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Research Article

Language Attitudes, Ethnolinguistic Identity, And Intergenerational Transmission As Predictors Of Subjective Language Vitality Among Bagobo-Tagabawa College Students: A Structural Equation Model

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Abstract

Indigenous language vitality depends not only on favorable evaluations but also on the identities and practices that sustain language transmission across generations. This study examined language attitudes, ethnolinguistic identity, intergenerational transmission, and subjective language vitality among 307 Bagobo-Tagabawa college students from higher education institutions in the Davao Region, Philippines. Employing a quantitative, non-experimental, predictive correlational design, data were collected through a cross-sectional survey and analyzed using covariance-based structural equation modeling with maximum likelihood estimation and bootstrap procedures. Findings revealed high levels across all four constructs, with subjective language vitality receiving the highest rating and intergenerational transmission the lowest. Among its dimensions, non-familial transmission obtained the lowest rating. The measurement model demonstrated strong reliability and convergent validity; however, discriminant validity among the three predictor constructs was not established because their latent correlations approached unity. Consequently, their individual effects on subjective language vitality could not be reliably determined, and the hypothesized structural model demonstrated inadequate fit. These findings indicate substantial empirical overlap among language attitudes, ethnolinguistic identity, and intergenerational transmission, limiting support for the proposed predictive model. The study provides contextual evidence of Bagobo-Tagabawa students' heritage-language orientation and highlights the need to strengthen language use beyond the family. It also emphasizes refining measurement instruments, independently validating the proposed model, and expanding opportunities for heritage-language practice across familial and non-familial settings to support sustained indigenous language vitality.

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Keywords: subjective language vitality, Bagobo-Tagabawa, language attitudes, ethnolinguistic identity, intergenerational transmission, structural equation modeling

1. Introduction

Subjective language vitality refers to how members of an ethnolinguistic group perceive the strength, status, and prospects for continued use of their language within a particular sociolinguistic setting (Bourhis et al., 1981). In multilingual settings, a shift toward dominant languages reduces younger speakers' opportunities to use their heritage language and weakens its transmission across generations (UNESCO Ad Hoc Expert Group on Endangered Languages, 2003). This pressure reaches even the home. In Michieka's (2012) study, only 37.5% of university students preferred to use their mother tongue in family settings.

Minority and Indigenous languages face such pressures worldwide. Lindell et al. (2025) linked a perceived deterioration of the language climate among Swedish speakers in Finland to local linguistic vitality and to social and political trust, while Uwen et al. (2020) reported declining Indigenous-language competence among Nigerian schoolchildren. In Asia, younger Teochew speakers increasingly prefer Mandarin (Fang & Yao, 2025), and younger Iban in Sarawak, Malaysia, favor Malay despite positive attitudes toward their heritage language (Ting et al., 2021). Family ties and home domains continue to sustain isiZulu in South Africa (Mbatha et al., 2023) and Konjonese in Indonesia (Yassi et al., 2022), but dominant-language schooling and restricted instructional use heighten the risk of endangerment (Benson & Kosonen, 2013; Falcón Ccenta & Mamani Quispe, 2017).

The Philippines has approximately 175 living Indigenous languages (Eberhard et al., 2026), yet major national and regional languages dominate household communication (Philippine Statistics Authority, 2023), and members of Indigenous communities negotiate overlapping identities shaped by migration and socioeconomic change (Eder, 2013). Language attitudes shaped language use among the Batak, alongside ethnic identity and social networks (Tajolosas, 2015), and among the Dumagat, alongside multilingual contact (Mabuan, 2021). More recent studies have documented disrupted intergenerational language practices among the Bugkalot (De Roxas et al., 2025) and vitality concerns among the Subanen of Mindanao (Banguis et al., 2025).

In the Davao Region, Indigenous languages coexist with Cebuano, Filipino, and English, and younger Davao City residents use Filipino more often than older residents, who predominantly use Cebuano (Dreisbach & Demeterio III, 2021). Bagobo-Tagabawa, a Manobo language spoken along the southern slopes of Mount Apo and in parts of Davao del Sur and Cotabato, is classified as an institutional language under the Expanded Graded Intergenerational Disruption Scale (Marfa & Cooke, 2023), yet its documentation remains limited. How younger speakers view their language bears on whether they will continue to use it and pass it on. Evidence from Bagobo-Tagabawa college students can therefore inform educational planning, community-based language initiatives, and culturally responsive language maintenance. The study also supports Sustainable Development Goals 4 (Quality Education) and 10 (Reduced Inequalities).

1.1 Theoretical Framework

The study is anchored in Ethnolinguistic Vitality Theory (EVT), supported by theories of language attitudes, ethnolinguistic identity, and language transmission. EVT explains the conditions that contribute to the maintenance of an ethnolinguistic group in a multilingual society through three dimensions: status, demographic strength, and institutional support (Giles et al., 1977).

Bourhis et al. (1981) extended the framework through the Subjective Ethnolinguistic Vitality Questionnaire, which captures how group members perceive these conditions. Subjective vitality reflects members' own assessments of their language's position and prospects (Abrams et al., 2009) and defines the outcome construct, examined through demographic perception, status perception, institutional support perception, and overall subjective vitality.

The social psychological perspective holds that beliefs, emotions, and behavioral tendencies shape individuals' orientations toward a language (Garrett, 2010; Lambert, 1967). Ethnolinguistic Identity Theory treats language as a marker of group membership and distinctiveness (Giles & Johnson, 1987), and Phinney's (1992) model of ethnic identity distinguishes identity exploration from affirmation and belonging. Fishman's (1991) Reversing Language Shift framework stresses the restoration of language use across generations through family and community domains, while Family Language Policy explains how household ideologies, practices, and management decisions shape transmission (Curdt-Christiansen & Huang, 2020; King et al., 2008; Smith-Christmas, 2016). Together, these perspectives support the examination of attitudes, identity, and transmission as predictors of perceived vitality, while leaving the specific relationships to empirical testing.

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1.2. Language Attitudes and Subjective Language Vitality

Language attitudes are individuals' evaluative orientations toward a language and its speakers, commonly examined through cognitive, affective, and behavioral dimensions (Garrett, 2010; Lambert, 1967). The cognitive dimension concerns beliefs about a language's usefulness, prestige, and social value. The affective dimension covers pride, attachment, loyalty, or embarrassment. The behavioral dimension, treated in this study as behavioral intention, concerns willingness to use and support the language, which does not always translate into actual use (Baker, 1992; Li & Wei, 2025). Bourhis and Sachdev (1984) showed that vitality perceptions and language attitudes are related, and Ting et al. (2021) treated attitudes and use as indicators of subjective vitality among the Iban.

Indigenous speakers often value their heritage language for its cultural significance while seeing dominant languages as more useful in education and employment. Asháninka speakers in Peru associated Spanish with education and public communication (Falcón Ccenta & Mamani Quispe, 2017), and orientations toward Nahuatl in Mexico combined pride with stigma (Gomashie, 2025). Philippine studies report similar patterns among Gaddang speakers (Asuncion & Rañosa-Madrunio, 2017) and Indigenous youth who prefer English for its perceived educational value (Tacio & Pelila, 2025a, 2025b). Emotional attachment to heritage languages also appears among Ibanag (Sales & Eustaquio, 2025) and Tigwahanon speakers (Blanco & Tarusan, 2023). These studies suggest that students with favorable attitudes toward Bagobo-Tagabawa also perceive its status and prospects more favorably.

1.3. Ethnolinguistic Identity and Subjective Language Vitality

Ethnolinguistic identity refers to the extent to which individuals identify with a linguistic and cultural community and regard their heritage language as a marker of membership and belonging (Giles & Johnson, 1987). Phinney (1992) identifies exploration, the active process of learning about one's heritage, and affirmation and belonging, the positive recognition of and attachment to one's group, as core dimensions of ethnic identity. Identity can involve multiple affiliations, and its link with perceived vitality differs by community (Vincze & Henning-Lindblom, 2016).

In higher education, institutional recognition or invisibilization shapes how Indigenous students express their identities (Álvarez Valencia & Miranda, 2022), and ethnic-racial socialization and peer support shape identity development among Indigenous college students in Taiwan (Teyra et al., 2024). Studies of university students in Malaysia (Ting & Abidin, 2023) and young Hungarians in Slovakia (Vincze et al., 2021) connect ethnic identity with heritage-language use, and Indigenous students in Mindanao have maintained a strong cultural identity while valuing English (Reyes et al., 2025).

Students who identify strongly with the Bagobo-Tagabawa community are expected to place greater importance on the language as an expression of shared heritage and to perceive its vitality more favorably.

1.4. Intergenerational Transmission and Subjective Language Vitality

Intergenerational transmission refers to the process through which a language is passed from one generation to another and sustained through continued exposure, learning, and use. Fishman (1991) identifies the family as the critical domain of transmission, and Family Language Policy research shows how household beliefs and decisions determine which language children hear and use (Curdt-Christiansen & Huang, 2020; King et al., 2008; Smith-Christmas, 2016). Parental attitudes and input patterns shape transmission among Acehnese (Idaryani & Fidyati, 2023), Kipsigis (Bore et al., 2026), Sami (Vaskinn et al., 2026), and Hanunuo families (Casanova, 2022).

Transmission also extends beyond the household. Interactions with peers, classmates, educators, and community members reinforce what younger speakers encounter at home (Forrest, 2018; Meighan, 2024). Philippine studies of Cordilleran students (Catama et al., 2024) and the Ata-Manobo of Talaingod (Libago & Adriano, 2024) illustrate how community practices sustain Indigenous languages. This study therefore distinguishes familial transmission, which occurs through family interaction, from non-familial transmission, which occurs through interaction outside the immediate family. Regular exposure to Bagobo-Tagabawa in both settings is expected to strengthen students' perceptions of the language's presence and continuity.

Gaps remain in the literature. Tajolosas (2015) did not examine subjective vitality among younger speakers in higher education, Mabuan (2021) did not statistically test how attitudes and transmission relate to perceived vitality, De Roxas et al. (2025) did not examine the sociopsychological correlates of perceived vitality, and Banguis et al. (2025) did not focus on Indigenous college students. Internationally, the constructs have mostly been examined singly or in pairs (Kircher, 2022; Ting et al., 2021).

No study known to the authors has modeled language attitudes, ethnolinguistic identity, and intergenerational transmission simultaneously as predictors of subjective language vitality among Bagobo-Tagabawa college students.

This study addressed three research questions:

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RQ1. To what extent do Bagobo-Tagabawa college students demonstrate language attitudes, ethnolinguistic identity, intergenerational transmission, and subjective language vitality?

RQ2. What are the standardized direct effects of language attitudes, ethnolinguistic identity, and intergenerational transmission on subjective language vitality?

RQ3. What structural equation model results from the relationships among the four constructs, and to what extent does the model fit the data?

For Research Question 2, three null hypotheses were tested. H01: Language attitudes have no statistically significant direct effect on subjective language vitality. H02: Ethnolinguistic identity has no statistically significant direct effect on subjective language vitality. H03: Intergenerational transmission has no statistically significant direct effect on subjective language vitality. For Research Question 3, H04 stated that the structural equation model demonstrates an acceptable fit to the data.

1.5. Hypothesized Model

Figure 1 presents the hypothesized model. Language attitudes (cognitive attitude, affective attitude, behavioral intention), ethnolinguistic identity (identity exploration, identity affirmation and belonging), and intergenerational transmission (familial and non-familial transmission) are specified as correlated exogenous latent constructs, each with a direct path to subjective language vitality (demographic perception, status perception, institutional support perception, overall subjective vitality). No mediating paths were hypothesized. Although the three predictors are expected to be related, the literature treats them as distinct aspects of heritage-language maintenance, and the model tests whether each contributes uniquely to perceived vitality.

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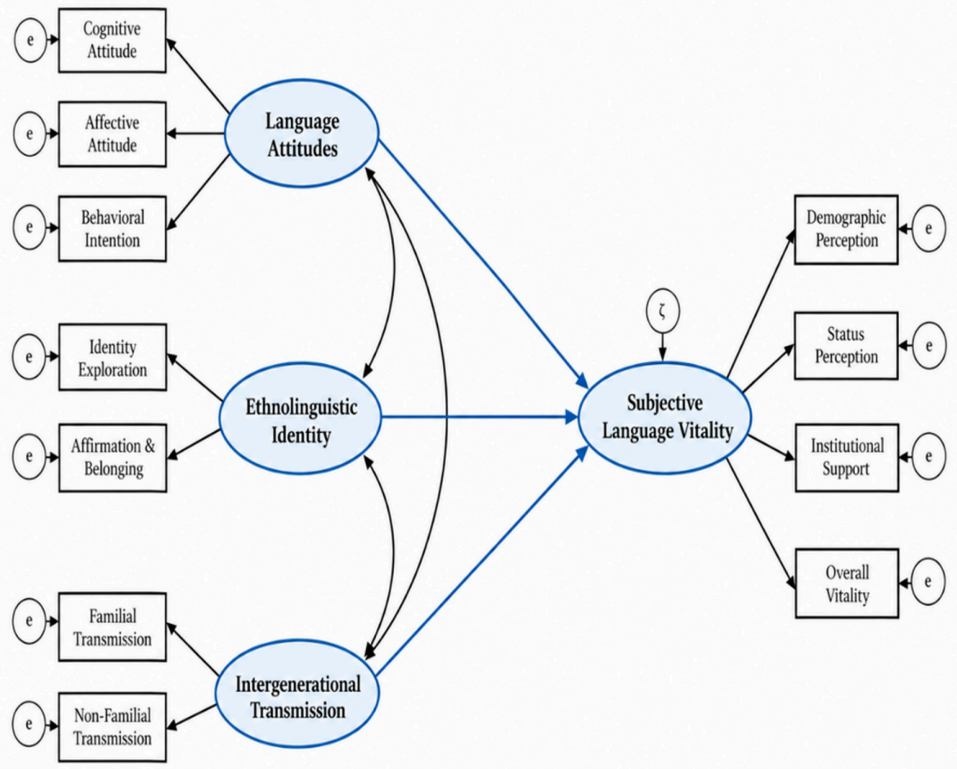


Figure 1. Hypothesized Structural Model

Note. Ovals are latent constructs, and rectangles are observed indicators (dimension mean scores). Curved arrows are covariances among the exogenous constructs. e = error; ζ = disturbance.

2. Materials and Methods

2.1. Research Design

The study employed a quantitative, non-experimental, predictive correlational design using a cross-sectional survey (Creswell & Creswell, 2023). Covariance-based structural equation modeling (CB-SEM) served as the analytic framework because the study variables were latent, were measured through multiple dimensions, and required assessment of both measurement and structural relationships (Byrne, 2016; Dash & Paul, 2021; Kline, 2023). Because the data were cross-sectional, the estimated paths were interpreted as hypothesized statistical relationships, not as evidence of causation.

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2.2. Data Collection

The study was conducted in the Davao Region (Region XI), which had a population of 5,389,422 as of July 1, 2024 (Philippine Statistics Authority, 2025). Data were gathered in eight higher education institutions (HEIs) in Davao del Sur (HEIs A, B, E, F, G, and H) and Davao City (HEIs C and D). HEI A is public, and HEIs B to H are private. Institutions were identified through formal correspondence asking whether they enrolled Bagobo-Tagabawa students, and their names are withheld for confidentiality.

Participants were selected through purposive, criterion-based sampling (Creswell & Creswell, 2023). Inclusion criteria were self-identification as Bagobo-Tagabawa, current enrollment in a participating HEI, and age of at least 18 years. Students who took part in the pilot test were excluded. Eligibility was confirmed through a screening question at the start of the questionnaire. Of 350 questionnaires distributed, 338 were returned, and 31 were excluded for ineligibility or incomplete responses, leaving 307 complete cases with no missing data (Table 1).

Table 1. Distribution of Respondents by Participating Higher Education Institution

HEI	*n*	%
HEI A (public, Davao del Sur)	55	17.9
HEI B (private, Davao del Sur)	55	17.9
HEI C (private, Davao City)	43	14.0
HEI D (private, Davao City)	40	13.0
HEI E (private, Davao del Sur)	33	10.7
HEI F (private, Davao del Sur)	32	10.4
HEI G (private, Davao del Sur)	31	10.1
HEI H (private, Davao del Sur)	18	5.9
Total	**307**	**100.0**

Note. HEI = higher education institution. Institution names are withheld for confidentiality. Percentages may not total 100.0 because of rounding.

The hypothesized model involved 28 freely estimated parameters: 7 free factor loadings, 11 error variances, 3 predictor variances, 3 predictor covariances, 3 structural paths, and 1 disturbance variance. The sample of 307 yielded a case-to-parameter ratio of approximately 11:1, above the 10:1 minimum commonly recommended for maximum likelihood SEM (Kline, 2023), and exceeded the frequently cited minimum of 200 cases.

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Table 2 shows that only 61 of the 307 respondents named Bagobo-Tagabawa as their only home language, while 96 named Cebuano alone.

Table 2. Percentage of Bagobo-Tagabawa and Cebuano participants as their Home Language.

Home Language	*n*	%
Bagobo-Tagabawa only	61	19.9
Cebuano only	96	31.3

2.3. Research Instruments

The study used an adapted structured questionnaire in five parts: a demographic profile and four scales rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was administered in English.

Table 3 presents the dimensions, item counts, sources, and pilot reliability of each scale. The Language Attitudes scale was adapted from Lambert's (1967) tripartite model. The Ethnolinguistic Identity scale was adapted from Phinney's (1992) Multigroup Ethnic Identity Measure. The Intergenerational Transmission scale drew on the familial and non-familial framework of the Intergenerational Contact Measure (Hooker et al., 2021; Turner et al., 2026), with items contextualized to Bagobo-Tagabawa. The Subjective Language Vitality scale was adapted from the Subjective Ethnolinguistic Vitality Questionnaire (Bourhis et al., 1981). Sample items include "I believe that the Bagobo-Tagabawa language is an important language to know" (cognitive attitude), "I am happy to be a member of the Bagobo-Tagabawa community and to be associated with the Bagobo-Tagabawa language" (identity affirmation and belonging), "I regularly use the Bagobo-Tagabawa language when communicating with my family members" (familial transmission), and "I believe the Bagobo-Tagabawa language will continue to be used by future generations" (overall subjective vitality).

Table 3. Research Instruments: Dimensions, Items, Sources, and Pilot Reliability

Construct	Dimension	Items	Source	α
Language attitudes	Cognitive attitude	9	Adapted from Lambert (1967)	.869
	Affective attitude	8		.890
	Behavioral intention	5		.877
Ethnolinguistic identity	Identity exploration	5	Adapted from Phinney (1992)	.926
	Identity affirmation and belonging	7		.898

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Construct	Dimension	Items	Source	α
Intergenerational transmission	Familial transmission	12	Drawing on Hooker et al. (2021) and Turner et al. (2026)	.950
	Non-familial transmission	15		.979
Subjective language vitality	Demographic perception	6	Adapted from Bourhis et al. (1981)	.876
	Status perception	5		.966
	Institutional support perception	7		.921
	Overall subjective vitality	4		.944

Note. α = Cronbach's alpha from the pilot test (n = 30). Instrument-level α: language attitudes = .951, ethnolinguistic identity = .940, intergenerational transmission = .956, subjective language vitality = .958. All items used a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Five validators with doctoral qualifications in linguistics, education, and research rated the questionnaire on a 5-point scale (1 = poor to 5 = excellent) for clarity, organization, suitability and adequacy of items, attainment of purpose, objectivity, and appropriateness of the rating scale, and their comments guided its refinement. The revised questionnaire was pilot-tested with 30 students from a non-participating HEI who resembled the target respondents. All dimensions exceeded the $\alpha \geq .70$ criterion. The very high coefficients for non-familial transmission (.979) and status perception (.966) point to possible item redundancy (Streiner, 2003), but the items were retained for their relevance to the intended dimensions. Mean scores were interpreted as very high (4.20–5.00), high (3.40–4.20), moderate (2.60–3.40), low (1.80–2.60), and very low (1.00–1.79).

2.4. Ethical Considerations

The University of the Immaculate Conception Research Ethics Committee granted ethical clearance on May 5, 2026 (Protocol Code GS-ER-03-26-0628), valid until May 5, 2027. Clearance was also secured from the National Commission on Indigenous Peoples (NCIP), consistent with the Indigenous Peoples' Rights Act (Republic Act No. 8371, 1997).

After approval, the researchers sent letters of request to HEI administrators and coordinated with guidance offices, Indigenous Peoples focal persons, and student organizations. Representatives of the Bagobo-Tagabawa community were consulted when applicable. Data were collected face to face.

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In line with institutional policies, designated school personnel administered the informed consent forms and questionnaires instead of the principal investigator. The research ethics committee assessed this protocol deviation as minor. Participants were informed of the study's purpose, procedures, duration, risks, benefits, and their rights, including the right to refuse, withdraw, or skip any item without penalty. Completing the questionnaire took 15 to 30 minutes. Personal data were processed under the Data Privacy Act of 2012 (Republic Act No. 10173, 2012). Responses were coded and anonymized, access was restricted to the researchers, and results were reported in aggregate form.

2.5. Data Analysis

Analyses were performed in Python with the semopy package (Igolkina & Meshcheryakov, 2020), and the maximum likelihood (ML) estimates were cross-checked against an independently coded ML routine. Means and standard deviations addressed Research Question 1. Construct scores were computed as the mean of their dimension scores. Univariate normality was assessed through skewness and kurtosis, and multivariate normality through Mardia's (1970) coefficients.

Following the two-step approach (Anderson & Gerbing, 1988), confirmatory factor analysis (CFA) preceded the structural analysis. Each latent construct was indicated by the mean scores of its dimensions, which produced 11 observed indicators for four latent constructs (Little et al., 2002). Table 4 lists the criteria used to assess reliability, convergent validity, and discriminant validity, the last through four complementary tests including nested models in which pairs of predictors were merged.

Table 4. Criteria for Evaluating the Measurement and Structural Models

Statistic	Criterion	Source
Measurement model		
Standardized factor loading (λ)	≥ .70 and $p < .05$	Hair et al. (2019)
Cronbach's α	≥ .70	Nunnally and Bernstein (1994)
McDonald's ω	≥ .70	Hayes and Coutts (2020)
Composite reliability	≥ .70	Hair et al. (2019)
Average variance extracted	≥ .50	Fornell and Larcker (1981)
Fornell–Larcker criterion	√AVE greater than interconstruct correlations	Fornell and Larcker (1981)
HTMT	< .85 (strict), < .90 (liberal)	Henseler et al. (2015)
95% CI of latent correlation	Upper limit below 1.00	Rönkkö and Cho (2022)

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Statistic	Criterion	Source
Nested-model test (two constructs merged)	Significant $\Delta\chi^2$ indicates distinct constructs	Anderson and Gerbing (1988)
Model fit		
χ^2 and Bollen–Stine bootstrap p	$p > .05$	Kline (2023); Bollen and Stine (1992)
χ^2/df	≤ 3.00	Schermelleh-Engel et al. (2003)
CFI and TLI	$\geq .95$ good, $\geq .90$ marginal	Hu and Bentler (1999)
RMSEA [90% CI]	$\leq .06$ good, $\leq .08$ acceptable, $> .10$ poor	Hu and Bentler (1999); MacCallum et al. (1996)
SRMR	$\leq .08$	Hu and Bentler (1999)
Residual correlations (local fit)	Below |.10|	Kline (2023)

Note. AVE = average variance extracted; HTMT = heterotrait–monotrait ratio; CI = confidence interval; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

For Research Question 2, a path was considered significant when $p < .05$ and its 95% percentile bootstrap confidence interval from 2,000 resamples excluded zero. Standard errors of standardized coefficients were obtained through the delta method. Multicollinearity was examined through latent variance inflation factors (VIFs) computed from the latent correlation matrix, with VIF $\geq$ 10 indicating severe multicollinearity (Grewal et al., 2004; Hair et al., 2019). Admissibility rules were set before the analysis: standardized loadings, latent correlations, or path coefficients beyond ±1.00, and negative error variances, were treated as improper and not interpreted as effect sizes (Kline, 2023). For Research Question 3, overall fit was evaluated with the indices in Table 4 together with the Bollen–Stine bootstrap test from 1,000 resamples (Bollen & Stine, 1992), and local fit through residual correlations. H04 was supported when CFI and TLI were at least .90, RMSEA and SRMR did not exceed .08, and no residual correlation reached |.10|. Fit was judged from the indices collectively (McNeish et al., 2018).

3. Results

Table 5 presents the descriptive results. All four constructs and their 11 dimensions were rated high. Subjective language vitality obtained the highest mean (M = 4.09, SD = 0.84), followed by ethnolinguistic identity (M = 4.03, SD = 0.88), language attitudes (M = 3.99, SD = 0.85), and intergenerational transmission (M = 3.84, SD = 0.90). Status perception was the highest-rated

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dimension (M = 4.18), and non-familial transmission the lowest and most variable (M = 3.74, SD = 0.98).

Table 5. Levels of Language Attitudes, Ethnolinguistic Identity, Intergenerational Transmission, and Subjective Language Vitality (N = 307)

Construct and dimension	*M*	*SD*	Level
Language attitudes	3.99	0.85	High
Cognitive attitude	4.13	0.84	High
Affective attitude	3.88	0.93	High
Behavioral intention	3.94	0.90	High
Ethnolinguistic identity	4.03	0.88	High
Identity exploration	3.95	0.93	High
Identity affirmation and belonging	4.10	0.88	High
Intergenerational transmission	3.84	0.90	High
Familial transmission	3.95	0.90	High
Non-familial transmission	3.74	0.98	High
Subjective language vitality	4.09	0.84	High
Demographic perception	4.03	0.91	High
Status perception	4.18	0.89	High
Institutional support perception	4.01	0.89	High
Overall subjective vitality	4.14	0.87	High

Note. Construct scores are the means of their dimension scores. Scale: 4.20–5.00 = very high; 3.40–4.19 = high; 2.60–3.40 = moderate; 1.80–2.60 = low; 1.00–1.79 = very low.

Within each construct, cognitive attitude, identity affirmation and belonging, and familial transmission received the highest ratings, while institutional support perception was the lowest-rated vitality dimension (M = 4.01). Students agreed most strongly with statements about the worth of the language and less strongly with statements about enjoying, preferring, and feeling confident in using it.

3.1. Preliminary Analyses

All indicators were negatively skewed (−2.23 to −1.07), with excess kurtosis from 0.20 to 4.60. These values fall below the thresholds Kline (2023) treats as severe (|skewness| > 3, |kurtosis| > 10). Multivariate normality was not supported, with Mardia's multivariate kurtosis at 269.74 against an expected 143 (critical ratio = 65.66) and multivariate skewness $\chi^2(286) = 2{,}849.47$, $p < .001$.

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Seventeen respondents exceeded the Mahalanobis distance criterion, $\chi^2(11) = 31.26$, $p < .001$, and were retained as legitimate response patterns. A sensitivity analysis without them produced worse fit (RMSEA = .182) and more unstable structural estimates. ML estimation was therefore retained, with bootstrap procedures supporting inference (West et al., 1995).

3.2. Measurement Model

Table 6 presents the CFA results. All indicators loaded strongly and significantly on their constructs (λ = .853–.967, $p < .001$). Cronbach's α (.917–.976) and McDonald's ω (.918–.976) indicated excellent internal consistency (Hayes & Coutts, 2020; McDonald, 1999). CR ranged from .907 to .959 and AVE from .831 to .871, well above the .50 criterion, so convergent validity was established (Fornell & Larcker, 1981).

Table 6. Standardized Factor Loadings, Reliability, and Convergent Validity of the Measurement Model

Construct and indicator	Items	λ	SE	z	α	ω	CR	AVE
Language attitudes							*.953*	*.871*
Cognitive attitude	9	.908	—[a]	—[a]	.950	.951		
Affective attitude	8	.943	.038	29.76	.950	.950		
Behavioral intention	5	.949	.037	30.38	.919	.919		
Ethnolinguistic identity							*.929*	*.868*
Identity exploration	5	.924	—[a]	—[a]	.936	.937		
Affirmation and belonging	7	.940	.031	30.81	.948	.949		
Intergenerational transmission							*.907*	*.831*
Familial transmission	12	.967	—[a]	—[a]	.964	.965		
Non-familial transmission	15	.853	.037	25.71	.976	.976		
Subjective language vitality							*.959*	*.853*
Demographic perception	6	.943	—[a]	—[a]	.935	.936		
Status perception	5	.920	.031	30.77	.937	.937		
Institutional support perception	7	.946	.029	34.35	.947	.947		
Overall subjective vitality	**4**	**.884**	**.033**	**26.83**	**.917**	**.918**		

Note. λ = standardized loading; *SE* and *z* refer to the unstandardized loading; α and ω were computed from the items of each dimension in the main sample; CR = composite reliability; AVE = average variance extracted. All loadings $p < .001$. [a]Fixed to 1.00 to set the scale of the latent construct.

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Discriminant validity was not established among the predictors (Table 7). Their latent correlations (LA–IT = .997, LA–EI = .981, EI–IT = .965) exceeded the square roots of the AVEs (.911–.933), so the Fornell–Larcker criterion was not met. The HTMT ratios (.999, .987, .955) exceeded both the strict .85 and the liberal .90 thresholds. The 95% confidence interval of the LA–IT correlation [.983, 1.011] included 1.00. Each predictor also correlated above .90 with subjective language vitality (HTMT = .891–.919).

Table 7. Discriminant Validity: Latent Correlations, Square Roots of AVE, and HTMT Ratios

Construct	LA	EI	IT	SLV
Language attitudes (LA)	(.933)	.987	.999	.919
Ethnolinguistic identity (EI)	.981 [.965, .996]	(.932)	.955	.918
Intergenerational transmission (IT)	.997 [.983, 1.011]	.965 [.945, .984]	(.911)	.891
Subjective language vitality (SLV)	.905 [.878, .931]	.919 [.893, .944]	.904 [.877, .932]	(.923)

Note. Diagonal values in parentheses are square roots of the average variance extracted (AVE). Values below the diagonal are latent (disattenuated) correlations with 95% confidence intervals. Values above the diagonal are heterotrait–monotrait (HTMT) ratios. A latent correlation whose confidence interval includes 1.00 indicates a failure of discriminant validity.

The nested-model tests in Table 8 confirmed this result. Merging language attitudes and intergenerational transmission did not significantly worsen fit, $\Delta\chi^2(3) = 4.18$, $p = .242$, so the data treat the two constructs as one. Merging the other pairs did worsen fit, but correlations of .98 and .97 leave little unique variance for each construct. The instruments themselves show a likely content source of the overlap. Several affective attitude and behavioral intention items concern using the language ("I feel comfortable using the Bagobo-Tagabawa language"), which the transmission items also ask about ("I regularly use the Bagobo-Tagabawa language when communicating with my family members"). Several identity items are also defined through the language ("I have a strong sense of belonging to the Bagobo-Tagabawa people through the use of the Bagobo-Tagabawa language").

Table 8. Nested-Model Tests of Discriminant Validity among the Predictor Constructs

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	Decision
Four-factor CFA (baseline)	349.09	38	—	—	—	—
LA and IT merged	353.27	41	4.18	3	.242	Not distinct

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Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	Decision
LA and EI merged	370.12	41	21.03	3	< .001	Distinct
EI and IT merged	370.78	41	21.69	3	< .001	Distinct
LA, EI, and IT merged	374.72	43	25.63	5	< .001	Distinct

Note. LA = language attitudes; EI = ethnolinguistic identity; IT = intergenerational transmission; CFA = confirmatory factor analysis. Each merged model was compared with the four-factor baseline.

3.3. Standardized Direct Paths

Table 9 presents the structural paths, and Figure 2 shows the estimated model. Jointly, the predictors explained 91% of the variance in subjective language vitality (R^2 = .91), but no direct path was significant. The paths from language attitudes (β = −6.62, *p* = .894), ethnolinguistic identity (β = 2.47, *p* = .849), and intergenerational transmission (β = 5.12, *p* = .890) all had bootstrap confidence intervals that included zero, so H01, H02, and H03 were not rejected.

Table 9. Standardized Direct Paths to Subjective Language Vitality and Tests of H01 to H03

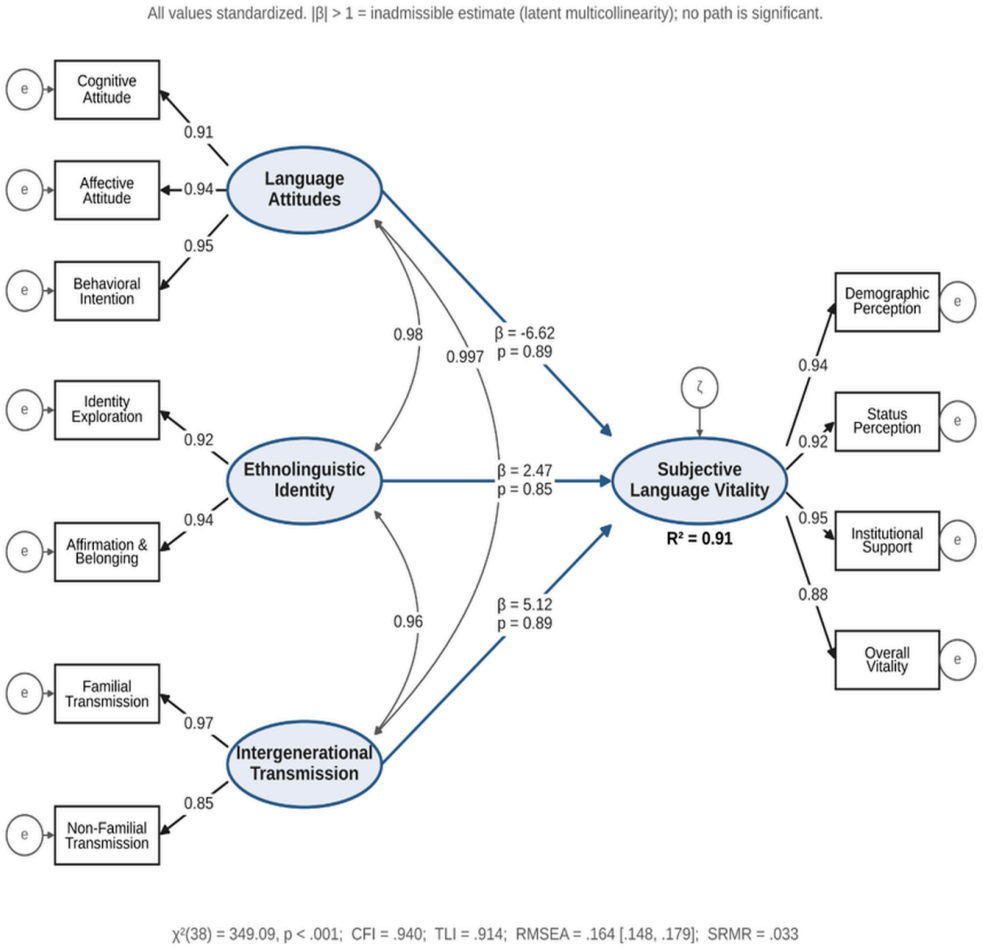
Path	β	*SE*	*z*	*p*	95% bootstrap CI	VIF	Decision
LA → SLV (H01)	−6.62	49.49	−0.13	.894	[−6.75, 29.98]	725.6	H01 not rejected
EI → SLV (H02)	2.47	12.96	0.19	.849	[−44.86, 3.44]	68.2	H02 not rejected
IT → SLV (H03)	5.12	36.91	0.14	.890	[−18.58, 31.07]	405.6	H03 not rejected

Note. LA = language attitudes; EI = ethnolinguistic identity; IT = intergenerational transmission; SLV = subjective language vitality. β = standardized path coefficient (ML); *SE* = delta-method standard error of β; CI = percentile confidence interval from 2,000 bootstrap resamples; VIF = latent variance inflation factor. R^2 of SLV = .91. Coefficients beyond ±1.00 are inadmissible and are reported only to document the problem. They are not effect sizes.

These coefficients are inadmissible. A standardized coefficient beyond ±1.00 does not describe an effect larger than a perfect relationship. It shows that the model cannot separate the predictors. Latent VIFs of 725.6 for language attitudes, 405.6 for intergenerational transmission, and 68.2 for ethnolinguistic identity far exceeded the ceiling of 10, and the standard error of the language attitudes path was about 27 times larger than it would be with uncorrelated predictors (Grewal et al., 2004). Under the admissibility rules set before the analysis, the individual path estimates cannot be interpreted as effect sizes.

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Figure 2. Estimated Structural Equation Model of Subjective Language Vitality (Standardized Estimates)



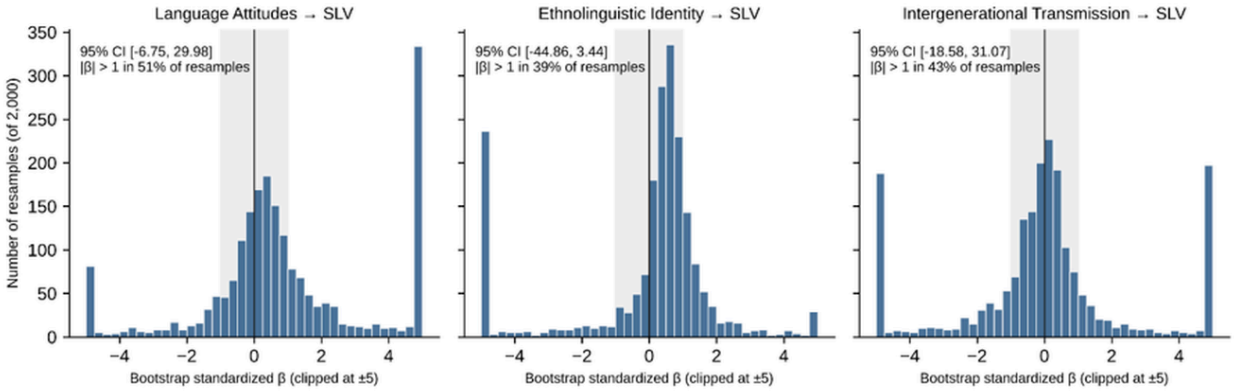
Note. |β| > 1 indicates an inadmissible estimate caused by latent multicollinearity. No structural path is significant.

The bootstrap distributions in Figure 3 show the same instability. Across 2,000 resamples, the language attitudes coefficient fell outside ±1.00 in 51% of resamples, intergenerational transmission in 43%, and ethnolinguistic identity in 39%, and 63.7% of resamples produced at least one inadmissible path. An alternative solution in the full sample, with fit differing by only $\Delta\chi^2 = 1.25$, gave entirely different values (β = .49, .57, and −.14). The likelihood surface was nearly flat, and no unique set of direct effects could be recovered.

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The nonsignificant paths therefore do not show that the predictors are unrelated to perceived vitality. Each correlated above .90 with subjective language vitality at the latent level (Table 7).

Figure 3. Bootstrap Distributions of the Standardized Direct Paths to Subjective Language Vitality (2,000 Resamples)



Note. SLV = subjective language vitality. Values are clipped at ±5 for display. The shaded band marks the admissible range of ±1.00.

3.4. Model Fit

Because all three predictors covary freely and all predict the outcome, the structural part of the model is saturated, and the structural model has the same fit as the CFA. Any misfit therefore originates in the measurement part. Table 10 presents the fit indices. The model was rejected by both the exact-fit test and the Bollen–Stine bootstrap test, in which none of 1,000 bootstrap χ^2 values reached the observed value. The RMSEA confidence interval lay entirely above the .10 threshold for poor fit (MacCallum et al., 1996), even after the Bollen–Stine correction. CFI and TLI were marginal, and only SRMR indicated good fit. A good SRMR combined with a poor RMSEA is typical of models with very high loadings, in which small discrepancies become statistically conspicuous (McNeish et al., 2018).

Table 10. Goodness-of-Fit Indices of the Structural Equation Model and Test of H04

Fit index	Criterion	Obtained value	Interpretation
χ^2 (df = 38)	p > .05	349.09, p < .001	Not met
Bollen–Stine bootstrap p	p > .05	< .001	Not met
χ^2/df	≤ 3.00	9.19	Not met
CFI	≥ .95 (≥ .90 marginal)	.940	Marginal

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Fit index	Criterion	Obtained value	Interpretation
TLI	≥ .95 (≥ .90 marginal)	.914	Marginal
RMSEA [90% CI]	≤ .08 acceptable, > .10 poor	.164 [.148, .179]	Poor
SRMR	≤ .08	.033	Good
Bollen–Stine-adjusted χ^2 / RMSEA	RMSEA ≤ .08	181.00 / .111	Poor

Note. Because the structural part of the model is saturated, these values are identical to those of the measurement model. The adjusted χ^2 rescales the ML χ^2 by the mean of the Bollen–Stine bootstrap distribution (1,000 resamples).

Local misfit followed two patterns (Table 11). Cognitive attitude was more closely related to the vitality indicators, especially status perception and overall subjective vitality, than the model allows. Believing that the language is valuable overlaps in content with perceiving that it has status and a future (Bourhis & Sachdev, 1984). Non-familial transmission was less closely related to status perception, cognitive attitude, and identity affirmation than the model implies, which suggests that using the language with peers and community members is a distinct, more behavioral experience. Both patterns cut across construct boundaries, consistent with the discriminant validity problem.

Table 11. Largest Residual Correlations of the Structural Equation Model

Indicator pair	Residual *r*	Direction
Non-familial transmission – Status perception	−.100	Overpredicted
Cognitive attitude – Overall subjective vitality	.097	Underpredicted
Cognitive attitude – Status perception	.093	Underpredicted
Non-familial transmission – Cognitive attitude	−.078	Overpredicted
Affective attitude – Status perception	−.073	Overpredicted
Non-familial transmission – Identity affirmation and belonging	−.072	Overpredicted
Cognitive attitude – Institutional support perception	.070	Underpredicted

Note. Residual *r* = observed minus model-implied correlation. Values of approximately |.10| or greater indicate meaningful local misfit (Kline, 2023). All other residuals were below |.06|.

Post hoc respecification was considered and rejected. Adding the five residual covariances that most reduced χ^2 left RMSEA at .118, and none of these covariances had an a priori theoretical basis, so no respecified model was retained (Kline, 2023). A supplementary parallel mediation model, in which language attitudes predicted subjective language vitality through ethnolinguistic identity and intergenerational transmission, did not improve fit (RMSEA = .162),

and neither indirect effect was significant, as both 95% bootstrap confidence intervals included zero. H04 was therefore not supported. The model does not adequately reproduce the data. Following reporting standards that require the tested model to be reported regardless of its results (Appelbaum et al., 2018), the full model is presented here.

3.5. Levels of Attitudes, Identity, Transmission, and Perceived Vitality

The students reported favorable attitudes, a strong identity, and high perceived vitality, with transmission, especially outside the family, as the relatively weakest area. The higher rating of cognitive attitude over affective attitude indicates that students' beliefs about the value of Bagobo-Tagabawa run somewhat ahead of their emotional comfort in using it. Motlhankane (2025) reported favorable cognitive attitudes toward African languages in higher education, and Philippine studies show that Indigenous speakers value their heritage language while viewing dominant languages as more useful in academic and economic life (Asuncion & Rañosa-Madrunio, 2017; Tacio & Pelila, 2025a). This pattern fits a setting where Cebuano, Filipino, and English dominate daily and academic communication (Dreisbach & Demeterio III, 2021).

The higher rating of affirmation and belonging over exploration matches Phinney's (1992) distinction between the two dimensions. Students expressed pride in being Bagobo-Tagabawa more strongly than active efforts to learn about their heritage. Comparable patterns appear among Indigenous students in Mindanao who keep a strong cultural identity while valuing English and Filipino (Reyes et al., 2025) and among Indigenous students who reaffirm their identity in higher education (Álvarez Valencia & Miranda, 2022; Teyra et al., 2024).

The lower rating of non-familial transmission supports Fishman's (1991) view of the home as the critical domain of transmission and echoes studies showing that heritage-language use declines first outside the household (Catama et al., 2024; Gomashie & Terborg, 2021; Libago & Adriano, 2024). The language profile of the sample calls for caution, as only 61 of 307 respondents named Bagobo-Tagabawa as their only home language. Students perceived the language as respected and likely to remain strong but rated its institutional presence lower, as EVT anticipates for a minority language in a multilingual region (Bourhis et al., 1981; Giles et al., 1977). Similar perceptions have been reported for Indigenous languages in higher education (Horák et al., 2025; Hussain et al., 2026). These ratings describe perceived, not objective, vitality (Abrams et al., 2009).

3.6. Overlap among the Predictor Constructs

The central finding is that the three predictors were not empirically distinct as measured. EVT places attitudes, identity, and transmission within one

sociopsychological system instead of treating them as independent forces (Bourhis & Sachdev, 1984; Giles et al., 1977). Family Language Policy perspectives describe attitudes and identity as enacted through language use in the home (Curdt-Christiansen & Huang, 2020; King et al., 2008; Smith-Christmas, 2016), and studies of minority youth report that positive attitudes, identification, and heritage-language use rise and fall together (Ting & Abidin, 2023; Ting et al., 2021; Vincze et al., 2021). Among Bagobo-Tagabawa college students, this interdependence was strong enough for the three constructs to function empirically as one heritage-language orientation.

This result has two plausible sources. Substantively, valuing, identifying with, and using a heritage language are closely bound experiences for young Indigenous speakers in a multilingual setting. Methodologically, attitude and identity items that describe language use overlap with the transmission items, and all scales share one self-report format. Rönkkö and Cho (2022) describe this pattern as a discriminant validity problem rooted in the measures more than in the theory. The present data cannot separate the two sources. The study therefore cannot attribute perceived vitality to attitudes over identity, or to transmission over attitudes. It can state only that this combined orientation and perceived vitality are very closely associated.

3.7. The Unsupported Structural Model

The nonsignificant and inadmissible paths reflect the classic consequence of latent multicollinearity in SEM, which combines strong joint prediction with unstable, nonsignificant, and sometimes sign-reversed individual paths (Grewal et al., 2004; Kline, 2023). The poor fit, located in the measurement part of the model, points to the same cause. The constructs moved together as the literature predicts, but the assumption that they are three separable constructs, as measured here, was not supported. Reporting the unsupported model guards against attributing perceived vitality to language attitudes alone (Appelbaum et al., 2018). The very high correlations between the predictors and the outcome (.904–.919) also mean that the R^2 of .91 likely reflects, in part, shared content and method, so the result should not be read as strong evidence for distinct theoretical effects.

4. Conclusion

Bagobo-Tagabawa college students hold favorable attitudes toward their heritage language, a strong ethnolinguistic identity, and a high perception of its vitality. Transmission is the relatively weakest area, particularly outside the family. The home remains the main space in which students encounter and use the language, while opportunities to use it with peers and the wider community are more limited. The instruments measured each construct reliably, but language

attitudes, ethnolinguistic identity, and intergenerational transmission were not empirically distinct as measured. The study cannot determine which construct has a unique direct effect on perceived vitality, and the hypothesized model did not fit the data. Taken together, the three constructs form an orientation very strongly associated with perceived vitality. Families and communities should continue to give younger members regular opportunities to hear and use Bagobo-Tagabawa. HEIs and student organizations should create spaces where the language is used beyond the home, and maintenance initiatives by communities, schools, the NCIP, and local government units should address attitudes, identity, and language use together.

5. Recommendations

Three implications follow. First, because transmission outside the family was the weakest area, schools, Indigenous Peoples focal offices, and community leaders should create spaces beyond the home where young people use Bagobo-Tagabawa, such as campus organizations, cultural activities, and peer and community interaction. Second, if valuing, identifying with, and using the language operate together, maintenance programs are more consistent with students' experience when they build attitudes, identity, and opportunities for use together instead of targeting one in isolation. This implication rests on the descriptive and correlational findings, not on separable structural effects. Third, the study shows why rigorous discriminant validity testing must precede the interpretation of structural paths in CB-SEM (Rönkkö & Cho, 2022).

Future research should revise the attitude and identity instruments so that their items do not describe language use, keeping use for the transmission scale, and then re-validate them through CFA with discriminant validity testing before interpreting structural paths. A higher-order heritage-language orientation construct, with attitudes, identity, and transmission as its facets, should be tested as an a priori hypothesis in an independent sample. Transmission should also be measured behaviorally, for example through language-use records or reports from parents and elders. Mediation or other causal orderings should be examined only when the constructs are empirically distinct and preferably with longitudinal data. Broader samples, other age groups, settings beyond higher education, and mixed-methods designs would further explain how these experiences shape perceived vitality.

6. Limitations of the Study

Several limitations qualify the findings. Purposive sampling through eight HEIs, seven of them private, limits generalization to Bagobo-Tagabawa college students reached through these institutions and excludes community members not

enrolled in higher education. The cross-sectional design does not support causal inference. All constructs were measured through self-report on the same 5-point agreement format, which introduces shared-method variance. Item content overlapped across the attitude, identity, and transmission scales, and very high reliability coefficients for some dimensions suggest item redundancy (Streiner, 2003). Indicators were dimension means, which can mask item-level cross-loadings. The data departed from multivariate normality, and responses clustered at the upper end of the scale, which left little variance to distinguish the constructs. Designated school personnel, not the researchers, administered the questionnaires. The study also did not include objective vitality indicators against which to compare students' perceptions.

Supplementary Details

Supplementary Materials & Data Availability Statement:
Supplementary materials, including the validated survey questionnaire and alternative-model specifications, are accessible upon request. The anonymized dataset generated and analyzed during the current study is not publicly archived in accordance with institutional ethical protocols, participant confidentiality agreements, and cultural data protection guidelines governing Indigenous communities. However, de-identified data supporting the findings of this study may be obtained from the corresponding author upon reasonable academic request and subject to appropriate ethical and institutional clearances.

Author Contributions:
This journal uses the Contributor Roles Taxonomy (CRediT).

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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Danilo G. Baradillo	✓	✓		✓						✓		✓	✓	
Gloria P. Gempes		✓	✓	✓	✓					✓	✓			

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
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Informed Consent Statement:
All participants gave informed consent.

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Artificial intelligence (AI) tools were used to assist in improving the language, grammar, clarity, and overall readability of the manuscript. These tools were employed solely for language editing and refinement. The authors take full responsibility for the accuracy, originality, interpretation, and final content of the article.

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