

Family Environment, Local History Pedagogy, and Cultural Value Internalization: Associations with Heritage Preservation Attitudes in Parepare, Indonesia

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Abstract

This study examined the associations of local history pedagogy (X1), cultural value internalization (X2), and family environment (M) with senior high school students' heritage preservation attitudes (Y), and tested whether the family environment moderated the two school-related associations. A cross-sectional quantitative design employed partial least squares structural equation modeling (PLS-SEM) in SmartPLS 4. Participants were 101 Grade XII students (75.4% response rate) purposively recruited from five public senior high schools in Parepare City, South Sulawesi, Indonesia. The measurement model showed acceptable indicator reliability, convergent validity, and internal consistency; however, discriminant validity was weak, particularly between X1 and X2, and the interaction terms exhibited severe collinearity. The structural model explained 54.4% of the variance in heritage preservation attitudes ($R^2 = 0.544$). Family environment showed the strongest direct association ($\beta = 0.433$, $p < .001$), followed by cultural value internalization ($\beta = 0.357$, $p = .013$), whereas local history pedagogy was not significant ($\beta = 0.030$, $p = .839$). Both interaction effects were non-significant. Given the cross-sectional design, modest sample, restricted variance, measurement overlap, and low power for interactions, the null effects should be regarded as inconclusive. The findings identify family environment as a salient correlate of heritage preservation attitudes but do not establish causal or generalizable relationships.

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Introduction

Cultural heritage constitutes more than a repository of monuments, traditions, languages, rituals, and collective memories; it provides communities with symbolic resources through which identity, social continuity, and intergenerational belonging are negotiated. Within educational contexts, heritage consequently performs a dual function: it connects learners with historically situated knowledge while simultaneously providing a cultural framework through which they interpret their relationship with the communities in which they live. This function has become increasingly important as globalization, digital communication, population mobility, and rapidly changing lifestyles alter the ways younger generations encounter local traditions and historical narratives. Contemporary scholarship therefore positions heritage education not merely as the transmission of information about the past, but as a pedagogical process capable of developing cultural awareness, civic responsibility, identity, and sustained engagement with place (Du & Zhang, 2023; Nuzzaci, 2026; Riveiro Rodríguez et al., 2021). In parallel, recent educational research has emphasized that young people's engagement with local environments is strengthened when historical and cultural knowledge is connected to lived experience rather than treated as decontextualized curricular

content (Perrotta & Cross, 2024; Wright et al., 2022; Dorji & Sakulwongs, 2024). These developments render the preservation attitudes of adolescents particularly significant because the long-term sustainability of cultural heritage depends not only on institutional conservation but also on whether younger generations come to recognize heritage as personally and socially meaningful.

This challenge is especially salient in Indonesia, where exceptional cultural, linguistic, and historical diversity coexists with an education system that must negotiate national narratives and highly differentiated local identities. Local knowledge systems, traditional practices, historical sites, oral histories, and regionally embedded values represent important educational resources, yet they are not always systematically integrated into students' learning experiences. Indonesian studies indicate that contextualizing education through local wisdom can strengthen students' historical understanding, cultural awareness, character formation, and connection with their social environment (Asrial et al., 2021; Fairus et al., 2024; Lionar et al., 2020). Digital and contextual learning materials grounded in regional cultural values have likewise been used to connect contemporary learning environments with local knowledge systems (Ardiansyah et al., 2024; Sakinah et al., 2023; Trisna et al., 2023). Nevertheless, much of this scholarship examines particular instructional materials, cultural practices, or educational interventions rather than students' broader attitudinal orientations toward preserving local heritage. This distinction is important because knowing local history or participating in culturally contextualized learning does not necessarily mean that students have developed a durable disposition to value, support, and protect heritage. In culturally rich settings such as South Sulawesi, where Bugis history, language, customary practices, and symbolic traditions continue to shape community identity, understanding how such attitudes are associated with both school and family environments is therefore educationally consequential.

The present study conceptualizes Heritage Preservation Attitudes as students' cognitive and affective dispositions toward valuing, supporting, and protecting local cultural heritage rather than as direct evidence of preservation behavior. This distinction is compatible with the broader conceptualization of attitude as an evaluative orientation that can precede, but should not be equated with, actual behavior (Ajzen, 1991). Contemporary heritage and place-based research similarly distinguishes knowledge or exposure from the affective and evaluative processes through which individuals develop attachment, responsibility, and willingness to engage with culturally significant places and practices (Fredella & Zecca, 2020; Nuzzaci, 2026; Wright et al., 2022). Adolescence is particularly relevant to this process because cultural identity, group belonging, social values, and civic orientations are actively negotiated during this developmental period; cultural messages received from families, schools, peers, and communities may consequently become incorporated into increasingly stable self-evaluative frameworks (Bingham et al., 2024; Byrd & Legette, 2022; Saleem & Byrd, 2021). Heritage preservation attitudes can thus be understood not as the product of a single educational encounter, but as an attitudinal outcome emerging from interacting processes of formal learning, cultural internalization, and socialization.

One potential educational source of such attitudes is Local History Pedagogy, understood here as the formal instructional process through which region-specific histories, historical figures, events, sites, narratives, and cultural contexts are incorporated into learning. The theoretical rationale for this relationship is consistent with social constructivist and place-based perspectives, both of which regard learning as more meaningful when students actively interpret knowledge through social interaction and culturally recognizable contexts. Place-based education connects curriculum to the social, historical, and environmental realities of learners' communities, whereas local-history

pedagogy provides a historically focused means of situating abstract knowledge within familiar landscapes and collective narratives (Riveiro Rodríguez et al., 2021; Wright et al., 2022; Dorji & Sakulwongs, 2024). Empirical evidence supports the pedagogical potential of this approach. Local-history research projects have been shown to foster historical empathy by positioning students as investigators of their own communities (Perrotta & Cross, 2024), while inquiry into local history has been associated with identity construction and active citizenship (Fredella & Zecca, 2020). Indonesian evidence similarly suggests that culturally situated historical sources can strengthen historical comprehension and make learning more closely connected to students' immediate cultural environments (Lionar et al., 2020; Ardiansyah et al., 2024; Fairus et al., 2024). However, these studies also suggest that curricular inclusion alone may be insufficient: the meaning students derive from local history depends upon pedagogy, participation, interpretation, and the social environments in which historical knowledge is subsequently reinforced.

A second mechanism concerns Local Cultural Value Internalization. Whereas local-history pedagogy represents structured educational exposure, internalization refers to the extent to which cultural meanings and values become incorporated into students' own evaluative orientations. This distinction is theoretically consequential. Exposure can provide information, but values acquire motivational significance when learners regard them as personally meaningful rather than as externally prescribed cultural expectations. Contemporary cultural-socialization research demonstrates that repeated cultural messages, opportunities to explore heritage, and affirmations of group traditions can contribute to stronger cultural identification, commitment, and positive developmental orientations (Ayón et al., 2020; Bingham et al., 2024; Wang et al., 2020). Research on school ethnic-racial socialization similarly indicates that educational institutions can provide culturally affirming experiences that contribute to how adolescents interpret their identities, although the effects depend on the content, quality, and context of the messages provided (Byrd & Legette, 2022; Kubi et al., 2022; Saleem & Byrd, 2021). Within Indonesian education, the incorporation of local wisdom into teaching materials and school activities has likewise been associated with character development, cultural knowledge, and greater recognition of local values (Asrial et al., 2021; Fairus et al., 2024; Trisna et al., 2023). These findings suggest that heritage preservation attitudes may be more closely associated with the degree to which cultural meanings are internalized than with exposure to cultural material alone.

However, neither pedagogy nor cultural internalization occurs within an exclusively school-based environment. Family Environment constitutes another potentially important source of cultural learning. Bronfenbrenner's ecological systems theory conceptualizes the family as a proximal microsystem in which development is continuously shaped through recurring interpersonal interactions, while Bandura's social learning perspective emphasizes observation, modeling, reinforcement, and everyday interaction as mechanisms through which attitudes and behavioral orientations may be acquired (Bandura, 1986; Bronfenbrenner, 1979). Contemporary family-socialization research provides substantial empirical support for the continued relevance of these mechanisms. Families transmit cultural knowledge through explicit conversations, storytelling, participation in cultural events, language use, routine practices, and more implicit forms of cultural modeling (Ayón et al., 2020; Bingham et al., 2024; Wang et al., 2020). Such cultural socialization has been linked to adolescents' identity development, academic adjustment, cultural pride, and resilience, although its effects vary according to family climate, message content, developmental stage, and sociocultural setting (Del Toro et al., 2024; Saleem et al., 2023; Wang et al., 2020).

Consequently, a family environment characterized by cultural discussion, historical storytelling, parental modeling, and participation in heritage-related practices may provide a proximal context through which students learn that local heritage has significance beyond the classroom.

Theoretically, the simultaneous involvement of school and family raises an additional question: does the family merely exert a direct association with heritage attitudes, or does it also condition the effectiveness of school-related cultural learning? Recent socialization scholarship increasingly rejects an exclusively single-agent understanding of cultural development. Parents may be the earliest cultural socializers, but schools and peers become increasingly consequential as adolescents' social worlds expand (Byrd & Legette, 2022; Saleem & Byrd, 2021; Wang & Lin, 2023). School-based cultural messages may reinforce family socialization, introduce cultural interpretations that are absent at home, or—in some circumstances—operate in environments where family and school messages are weakly aligned. Research further demonstrates that school ethnic-racial socialization can interact with broader contextual experiences in shaping adolescents' identity and critical engagement, thereby underscoring the importance of examining cultural socialization ecologically rather than treating institutions as isolated sources of influence (Byrd & Legette, 2022; Kubi et al., 2022; Saleem & Byrd, 2021). Nevertheless, the implications of such ecological interplay for heritage preservation attitudes specifically remain insufficiently tested, particularly in secondary-school settings in which local history instruction and family cultural practices coexist.

This problem is evident in the Indonesian literature. A growing body of research demonstrates the educational value of integrating local wisdom, heritage, traditional knowledge, and regional history into classroom instruction. For example, Lionar et al. (2020) showed how locally grounded historical sources can support students' historical comprehension; Asrial et al. (2021) demonstrated the educational potential of local-wisdom-based teaching materials for character development; and Fairus et al. (2024) documented multiple mechanisms through which local wisdom can be integrated into school learning. Other studies have explored digital transformation of local values (Ardiansyah et al., 2024), culturally grounded curricular approaches (Trisna et al., 2023), and the educational significance of Bugis cultural practices in learning contexts (Sakinah et al., 2023). Taken together, this literature strongly supports contextualized cultural education. Yet it remains fragmented in three important respects. First, the predominant outcomes are knowledge, learning achievement, historical awareness, character development, or perceptions of instructional practices rather than a specifically measured heritage preservation attitude. Second, school-based pedagogy and family cultural socialization are usually examined separately, making their relative associations difficult to evaluate. Third, much of the evidence is derived from qualitative studies, localized interventions, development research, or single-predictor designs, which provide substantial contextual insight but do not simultaneously estimate the structural relationships among pedagogy, internalized cultural values, family environment, and preservation attitudes.

Accordingly, a clear research gap remains at the intersection of heritage education, value internalization, and family socialization. International scholarship has demonstrated the potential of local and place-based pedagogy for connecting learners with community histories (Fredella & Zecca, 2020; Perrotta & Cross, 2024; Riveiro Rodríguez et al., 2021), while cultural-socialization studies show that family and school environments both contribute to adolescents' cultural orientation and identity development (Ayón et al., 2020; Byrd & Legette, 2022; Saleem & Byrd, 2021). Indonesian scholarship, meanwhile, has established the educational relevance of local wisdom and culturally contextualized learning (Ardiansyah et al., 2024; Asrial et al., 2021; Lionar et al., 2020). What remains

insufficiently resolved is whether these theoretically related influences retain distinguishable associations when modeled simultaneously and whether family-based cultural engagement amplifies the association of school-related cultural experiences with students' preservation attitudes. The original study is explicitly designed around this unresolved relationship, rather than merely asking whether students appreciate local culture in general.

The novelty of the present study therefore lies in integrating school-based, individual, and family-level cultural processes within a single explanatory framework of heritage preservation attitudes among senior high school students. Rather than treating local-history instruction as an isolated educational intervention, the study distinguishes Local History Pedagogy from Local Cultural Value Internalization, thereby separating students' exposure to culturally situated teaching from the extent to which local cultural values have become personally internalized. It further positions Family Environment simultaneously as a direct correlate and as a potential moderator of the two school-related relationships. This approach provides a more differentiated test of the ecological proposition that students' cultural attitudes emerge through interconnected socialization environments rather than through classroom exposure alone. Empirically, the study contributes evidence from Grade XII students in public senior high schools in Parepare City, South Sulawesi, a setting in which Bugis cultural heritage offers a particularly salient context for examining intergenerational continuity and formal heritage education.

Against this background, the present study aims to (1) examine the association between Local History Pedagogy and students' Heritage Preservation Attitudes; (2) assess the association between Local Cultural Value Internalization and Heritage Preservation Attitudes; (3) determine the direct association between Family Environment and Heritage Preservation Attitudes; and (4) evaluate whether Family Environment moderates the relationships between Local History Pedagogy and Heritage Preservation Attitudes and between Local Cultural Value Internalization and Heritage Preservation Attitudes. By testing these relationships simultaneously rather than independently, the study seeks to clarify the relative roles of pedagogical exposure, value internalization, and proximal family socialization in students' orientations toward cultural heritage. In doing so, it advances an empirically testable framework for understanding how formal education and intergenerational cultural environments may jointly contribute to the sustainability of local heritage among younger generations.

Method

Research Design

This study employed a cross-sectional quantitative design using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4. The model examined the associations of Local History Pedagogy (X1), Local Cultural Value Internalization (X2), and Family Environment (M) with Heritage Preservation Attitudes (Y), while also testing the moderating role of Family Environment in the relationships between X1 and Y and between X2 and Y. PLS-SEM was selected because the proposed model involved multiple reflective latent constructs and interaction effects and was primarily oriented toward explaining variance in Heritage Preservation Attitudes.

Participants and Sampling

The participants were Grade XII students from five public senior high schools in Parepare City, South Sulawesi, Indonesia. Purposive sampling was employed based on three eligibility criteria: students were actively enrolled in Grade XII, had completed and passed local history coursework, and were

living with their nuclear family. A total of 134 eligible students were invited to participate, of whom 101 completed the questionnaire, corresponding to a response rate of 75.4%. Participants were aged approximately 17–18 years. Because the sample was purposively recruited from five schools, the findings should be generalized cautiously beyond students with comparable characteristics.

Instrument and Measurement

Data were collected using a researcher-developed questionnaire rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Four reflective constructs were measured: Local History Pedagogy, Local Cultural Value Internalization, Family Environment, and Heritage Preservation Attitudes. The initial instrument contained 10 items each for Local History Pedagogy, Cultural Value Internalization, and Family Environment. A preliminary pilot involving 71 respondents was conducted before the main study to examine item performance and internal consistency. Cronbach's alpha values were .923 for Local History Pedagogy, .927 for Cultural Value Internalization, and .901 for Family Environment. Following assessment of the main measurement model, indicators with inadequate outer loadings were removed. The final model retained seven indicators for Local History Pedagogy, eight for Cultural Value Internalization, five for Family Environment, and four for Heritage Preservation Attitudes.

Data Collection and Ethical Considerations

The questionnaires were distributed through participating schools and completed voluntarily by eligible students. Teachers assisted only with questionnaire distribution and collection and did not have access to individual responses. Participants were informed about the purpose of the study, the voluntary nature of participation, confidentiality, and their right to withdraw without academic consequences. Institutional and school-level permission was obtained before data collection. Because the participants were minors, the absence of separately documented written parental or guardian consent is acknowledged as an ethical limitation of the study and should be addressed in future research.

Data Analysis

Data analysis was conducted in two stages. First, the measurement model was evaluated using indicator loadings, Cronbach's alpha, composite reliability, Average Variance Extracted (AVE), and the Heterotrait-Monotrait ratio (HTMT). Values above .70 were considered acceptable for indicator reliability and internal consistency, AVE values above .50 indicated convergent validity, and HTMT was used to assess discriminant validity. Second, the structural model was evaluated using path coefficients, R^2 , Q^2 , f^2 , and inner VIF values. The moderating effects of Family Environment were estimated using the two-stage approach. Statistical significance was determined through non-parametric bootstrapping with 5,000 subsamples, two-tailed testing, and 95% percentile bootstrap confidence intervals.

Result and Discussion

Measurement Model Evaluation (Outer Model)

Outer model evaluation aims to ensure that each indicator validly and reliably measures its corresponding construct. The evaluation results are presented in Table 1.

Table 1. Measurement Model Evaluation Results

Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability (ρ_c)	AVE
M – Family Environment	M1	0.857	0.917	0.937	0.748
	M2	0.884			
	M3	0.865			
	M4	0.905			
	M5	0.768			
X1 – Local History Pedagogy	X1.2	0.812	0.906	0.924	0.636
	X1.3	0.740			
	X1.4	0.808			
	X1.5	0.773			
	X1.6	0.835			
	X1.7	0.798			
	X1.9	0.793			
X2 – Local Cultural Value Internalization	X2.1	0.802	0.925	0.939	0.617
	X2.2	0.784			
	X2.3	0.797			
	X2.4	0.784			
	X2.5	0.755			
	X2.6	0.736			
	X2.9	0.762			
	X2.10	0.793			
Y – Attitude toward Local Heritage Preservation	Y1	0.783	0.825	0.886	0.661
	Y2	0.819			
	Y3	0.811			
	Y5	0.756			

Source: Primary data processed by the authors (2026). Note: rho A values, reported in Table 2 below, were obtained from the SmartPLS 4 PLS-SEM algorithm output and confirm that all four constructs exceed the 0.70 minimum threshold.

Table 2. Composite Reliability (ρ_A) by Construct

Construct	ρ_A
M – Family Environment	0.912
X1 – Local History Pedagogy	0.914
X2 – Local Cultural Value Internalization	0.911
Y – Attitude toward Local Heritage Preservation	0.803

Table 3. Heterotrait-Monotrait (HTMT) Ratios with Bootstrapped 95% Confidence Intervals

Construct Pair	HTMT	95% CI Lower	95% CI Upper
X1 ↔ M	0.712	0.520	0.860

Construct Pair	HTMT	95% CI Lower	95% CI Upper
X2 ↔ M	0.616	0.364	0.808
X2 ↔ X1	0.929	0.812	0.984
Y ↔ M	0.765	0.557	0.929
Y ↔ X1	0.722	0.503	0.873
Y ↔ X2	0.728	0.508	0.883

Note: Values obtained via non-parametric bootstrapping (5,000 subsamples, percentile bootstrap method) using the "Complete (slower)" results option in SmartPLS 4. Discriminant validity between two constructs is conventionally supported only when the entire confidence interval falls below 0.85 (or 0.90 for conceptually similar constructs).

The bootstrapped confidence intervals reveal a more extensive discriminant validity concern than the point estimates alone would suggest. Applying the criterion that the entire 95% confidence interval must fall below 0.85 to support discriminant validity, only the X2↔M pair (CI: 0.364–0.808) meets this standard unambiguously. The remaining five pairs all have upper confidence bounds that meet or exceed 0.85: X1↔M (CI upper = 0.860), Y↔M (CI upper = 0.929), Y↔X1 (CI upper = 0.873), and Y↔X2 (CI upper = 0.883) all have intervals that cross the 0.85 threshold, while X2↔X1 (HTMT = 0.929, CI: 0.812–0.984) shows the most severe overlap, with its entire interval positioned above 0.80 and its upper bound approaching 1. This result was corroborated using the Fornell–Larcker criterion, where the inter-construct correlation between X1 and X2 (0.829) exceeded the square root of the AVE for both X1 (0.795) and X2 (0.777)—a second, independent indication that these two constructs are not clearly empirically distinct. Taken together, these results indicate that discriminant validity in this measurement model is considerably weaker than point-estimate HTMT values alone would suggest, and that Local History Pedagogy (X1) and Local Cultural Value Internalization (X2) in particular should not be treated as fully distinct constructs on the basis of the present data. This is reported transparently as a substantive limitation of the measurement model rather than presenting the point estimates in isolation.

Conceptually, this pattern is plausible: local history pedagogy, cultural value internalization, family environment, and heritage preservation attitudes are all closely related aspects of a single broader construct students' overall engagement with and valuing of local cultural heritage which respondents may find difficult to evaluate as fully separable experiences. Readers should interpret the individual structural path coefficients reported in Table 7 with this caveat in mind, as the associations attributed to specific constructs may partly reflect shared variance across conceptually adjacent measures rather than fully independent relationships. Future studies are encouraged to revise the item content of these scales to more sharply differentiate the constructs conceptually and empirically, consider modeling closely related constructs (particularly X1 and X2) as a single higher-order construct, or adopt qualitative or mixed-methods approaches capable of distinguishing these constructs more precisely than a purely quantitative self-report instrument allows.

The measurement model metrics in Table 1 indicate acceptable indicator reliability and convergent validity for the retained items. Outer loadings ranged from 0.736 to 0.905, and all Average Variance Extracted (AVE) values exceeded 0.50. Nevertheless, these results should not be interpreted as confirming the measurement model in all respects, because the HTMT confidence intervals and the Fornell–Larcker results identified substantial discriminant-validity concerns, particularly between Local History Pedagogy (X1) and Cultural Value Internalization (X2). The retained indicators therefore measure their assigned constructs consistently, but the constructs are not clearly separable in the present sample.

In addition to validity, the internal consistency and reliability measures for all four constructs were assessed using Cronbach's alpha, Composite Reliability (CR), and rho_A, each of which exceeded the recommended 0.70 minimum. Notably, however, the Family Environment (M), Local History Pedagogy (X1), and Cultural Value Internalization (X2) constructs recorded CR values above 0.90 (see Table 1). While values in this range are conventionally read as strong internal consistency, reliability coefficients above 0.90 can also signal item redundancy—that is, some indicators within these constructs may be capturing largely overlapping content rather than distinct facets of the construct, which can inflate reliability without adding proportional measurement information. Rather than treating these high values solely as a strength, M, X1, and X2 are flagged as candidates for item review in future refinements of the instrument, for example by examining inter-item correlations or considering whether one or more indicators per construct could be trimmed without loss of content coverage.

The blindfolding procedure, run with an omission distance of $D = 7$, additionally produced positive cross-validated communality values for all constructs ($Y = 0.358$, $M = 0.587$, $X1 = 0.491$, $X2 = 0.466$); however, these communality values describe how well each construct's own indicators are reconstructed by the measurement model and should not, by themselves, be interpreted as evidence of predictive relevance. Predictive relevance (Q^2 via cross-validated redundancy) is meaningful only for endogenous constructs—in this model, Y is the sole endogenous construct, since M , $X1$, and $X2$ are specified as exogenous predictors with no incoming structural paths. Accordingly, only Y 's Q^2 value (0.304, obtained via cross-validated redundancy and reported in Table 8) is presented here as evidence of the structural model's predictive relevance; the communality values reported above for Y , M , $X1$, and $X2$ are cross-validated communality statistics, a distinct blindfolding output that describes measurement-model reconstruction rather than structural predictive relevance, and are not themselves Q^2 values.

As this study did not additionally run PLS predict, no claim of out-of-sample predictive power is made; the Q^2 reported here reflects in-sample predictive relevance only, and studies wishing to establish out-of-sample predictive claims should report Q^2_{predict} together with RMSE/MAE from the PLS predict procedure (Shmueli et al., 2019). Although Y 's Q^2 of 0.304 indicates in-sample predictive relevance, it does not resolve the discriminant-validity concerns described above; structural model testing was therefore conducted with these measurement limitations explicitly retained in the interpretation.

Descriptive Statistics and Bivariate Correlations

Before proceeding to structural model estimation, descriptive characteristics of the respondents, construct-level means and standard deviations, and zero-order (bivariate) correlations among the latent constructs are presented to provide distributional and bivariate context for interpreting the structural coefficients reported in Table 7.

Table 4. Respondent Characteristics (N = 101)

Characteristic	Category	n (%)
Gender	Female	60 (59.4%)
	Male	41 (40.6%)
Age	17–18 years	101 (100%)
Grade level	Grade XII	101 (100%)

Characteristic	Category	n (%)
School	Distributed across five public senior high schools in Parepare City	101 (100%)
Socioeconomic / parental education	Not collected	n/a

Note: The exact age breakdown (17 vs. 18 years), the exact number of respondents and response rate at each individual school, and socioeconomic or parental-education characteristics were not separately tabulated in the dataset retained for this study. This is acknowledged as a substantive limitation rather than a minor reporting gap, since it prevents independent evaluation of the analytic sample's representativeness on these dimensions and precludes assessing whether school-level or family-level socioeconomic factors confound the associations reported in this study (see Method).

Table 5. Construct-Level Means and Standard Deviations (5-Point Likert Scale)

Construct	Number	Mean	SD
M – Family Environment	5	4.23	0.73
X1 – Local History Pedagogy	7	4.32	0.63
X2 – Local Cultural Value Internalization	8	4.29	0.65
Y – Attitude toward Local Heritage Preservation	4	3.95	0.74

Note: For each respondent, a composite score per construct was first computed as the mean of that respondent's retained item scores; construct-level means and standard deviations reported above are the mean and standard deviation of these 101 respondent-level composite scores, not an average of item-level means and item-level standard deviations. All indicators were measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

All four respondent-level composite distributions showed a pronounced ceiling pattern rather than approximate normality. Skewness (kurtosis) values were -1.44 (3.11) for M, -2.00 (7.90) for X1, -1.97 (7.28) for X2, and -0.86 (1.57) for Y, indicating strong to very strong negative skew—most pronounced for X1 and X2—with X1 and X2 additionally showing sharply leptokurtic (peaked) distributions. The proportion of respondents scoring at the scale maximum (a composite of exactly 5.0 across all retained items) was 21.8% for M, 17.8% for X1, 18.8% for X2, and 10.9% for Y; a further 32.7% to 43.6% of respondents scored at or above 4.5 on each construct. This combination of near-ceiling means, strong negative skew, and a substantial minority of respondents endorsing the scale maximum on every retained item indicates a meaningful ceiling effect and correspondingly restricted variance across all four constructs. Restricted variance of this kind tends to attenuate observed correlations and structural path coefficients relative to their true population values, which is relevant to interpreting both the weak direct paths (H1) and the small interaction effects (H4, H5) reported in Table 7: these near-null findings may partly reflect restricted variance and ceiling-constrained measurement rather than the complete absence of an underlying relationship. This ceiling pattern is also consistent with, and may partly stem from, the social desirability concern raised in the Method section, since socially desirable responding characteristically compresses response distributions toward the favorable end of the scale.

Table 6. Zero-Order (Latent Variable) Correlations Among Constructs

	M	X1	X2	Y
M	—			
X1	0.651	—		
X2	0.568	0.829	—	
Y	0.663	0.625	0.639	—

Note: Values are Pearson correlations among latent variable scores, computed prior to structural model estimation. All correlations are significant at $p < .001$. Consistent with the discriminant validity concerns reported in Table 3, the correlation between X1 and X2 ($r = .829$) is markedly higher than the correlations these constructs show with M or Y, foreshadowing the shared-variance pattern discussed above.

Structural Model Evaluation (Inner Model)

After assessing the measurement properties and noting the discriminant-validity concerns, the analysis proceeded to the structural model evaluation to test the research hypotheses. The PLS-SEM bootstrapping results (5,000 subsamples) are presented in Table 7.

Table 7. Hypothesis Testing Results (Path Coefficients and Moderation)

Relationship / Hypothesis	β	t-statistic	p-value	CI 2.5%	CI 97.5%
H1: X1 (Local History Pedagogy) $\rightarrow$ Y	0.030	0.204	0.839	-0.253	0.308
H2: X2 (Local Cultural Value Internalization) $\rightarrow$ Y	0.357	2.482	0.013*	0.092	0.655
H3: M (Family Environment) $\rightarrow$ Y	0.433	4.774	<0.001***	0.273	0.638
H4: M $\times$ X1 $\rightarrow$ Y (Moderation)	0.097	0.578	0.563	-0.227	0.449
H5: M $\times$ X2 $\rightarrow$ Y (Moderation)	-0.108	0.638	0.523	-0.451	0.214

Source: SmartPLS 4 output, processed by the authors (2026) / * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 8. R^2 and Q^2 Values (Predictive Relevance)

Endogenous Construct	R^2	R^2 Adjusted	Q^2 (Cross-validated Redundancy)
Y – Attitude toward Local Heritage Preservation	0.544	0.521	0.304

Source: SmartPLS 4 output, processed by the authors (2026). R^2 , R^2 adjusted, and Q^2 values were computed from the complete structural model as originally specified, comprising all hypothesized direct and moderating paths (H1–H5) simultaneously, irrespective of the statistical significance of individual path coefficients determined through subsequent bootstrapping. Q^2 was obtained via the blindfolding procedure's construct cross-validated redundancy output (omission distance $D = 7$), not the cross-validated communality output; no PLSpredict analysis was conducted, so Q^2 here reflects in-sample predictive relevance only and does not constitute a claim of out-of-sample predictive performance.

Table 9. Inner Model Collinearity Statistics (VIF)

Structural Path	Inner VIF
M (Family Environment) $\rightarrow$ Y	1.770
X1 (Local History Pedagogy) $\rightarrow$ Y	4.172
X2 (Local Cultural Value Internalization) $\rightarrow$ Y	3.539
M $\times$ X1 $\rightarrow$ Y (Moderation)	26.690
M $\times$ X2 $\rightarrow$ Y (Moderation)	26.806

Note: Inner VIF values below 3.3 are conventionally considered free of critical collinearity among the structural model's predictor constructs; values approaching or exceeding 5 warrant caution, and values above 10 indicate severe collinearity. This 3.3 threshold is adapted from Kock's (2015) full-collinearity assessment guideline, but the values reported here are inner-model (structural) VIFs computed among this study's own predictor constructs, not the full-collinearity VIFs Kock's procedure specifically requires, which are obtained by regressing every construct, including an unrelated marker variable,

against all remaining constructs; the two diagnostics are not interchangeable, and a completed full-collinearity assessment was not conducted in this study (see Method).

Table 10. Effect Size (f^2) for Structural Paths

Structural Path	f^2
M (Family Environment) $\rightarrow$ Y	0.232 (medium–large)
X1 (Local History Pedagogy) $\rightarrow$ Y	0.0005 (negligible)
X2 (Local Cultural Value Internalization) $\rightarrow$ Y	0.079 (small)
M $\times$ X1 $\rightarrow$ Y (Moderation)	0.0042 (negligible)
M $\times$ X2 $\rightarrow$ Y (Moderation)	0.0051 (negligible)

Note: f^2 thresholds follow Cohen (1988): 0.02 = small, 0.15 = medium, 0.35 = large.

An important caveat emerged from the inner-model collinearity diagnostics reported in Table 9. The inner VIF values for the three direct predictors of Y were M = 1.770, X1 = 4.172, and X2 = 3.539. Against the more lenient conventional threshold of 5, all three are below the cutoff; however, against the stricter threshold of 3.3 recommended by Kock (2015) as a more conservative benchmark for collinearity in PLS-SEM, only M falls below the cutoff, while X1 and X2 both exceed it. Given that X1 and X2 are also highly correlated ($r = 0.829$; HTMT = 0.929, Table 3), this elevated collinearity likely destabilizes their unique structural coefficients, and the more permissive reading based solely on the threshold of 5 understates this risk; readers should treat the individual path coefficients for X1 and X2 in the full model as conditional estimates shaped by their shared variance rather than as independent effect estimates. In addition, the two moderation interaction terms show markedly elevated VIF values (M $\times$ X1 = 26.690; M $\times$ X2 = 26.806), far exceeding even the most lenient collinearity threshold of 10. This indicates severe multicollinearity involving the interaction terms, most likely arising from shared variance between the interaction constructs and their constituent main-effect terms. A practical consequence is that the non-significant moderation results for H4 and H5 reported below should not be read as firm evidence that family environment does not moderate the hypothesized relationships; rather, the severe collinearity inflates the standard errors of these two path coefficients, reducing the reliability and precision of their estimates. This is reported as a limitation of the present moderation test rather than a definitive null finding. The two-stage approach and the product-indicator approach are distinct procedures for constructing PLS-SEM interaction terms and should not be conflated: the product-indicator approach forms the interaction construct's indicators by multiplying each indicator of the predictor by each indicator of the moderator, whereas the two-stage approach used in this study first estimates standardized latent variable scores for the predictor and moderator constructs in a separate first-stage model and then multiplies those two standardized latent scores to form a single-indicator interaction construct for the second-stage structural model; SmartPLS 4 standardizes (and thereby centers) these latent scores by default before multiplication, so the interaction terms were not constructed from raw, uncentered indicators. To verify whether the elevated inner VIF nonetheless reflects a centering artifact or a more substantive source of collinearity, a supplementary robustness check was conducted using respondent-level composite scores (the simple mean of each construct's retained items, as reported in Table 5) rather than PLS-SEM latent scores: M, X1, and X2 were explicitly mean-centered, interaction terms were formed from the centered composite scores, and Y was regressed on the centered main effects and interaction terms using ordinary least squares with percentile bootstrap confidence intervals (5,000 resamples). Even after this explicit centering, the interaction

terms' VIF remained severely elevated ($M \times X1 = 25.6$; $M \times X2 = 25.7$)—nearly identical to the original inner VIF values, indicating that the collinearity is not primarily a centering artifact but instead reflects substantial genuine overlap among M, X1, and X2 themselves, consistent with the discriminant validity concerns already reported in Table 3. The robustness-check interaction coefficients were directionally consistent with, and no more conclusive than, the original PLS-SEM estimates: $M \times X1$, $b = 0.143$, 95% bootstrap CI [-0.404, 0.730]; $M \times X2$, $b = -0.161$, 95% CI [-0.703, 0.360]; both intervals remained wide and crossed zero. This corroborates, rather than resolves, the original finding: the moderating role of the family environment remains statistically inconclusive with the current measurement model and sample size, under two independent estimation approaches, and future studies are encouraged to further address this issue by orthogonalizing the indicators prior to forming the interaction terms, by using a substantially larger sample sized according to the power analysis reported in the Method section, or by revising the X1 and X2 item content to reduce their construct overlap.

The structural model output from SmartPLS 4 provides clear data regarding the direct and interaction pathways tested in this study. Based on the coefficients in Table 7, the direct path from Family Environment (M) to Heritage Preservation Attitude (Y) shows the strongest structural relationship ($\beta = 0.433$, $t = 4.774$, $p < 0.001$). This is followed by the direct path from Cultural Value Internalization (X2) to Y, which is also significant ($\beta = 0.357$, $t = 2.482$, $p = 0.013$). By contrast, the direct relationship between Local History Pedagogy (X1) and Y is statistically non-significant ($\beta = 0.030$, $t = 0.204$, $p = 0.839$). This structural breakdown indicates that only two of the three hypothesized direct paths are empirically supported.

Before interpreting the null result for H1 as evidence that local history pedagogy is unrelated to heritage preservation attitudes, the plausibility of a suppression effect was tested, given that structural coefficients can diverge sharply from bivariate associations when predictors share substantial overlapping variance. The zero-order correlation between X1 and Y is $r = 0.625$ (Table 6)—a moderately strong bivariate association—yet the structural path coefficient for H1 drops to $\beta = 0.030$ once X2 and M are entered into the same model. This pattern is consistent with a suppression or redundancy effect rather than a genuine absence of association: X1 shares a very high proportion of variance with X2 ($r = 0.829$; HTMT = 0.929, Tables 3 and 6) and a moderately high proportion with M ($r = 0.651$), and its inner VIF of 4.172 (Table 9), while below the conservative threshold of 5, is nonetheless the highest among the three direct predictors and approaches the level at which collinearity begins to materially inflate standard errors and distort coefficient estimates (Kock, 2015). Taken together, these diagnostics suggest that X1's apparent lack of association with Y in the full structural model may partly reflect its overlapping variance with X2 and M being statistically "absorbed" by those constructs, rather than local history pedagogy having no bivariate relationship with heritage preservation attitudes whatsoever. To test this possibility directly, four supplementary regression models were estimated using respondent-level composite scores (standardized; the same composites reported in Table 5): X1 entered as the sole predictor of Y, X2 entered as the sole predictor of Y, X1 and X2 entered jointly without M, and X1, X2, and M entered jointly (matching the main structural model's predictor set). X1's standardized coefficient was $\beta = 0.607$ ($p < .001$) when entered alone, dropped to $\beta = 0.305$ ($p = .027$) once X2 was added, and dropped further to $\beta = 0.062$ ($p = .645$, non-significant) once M was also added; X2 followed a similar but less extreme pattern, from $\beta = 0.618$ ($p < .001$) alone, to $\beta = 0.367$ ($p = .008$) alongside X1, to $\beta = 0.326$ ($p = .010$) in the full model. This step-by-step pattern confirms that X1 does have a substantial bivariate association with

heritage preservation attitudes (explaining 36.9% of its variance alone) that is progressively absorbed as X2 and then M are added to the model, consistent with a genuine suppression effect driven by shared variance rather than a spurious bivariate correlation. Full-model coefficients for X1 and X2 reported in Table 7 should accordingly be interpreted as conditional estimates that reflect each construct's association with Y net of its substantial overlap with the other predictors, not as estimates of each construct's total or independent association with heritage preservation attitudes. In the interim, readers are cautioned against interpreting the non-significant H1 path as definitive evidence that local history pedagogy, as operationalized here, has no meaningful bivariate relationship with students' heritage preservation attitudes.

Looking at the interaction terms designed to test the moderation effects, the PLS-SEM results show no statistically significant patterns, though this should not be interpreted as firm evidence that no moderation exists. The interaction between Family Environment and Local History Pedagogy ($M \times X1$) yields $\beta = 0.097$ (95% CI: -0.227 to 0.449), $t = 0.578$, $p = 0.563$, $f^2 = 0.0042$. Similarly, the interaction between Family Environment and Cultural Value Internalization ($M \times X2$) produces $\beta = -0.108$ (95% CI: -0.451 to 0.214), $t = 0.638$, $p = 0.523$, $f^2 = 0.0051$. Both confidence intervals are wide and straddle zero, and both f^2 values fall well below Cohen's (1988) threshold for even a small effect (0.02), indicating negligible incremental explanatory power from the interaction terms as estimated here. Rather than concluding that Family Environment does not moderate these relationships, these results are interpreted as insufficient evidence to support H4 and H5 in the present sample. As noted in the Method section, the post hoc power analysis indicates that the sample size of 101, while adequate for detecting the two larger direct paths (H2, H3), was explicitly underpowered to detect the smaller effect sizes associated with the interaction terms; this limitation is revisited in the Discussion and Limitations sections. Lastly, the overall model metrics in Table 8 indicate that the combined direct and moderating paths account for an R^2 value of 0.544 (R^2 adjusted = 0.521) for the endogenous construct Y, meaning the model explains approximately 54.4% of the variance in Heritage Preservation Attitudes among senior high school students. This is supported by a positive cross-validated redundancy Q^2 value of 0.304 (blindfolding procedure, omission distance $D = 7$), which sits safely above zero and indicates adequate in-sample predictive relevance for Y, its sole endogenous construct; consistent with the terminology used throughout this study, this Q^2 value is not interpreted as evidence of out-of-sample predictive power, which would require a separate PLS predict analysis not conducted here.

Discussion

The present study reveals a differentiated pattern in the relationships among Local History Pedagogy, Local Cultural Value Internalization, Family Environment, and students' Heritage Preservation Attitudes. Contrary to H1, Local History Pedagogy did not retain a statistically detectable direct association with Heritage Preservation Attitudes in the full structural model. This result, however, should not be interpreted as evidence that pedagogical quality is irrelevant. The very high overlap between Local History Pedagogy and Cultural Value Internalization (HTMT = 0.929), together with an inner VIF of 4.172 and the attenuation of the bivariate association after the inclusion of Cultural Value Internalization and Family Environment, indicates substantial shared variance and a likely suppression pattern. By contrast, H2 was supported: Cultural Value Internalization was positively associated with Heritage Preservation Attitudes ($\beta = 0.357$, $t = 2.482$, $p = 0.013$). H3 was also supported, with Family Environment showing the largest standardized direct coefficient descriptively ($\beta = 0.433$, $t = 4.774$, $p < 0.001$), although its confidence interval overlaps that of

Cultural Value Internalization and therefore does not establish an unequivocal hierarchy of influence. Finally, H4 and H5 were not supported; nevertheless, their interaction coefficients should be regarded as inconclusive rather than evidence of the absence of moderation because the interaction terms were affected by severe multicollinearity and very low statistical power.

At first sight, the non-significant direct coefficient for Local History Pedagogy appears to diverge from an expanding international literature demonstrating the educational value of heritage-oriented instruction. Experimental and programme-evaluation research has shown that heritage education can strengthen students' understanding of heritage, citizenship, territorial responsibility, and commitment to preservation when learners engage directly with culturally meaningful materials and environments (Castro-Calviño et al., 2020; Trabajo Rite & Cuenca López, 2020). Similarly, international scholarship increasingly emphasizes reflective teacher preparation, museum-based learning, community museums, curriculum integration, and youth participation as mechanisms through which heritage can become educationally meaningful rather than remain merely factual historical content (Cuenca-López et al., 2021; Menkshi et al., 2021; Molina Torres, 2021; Monteagudo Fernández et al., 2021; Van Doorselaere, 2021). Heritage education has also received growing institutional recognition within international cultural policy, particularly where education is connected to intergenerational transmission and sustainable development (Jagielska-Burduk et al., 2021).

The apparent discrepancy becomes more understandable when differences in measurement and instructional context are considered. Many international studies operationalize heritage education through identifiable interventions or experiences, such as guided heritage walks (Chauhan, 2021), digitalized architectural heritage activities (Jadrešin Milić et al., 2022), mobile game-based learning (Camuñas García et al., 2022), experiential or transdisciplinary heritage models (Valencia Arnica et al., 2023), heritage-based video games (Camuñas García et al., 2024), and gamified engagement with difficult historical memory (Rosser Limiñana & Soler, 2024). Such approaches deliberately connect historical knowledge with experience, interpretation, affect, and participation. Youth-centered heritage research likewise suggests that preservation becomes more meaningful when young people are positioned as active cultural agents rather than passive recipients of historical information (Selim & Farhan, 2024). In the present study, however, X1 captures students' perceptions of explanation quality, methodological variety, multimedia use, critical thinking, and participation, while its structural coefficient represents only the variance in pedagogy that remains after controlling for highly overlapping Cultural Value Internalization and Family Environment. Thus, the present finding does not contradict evidence supporting active heritage education; rather, it suggests that pedagogical richness may not translate into preservation attitudes through a simple independent direct pathway.

The significant association between Cultural Value Internalization and Heritage Preservation Attitudes is more consistent with global evidence. Studies of heritage communities demonstrate that cultural continuity depends not solely on knowledge of historical objects but also on the meanings, identity, attachment, and collective values assigned to them (Ghahramani et al., 2020; Udeaja et al., 2020). Citizen-engagement research similarly indicates that culturally embedded meanings can motivate support for conservation and participation in heritage-related decision-making (Billore, 2021; Chauhan, 2022). Research linking heritage perception with subjective well-being further underscores that heritage derives psychological significance from identity, belonging, memory, and attachment rather than physical existence alone (Sektani et al., 2022). More recent empirical studies

show that heritage awareness is associated with stronger willingness to support conservation, while cultural identity and place attachment are important correlates of heritage-related evaluations and post-experience responses (Fu & Luo, 2023; Li et al., 2023; Chan et al., 2024). Accordingly, the positive X2 coefficient in this study is theoretically plausible because students who report stronger cultural knowledge, pride, and responsibility may evaluate heritage preservation as more personally self-relevant.

The comparatively strong direct association of Family Environment with Heritage Preservation Attitudes also accords with contemporary research on intergenerational socialization. Longitudinal evidence indicates that cultural socialization can be transmitted across generations through family communication and culturally meaningful practices (Williams et al., 2020), while broader research demonstrates intergenerational continuity in attitudes, preferences, and behavioral dispositions associated with parental involvement (Zumbuehl et al., 2020). Importantly, intergenerational transmission is not a simple copying process but an interaction between environmental, relational, developmental, and contextual mechanisms (Branje et al., 2020). Studies among Haitian American and Latina families similarly show that parents reproduce cultural traditions and identities through everyday socialization and culturally embedded communication (Etienne, 2021; Trang & Yates, 2022). Supportive parent-child relationships can also mediate continuity in psychosocial orientations across generations (Augustijn, 2021), while recent value-transmission research emphasizes that successful transmission involves children's autonomous internalization rather than mere parent-child similarity (Barni et al., 2023). These studies strengthen the plausibility of the family pathway identified here, although the present cross-sectional data cannot determine whether storytelling, modeling, emotional attachment, parental expectations, or other family processes actually produced the association.

Evidence from Indonesia largely supports contextualizing learning through local culture and therefore provides an important counterpoint to the non-significant direct H1 path. Afiqoh et al. (2021) show that history education can become a vehicle for introducing and cultivating local-wisdom values, while Purwanto (2022) reports positive educational outcomes from combining local cultural content with problem-based history learning. More recently, Indonesian studies have emphasized culturally responsive teaching and ethnopedagogy as ways of connecting local history to students' cultural identity and critical awareness (Hafida, 2024), and local-wisdom-based science learning has been associated with cultural heritage conservation character (Yasir et al., 2024). Similar arguments emerge from citizenship education, where contextual cultural traditions are positioned as resources for strengthening multicultural values and identity (Rahmawati et al., 2024). Recent research further indicates that local-wisdom-based history learning can strengthen engagement, historical understanding, and emotional connection (Firmansyah et al., 2025), while culturally grounded modules and local learning environments provide meaningful alternatives to decontextualized instructional materials (Ita & Ngonu, 2025; Januardi & Superman, 2025). Studies published in 2026 also report the value of pedagogically integrating cultural traditions for historical consciousness and using local history to build students' historical awareness (Melisa et al., 2026; Mu'arifah et al., 2026).

These Indonesian findings need not be treated as contradictory to the present H1 result. Most local studies assess relatively proximal outcomes—such as engagement, historical knowledge, learning achievement, cultural awareness, or conservation character—or investigate a specific pedagogical intervention. The present model instead estimates the **unique direct association**

between perceived pedagogical quality and preservation attitudes after accounting for strongly overlapping cultural internalization and family variables. One theoretically important possibility is therefore that culturally responsive pedagogy influences preservation attitudes **indirectly by strengthening value internalization**, rather than through a large independent direct path. This mediation pathway is consistent with the pattern of findings and the local literature but was not tested in the present model; consequently, it should be framed as a hypothesis for future research rather than a conclusion of this study. The Indonesian evidence nevertheless reinforces the importance of examining pedagogy, cultural internalization, and family socialization as connected but analytically distinguishable processes. The local articles and DOI records were individually verified from the journal/publisher records.

Theoretically, the results refine a simple exposure-based explanation of heritage preservation by indicating that instructional exposure alone may be less predictive than the extent to which cultural values become personally meaningful and are reinforced within proximal social environments. The findings are therefore compatible with a values-internalization perspective and an ecological understanding of development, while suggesting a testable refinement in which pedagogy may operate through cultural internalization and family-based socialization rather than solely as an independent predictor. Pedagogically, schools should therefore move beyond the mere inclusion of local historical content and design opportunities for interpretation, identity reflection, local inquiry, heritage walks, intergenerational interviews, community collaboration, digital storytelling, and appropriately designed game-based heritage activities; such practices are consistent with recent heritage-education research but should be experimentally tested before causal effectiveness is assumed (Castro-Calviño et al., 2020; Chauhan, 2021; Camuñas García et al., 2024). Policy makers could correspondingly strengthen curriculum standards, teacher preparation, school–family–community partnerships, and access to carefully curated digital heritage resources so that preservation education integrates knowledge with cultural meaning and participation. Because this study did **not** directly measure emotional well-being, media literacy, social-media behavior, online identity formation, or mental-health outcomes, however, it would be inappropriate to infer effects in those domains. Where digital and social media are incorporated into heritage education, critical media literacy, source verification, ethical representation, and reflection on cultural identity can reasonably be embedded as educational safeguards, but specific mental-health interventions or social-media regulation would require separate empirical evidence.

The principal contribution of this study lies in differentiating three commonly conflated sources of heritage-related orientation: perceived local-history pedagogy, students' internalization of local cultural values, and family environment. Rather than assuming that exposure to culturally relevant instruction automatically generates preservation attitudes, the structural results show that Cultural Value Internalization and Family Environment retain meaningful direct associations whereas the unique X1 coefficient becomes non-significant under conditions of substantial construct overlap. Equally important, the study avoids interpreting non-significant moderation as evidence that school and family socialization function independently; given the severe interaction-term collinearity and limited statistical power, such a conclusion would be unwarranted. Methodologically, therefore, the study contributes not only substantive evidence about heritage attitudes but also a more cautious interpretation of suppression, shared variance, and underpowered interaction tests. This distinction opens a more precise research agenda in which heritage pedagogy can be investigated as a potential antecedent of cultural internalization while family processes are

examined as proximal socialization mechanisms rather than treated merely as background characteristics.

Several limitations qualify these conclusions. First, the cross-sectional design prevents temporal or causal inference; students with stronger preservation attitudes may subsequently report stronger cultural identification or perceive their family environment more positively. Second, reliance on single-source self-report measures creates the possibility of common-method variance, while the high overlap between X1 and X2 constrains interpretation of their unique structural coefficients. Third, the severe multicollinearity affecting the interaction terms and the approximately 10–11% statistical power reported for moderation mean that H4 and H5 cannot provide a decisive test of family–school interaction. Fourth, Heritage Preservation Attitudes represent reported dispositions rather than directly observed preservation behaviors, and potentially important factors such as socioeconomic status, parental education, actual family cultural practices, frequency of heritage participation, emotional attachment, and observational-learning processes were not independently measured. Future studies should employ longitudinal, multilevel, and quasi-experimental designs; collect parent-, teacher-, and student-level data; refine X1 and X2 indicators to improve discriminant validity; and use behavioral indicators of heritage participation. Particularly valuable would be explicit tests of an $X1 \rightarrow X2 \rightarrow Y$ mediation pathway, experiments involving school–family heritage projects, multisite comparisons across Indonesian cultural settings, and adequately powered moderation analyses using measurement approaches that reduce interaction-term collinearity. Separate studies could additionally examine whether digital heritage participation, critical media literacy, online cultural identity, and psychological well-being extend the explanatory model beyond the variables investigated here.

Conclusion

This study examined the associations of Local History Pedagogy, Local Cultural Value Internalization, and Family Environment with senior high school students' Heritage Preservation Attitudes, while also evaluating whether the Family Environment strengthened the relationships between the two school-related factors and preservation attitudes. The findings provide a differentiated answer to these objectives: Cultural Value Internalization was positively associated with Heritage Preservation Attitudes, while Family Environment demonstrated the strongest direct association in the estimated structural model; conversely, Local History Pedagogy did not retain a statistically significant unique association after the substantial shared variance among predictors was taken into account. The two hypothesized moderation effects were likewise statistically unsupported, although these null results should be regarded as inconclusive because the interaction terms were characterized by severe multicollinearity and inadequate statistical power. Collectively, these findings refine the conceptual understanding of heritage education by suggesting that students' preservation attitudes may be more closely associated with the internalization of cultural values and proximal family-based cultural socialization than with the unique contribution of classroom pedagogy considered independently. Practically, the results encourage schools to complement local-history instruction with learning experiences that facilitate meaningful cultural internalization and stronger school–family–community engagement rather than relying exclusively on curricular exposure. Nevertheless, the conclusions are bounded by the cross-sectional design, purposive sample of 101 Grade XII students from five public senior high schools in Parepare, reliance on single-source self-report data, restricted response variance, unresolved discriminant-validity concerns particularly between Local History Pedagogy and Cultural Value Internalization and the limited statistical power of the moderation

analysis. Future research should therefore employ larger and more heterogeneous samples, longitudinal or quasi-experimental designs, multilevel analyses that account for school-level clustering, and psychometrically refined instruments capable of more clearly distinguishing pedagogical exposure, cultural internalization, family socialization, and preservation attitudes. Particular attention should be given to testing whether cultural value internalization mediates the relationship between local-history pedagogy and preservation attitudes and whether deliberately designed school-family heritage initiatives generate measurable changes over time. By distinguishing direct associations from overlapping and potentially mediated processes, this study provides a more cautious yet theoretically productive foundation for developing evidence-based heritage education capable of sustaining cultural continuity among younger generations.

References

- Afiqoh, N., Atmaja, H. T., & Saraswati, U. (2021). Instilling the value of local wisdom in learning the history of the subject of Islamic development in Indonesia in Class X Social Studies students at SMA Negeri 1 Pamotan. *Indonesian Journal of History Education*, 6(1), 53–66. <https://doi.org/10.15294/ijhe.v6i1.27353>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ardiansyah, S., Komalasari, K., & Maryani, E. (2024). Transformation of Bima local wisdom values through social studies e-book media. *Journal of Education and Learning (EduLearn)*, 18(2), 535–543. <https://doi.org/10.11591/edulearn.v18i2.21004>
- Asrial, A., Syahrial, S., Maison, M., Kurniawan, D. A., & Piyana, S. O. (2021). Fostering students' environmental care characters through local wisdom-based teaching materials. *Jurnal Pendidikan Indonesia*, 10(1), 152–162. <https://doi.org/10.23887/jpi-undiksha.v10i1.27744>
- Augustijn, L. (2022). The intergenerational transmission of life satisfaction between parents and children and the mediating role of supportive parenting. *Journal of Family Issues*, 43(4), 855–874. <https://doi.org/10.1177/0192513X21995868>
- Ayón, C., Nieri, T., & Ruano, E. (2020). Ethnic-racial socialization among Latinx families: A systematic review of the literature. *Social Service Review*, 94(4), 693–747. <https://doi.org/10.1086/712413>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Barni, D., Zagrean, I., Russo, C. C., & Danioni, F. (2024). Intergenerational transmission of values: From parent-child value similarity to parent-child value continuity. *Journal of Family Issues*, 45(4), 974–991. <https://doi.org/10.1177/0192513X231163939>
- Billore, S. (2021). Cultural consumption and citizen engagement—Strategies for built heritage conservation and sustainable development: A case study of Indore City, India. *Sustainability*, 13(5), Article 2878. <https://doi.org/10.3390/su13052878>
- Bingham, K. J., Cutrer-Párraga, E. A., & Smith, T. B. (2024). Ethnic-racial socialization experiences of Mexican American youth. *Psychology in the Schools*, 61(5), 1962–1981. <https://doi.org/10.1002/pits.23146>
- Branje, S., Geeraerts, S. B., & de Zeeuw, E. L. (2020). Intergenerational transmission: Theoretical and methodological issues and an introduction to four Dutch cohorts. *Developmental Cognitive Neuroscience*, 45, Article 100835. <https://doi.org/10.1016/j.dcn.2020.100835>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Byrd, C. M., & Legette, K. B. (2022). School ethnic-racial socialization and adolescent ethnic-racial identity. *Cultural Diversity and Ethnic Minority Psychology*, 28(2), 205–216. <https://doi.org/10.1037/cdp0000449>
- Camuñas-García, D., Cáceres-Reche, M. P., & Cambil-Hernández, M. de la E. (2023). Mobile game-based learning in cultural heritage education: A bibliometric analysis. *Education + Training*, 65(2), 324–339. <https://doi.org/10.1108/ET-06-2022-0247>
- Camuñas-García, D., Cáceres-Reche, M. P., Cambil-Hernández, M. de la E., & Lorenzo-Martín, M. E. (2024). Digital game-based heritage education: Analyzing the potential of heritage-based video games. *Education Sciences*, 14(4), Article 396. <https://doi.org/10.3390/educsci14040396>

- Castro-Calviño, L., Rodríguez-Medina, J., & López-Facal, R. (2020). Heritage education under evaluation: The usefulness, efficiency and effectiveness of heritage education programmes. *Humanities and Social Sciences Communications*, 7, Article 146. <https://doi.org/10.1057/s41599-020-00639-z>
- Chan, S. H. G., Lee, W. H. H., Tang, B. M., & Chen, Z. (2024). Legacy of culture heritage building revitalization: Place attachment and culture identity. *Frontiers in Psychology*, 14, Article 1314223. <https://doi.org/10.3389/fpsyg.2023.1314223>
- Chauhan, E. (2022). Residents' motivations to participate in decision-making for cultural heritage tourism: Case study of New Delhi. *Sustainability*, 14(14), Article 8406. <https://doi.org/10.3390/su14148406>
- Chauhan, E., & Anand, S. (2023). Guided heritage walks as a tool for inclusive heritage education: Case study of New Delhi. *Journal of Cultural Heritage Management and Sustainable Development*, 13(2), 253–268. <https://doi.org/10.1108/JCHMSD-08-2020-0120>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Cuenca-López, J. M., Martín-Cáceres, M. J., & Estepa-Giménez, J. (2021). Teacher training in heritage education: Good practices for citizenship education. *Humanities and Social Sciences Communications*, 8, Article 62. <https://doi.org/10.1057/s41599-021-00745-6>
- Del Toro, J., Bernard, D. L., Lee, R. M., & Adam, E. K. (2024). Framing resilience linked to parental ethnic-racial socialization as hidden: A hidden resilience conceptual framework. *Social and Personality Psychology Compass*, 18(7), Article e12984. <https://doi.org/10.1111/spc3.12984>
- Dorji D, L., & Sakulwongs, N. (2023). The application of place-based education in social studies of Grade 5 Bhutanese students. *Asia Social Issues*, 17(2), Article e259363. <https://doi.org/10.48048/asi.2024.259363>
- Du, J., & Zhang, W.-Q. (2023). Dunhuang Mogao Caves impact on adolescent cultural heritage education with new media—A case study on *The Deer and the Snitch*. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, X-M-1-2023, 71–78. <https://doi.org/10.5194/isprs-annals-X-M-1-2023-71-2023>
- Etienne, V. Y. (2022). Keeping it in the family: Cultural socialization among Haitian American families. *Current Sociology*, 70(6), 880–896. <https://doi.org/10.1177/00113921211028634>
- Fairus, F., Maftuh, B., & Sujana, A. (2024). Local wisdom integration in learning implementation in elementary school. *Jurnal Cakrawala Pendas*, 10(2), 194–205. <https://doi.org/10.31949/jcp.v10i2.8029>
- Firmansyah, H., Ramadhan, I., & Wiyono, H. (2025). Enhancing historical understanding through local wisdom based learning: A case study in senior high schools. *Diakronika*, 25(1), 20–32. <https://doi.org/10.24036/diakronika/vol25-iss1/477>
- Fredella, C., & Zecca, L. (2020). Local history and identity building: A case study in the field of active citizenship education. *Investigación en la Escuela*, 100, 88–102. <https://doi.org/10.12795/IE.2020.i100.07>
- Fu, Y., & Luo, J. M. (2023). An empirical study on cultural identity measurement and its influence mechanism among heritage tourists. *Frontiers in Psychology*, 13, Article 1032672. <https://doi.org/10.3389/fpsyg.2022.1032672>
- Ghahramani, L., McArdle, K., & Fatorić, S. (2020). Minority community resilience and cultural heritage preservation: A case study of the Gullah Geechee community. *Sustainability*, 12(6), Article 2266. <https://doi.org/10.3390/su12062266>
- Hafida, M. N. (2024). Culturally responsive teaching and ethnopedagogy approach to improve local history learning studies in high school. *SWARNADWIPA: Jurnal Kajian Sejarah, Sosial, Budaya, dan Pembelajarannya*, 8(2), 71–81. <https://doi.org/10.24127/sd.v8i2.3480>
- Ita, E., & Ngonu, M. R. (2025). Analyzing the implementation of local wisdom-based learning in early childhood education: The case of early childhood education. *Journal of Nonformal Education*, 11(2), 237–246. <https://doi.org/10.15294/jone.v11i2.33606>
- Jadrešin Milić, R., McPherson, P., & McConchie, G. (2022). Architectural history and sustainable architectural heritage education: Digitalisation of heritage in New Zealand. *Sustainability*, 14(24), Article 16432. <https://doi.org/10.3390/su142416432>
- Jagielska-Burduk, A., Pszczyński, M., & Stec, P. (2021). Cultural heritage education in UNESCO cultural conventions. *Sustainability*, 13(6), Article 3548. <https://doi.org/10.3390/su13063548>
- Januardi, A., & Superman, S. (2025). Development of history learning modules based on traditional values and local wisdom in Sambas. *Jurnal Pendidikan Sosiologi dan Humaniora*, 16(1), 255–261. <https://doi.org/10.26418/j-psh.v16i1.92475>

- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1–10. <https://doi.org/10.4018/ijec.2015100101>
- Kubi, G., Byrd, C. M., & Diemer, M. A. (2022). School ethnic-racial socialization and critical action among Black youth. *Frontiers in Education*, 7, Article 924930. <https://doi.org/10.3389/feduc.2022.924930>
- Li, H., Chen, J., & Ikebe, K. (2023). Survey of residents of historic cities willingness to pay for a cultural heritage conservation project: The contribution of heritage awareness. *Land*, 12(11), Article 2058. <https://doi.org/10.3390/land12112058>
- Lionar, U., Mulyana, A., & Isrok'atun. (2020). Local wisdom of Tanjung Tanah manuscript to increase historical comprehension ability. *Paramita: Historical Studies Journal*, 30(1), 15–22. <https://doi.org/10.15294/paramita.v30i1.15950>
- Melisa, M., Latief, J. A., Ahmad, I., & Gamar, M. M. (2026). Building students' historical awareness through local history of Pue Lasadindi: A descriptive qualitative study at SMAN 5 Palu. *Journal of Educational Sciences*, 10(4), 336–346. <https://doi.org/10.31258/jes.10.4.p.336-346>
- Menkshi, E., Brahल्ली, E., & Çobani, S. (2021). Assessing youth engagement in the preservation and promotion of culture heritage: A case study in Korça City, Albania. *Quaestiones Geographicae*, 40(1), 109–125. <https://doi.org/10.2478/quageo-2021-0009>
- Molina Torres, M. P. (2021). Eco-didactic project for the knowledge of a community museum. *Sustainability*, 13(7), Article 3918. <https://doi.org/10.3390/su13073918>
- Monteagudo Fernández, J., Gómez Carrasco, C. J., & Chaparro Sáinz, Á. (2021). Heritage education and research in museums: Conceptual, intellectual and social structure within a knowledge domain (2000–2019). *Sustainability*, 13(12), Article 6667. <https://doi.org/10.3390/su13126667>
- Mu'arifah, M., Warto, W., & Djono, D. (2026). Reframing history education through local wisdom: Pedagogical integration of cultural traditions to foster historical consciousness in an Indonesian madrasah. *Fajar Historia: Jurnal Ilmu Sejarah dan Pendidikan*, 10(1), 379–391. <https://doi.org/10.29408/fhs.v10i1.34352>
- Nuzzaci, A. (2026). Cultural heritage education as a tool for preventing and combating early school leaving. *Heritage*, 9(3), Article 86. <https://doi.org/10.3390/heritage9030086>
- Perrotta, K., & Cross, K. (2024). Promoting historical empathy with a local history research project about the pandemic. *Social Studies Research and Practice*, 19(2), 171–190. <https://doi.org/10.1108/SSRP-10-2023-0060>
- Purwanto, J. (2022). Efforts to improve local wisdom culture and history learning outcomes with problem based learning methods in senior high school. *HISTORIA: Jurnal Program Studi Pendidikan Sejarah*, 10(2), 169–176. <https://doi.org/10.24127/hj.v10i2.4794>
- Rahmawati, E. N., Sutrisno, C., & Fianisa, R. (2024). Multicultural education based on local wisdom in the perspective of civic education through the Nguras Enceh tradition. *Jurnal Civics: Media Kajian Kewarganegaraan*, 21(2), 311–320. <https://doi.org/10.21831/jc.v21i2.76678>
- Riveiro-Rodríguez, T., Domínguez-Almansa, A., López Facal, R., & Izquierdo Rus, T. (2021). Place-based education and heritage education in in-service teacher training: Research on teaching practices in secondary schools in Galicia (NW Spain). *Humanities and Social Sciences Communications*, 8, Article 20. <https://doi.org/10.1057/s41599-020-00689-3>
- Rosser Limiñana, P., & Soler, S. (2024). Heritage education of memory: Gamification to raise awareness of the cultural heritage of war. *Heritage*, 7(8), 3960–3996. <https://doi.org/10.3390/heritage7080187>
- Sakinah, D., Lubis, I. I., & Habibi, M. (2023). Ethnomathematical exploration of Tumbu' Bugis food. *KALAMATIKA Jurnal Pendidikan Matematika*, 8(2), 133–148. <https://doi.org/10.22236/kalamatika.vol8no2.2023pp133-148>
- Saleem, F. T., & Byrd, C. M. (2021). Unpacking school ethnic-racial socialization: A new conceptual model. *Journal of Social Issues*, 77(4), 1106–1125. <https://doi.org/10.1111/josi.12498>
- Saleem, F. T., Tyrell, F., Liu, L., & He, S. (2023). Ethnic-racial socialization, family climate, and anxiety among African American and Latinx emerging adults. *Journal of Family Psychology*, 37(4), 453–463. <https://doi.org/10.1037/fam0001080>
- Sektani, H. H. J., Khayat, M., Mohammadi, M., & Roders, A. P. (2022). Factors linking perceptions of built heritage conservation and subjective wellbeing. *Heritage & Society*, 16(1), 52–67. <https://doi.org/10.1080/2159032X.2022.2126225>

- Selim, G., & Farhan, S. L. (2024). Reactivating voices of the youth in safeguarding cultural heritage in Iraq: The challenges and tools. *Journal of Social Archaeology*, 24(1), 58–78. <https://doi.org/10.1177/14696053231224037>
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322–2347. <https://doi.org/10.1108/EJM-02-2019-0189>
- Trabajo-Rite, M., & Cuenca-López, J. M. (2020). Student concepts after a didactic experiment in heritage education. *Sustainability*, 12(7), Article 3046. <https://doi.org/10.3390/su12073046>
- Trang, D. T., & Yates, T. M. (2023). Latina mothers' cultural orientation and child self-esteem: The mediating role of cultural socialization. *Family Process*, 62(3), 1114–1133. <https://doi.org/10.1111/famp.12825>
- Trisna, G. A. P. S., Wahyudin, D., & Rusman. (2023). The urgency of heutagogy-based local wisdom in elementary school curriculum in Bali. *Jurnal Kependidikan*, 9(1), 151–161. <https://doi.org/10.33394/jk.v9i1.5894>
- Udeaja, C., Trillo, C., & Awuah, K. G. B. (2020). Urban heritage conservation and rapid urbanization: Insights from Surat, India. *Sustainability*, 12(6), Article 2172. <https://doi.org/10.3390/su12062172>
- Valencia Arnica, Y. K., Rodriguez, J., & Rucano Paucar, F. H. (2023). The status of didactic models for heritage education: A systematic review. *Heritage*, 6(12), 7611–7623. <https://doi.org/10.3390/heritage6120400>
- Van Doorselaere, J. (2021). Connecting sustainable development and heritage education? An analysis of the curriculum reform in Flemish public secondary schools. *Sustainability*, 13(4), Article 1857. <https://doi.org/10.3390/su13041857>
- Wang, M.-T., Smith, L. V., Miller-Cotto, D., & Huguley, J. P. (2020). Parental ethnic-racial socialization and children of color's academic success: A meta-analytic review. *Child Development*, 91(3), e528–e544. <https://doi.org/10.1111/cdev.13254>
- Wang, Y., & Lin, S. L.-C. (2023). Peer ethnic/racial socialization in adolescence: Current knowledge and future directions. *Infant and Child Development*, 32(6), Article e2409. <https://doi.org/10.1002/icd.2409>
- Williams, C. D., Bravo, D. Y., & Umaña-Taylor, A. J. (2020). Intergenerational transmission of cultural socialization and effects on young children's developmental competencies among Mexican-origin families. *Developmental Psychology*, 56(2), 199–207. <https://doi.org/10.1037/dev0000859>
- Wright, D. S., Crooks, K. R., & Balgopal, M. M. (2022). Wildlife photographs: Seeing, caring, and learning through place-based education. *Frontiers in Education*, 7, Article 910324. <https://doi.org/10.3389/educ.2022.910324>
- Yasir, M., Hartiningsih, T., & Rahma, A. A. (2024). The influence of local wisdom-based science learning on the cultural heritage conservation character. *Research and Development in Education (RaDEn)*, 4(2), 1418–1434. <https://doi.org/10.22219/raden.v4i2.33420>
- Zumbuehl, M., Dohmen, T., & Pfann, G. A. (2021). Parental involvement and the intergenerational transmission of economic preferences, attitudes and personality traits. *The Economic Journal*, 131(638), 2642–2670. <https://doi.org/10.1093/ej/ueaa141>