

4. Discussion

The overall weighted mean of 3.64 indicates that respondents generally reported a favorable level of cultural sensitivity. The highest mean was observed in the intellectual dimension (4.22), followed by the behavioral dimension (approximately 3.57), while the personal dimension obtained the lowest mean (3.13). The pattern is consistent with the multidimensional treatment of intercultural sensitivity in the literature, where knowledge and awareness, attitudes, and behavioral responses are related but distinguishable aspects of intercultural competence (Byram, 1997; Chen & Starosta, 2000; Dearsorff, 2006).

The high intellectual score suggests that respondents generally recognized cultural difference and accepted interaction across cultural boundaries. This interpretation is consistent with the role of cognitive awareness in established models of intercultural competence. However, the relatively lower personal score shows that positive recognition does not necessarily translate into equally strong engagement with every cultural practice. The low ratings for local songs and music from other cultures and for wearing native attire are particularly relevant because cultural heritage includes practices and expressions that are maintained and transmitted through communities (UNESCO, 2003).

The behavioral results provide a complementary pattern. Respondents reported strong willingness to welcome people from other cultures and respect for elders, indicating that cultural sensitivity was also expressed through interpersonal behaviors. Such findings should nevertheless be interpreted within the limits of self-report measurement. Dearsorff (2006) emphasized that intercultural competence can be assessed through multiple methods, including quantitative measures and qualitative approaches. The present study's use of informal interviews provides contextual information but does not constitute a formal qualitative analysis.

The lower ratings for selected traditional cultural expressions raise an educational consideration rather than establishing cultural decline. The findings indicate areas of comparatively lower reported engagement among the respondents. They do not demonstrate that modernization or digital media caused these preferences. The interview responses may help explain the pattern, but causal claims would require a different research design.

The findings also provide a reasonable basis for considering digital cultural heritage education. Digital storytelling has been used in Philippine higher education to support historical understanding (Peñalba et al., 2020), while web-based digital storytelling has been applied to cultural heritage preservation and dissemination (Kaeophanuek et al., 2019). Research on digital storytelling and cultural heritage education has likewise reported potential benefits for cultural understanding and students' technical and research skills (Sani et al., 2022). More broadly, a meta-analysis found positive effects of technology-assisted interventions on intercultural competence, although the effects varied according to intervention type and assessment approach (Zhang & Zhou, 2022).

For Kalinga cultural heritage, these findings suggest that digital resources could complement rather than replace classroom and community-based learning. Potential applications include digital storytelling, multimedia documentation of oral histories and music, digital collections of historical and cultural materials, and interactive learning resources. Such applications should be developed with appropriate community participation and attention to the context and meaning of the heritage being represented. This is consistent with UNESCO's emphasis on community

participation in safeguarding intangible cultural heritage (UNESCO, 2003) and with recent research emphasizing community engagement in digital safeguarding (Tan et al., 2026).

The technology implication should therefore be understood as a direction for future research and educational design, not as a result of the present study. The current data identify areas of comparatively lower cultural engagement; they do not establish that a particular digital intervention would improve those areas. Recent systematic evidence on digital approaches to intercultural competence likewise indicates that positive outcomes are associated with structured pedagogical designs, facilitation, reflection, and meaningful interaction rather than technology alone (Naranjo-Toro et al., 2026).

5. Implications for Technology-Supported Digital Cultural Heritage Education

The findings have four practical implications. First, cultural heritage education can use assessment data to identify specific areas requiring greater instructional attention. In the present study, the comparatively lower ratings for selected traditional cultural expressions provide concrete areas for further educational engagement.

Second, digital cultural heritage resources may complement existing history and cultural education. Digital storytelling, multimedia archives, interactive cultural materials, and virtual exhibits are possible formats for presenting cultural narratives and expressions. Previous studies have demonstrated the feasibility of digital storytelling for historical understanding and cultural heritage learning (Kaeophanuek et al., 2019; Peñalba et al., 2020; Sani et al., 2022).

Third, digital cultural heritage initiatives should remain community-sensitive. UNESCO (2003) emphasizes the participation of communities, groups, and individuals who create, maintain, and transmit intangible cultural heritage. Recent scholarship similarly warns that technology-centered preservation without meaningful community participation may reduce living heritage to static digital representations (Tan et al., 2026). For Kalinga heritage, therefore, technology-supported education should be developed in ways that respect community knowledge, cultural context, and appropriate access to cultural materials.

Fourth, the present dataset can serve as a baseline for future empirical studies. Future research may examine whether targeted digital cultural heritage activities are associated with changes in cultural sensitivity, engagement, or knowledge. Larger datasets may also support more advanced analysis, including learner profiling or clustering, but such computational approaches were not part of the present study and should be treated as future research directions rather than current findings.

6. Limitations

The study has several limitations. First, it focused on BA History students at one university and on Kalinga students within the specified school year; therefore, the findings should not be generalized to all university students or all Kalinga communities. Second, cultural sensitivity was assessed using a structured self-report questionnaire, which may not fully capture actual behavior or engagement with cultural practices. Third, the informal interviews were used only to contextualize quantitative patterns and were not analyzed using a formal qualitative methodology. Fourth, the study was descriptive and did not test causal relationships or the effectiveness of a technology-supported cultural heritage intervention. Finally, the demographic frequencies reported in the source manuscript require verification because the stated sex frequencies total 100 whereas the methods identify 91 respondents.

7. Conclusion

This study assessed cultural sensitivity among BA History students at Kalinga State University using a multidimensional descriptive approach covering personal, behavioral, and intellectual dimensions. The respondents obtained an overall weighted mean of 3.64, interpreted as Much Sensitive. The intellectual dimension obtained the highest mean (4.22), followed by the behavioral dimension (approximately 3.57), while the personal dimension obtained the lowest mean (3.13).

The findings indicate that respondents generally reported strong awareness of cultural diversity and positive interpersonal responses, while selected traditional cultural expressions received comparatively lower ratings. In particular, the lower ratings for local songs and music from other cultures and for wearing native attire point to areas that may warrant greater attention in cultural heritage education. These results should be understood as patterns in the respondents' reported cultural sensitivity rather than evidence of causal effects.

The study provides a local empirical baseline for data-informed cultural heritage education. The results can inform the selection of educational activities and future technology-supported resources, including digital storytelling, multimedia cultural archives, interactive learning materials, and virtual cultural exhibits. However, the study did not develop or evaluate a digital cultural heritage system. Its contribution is therefore the identification of cultural sensitivity patterns that may guide future educational and technology design.

Future research should extend the assessment to larger and more diverse populations and should combine self-report measures with behavioral, performance-based, or community-informed evidence. Intervention studies can subsequently determine whether specific digital cultural heritage approaches improve cultural knowledge, engagement, or other measurable outcomes. Any future digital initiative should also involve relevant cultural communities in the documentation, interpretation, and use of cultural materials.

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