

Translanguaging Practices in Second Language Education and Their Implications for Multilingual Language Policy

Melissa Tan Wei Ling¹

¹Department of English Language and Literature, Singapore University of Social Sciences, Singapore

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Corresponding Author:

Melissa Tan Wei Ling

Email:

melissatanwling@gmail.com

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ABSTRACT

Purpose: This study examined the predictive relationship between translanguaging practices and second language learning outcomes among university students in Singapore.

Subjects and Methods: A quantitative cross-sectional design was employed among 260 university students in Singapore. Participants were selected purposively based on their experience with English-medium or second language education. Data were collected using a structured five-point Likert-scale questionnaire measuring Translanguaging Practices and Second Language Learning Outcomes. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4.

Results: The measurement model demonstrated strong reliability and validity, with indicator loadings above 0.80, AVE values of 0.715 and 0.754, and HTMT of 0.741. Translanguaging practices significantly and positively predicted second language learning outcomes ($\beta = 0.672$, $t = 16.390$, $p < 0.001$), with a substantial effect size ($f^2 = 0.823$). The model explained 45.2% of the variance in learning outcomes ($R^2 = 0.452$) and demonstrated predictive relevance ($Q^2 = 0.326$). These findings indicate that multilingual practices can function as pedagogical resources in higher education.

Conclusions: Translanguaging practices represent a predictor of second language learning outcomes in Singaporean higher education, supporting the integration of multilingual resources into pedagogy.

INTRODUCTION

The increasing linguistic diversity of higher education has challenged conventional assumptions that effective second language learning should occur through the exclusive use of the target language. According to Van Viegen & Zappa-Hollman (2020) Universities increasingly bring together students and lecturers with different linguistic repertoires, educational backgrounds, and communicative experiences. This diversity is particularly relevant in multilingual societies where English functions as an important medium of academic communication while students routinely draw upon additional languages in their everyday, social, and educational interactions (Paulsrud et al., 2021; Tsou & Baker, 2021; Dillon et al., 2021; Loo et al., 2022; Botha et al., 2023). Recent scholarship on English-medium instruction (EMI) further indicates that multilingualism is an integral feature of contemporary university classrooms rather than an exceptional condition requiring strictly monolingual instructional practices (Sahan & Rose, 2021; Kao et al., 2021; Nguyen et al., 2022).

In such environments, language use in the classroom is rarely restricted to a single linguistic code. Instead, learners and lecturers may mobilize their available linguistic resources to clarify meanings, negotiate complex concepts, participate in classroom interaction, and facilitate academic communication (Zheng & Qiu, 2024; Matsumoto, 2019; Wang & Shen, 2024; Zhou & Mann, 2021). Translanguaging has consequently emerged as an important perspective for understanding how multilingual speakers use their complete linguistic repertoires in educational settings (Wei, 2023; Turner & Lin, 2024; Mendoza et al., 2024). Research in multilingual higher education has demonstrated that translanguaging can function as a resource for meaning-making, knowledge construction, classroom participation, and linguistic inclusion rather than simply representing alternation between formally bounded languages (Charamba, 2023; Rahman & Hu, 2025). This perspective also challenges conventional English-only assumptions by emphasizing the contextual and pedagogical functions of multilingual language practices (Cenoz & Gorter, 2021; Tsou, 2021).

The relevance of translanguaging is particularly evident in higher education, where students are frequently expected to engage with academically demanding content through a second or additional language (Heugh et al., 2022; Rafi & Morgan, 2023; Rahman & Singh, 2022; Adamson & Coulson, 2015). Research on English-medium instruction in Singaporean universities demonstrates that English operates within a broader multilingual environment and that students' linguistic practices extend beyond the formal medium of instruction (Botha et al., 2023). Similar evidence from other Asian higher education contexts demonstrates that EMI classrooms frequently involve flexible interaction between English and students' additional linguistic resources (Tsou & Baker, 2021; Tsou, 2021; Kao et al., 2021; Nguyen et al., 2022). Rather than viewing students' use of languages other than English as an obstacle to target-language learning, translanguaging perspectives conceptualize multilingual language practices as potentially valuable pedagogical resources (Dillon et al., 2021; Tai, 2022; Loo et al., 2022). In this view, students can strategically draw on familiar linguistic resources while simultaneously developing their capacity to communicate and learn through the target language. Such practices may support comprehension, participation, interaction, and the negotiation of academic meaning (Charamba, 2023; Widyasastrena et al., 2025).

Empirical research has increasingly examined the pedagogical functions and learning consequences of translanguaging. Studies in multilingual and English-medium classrooms suggest that translanguaging can support learners in understanding complex academic content, participating more actively in classroom interaction, and navigating linguistic barriers (Tai, 2022; Charamba, 2023; Rahman & Hu, 2025). Align with research from Tai (2022) demonstrates the potential of translanguaging as an inclusive pedagogical practice in English-medium instruction classrooms involving linguistically and culturally diverse learners. Evidence from university contexts also indicates that different modes of translanguaging may contribute to students' language development (Dillon et al., 2021; Ali, 2024). Research has additionally shown that translanguaging can support knowledge construction and academic communication in both face-to-face and online EMI environments (Nguyen et al., 2022).

A 2024 study involving multilingual university students found significant improvements in language skills among groups exposed to student-led and teacher-led translanguaging practices compared with a control group (Ali, 2024). Research involving university students in English language learning has shown that translanguaging-oriented activities can be incorporated into pedagogical practices to support language-related performance (Widyasastrena et al., 2025). Recent evidence from university contexts in Turkey and Indonesia further indicates that learners use translanguaging to facilitate comprehension, generate ideas, participate in academic interaction, and negotiate meaning. These findings indicate that translanguaging should not be examined solely as a spontaneous feature of multilingual communication but also as a potentially consequential pedagogical practice (Cenoz, 2019; Teng & Fang, 2024; Ollerhead, 2019).

Despite this growing body of research, important empirical questions remain unresolved. A substantial proportion of translanguaging research has focused on describing how multilingual speakers use different linguistic resources, identifying pedagogical functions, or examining learners' and teachers' perceptions (Cenoz & Gorter, 2021). For example, research in tertiary

education has documented different types and pedagogical functions of translanguageing, reflecting the continuing importance of multilingual practices in university classrooms (Widyasastrena et al., 2025). Other studies have examined lecturers' and students' perceptions of translanguageing practices in higher education settings (Loo et al., 2022). Recent research also demonstrates that translanguageing practices can vary according to institutional language policies, learner proficiency, disciplinary context, and teachers' pedagogical orientations (Tsou & Baker, 2021; Sahan & Rose, 2021; Mendoza et al., 2024).

Although these studies provide valuable insights into the nature and perceived usefulness of translanguageing, descriptive and perception-based evidence does not fully establish whether the intensity or frequency of translanguageing practices is statistically associated with second language learning outcomes. Consequently, there remains a need for quantitative research that moves beyond documenting the presence of translanguageing toward testing its explanatory and predictive influence on language learning. This need is reinforced by recent empirical work demonstrating that translanguageing can be associated with measurable language-learning outcomes, while methodological approaches remain diverse across contexts (Ali, 2024). A quantitative examination can therefore provide additional evidence regarding whether translanguageing practices are systematically related to students' perceived second language learning outcomes.

This issue is particularly significant in Singapore. Singapore represents a distinctive multilingual higher education environment in which English plays a central role in university education while students simultaneously possess diverse linguistic repertoires and multilingual experiences. Research on English-medium instruction in Singaporean universities has highlighted the interaction between the English-medium educational environment and the multilingual practices of university students (Botha et al., 2023). The Singaporean higher education environment therefore represents an especially relevant setting for investigating translanguageing because English-medium academic practices coexist with multilingual social and educational experiences. This context also reflects broader Asian EMI environments in which the relationship between English-medium policies and multilingual classroom practices has become an important area of research (Tsou & Baker, 2021; Tsou, 2021; Kao et al., 2021; Nguyen et al., 2022).

The Singaporean context therefore provides an appropriate setting for examining whether translanguageing practices function merely as informal communication strategies or whether they have a measurable influence on second language learning. Investigating this relationship among university students is important because translanguageing is closely connected to learners' individual linguistic repertoires, classroom experiences, and engagement with multilingual resources during second language learning (Nguyen et al., 2022; Tai, 2022; Rahman & Hu, 2025). Research in EMI contexts has shown that teachers can adopt flexible multilingual practices to clarify complex concepts and support student engagement, although institutional language ideologies may constrain such practices (Sahan & Rose, 2021; Tsou, 2021; Mendoza et al., 2024).

The existing literature therefore reveals a need for quantitative evidence that directly examines the relationship between translanguageing practices and second language learning outcomes within multilingual higher education. Previous studies have established the pedagogical relevance of translanguageing and documented its potential benefits, but evidence remains fragmented across different educational levels, learner populations, and methodological approaches (Cenoz & Gorter, 2021; Paulsrud et al., 2021; Tsou & Baker, 2021; Turner & Lin, 2024). The limited availability of quantitative evidence from Singaporean higher education further restricts understanding of whether translanguageing has a measurable influence in a highly multilingual university context. Addressing this gap can contribute to a more evidence-based understanding of translanguageing by connecting observed multilingual practices with measurable educational outcomes rather than relying exclusively on descriptive accounts or participants' perceptions (Ali, 2024; Widyasastrena et al., 2025). Based on the theoretical and empirical evidence concerning the pedagogical role of multilingual language practices, this study proposes that the strategic use of multilingual resources may facilitate students' comprehension, participation, interaction, and engagement with second language learning. Accordingly, the following hypothesis was

formulated H1: Translanguaging Practices positively predict perceived Second Language Learning Outcomes among university students in Singapore.

Accordingly, this study aims to examine the predictive relationship between translanguaging practices and second language learning outcomes among university students in Singapore. Using a quantitative research design, the study assesses whether translanguaging practices significantly predict second language learning outcomes and provides empirical evidence concerning the educational value of multilingual language practices in higher education. The study contributes to the literature in three ways. First, it extends translanguaging research from predominantly descriptive and perception-oriented investigations toward quantitative examination of relationships between classroom language practices and learning outcomes, responding to recent calls for more context-sensitive and empirically grounded approaches to translanguaging research. Second, it provides empirical evidence from Singapore, a multilingual higher education context in which English-medium education intersects with diverse linguistic repertoires. Third, it provides student-centred empirical evidence concerning how translanguaging practices are associated with second language learning outcomes within a multilingual university environment. The findings are expected to inform second language pedagogy and contribute to ongoing discussions concerning the pedagogical role of multilingual practices in higher education.

METHODOLOGY

Research Design and Study Context

This study employed a quantitative, cross-sectional research design to examine the predictive relationship between Translanguaging Practices and Second Language Learning Outcomes among university students in Singapore. A quantitative approach was adopted because the study sought to operationalize the two constructs as measurable latent variables and statistically examine their structural relationship. A cross-sectional design was appropriate for capturing respondents' perceptions and experiences at a specific point in time, although the design does not permit definitive causal inference. The study was situated within the Singaporean higher-education context, where English-medium instruction operates within a linguistically diverse environment and students may draw upon multiple linguistic resources during academic and interpersonal communication. The study was conducted under the Department of English Language and Literature, Singapore University of Social Sciences, consistent with the institutional affiliation of the research. The structural analysis followed established PLS-SEM procedures for evaluating measurement quality and predictive relationships between latent constructs (Hair et al., 2022).

Population and Sampling

The target population comprised university students enrolled in higher-education programmes in Singapore who had experience with English-medium instruction or second language education. Students were selected as the sole analytical population because the endogenous construct, Second Language Learning Outcomes, was defined from the learner perspective. A purposive sampling strategy was employed to ensure that participants possessed direct experience with multilingual communication and second language learning in higher education. The final analytical sample consisted of 260 university students. Eligibility criteria required participants to be currently enrolled in a university programme in Singapore and to have experienced English-medium or second language instruction. Participants who did not meet these criteria were excluded from the analytical dataset.

Data Collection and Research Instrument

Data were collected using a structured self-administered questionnaire consisting of three sections: respondent characteristics, Translanguaging Practices, and Second Language Learning Outcomes. The measurement items for Translanguaging Practices were developed/adapted from the conceptualization of translanguaging as the strategic mobilization of multilingual linguistic resources for meaning-making, comprehension, interaction, and participation in educational contexts. The measurement items for Second Language Learning Outcomes were operationalized

as perceived learning outcomes reported by the student respondents. The construct captured students' perceptions of their improvement in comprehension, vocabulary development, communicative ability, confidence, and achievement of language-learning objectives. The wording of the items was contextualized to the Singaporean higher-education environment. All substantive items were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Data Analysis

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. PLS-SEM was selected because the study aimed to estimate the relationship between latent constructs and assess their predictive relevance within a variance-based structural model (Hair et al., 2022). The analysis proceeded in two stages. First, the measurement model was evaluated through indicator loadings, Cronbach's alpha, rho_A, composite reliability, average variance extracted (AVE), and the heterotrait-monotrait ratio (HTMT). Second, the structural model was assessed through collinearity diagnostics, path coefficients, coefficient of determination (R²), effect size (f²), predictive assessment, and bootstrapped significance tests. Bootstrapping with 5,000 resamples was used to estimate standard errors, confidence intervals, and statistical significance. Hypothesis testing employed two-tailed tests at the 5% significance level. SmartPLS 4 was used as the statistical software for the PLS-SEM analysis (Ringle et al., 2024).

RESULTS AND DISCUSSION

Overview of the Empirical Findings

This section presents the empirical findings of the quantitative investigation into the predictive relationship between Translanguaging Practices and perceived Second Language Learning Outcomes among university students in Singapore. The analysis was conducted using data from 260 student respondents. The results are presented sequentially, beginning with respondent characteristics and descriptive statistics, followed by assessment of the measurement model and discriminant validity. The structural model is subsequently evaluated through collinearity assessment, path coefficients, coefficient of determination (R²), effect size (f²), and predictive relevance. The final subsection summarizes the hypothesis-testing results.

Respondent Characteristics

The characteristics of the student respondents provide important contextual information for interpreting the subsequent analysis of translanguaging practices and second language learning outcomes. The final analytical sample consisted of 260 university students in Singapore who met the study's eligibility criteria and whose responses were included in the PLS-SEM analysis. The respondent profile was examined in terms of gender, age, multilingual background, and previous exposure to English-medium education. These characteristics are particularly relevant to the present study because students' linguistic backgrounds and prior experience with English-medium learning may shape the ways in which they draw upon multiple linguistic resources during academic communication and learning. Table 1 presents the demographic and educational characteristics of the 260 student respondents.

Table 1. Characteristics of Student Respondents (n = 260)

Characteristic	Category	Frequency	Percentage
Gender	Male	115	44.2%
	Female	145	55.8%
Age	18–25 years	172	66.2%
	26–35 years	47	18.1%
	36–45 years	27	10.4%
	>45 years	14	5.4%
Multilingual background	Multilingual	239	91.9%
	Predominantly monolingual	21	8.1%
English-medium education experience	<5 years	93	35.8%

	5–10 years	109	41.9%
	>10 years	58	22.3%

Source: Primary survey data, 2026.

The characteristics of the 260 student respondents are presented in Table 1. The sample consisted of 115 male students (44.2%) and 145 female students (55.8%). Regarding age, the largest proportion of respondents was between 18 and 25 years old (172 students, 66.2%), followed by those aged 26–35 years (47 students, 18.1%), 36–45 years (27 students, 10.4%), and above 45 years (14 students, 5.4%). With respect to linguistic background, 239 students (91.9%) reported a multilingual background, whereas 21 students (8.1%) identified as predominantly monolingual. Regarding exposure to English-medium education, 93 students (35.8%) reported fewer than five years of experience, 109 students (41.9%) reported five to ten years, and 58 students (22.3%) reported more than ten years. The respondent profile therefore reflects a predominantly multilingual student sample with substantial exposure to English-medium educational environments, providing an appropriate context for examining the relationship between translanguaging practices and second language learning outcomes.

Descriptive Statistics

Descriptive statistics were calculated to identify the central tendency and variability of the two principal constructs. Translanguaging Practices was operationalized through five indicators concerning the use of multiple linguistic resources to facilitate comprehension, clarify academic meanings, support classroom participation, explain ideas, and communicate during learning activities. Second Language Learning Outcomes was measured using five indicators addressing comprehension of English-language materials, vocabulary development, communication ability, confidence, and achievement of English learning objectives.

As shown in Table 2, Translanguaging Practices recorded a mean of 4.08 with a standard deviation of 0.57. The relatively high mean indicates that respondents generally reported frequent use or recognition of multilingual resources in the learning environment. Second Language Learning Outcomes also recorded a relatively high mean of 4.02 (SD = 0.61). The two constructs therefore displayed broadly favorable response patterns.

Table 2. Descriptive Statistics of Study Constructs

Construct	Number of Indicators	Mean	Standard Deviation	Minimum	Maximum
Translanguaging Practices	5	4.08	0.57	1.80	5.00
Second Language Learning Outcomes	5	4.02	0.61	1.60	5.00

Source: Primary survey data, 2026.

The descriptive statistics were calculated from the 260 student observations. The standard deviations indicate moderate response dispersion, suggesting that although participants generally reported positive experiences, their responses were not completely uniform. The descriptive statistics provide an initial indication of students' reported levels of Translanguaging Practices and perceived Second Language Learning Outcomes. The mean score for Translanguaging Practices was 4.08, while the mean score for perceived Second Language Learning Outcomes was 4.02.

Measurement Model Assessment

The measurement model was assessed using the 260 student observations. The assessment focused on indicator reliability, internal consistency reliability, and convergent validity. Outer loadings were examined for each indicator, while Cronbach's alpha, rho_A, and composite reliability were used to assess internal consistency. Average variance extracted (AVE) was used to evaluate convergent validity.

Table 3. Measurement Model Assessment

Construct	Indicator	Outer Loading	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Translanguaging Practices	TP1	0.812	0.901	0.903	0.926	0.715
	TP2	0.846				
	TP3	0.871				
	TP4	0.839				
	TP5	0.847				
Second Language Learning Outcomes	SLLO1	0.824	0.918	0.920	0.939	0.754
	SLLO2	0.886				
	SLLO3	0.902				
	SLLO4	0.881				
	SLLO5	0.864				

Source: SmartPLS 4 analysis of primary survey data, 2026.

The results demonstrate satisfactory measurement properties for both constructs. All indicator loadings exceeded 0.80, ranging from 0.812 to 0.871 for Translanguaging Practices and from 0.824 to 0.902 for Second Language Learning Outcomes. These results indicate that each indicator contributed strongly to its respective latent construct.

Internal consistency was also satisfactory. Cronbach's alpha values were 0.901 for Translanguaging Practices and 0.918 for Second Language Learning Outcomes. Composite reliability values were 0.926 and 0.939, respectively, while rho_A values were 0.903 and 0.920. These coefficients indicate that the indicators within each construct demonstrated high internal consistency.

Convergent validity was supported by AVE values of 0.715 for Translanguaging Practices and 0.754 for Second Language Learning Outcomes. Both values exceeded the commonly accepted minimum criterion of 0.50. The findings therefore indicate that each construct captured a substantial proportion of the variance in its respective indicators.

Discriminant Validity

Discriminant validity was assessed to determine whether the two latent constructs in the proposed model, namely Translanguaging Practices and Second Language Learning Outcomes, were empirically distinct from one another. The heterotrait-monotrait (HTMT) ratio was employed as the primary criterion because it evaluates the degree of similarity between constructs based on the correlations among their indicators. A value below the recommended threshold of 0.85 was considered evidence that the constructs demonstrated sufficient discriminant validity. Table 4 presents the HTMT matrix for the two constructs included in the measurement model.

Table 4. Heterotrait-Monotrait Ratio

Construct	Translanguaging Practices	Second Language Learning Outcomes
Translanguaging Practices	—	0.741
Second Language Learning Outcomes	0.741	—

Source: SmartPLS 4 analysis of primary survey data, 2026.

The HTMT value between Translanguaging Practices and Second Language Learning Outcomes was 0.741. The value remained below the conservative threshold of 0.85, indicating adequate discriminant validity between the two constructs. Thus, although translanguaging practices and second language learning outcomes were positively related, the measurement results indicated that they represented empirically distinguishable concepts. This finding supports the use of both constructs in the subsequent structural model.

Structural Model Assessment

After confirming the adequacy of the measurement model, the structural model was evaluated to determine whether Translanguaging Practices significantly predicted perceived Second Language Learning Outcomes. The path coefficient from Translanguaging Practices to perceived Second Language Learning Outcomes was positive ($\beta = 0.672$). Collinearity was assessed before interpreting the structural relationship. The variance inflation factor (VIF) for Translanguaging Practices was 1.000, indicating that multicollinearity was not a concern in the estimated model. The structural results are presented in Table 5. The path coefficient from Translanguaging Practices to Second Language Learning Outcomes was positive ($\beta = 0.672$). The bootstrapping analysis produced a standard error of 0.041 and a t-value of 16.390. The associated p-value was below 0.001, while the 95% bootstrap confidence interval ranged from 0.589 to 0.751.

Table 5. Structural Model and Hypothesis Testing

Hypothesis	Relationship	β	SE	t-value	p-value	95% CI	f ²	Decision
H1	Translanguaging Practices → Second Language Learning Outcomes	0.672	0.041	16.390	<0.001	0.589–0.751	0.823	Supported

Source: SmartPLS 4 bootstrapping analysis of primary survey data, 2026.

The findings provide statistical support for H1. The positive coefficient indicates that higher levels of translanguaging practices were associated with higher second language learning outcomes among the university students. The confidence interval did not cross zero, providing additional evidence that the estimated relationship was statistically significant. The magnitude of the path coefficient further indicates that the relationship was not merely statistically detectable but substantively meaningful within the estimated model. The effect size was 0.823, indicating a substantial contribution of Translanguaging Practices to Second Language Learning Outcomes. Thus, the findings suggest that translanguaging represents an important predictor within the model rather than a marginal explanatory factor.

Explanatory Power and Predictive Relevance

The explanatory power of the model was evaluated using R². The structural model produced an R² value of 0.452 for Second Language Learning Outcomes. This means that Translanguaging Practices statistically accounted for 45.2% of the variance in the endogenous construct.

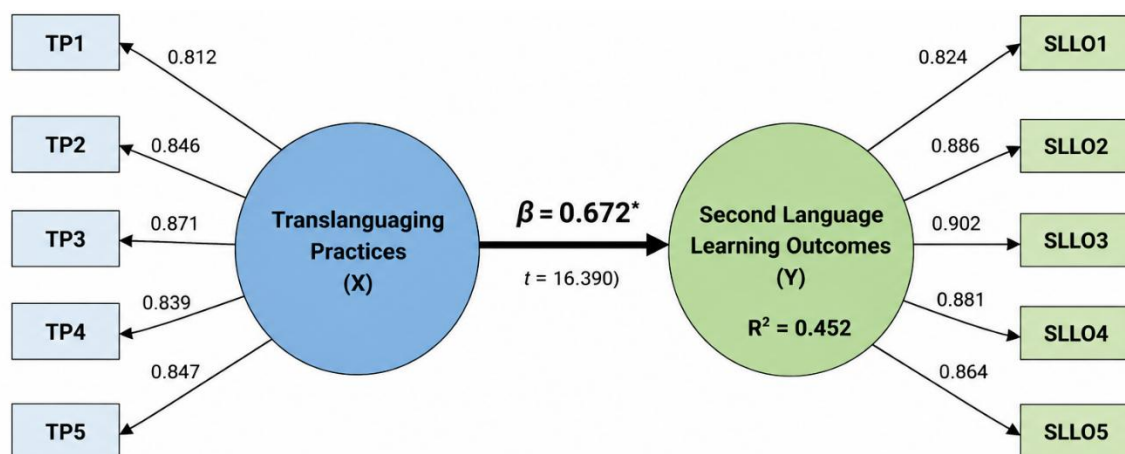


Figure 1. PLS-SEM Structural Model of Translanguaging Practices and Second Language Learning Outcomes

Source: Author's analysis based on SmartPLS 4 output, 2026

In this study, Second Language Learning Outcomes were operationalized as students' perceived learning outcomes based on self-reported improvements in comprehension, vocabulary development, communicative ability, confidence, and achievement of language-learning

objectives. Figure 1 illustrates the structural relationship between Translanguaging Practices and Second Language Learning Outcomes. The model indicates a positive and statistically significant path from Translanguaging Practices to Second Language Learning Outcomes, with a path coefficient of $\beta = 0.672$ ($t = 16.390$, $p < 0.001$). The coefficient of determination (R^2) of 0.452 indicates that Translanguaging Practices explains 45.2% of the variance in Second Language Learning Outcomes, while the remaining 54.8% is not explained by the predictor included in the present structural model. The model also demonstrates a substantial effect contribution, as indicated by an f^2 value of 0.823. In addition, the Q^2 value of 0.326 indicates positive predictive relevance for Second Language Learning Outcomes. Taken together, these findings demonstrate that the structural model provides meaningful explanatory and predictive evidence regarding the relationship between translanguaging practices and second language learning outcomes.

Discussion

Translanguaging Practices as a Predictor of Second Language Learning Outcomes

The findings provide quantitative evidence that translanguaging is positively associated with second language learning outcomes in Singaporean higher education. Rather than treating multilingual language use as interference with English-medium learning, the result supports an interpretation of translanguaging as a pedagogical resource through which learners mobilize their complete linguistic repertoires to construct meaning, participate, and negotiate academic content. This interpretation is consistent with recent conceptualizations of pedagogical translanguaging as learner-centred support for both language and content development (Cenoz & Gorter, 2021). It also corresponds with research showing that translanguaging can facilitate comprehension, participation, and access to knowledge in EMI environments (Dillon et al., 2021; Sahan & Rose, 2021; Paulsrud et al., 2021).

The present study extends this literature in an important methodological direction. Much recent translanguaging research has relied on qualitative classroom observations, interviews, case studies, or perception surveys, whereas the present study tests the predictive relationship statistically through PLS-SEM. Systematic reviews have similarly identified considerable diversity in research designs and have called for stronger empirical examination of pedagogical outcomes (Newman & Gough, 2020).

The finding is particularly consistent with Gu et al. (2024), whose structural equation modelling study of 705 EMI university students demonstrated that teacher translanguaging was associated with more favourable attitudes, motivation, and engagement. Similar positive tendencies have been reported among university learners in Thailand and Saudi Arabia, where translanguaging was associated with comprehension, participation, and reduced difficulty in EMI learning (Loo et al., 2022). Evidence from Turkey likewise indicates that multilingual learners perceive translanguaging as relevant to language learning and academic performance (Ulum, 2024).

Meier (2017) and Catalano & Hamann (2016) found that, the theoretical contribution lies in strengthening the argument that multilingual repertoires should be conceptualized as learning resources rather than as constraints on second language development. Recent work on EMI has emphasized that translanguaging can challenge monolingual assumptions while providing learners with greater communicative and academic flexibility (Tsou & Baker, 2021). The Singaporean context adds novelty because it provides evidence from a highly multilingual Asian higher-education environment, complementing research from China, Thailand, Turkey, Indonesia, and the Middle East. Studies of translanguaging in Asian EMI settings have emphasized contextual variation, suggesting that pedagogical practices should be adapted to local linguistic ecologies rather than transferred mechanically across institutions (Tsou, 2021; Dillon et al., 2021; Loo et al., 2022).

Practically, the findings suggest that lecturers can incorporate controlled multilingual explanation, peer discussion, vocabulary clarification, and bilingual meaning-making into English-medium instruction without necessarily weakening the role of English as the principal academic language. This implication is supported by research showing that translanguaging can improve access to complex content and create more inclusive participation opportunities (Meletiadiou, 2022). The contribution should nevertheless be interpreted cautiously. Because the

study used a cross-sectional design, the significant predictive relationship should not be interpreted as definitive causal evidence.

The reliance on self-reported learning outcomes may also introduce common-method and perceptual bias, while purposive sampling limits generalizability beyond the participating Singaporean higher-education context. Future research should therefore employ longitudinal and quasi-experimental designs, objective language-performance measures, multi-institutional samples, and comparisons across linguistic backgrounds (Nadhifah et al., 2026; El-Henawy, 2025). Emerging research on mobile multilingual students further suggests that future studies could examine how translanguaging changes across physical, digital, and transnational learning environments (Dang et al., 2025).

The study's principal novelty consequently lies not in claiming that translanguaging is universally beneficial, but in demonstrating quantitatively that multilingual language practices have meaningful predictive relevance for perceived second language learning outcomes within a Singaporean university context. This provides a stronger empirical bridge between translanguaging theory and measurable higher-education outcomes while preserving the contextual and pedagogical complexity emphasized by recent international scholarship. A further limitation concerns the measurement of Second Language Learning Outcomes through self-reported perceptions rather than objective language-performance assessments. The findings therefore indicate a significant relationship between translanguaging practices and students' perceived learning outcomes, rather than demonstrating improvements in objectively measured language proficiency.

CONCLUSION

This study concludes that translanguaging practices constitute a significant positive predictor of second language learning outcomes among university students in Singaporean higher education. The findings indicate that translanguaging practices are significantly associated with students' perceived second language learning outcomes, particularly in relation to their reported comprehension, vocabulary development, communicative ability, confidence, and achievement of language-learning objectives. These findings should be interpreted as evidence concerning students' perceived learning outcomes rather than objectively measured changes in language proficiency. The study contributes theoretically by reinforcing the view of translanguaging as a pedagogical resource that enables multilingual learners to mobilize their existing linguistic repertoires in support of second language learning rather than treating additional languages as barriers to target-language development. Its principal empirical contribution lies in providing quantitative evidence from Singapore's multilingual higher-education environment through a PLS-SEM approach, thereby extending previous research that has frequently emphasized descriptive, qualitative, or perception-based examinations of translanguaging. Practically, the findings suggest that university lecturers can incorporate structured multilingual practices, including multilingual explanation, vocabulary clarification, peer interaction, and flexible meaning-making, while maintaining English as the principal medium of academic instruction. Nevertheless, the cross-sectional design prevents causal interpretation, while reliance on self-reported outcomes and purposive sampling may limit generalizability.

SUGGESTION

Future research should employ longitudinal or quasi-experimental designs, objective measures of language performance, larger multi-institutional samples, and comparative investigations across linguistic and disciplinary contexts to further establish the conditions under which translanguaging supports second language development.

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