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Perception of University Students towards AI-Enabled Integration of Cultural Heritage in Higher Education

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Abstract: The integration of Artificial Intelligence (AI) with cultural heritage is emerging as an important area of discussion in contemporary education, particularly in understanding how technology can support the preservation and promotion of traditional knowledge systems. This study explores how higher education students perceive this intersection of AI and cultural heritage. A quantitative descriptive survey method was employed for the study. Data were collected from 459 students enrolled in higher education institutions under Hemvati Nandan Bahuguna Garhwal (A Central University), Srinagar Garhwal, Uttarakhand, including its affiliated colleges. Students were asked to reflect on their understanding and perceptions through a structured questionnaire, and their responses were recorded using a five-point Likert scale. Students showed a fairly strong awareness of cultural heritage and expressed positive attitudes toward the potential of AI in preserving and promoting cultural resources. The study highlights that the integration of AI and cultural heritage is not simply a technological issue but a multidimensional process involving cultural sensitivity, educational context, and institutional readiness. While students appear optimistic about the role of AI, there remains a need to address its limitations and ensure that cultural authenticity and inclusivity are maintained in the process of technological advancement.

Keywords: Artificial Intelligence • Cultural Heritage • Student Perceptions • Higher Education • Uttarakhand

Introduction

Culture and technology are often discussed as separate domains one rooted in tradition and the other in innovation. Cultural heritage plays a crucial role in shaping identity and continuity across generations. At the same time, rapid technological advancements are transforming how knowledge is preserved, accessed, and transmitted. This evolving relationship between culture and technology has become an important area of academic inquiry, especially in the context of higher education and youth perceptions (Smith 2020). Scholars argue that cultural knowledge is not merely historical but is continuously reconstructed through social practices and inter-generational transmission (Harrison 2013; Smith 2006). Indigenous knowledge systems have been recognized for their role in sustaining ecological balance, community values, and localized wisdom (Battiste 2002; Agrawal 1995). Studies in India highlight how regional languages, folk traditions, and oral narratives contribute to preserving cultural continuity despite modernization pressures (Maikhuri et al 2000; Pandey 2009). At the same time, globalization and digital transformation have raised concerns about cultural erosion, making preservation efforts more urgent than ever (Throsby 2010). AI technologies are increasingly being used to digitize, archive, and analyze cultural data (Russell and Norvig 2021; Kaplan and Haenlein 2019) discuss the role of participatory and interactive digital platforms in understanding and representing cultural heritage. According to them, AI can enhance cultural preservation through applications like digital heritage technologies. Digitization of manuscripts and 3D modeling of artifacts have made cultural resources more accessible to global audiences (Terras 2015). AI is often

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viewed as a powerful tool that can bridge the gap between tradition and modernity. Alongside these opportunities, scholars have also raised critical concerns about the limitations of AI in cultural contexts. One major issue is that AI systems often struggle to interpret cultural nuances, symbolic meanings, and contextual variations embedded in human traditions (Ceccarelli et al 2017; Hunter et al 2019). Language diversity, particularly in regions with rich dialectal variations, poses another challenge, as many AI systems are primarily trained on dominant global languages (Joshi et al 2020). Ethical concerns related to data ownership, cultural representation, and digital appropriation have been highlighted in recent studies (Floridi et al 2018; Crawford 2021). These limitations suggest that though AI can support cultural preservation, but cannot fully replace human understanding. Another important strand of research focuses on role of institutions and infrastructure in enabling AI integration. Studies indicate that successful implementation of AI technologies requires technical tools and adequate training, policy support, and resource availability (Selwyn 2019; Holmes et al 2022). In developing contexts, limited access to digital infrastructure, lack of expertise, and insufficient institutional support often acts as barriers to effective adoption (UNESCO 2021; World Bank 2020). While the existing literature provides valuable insights into both cultural heritage and AI, a significant gap remains in understanding how these two domains are perceived together by students, particularly in relation to their academic background and progression. Limited research has examined academic characteristics influence students' perceptions of this integration. Although previous research acknowledges challenges such as linguistic limitations, contextual misinterpretation, and institutional constraints, there is a lack of empirical evidence on how these issues are perceived at the user level. It remains unclear whether students view AI primarily as an opportunity, a challenge, or a combination of both when applied to cultural preservation. The present study aims to address this gap by examining students' perceptions of AI and Cultural Heritage Integration.

Objectives of the Study: To examine students' perceptions of AI and Cultural Heritage Integration across five key areas and to compare these perceptions across all areas on the basis of academic program, academic stream, and academic progression.

Hypotheses of the Study:

H_{01}: There is no significant difference among undergraduate, postgraduate, and other students in their perceptions of folk cultural familiarity, cultural heritage and indigenous knowledge, challenges of AI in cultural contexts, institutional constraints in AI adoption, and AI-enabled cultural preservation and promotion.

H_{02}: There is no significant difference among students from science, arts, and education streams in their perceptions of folk cultural familiarity, cultural heritage and indigenous knowledge, challenges of AI in cultural contexts, institutional constraints in AI adoption, and AI-enabled cultural preservation and promotion.

H_{03}: There is no significant difference among students at different stages of academic progression (1st year, 2nd & 3rd year, and 4th year) in their perceptions of folk cultural familiarity, cultural heritage and indigenous knowledge, challenges of AI in cultural contexts, institutional constraints in AI adoption, and AI-enabled cultural preservation and promotion.

Material and Methods

The present study employed a quantitative research approach using a descriptive survey design to examine higher education students' perceptions of Artificial Intelligence (AI) and cultural heritage integration. A suitable sample of 459 students was selected using a stratified random sampling method. Data were collected using a self-developed structured questionnaire. All items in the questionnaire

were measured using a five-point Likert scale. The reliability and validity of the research instrument were established prior to analysis. Internal consistency reliability was assessed using Cronbach's alpha, and the overall reliability coefficient of the scale was found to be α = .930, indicating excellent internal consistency. Dimension-wise reliability coefficients were also acceptable: Folk Cultural Familiarity and Interest (α = .772), Cultural Heritage and Indigenous Knowledge (α = .915), Challenges and Limitations of AI in Cultural Contexts (α = .746), Institutional and Resource Constraints in AI Adoption (α = .687), and AI-enabled Cultural Preservation and Promotion (α = .890). The construct validity of the instrument was examined using factor analysis. Principal Component Analysis with Varimax rotation was employed, and five components were extracted, explaining a cumulative variance of 56.399%, which supports the dimensional structure of the instrument. The collected data were analyzed using appropriate descriptive and inferential statistical techniques.

Data Analysis and Result

The results indicate that respondents possess a positive orientation towards cultural heritage and recognise the potential of AI and digital technologies in its preservation, while also remaining aware of technological, institutional, and contextual limitations. In the dimension of Folk Cultural Familiarity and Interest, respondents demonstrated a reasonably high level of engagement with local cultural forms (Table 1).

Table 1: Descriptive Statistics of AI and Cultural Heritage Integration Dimensions

AI and Cultural Heritage Integration	Statements	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean ± S.D.
Folk Cultural Familiarity and Interest	I am familiar with traditional folk songs of Uttarakhand.	28 (6.10%)	14 (3.10%)	54 (11.80%)	279 (60.80%)	84 (18.30%)	3.82 ± 0.970
	I am interested in folk tales and ballads.	24 (5.20%)	25 (5.40%)	51 (11.10%)	269 (58.60%)	90 (19.60%)	3.82 ± 0.982
	I know about local folk theatre and dance forms.	22 (4.80%)	27 (5.90%)	74 (16.10%)	279 (60.80%)	57 (12.40%)	3.70 ± 0.930
	I can identify various dialects of Uttarakhand.	22 (4.80%)	23 (5.00%)	71 (15.50%)	264 (57.50%)	79 (17.20%)	3.77 ± 0.954
Cultural Heritage and Indigenous Knowledge	Traditional festivals are part of our cultural heritage.	20 (4.40%)	4 (0.90%)	21 (4.60%)	209 (45.50%)	205 (44.70%)	4.25 ± 0.926
	Uttarakhand's handicrafts represent a unique cultural identity.	20 (4.40%)	3 (0.70%)	30 (6.50%)	214 (46.60%)	192 (41.80%)	4.21 ± 0.927
	My regional language (Garhwali/Kumauni) preserves cultural literature.	20 (4.40%)	14 (3.10%)	28 (6.10%)	229 (49.90%)	168 (36.60%)	4.11 ± 0.965
	Folk literature has been transmitted orally through generations.	23 (5.00%)	16 (3.50%)	39 (8.50%)	245 (53.40%)	136 (29.60%)	3.99 ± 0.987
	Our folk literature contains embedded moral and social teachings.	21 (4.60%)	13 (2.80%)	32 (7.00%)	255 (55.60%)	138 (30.10%)	4.04 ± 0.947
	Local proverbs and idioms are a part of cultural knowledge.	21 (4.60%)	9 (2.00%)	31 (6.80%)	238 (51.90%)	160 (34.90%)	4.10 ± 0.947
	Documenting cultural heritage is essential.	20 (4.40%)	10 (2.20%)	31 (6.80%)	221 (48.10%)	177 (38.60%)	4.14 ± 0.956
Challenges and Limitations of AI in Cultural Contexts	Local languages are not accurately recognized by AI systems.	23 (5.00%)	31 (6.80%)	67 (14.60%)	240 (52.30%)	98 (21.40%)	3.78 ± 1.018
	Customizing AI tools to regional needs is challenging.	17 (3.70%)	47 (10.20%)	77 (16.80%)	256 (55.80%)	62 (13.50%)	3.65 ± 0.962
	AI has difficulty understanding cultural contexts.	16 (3.50%)	51 (11.10%)	93 (20.30%)	238 (51.90%)	61 (13.30%)	3.60 ± 0.969

	AI cannot fully comprehend culture.	16 (3.50%)	51 (11.10%)	80 (17.40%)	226 (49.20%)	86 (18.70%)	3.69 ± 1.012
	I know the basics of Artificial Intelligence.	19 (4.10%)	60 (13.10%)	78 (17.00%)	235 (51.20%)	67 (14.60%)	3.59 ± 1.023
Institutional and Resource Constraints in AI Adoption	Limited training is available on using AI in cultural domains.	12 (2.60%)	40 (8.70%)	108 (23.50%)	246 (53.60%)	53 (11.50%)	3.63 ± 0.893
	Resources for AI technologies are limited.	22 (4.80%)	48 (10.50%)	72 (15.70%)	256 (55.80%)	61 (13.30%)	3.62 ± 1.000
	Data privacy is an issue in cultural projects.	18 (3.90%)	58 (12.60%)	86 (18.70%)	239 (52.10%)	58 (12.60%)	3.57 ± 0.994
	Government support for AI-based preservation projects is inadequate.	17 (3.70%)	45 (9.80%)	123 (26.80%)	222 (48.40%)	52 (11.30%)	3.54 ± 0.946
AI-enabled Cultural Preservation and Promotion	AI models need to be adapted to local dialects.	25 (5.40%)	32 (7.00%)	66 (14.40%)	233 (50.80%)	103 (22.40%)	3.78 ± 1.044
	AI can enable the digitization of folk literature.	18 (3.90%)	27 (5.90%)	72 (15.70%)	270 (58.80%)	72 (15.70%)	3.76 ± 0.921
	AI can help preserve culture for future generations.	23 (5.00%)	38 (8.30%)	56 (12.20%)	257 (56.00%)	85 (18.50%)	3.75 ± 1.014
	Digital museums can present our heritage more effectively.	18 (3.90%)	28 (6.10%)	70 (15.30%)	245 (53.40%)	98 (21.40%)	3.82 ± 0.966
	3D modelling of cultural objects through AI can be beneficial.	15 (3.30%)	22 (4.80%)	61 (13.30%)	267 (58.20%)	94 (20.50%)	3.88 ± 0.900
	Digitization can promote culture more widely.	16 (3.50%)	22 (4.80%)	51 (11.10%)	262 (57.10%)	108 (23.50%)	3.92 ± 0.921
	AI-based tools can boost tourism.	14 (3.10%)	30 (6.50%)	58 (12.60%)	262 (57.10%)	95 (20.70%)	3.86 ± 0.923
	AI can provide new recognition to folk artists.	18 (3.90%)	42 (9.20%)	53 (11.50%)	257 (56.00%)	89 (19.40%)	3.78 ± 0.990
	AI can record and analyse folk songs and stories.	19 (4.10%)	34 (7.40%)	66 (14.40%)	249 (54.20%)	91 (19.80%)	3.78 ± 0.983
	AI-based virtual platforms offer new ways to learn about culture.	11 (2.40%)	25 (5.40%)	72 (15.70%)	270 (58.80%)	81 (17.60%)	3.84 ± 0.862
	AI can act as a bridge between culture and modern technology.	18 (3.90%)	24 (5.20%)	46 (10.00%)	273 (59.50%)	98 (21.40%)	3.89 ± 0.931

A majority reported familiarity with traditional folk songs of Uttarakhand and expressed interest in folk tales and ballads, both recording similar mean scores of 3.82. Respondents also indicated awareness of folk theatre, dance forms, and regional dialects, although the comparatively lower mean for knowledge of folk theatre and dance forms suggests that performative traditions may be less familiar than oral and musical traditions. The dimension of Cultural Heritage and Indigenous Knowledge recorded the strongest responses, reflecting a deeply rooted cultural consciousness among respondents. Traditional festivals, handicrafts, regional languages, oral folk literature, proverbs, idioms, and moral teachings embedded in folk traditions were strongly acknowledged as important components of cultural heritage. The highest mean score was observed for the statement that traditional festivals are part of cultural heritage, followed by strong agreement on the cultural identity represented by Uttarakhand's handicrafts. At the same time, responses under Challenges and Limitations of AI in Cultural Contexts reflect a critical understanding of the limitations of artificial intelligence. Respondents agreed that AI systems often fail to accurately recognise local languages and face difficulty in understanding cultural contexts. The perception that AI cannot fully comprehend culture highlights the limitations of technology in capturing lived experiences, symbolic meanings, emotions, and community-based knowledge. The relatively moderate mean score for basic knowledge of

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AI also suggests that although respondents are aware of AI's relevance, their technical understanding remains limited. The dimension of Institutional and Resource Constraints in AI Adoption further reveals practical barriers to integrating AI with cultural preservation. Respondents pointed to limited training, inadequate technological resources, data privacy concerns, and insufficient government support. Finally, the dimension of AI-enabled Cultural Preservation and Promotion shows an overall optimistic perception of AI's role. Respondents supported the use of AI for digitising folk literature, developing digital museums, creating 3D models of cultural objects, promoting tourism, supporting folk artists, and recording folk songs and stories. The highest agreement was observed for the view that digitisation can promote culture more widely, indicating strong belief in the outreach potential of digital platforms.

Table 2 presents descriptive statistics for five dimensions of AI and Cultural Heritage Integration based on a sample of 459 respondents. For Folk Cultural Familiarity and Interest (M = 15.12, SD = 2.957), the results indicate a moderate to high level of engagement with folk cultural elements. The dimension of Cultural Heritage and Indigenous Knowledge records the highest mean score (M = 28.85, SD = 5.420), indicating a very high level of agreement. In contrast, Challenges and Limitations of AI in Cultural Contexts (M = 18.31, SD = 3.511) reflects moderate agreement. Similarly, Institutional and Resource Constraints in AI Adoption (M = 14.36, SD = 2.756) also shows moderate agreement. The dimension of AI-enabled Cultural Preservation and Promotion (M = 42.06, SD = 7.232) indicates a high level of agreement. The responses across all dimensions tend toward agreement, indicating generally positive perceptions of both cultural heritage and the role of AI. The distribution patterns are within acceptable ranges, supporting the use of parametric statistical techniques for further analysis.

Table 2: Dimension wise Perception of Students for AI and Cultural Heritage Integration

AI and Cultural Heritage Integration	N	Mean± S.D.	Skewness	Kurtosis
Folk Cultural Familiarity and Interest	459	15.12± 2.957	-1.465	3.449
Cultural Heritage and Indigenous Knowledge	459	28.85± 5.420	-2.015	5.527
Challenges and Limitations of AI in Cultural Contexts	459	18.31± 3.511	-0.881	1.880
Institutional and Resource Constraints in AI Adoption	459	14.36± 2.756	-0.626	1.020
AI-enabled Cultural Preservation and Promotion	459	42.06± 7.232	-1.004	2.351

Table 3 presents a comparative analysis of respondents' perceptions of AI and Cultural Heritage Integration across three academic program categories - Undergraduate, Postgraduate, and Other. For the dimension of Folk Cultural Familiarity and Interest, the mean scores across the three groups are very close: Undergraduate students (M = 15.20, SD = 2.851), Postgraduate students (M = 15.07, SD = 3.005), and respondents in the "Other" category (M = 14.92, SD = 3.232). The ANOVA result (F = 0.258, p = 0.773) confirms that these differences are not statistically significant. In the case of Cultural Heritage and Indigenous Knowledge, the mean scores are again closely aligned: Undergraduate (M = 29.29, SD = 4.492), Postgraduate (M = 28.47, SD = 5.957), and Other (M = 28.33, SD = 6.764). The ANOVA results (F = 1.453, p = 0.235) indicate that these differences are not statistically significant. For the dimension of Challenges and Limitations of AI in Cultural Contexts, the mean scores show near-identical values for Undergraduate (M = 18.26, SD = 3.548) and Postgraduate (M = 18.26, SD = 3.414) respondents, with a slightly higher mean for the other category (M = 18.66, SD = 3.683).

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Table 3: Comparison of Perceptions Across Academic Program

Descriptive Statistics				ANOVA
AI and Cultural Heritage Integration	**Group**	**N**	**Mean± S.D.**	**ANOVA Result**
Folk Cultural Familiarity and Interest	Undergraduate	225	15.20± 2.851	F(2, 456)= 0.258, p = .773
	Postgraduate	173	15.07± 3.005	
	Other	61	14.92± 3.232	
Cultural Heritage and Indigenous Knowledge	Undergraduate	225	29.29± 4.492	F(2, 456)= 1.453, p = .235
	Postgraduate	173	28.47± 5.957	
	Other	61	28.33± 6.764	
Challenges and Limitations of AI in Cultural Contexts	Undergraduate	225	18.26± 3.548	F(2, 456)= 0.333, p = .717
	Postgraduate	173	18.26± 3.414	
	Other	61	18.66± 3.683	
Institutional and Resource Constraints in AI Adoption	Undergraduate	225	14.19± 2.706	F(2, 456)= 0.986, p = .374
	Postgraduate	173	14.58± 2.798	
	Other	61	14.36± 2.823	
AI-enabled Cultural Preservation and Promotion	Undergraduate	225	42.31± 7.013	F(2, 456)= 0.280, p = .756
	Postgraduate	173	41.87± 7.316	
	Other	61	41.67± 7.852	

Despite this minor variation, the ANOVA result (F = 0.333, p = 0.717) indicates no statistically significant difference among the groups. In the dimension of Institutional and Resource Constraints in AI Adoption, the mean scores remain closely clustered: Undergraduate (M = 14.19, SD = 2.706), Postgraduate (M = 14.58, SD = 2.798), and Other (M = 14.36, SD = 2.823). The ANOVA result (F = 0.986, p = 0.374) confirms that these variations are not statistically significant. Finally, for AI-enabled Cultural Preservation and Promotion, the mean scores again demonstrate strong similarity: Undergraduate (M = 42.31, SD = 7.013), Postgraduate (M = 41.87, SD = 7.316), and Other (M = 41.67, SD = 7.852). The ANOVA result (F = 0.280, p = 0.756) indicates that these differences are not statistically significant.

Table 4 presents a comparative analysis of respondents' perceptions of AI and Cultural Heritage Integration across three academic streams - Science, Arts, and Education.

Table 4: Comparison of Perceptions Across Academic Streams

AI and Cultural Heritage Integration	Group	N	Mean ± S.D.	ANOVA Result
Folk Cultural Familiarity and Interest	Science	165	15.12 ± 2.830	F(2, 456) = 0.433, p = .649
	Arts	219	15.02 ± 2.857	
	Education	75	15.39 ± 3.495	
Cultural Heritage and Indigenous Knowledge	Science	165	29.55 ± 4.570	F(2, 456) = 2.161, p = .116
	Arts	219	28.47 ± 5.584	
	Education	75	28.41 ± 6.477	
Challenges and Limitations of AI in Cultural Contexts	Science	165	18.53 ± 3.365	F(2, 456) = 2.862, p = .058
	Arts	219	17.93 ± 3.547	
	Education	75	18.95 ± 3.635	
Institutional and Resource Constraints in AI Adoption	Science	165	14.05 ± 2.448	F(2, 456) = 1.565, p = .210
	Arts	219	14.52 ± 2.940	
	Education	75	14.56 ± 2.820	
AI-enabled Cultural Preservation and Promotion	Science	165	42.49 ± 6.905	F(2, 456) = 1.082, p = .340
	Arts	219	41.54 ± 7.266	
	Education	75	42.63 ± 7.808	

For the dimension of Folk Cultural Familiarity and Interest, the mean scores across the three streams are closely aligned: Science (M = 15.12, SD = 2.830), Arts (M = 15.02, SD = 2.857), and Education (M = 15.39, SD = 3.495). The ANOVA result (F = 0.433, p = 0.649) confirms that these differences are not statistically significant. In the case of Cultural Heritage and Indigenous Knowledge, the mean scores again show only slight variation: Science (M = 29.55, SD = 4.570), Arts (M = 28.47, SD = 5.584), and Education (M = 28.41, SD = 6.477). The ANOVA result (F = 2.161, p = 0.116) indicates that this difference

is not statistically significant. For the dimension of Challenges and Limitations of AI in Cultural Contexts, the mean scores are Science (M = 18.53, SD = 3.365), Arts (M = 17.93, SD = 3.547), and Education (M = 18.95, SD = 3.635). The ANOVA result (F = 2.862, p = 0.058) approaches statistical significance but does not meet the conventional threshold (p < 0.05). In the dimension of Institutional and Resource Constraints in AI Adoption, the mean scores are again closely clustered: Science (M = 14.05, SD = 2.448), Arts (M = 14.52, SD = 2.940), and Education (M = 14.56, SD = 2.820). The ANOVA result (F = 1.565, p = 0.210) indicates that these differences are not statistically significant. Finally, for the dimension of AI-enabled Cultural Preservation and Promotion, the mean scores are Science (M = 42.49, SD = 6.905), Arts (M = 41.54, SD = 7.266), and Education (M = 42.63, SD = 7.808). The ANOVA result (F = 1.082, p = 0.340) confirms that these variations are not statistically significant.

Table 5 presents a comparative analysis of respondents' perceptions of AI and Cultural Heritage Integration based on academic progression, categorized into three groups: 1st Year, 2nd & 3rd Year, and 4th Year students.

Table 5: Comparison of Perceptions Across Academic Levels

AI and Cultural Heritage Integration	Group	N	Mean ± S.D.	ANOVA Result	Significant Multiple Comparisons
Folk Cultural Familiarity and Interest	Ist Year	188	15.01± 3.143	F(2, 456) = 5.570, p = .004	4th Year > Ist Year, MD = 1.054, p = .006
	2nd & 3rd Year	187	14.80± 3.081		4th Year > 2nd & 3rd Year, MD = 1.257, p = .001
	4th Year	84	16.06± 1.891		
Cultural Heritage and Indigenous Knowledge	Ist Year	188	28.74± 5.708	F(2, 456) = 0.925, p = .397	Not significant
	2nd & 3rd Year	187	28.64± 5.825		
	4th Year	84	29.57± 3.462		
Challenges and Limitations of AI in Cultural Contexts	Ist Year	188	18.44± 3.554	F(2, 456) = 1.797, p = .167	Not significant
	2nd & 3rd Year	187	17.97± 3.668		
	4th Year	84	18.80± 2.981		
Institutional and Resource Constraints in AI Adoption	Ist Year	188	14.53± 2.808	F(2, 456) = 2.134, p = .119	Not significant
	2nd & 3rd Year	187	14.04± 2.830		
	4th Year	84	14.67± 2.411		
AI-enabled Cultural Preservation and Promotion	Ist Year	188	41.43± 7.443	F(2, 456) = 1.382, p = .252	Not significant
	2nd & 3rd Year	187	42.33± 7.467		
	4th Year	84	42.88± 6.090		

For the dimension of Folk Cultural Familiarity and Interest, the mean scores reveal a clear upward trend with academic progression: 1st Year students (M = 15.01, SD = 3.143), 2nd & 3rd Year students (M = 14.80, SD = 3.081), and 4th Year students (M = 16.06, SD = 1.891). The ANOVA result (F = 5.570, p = 0.004) confirms that these differences are statistically significant. Further examination through post hoc multiple comparisons indicates that the difference between 4th Year and 1st Year students is significant (Mean Difference = 1.054, p = 0.006), as well as between 4th Year and 2nd & 3rd Year students

(Mean Difference = 1.257, p = 0.001). In contrast, the dimension of Cultural Heritage and Indigenous Knowledge shows relatively stable mean scores across academic levels: 1st Year (M = 28.74, SD = 5.708), 2nd & 3rd Year (M = 28.64, SD = 5.825), and 4th Year (M = 29.57, SD = 3.462). Although 4th Year students again report a slightly higher mean, the differences are minimal. The ANOVA result (F = 0.925, p = 0.397) indicates that these variations are not statistically significant. For the dimension of Challenges and Limitations of AI in Cultural Contexts, the mean scores are 1st Year (M = 18.44, SD = 3.554), 2nd & 3rd Year (M = 17.97, SD = 3.668), and 4th Year (M = 18.80, SD = 2.981). The ANOVA result (F = 1.797, p = 0.167) confirms that these differences are not statistically significant. Similarly, in the dimension of Institutional and Resource Constraints in AI Adoption, the mean scores show minor variation: 1st Year (M = 14.53, SD = 2.808), 2nd & 3rd Year (M = 14.04, SD = 2.830), and 4th Year (M = 14.67, SD = 2.411). The ANOVA result (F = 2.134, p = 0.119) indicates that these variations are not statistically significant. Finally, for the dimension of AI-enabled Cultural Preservation and Promotion, the mean scores show a gradual increase with academic level: 1st Year (M = 41.43, SD = 7.443), 2nd & 3rd Year (M = 42.33, SD = 7.467), and 4th Year (M = 42.88, SD = 6.090). Despite this upward trend, the ANOVA result (F = 1.382, p = 0.252) indicates that the differences are not statistically significant.

Discussion

The first and most striking finding is the strong cultural grounding reflected across all dimensions related to heritage, traditions, and indigenous knowledge. Students consistently express a high level of agreement with statements related to festivals, folk traditions, languages, handicrafts, and oral cultural transmission. This aligns with the broader understanding that indigenous knowledge systems are sustained through intergenerational transmission and social participation rather than formal instruction alone (Maikhuri et al 2000; Pandey 2009). While most respondents' report familiarity and interest in folk songs, stories, dialects, and cultural forms, the depth of this familiarity is not uniform. On one hand, students clearly recognize the potential of AI in areas such as digitization of cultural content, preservation of heritage, creation of virtual museums, and promotion of folk traditions. On the other hand, students also express clear concerns about the limitations of AI, particularly its inability to fully understand cultural meanings, linguistic diversity, and contextual subtleties. This finding is consistent with existing discussions in the literature that highlight the epistemic limitations of AI in capturing lived and symbolic dimensions of culture (Hunter et al 2019; Ceccarelli et al 2017). Another important dimension that emerges from the findings is the role of institutional and systemic factors in shaping AI adoption. Students generally agree that there are challenges such as limited training opportunities, insufficient resources, inadequate institutional support, and concerns related to data privacy. This aligns with broader research that emphasizes infrastructure and capacity-building as key requirements for effective digital and AI integration in cultural domains (IPCC 2022). When we connect these findings with academic differences, an interesting pattern appears. There are no significant differences across academic programs or academic streams, which suggests that perceptions of both culture and AI are relatively uniform across educational backgrounds. Students in higher academic years show significantly greater familiarity with folk cultural elements compared to those in lower years. Interestingly, this trend is not observed in other dimensions such as AI perception or institutional awareness, which remain relatively stable across academic levels. This indicates that while cultural familiarity grows with time, perceptions of technology and institutional constraints are already formed

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early and do not change significantly with academic advancement. These findings present a layered understanding of how culture and technology are perceived in relation to each other.

Conclusion

The study reveals a meaningful balance between tradition and technology. Cultural values remain strong and widely shared among students, while AI is perceived as a useful but limited tool for supporting cultural preservation. Academic program and disciplinary background do not substantially influence students' perceptions of culture and AI. This concludes that perceptions of culture and technology are shaped more by shared socio-cultural experiences than by formal academic specialization. However, academic progression appears to play a role in strengthening cultural familiarity, indicating that increased exposure and maturity contribute to a deeper engagement with cultural heritage. This requires strengthening institutional support, enhancing AI literacy, and developing culturally sensitive technologies that respect linguistic diversity and local contexts.

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