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**Applying Partial Least Squares Structural Equation Modelling (PLS-SEM)
on Factors Affecting Language Students' Desire to Learn**

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Abstract
This study examines factors affecting students' desire to learn the English language using Partial Least Squares Structural Equation Modelling (PLS-SEM). This is to explain and predict students' desire to learn. For this purpose, a questionnaire survey was conducted at two public universities in Malaysia and one in Thailand. The questionnaires were developed based on Gardner's (2004) Attitude/Motivation Test Battery. Only four subscales of the instrument were chosen for this study. These were: desire to learn, instrumental motivation, foreign language anxiety and attitude towards foreign language. It was found that although Attitude toward Foreign Language, Foreign Language Anxiety and Instrumental Motivation have small predictive relevance on Desire to Learn the English language, they are crucial in explaining the students' desire to learn the language. The study indicates that the model is sufficiently reliable and consistent. When the groups were compared, the relationship between Instrumental Motivation and Desire to Learn was higher between International Islamic University Malaysia (IIUM) and Universiti Teknologi MARA (UiTM) students but the difference is not significant where IIUM and Naresuan University (NU) students were concerned. This study serves to model a quantitative empirical research method to explain and predict factors affecting desire to learn.

Keywords: Attitudes towards foreign language, desire to learn, foreign language anxiety, instrumental motivation; Partial Least Squares Structural Equation Modelling (PLS-SEM)

Introduction

This study aims to explain and predict students' desire to learn using quantitative empirical research that is yet to gain popularity in language research, that is, the Partial Least Squares Structural Equation Modeling (PLS-SEM). Three of the well-known factors that can affect students' desire to learn are their attitude towards the language, level of language anxiety and also motivation in learning the language (Bernaus & Gardner, 2008; Brown, 2000; Cho, 2013; Fan & Feng, 2012; Sultan & Hussain, 2010; Zhang, Dai & Wang, 2020). Desire to learn is a latent variable that is difficult to observe directly. The identification of factors that strongly affect students' desire to learn can indicate which variables to prioritize in the efforts to improve their proficiency in the language. A number of studies have been done on motivation to learn, foreign language anxiety and attitude towards foreign language. However, it is not known how strong do they explain the desire to learn. Hence, this research is to determine the cause-effect relations between desire to learn and instrumental motivation, foreign language anxiety and attitude towards foreign language.

Structural Equation Modelling (SEM) was developed in the mid-1970s, and has been widely utilised in recent years in various fields such as psychology, economics, sociology and tourism. The two types of estimation techniques used in SEM approach are the covariance-based structural equation modelling (CB-SEM) and Partial Least Squares Structural Equation Modelling (PLS-SEM). PLS-SEM has many advantages which include dealing with small samples, theory development, prediction, avoidance of inadmissible solutions and factor indeterminacy. Previous research used the Multiple Group Analysis (MGA) to demonstrate the differences between groups in marketing, tourism and technology acceptance among others. SPSS version 24.0 is used for descriptive analysis results, followed by SmartPLS version 3.3.2 to perform the procedures under PLS-SEM (Ringle, Wende, & Becker, 2015) . SmartPLS 3.0 provides both measurement and structural model estimations. The software also provides PLS-MGA for Multiple Group Analysis in order to analyse group differences in hypothetical relations. The comparisons between groups are essential from a theoretical and practical perspective as it avoids inaccurate deductions. This study uses the PLS-SEM to analyse the cause-effect relations between the desire to learn and instrumental motivation, foreign language anxiety and attitude towards foreign language among three groups of language learners.

Literature Review
Attitudes towards Foreign Language

Attitude can influence learning (Gardner, 1985; Cahill, 2018). In the context of language learning, a positive attitude towards the language and learning itself can have a positive impact on language learning outcomes (Brown, 2000; Chamber, 1999; Gardner, 1985). This is supported by research findings including those from the extensive studies by Gardner and Lambert (1972) which revealed that positive attitudes toward language enhance proficiency. Other similar findings were also reported in a later study by Gardner (1985) and also by other more recent studies including by Ahmed (2015), Coleman, Strafield & Hagan (2003) and Getie (2020). Brown (2000) believes that negative attitude can be changed through exposure to reality, for example, the actual experience of communicating with native speakers. It was found that the more EFL learners interact with English native speakers, the more they have a desire to learn English. With favourable attitudes towards learning English together with more exposure to a language rich environment, learners can maximise their linguistics achievement (Khorsheed, 2021). Therefore, students'

attitude towards the target language influences how much they desire to achieve their goals and to the effort applied in learning.

There are three dimensions of attitude namely, cognitive, affective, and behavioral (Wenden, 1991). In the context of language learning, the cognitive component refers to the individual's beliefs or opinions about the language; the affective component deals with the individual's feeling and emotions towards the language; and the behavioral component covers the individual's behavior or actions towards the language. Brown (1994) asserts that "Attitudes… develop early in childhood and are the result of parents' and peers' attitudes, contact with people who are different in any number of ways, and interacting affective factors in the human experience" (p. 168). This statement signifies that there are many stimulants that shape the attitude of an individual. A study by Sellick and Bury (2018), for example, found significant differences in attitudes towards studying a foreign language between students with Confucian Heritage Culture (CHC) and non-CHC groups, but the final grades awarded to the students from the different countries were not consistently significantly different. Since attitudes are learnt and not genetic and inherited (Gardner, 1985), teachers can help shape students' attitudes towards the language they are learning by facilitating their learning process.

Instrumental Motivation

To be proficient in a language, learners need to be motivated to learn the language (Alizadeh, 2016). Students lacking motivation face learning difficulties resulting in a lower academic achievement (Shan, 2020). A student may simultaneously be instrumentally and integratively motivated to learn (Moiinvaziri, 2009).

Chee Hong and Ganapathy (2017) studied instrumental and integrative motivation impact on English language learning performance of secondary school students. It was found that the students were more instrumentally than integratively motivated, and the former also had a greater impact on the students' English language learning. Sadighi and Maghsudi (2000) examined the impact of integrative and instrumental motivation on English proficiency of the EFL learners in Iran. The results obtained from this study demonstrated a significant difference between the means of the English proficiency scores of integratively motivated learners and the instrumentally motivated ones. Other research that demonstrated the effect of instrumental motivation on language learning include by Al-Ta'ani (2018), Damavand (2012), Ivanova, Kirova, Kuzmanovska & Tasevska (2018), and Lambani and Nndwamoto (2018). These studies show that in an EFL environment instrumental motivation is usually the stronger reason for choosing to do English language programme. Hence this study will focus only on instrumental motivation to determine how it relates to their desire to learn.

Instrumental motivation is learning for anticipated benefits (Gardner et al., 1983). The student is instrumentally motivated when learning the language for practical reasons including to pass the exam, to pursue higher education, to get a reward, to get a job and to advance in his/her career (Aspuri, Samad, Fitriani & Samad, 2019). Kumar (2021) suggested that teachers need to provide realistic goals and proper incentives to assist students to engage in the EFL classroom that results in a desire to learn. Brown (2000) claimed that compared to intrinsic motivation, extrinsic motivation is often weaker because of its addictiveness and dependency. Students tend to study

longer when the incentive is not removed (Gardner & MacIntyre, 1991). Thus, being an extrinsic drive to learning, instrumental motivation needs to be initiated and constantly maintained or strengthened. However, intrinsic and extrinsic motivations are not mutually exclusive.

Foreign Language Anxiety

Another contributing factor to language learners' language performance is their level of foreign language anxiety (Dordinejad & Ahmadabad, 2014). In fact, it has been claimed as one of the main barriers to successful language learning (Alrabai, 2014; Wu, 2010). When a learner is anxious, it stops information from reaching the language acquisition area in a learner's brain (Krashen, 1982). Learning also becomes less enjoyable once a learner is anxious (Riasati, 2011). Horwitz, Horwitz and Cope (1986) define foreign language anxiety as "a distinct complex of self-perceptions, feelings, and behaviors related to classroom learning arising from the uniqueness of the language learning process" (p. 128). MacIntyre (2017) lists three factors to language anxiety which are academic, cognitive and social. By academic, the learners' excessive concern to communicate competently using the language orally and in writing leads to apprehension especially in a test setting as they do not want to be negatively evaluated (Darmawangsa, 2020; Horwitz et al., 1986). As for the cognitive factor, the learners' negative perception of their own linguistic competence has been attributed as the main cause for anxiety (Latif, 2007; MacIntyre, 2017) while socially, the fear of being laughed at is found to be the main reason for anxiety (MacIntyre, 2017). The fear of failing to perform can occur in both in-class and out-of-classroom contexts. An environment that is conducive and supportive for language skills development can reduce learners' language anxiety (Horwitz, 2001; Mak, 2011; Woodrow, 2006).

Two distinctive types of foreign language anxiety are facilitating and debilitating (Alpert & Haber, 1960). The former benefits language learners as it motivates them to perform academically and emotionally, while the latter inhibits effective and efficient acquisition of language. When the level of anxiety goes beyond its optimum level it results in avoidance behaviour (Scovel, 1978). The effects of foreign language anxiety to language proficiency have been studied quite extensively, and most of the studies focused on the detrimental effect of language anxiety. These include its effect on motivation and language learning. Wang and Zhan's (2020) study, for example, found that test anxiety and fear of negative evaluation affected motivation and self-regulated English learning. In another study, Zhen and Cheng (2018) revealed in one of their findings that foreign language anxiety was a significant negative predictor of language achievement. Language anxiety may not only affect language performance but may also be a result of poor command of the target language (Young, 1986). A study by Sevinç and Backus (2017), for instance, indicated that limited linguistic capabilities led to language anxiety among Turkish immigrants in the Netherlands. In another study, Hashemi (2011) also found that language learning difficulties, among other factors, can trigger language anxiety.

It appears that there is a relationship between language anxiety and motivation across all levels of language proficiency of learners. It has been pointed out that higher achievers have least anxiety with a higher level of motivation whereas lower achievers exhibit higher language anxiety with low level of motivation. Students with high anxiety will not be motivated to learn and have difficulties in acquiring language (Sari, 2017). In addition, when comparing language learners across different language levels, it was found there was a relatively strong association between the

language anxiety and learner attitude, language anxiety and motivational intensity, and language anxiety and the desire to learn. For beginners, overall language anxiety had a higher correlation in the order of motivational intensity, learner attitude, and the desire to learn. However, for advanced learners, overall language anxiety had a greater relation in the following order: learner attitude, the desire to learn, and motivational intensity (Liu & Cheng, 2014). It appears anxiety of EFL learners is to be found and can be significant in the learning process and can have a substantial impact among different groups and different levels.

Desire to Learn
One of the factors influencing students' success in learning a language is their desire to learn (Seven, 2020; Yeh Wai Man, 2014). With a strong desire to learn, learners would strive to improve their performance. The desire to learn can be influenced by either intrinsic or extrinsic factors. In his study on the desire to learn English, Piechurska-Kuciel (2016) indicated that English language learners who had a negative perception of learning English did not have the desire to learn the language, conversely, those with the desire to learn showed a positive attitude. Language learners with a high level of self-perceived proficiency were found to have a strong desire to learn the target language. A strong correlation was found between self-perceived proficiency and their final grades. Enthusiasm to learn can also be influenced by socioeconomic status such as school geographical location, classroom learning setting, and parental supports (Li, Peng, Yang & Chen, 2020; Muslim, Hamied, & Sukyadi, 2020; Win, 2002). Pham (2021) confirmed that desire to learn a language plays a crucial role in language learning. Students who have the desire to learn are better engaged in learning and are more likely to achieve their goals.

To assess the effect of instrumental motivation, foreign language anxiety and attitudes towards foreign language on students' desire to learn using PLS-SEM, there is a need to have a conceptual model. This model is developed based on manifest variables in three of the categories listed in Gardner's (2004) Attitude/Motivation Test Battery (AMTB), namely instrumental motivation, foreign language anxiety and attitude towards foreign language.

Methods
To estimate the interrelationships of constructs with students' desire to learn the Partial Least Squares Structural Equation Modelling (PLS-SEM) was adopted. Items from four of the sub-scales in Gardner's (2004) Attitude/Motivation Test Battery was adapted in the study, and these were: desire to learn, instrumental motivation, foreign language anxiety and attitude towards foreign language. Items with acceptable factor loadings were maintained in the analysis. Convenience sampling was used in the study where questionnaires were distributed to the undergraduate students who were majoring in the English language. Their participation was on a voluntary basis and they remained anonymous.

Participants
English language majors from three public universities in Malaysia and Thailand were chosen for the study. A total of 102 English majors from the International Islamic University Malaysia (IIUM), 95 from University Technology MARA, Malaysia (UiTM) and 110 from

Naresuan University, Thailand (NU) responded to the survey. Table 1 shows the profile of the respondents. Of the 307 students, 85% were females and the rest were males.

Table 1. *Respondents' profile*

No.	Characteristics	IIUM	UiTM	NU	Total
1.	Gender				
	a. Male	12 (3.9)	12(3.9)	21 (6.9)	45 (14.8)
	b. Female	90 (29.6)	81 (26.6)	88 (28.9)	259 (85.2)
Total		102 (33.6)	93 (30.6)	109 (35.9	304 (100.0)
2.	Year of Study				
	a. First	25 (8.2)	22 (7.2)	26 (8.6)	73 (24.0)
	b. Second	39 (12.8)	24 (7.9)	40 (13.2)	103 (33.9)
	c. Third	22 (7.2)	47 (15.5)	33 (10.9)	102 (33.6)
	d. Fourth	16 (5.3)	0	10 (3.3)	26 (8.6)
Total		102 (33.6)	93 (30.6)	109 (35.9)	304 (100)

Note: Figures in brackets are in percentage

Most of the respondents were from the second and third year of study totalling to 67.5%. There were no fourth-year students in UiTM since it is a three-year programme. None of the participants in the study are native speakers of the language and yet they are expected to achieve a good level of proficiency in the language at the end of their study. Hence, it is interesting to determine to what extent factors such as their attitude towards the language, level of language anxiety and also instrumental motivation affect their desire to learn English.

Procedures

The English major students were briefed about the research by authors in their respective universities. The survey questionnaires were distributed to the selected samples. In their respective class, the students were able to complete the survey in about fifteen (15) minutes. As this was voluntary, no additional marks to their assessments were given to the students as incentives.

Instruments

The survey questionnaire was designed in Google Form. It is divided into two sections namely the respondent's profile section, where items such as gender and year of study were asked. This is then followed by the second section where all three variables Attitude toward Foreign Language, Foreign Language Anxiety, Foreign Language Anxiety, Instrumental Motivation and Desire to Learn were included.

Results

Table 2 displays the descriptive statistics of the variables.

Table 2. *Descriptive statistics of the variables*

No	Variables	IIUM (Mean, SD)	UiTM (Mean, SD)	NU (Mean, SD)	Overall (Mean, SD)
1.	Attitude towards Foreign Language (SAF)	4.629	.445	4.515	.564	4.199	.662	4.440	.594
2.	Foreign Language Anxiety (SF)	3.413	.784	3.509	.721	3.092	.572	3.328	.715
3.	Instrumental Motivation (SI)	4.063	.650	4.056	.618	3.982	.674	4.032	.648

| 4. | Desire to Learn (SD) | 4.498 \| .471 | 4.475 \| .462 | 3.817 \| .578 | 4.247 \| .601 |

Note: SD is Standard Deviation

None of the variables scored below the neutral value of three. The Attitude towards Foreign Language variable under IIUM has the highest mean value of 4.629, while the lowest mean score is 3.092 under Foreign Language Anxiety under NU.

Measurement Model

Both the measurement and structural models followed evaluation steps as suggested by Hair, Hult, Ringle & Sarstedt (2017). Both analyses used a bootstrapping method of 5,000 re-sampling as recommended. To ensure reliability and validity of the constructs in the measurement model, first, the indicator loadings and their significance must be assessed. The standardised loadings should have a value of at least 0.708 and an associated t-statistic above ±1.96 to be significant for a two-tailed test at the 5% level (Hair, Howard & Nitzl, 2020). Loadings ranging between 0.400 and 0.700 "should only be considered for removal from the scale if deleting this indicator leads to an increase in composite reliability above the suggested threshold value" (Hair, Ringle, & Sarstedt, 2011, p. 145). The t-statistics are obtained through bootstrapping procedure.

It is recommended that Cronbach's Alpha (CA), Composite Reliability (CR), Average Variance Extracted (AVE) and Heterotrait-Monotrait Ratio (HTMT) be reported. The scores for CA should be 0.708 or more, however 0.600 is considered as moderate or reasonable (Taber, 2018). This is followed with the examination of internal consistency, where the CR should be greater than 0.700, but lesser than 0.950 (Hair et al., 2020).

The convergent validity was then examined through AVE analysis with values obtained must be more than 0.500 (Fornell & Larcker, 1981). This analysis calculates the degree of individual indicators in reflecting the construct converging while comparing with other indicators of another construct(s). In Table 3, all AVE values obtained more than 0.500 as recommended (Bagozzi & Yi, 1988). In Table 3, the AVE scores of each construct were found to be higher than the construct's highest squared correlation with any other constructs, fulfilling the discriminant validity requirement (Fornell & Larcker, 1981).

Based on these results, we can conclude that the model is sufficiently reliable and consistent. Table 3 shows the loadings, CA, CR, and AVE of all constructs. Refer to Figure 1 below for the measurement model and algorithm results.

Table 3. *Items loadings, p-*values, *Average Variance Extracted (AVE) and Composite Reliability (CR)*

Constructs	Items	Loadings	P-Values	AVE	CA (CR)
Attitude toward Foreign Language (SAF)				0.586	0.764 (0.850)
I would really like to learn many foreign languages.	SAF4	0.765	0.000*		
If I planned to stay in another country, I would try to learn their language.	SAF6	0.800	0.000*		
I enjoy meeting people who speak foreign languages.	SAF8	0.733	0.000*		

|					
I wish I could speak many foreign languages perfectly.	SAF9	0.762	0.000*		
Desire to Learn (SD)				0.558	0.737 (0.834)
I have a strong desire to know all aspects of English.	SD1	0.698	0.000*		
I want to learn English so well that it will become natural to me.	SD5	0.744	0.000*		
I would like to learn as much English as possible.	SD8	0.782	0.000*		
To be honest, I really have no desire to learn English.	SD9	0.761	0.000*		
Foreign Language Anxiety (SF)				0.549	0.801 (0.858)
I get nervous when I am speaking in my English class.	SF13	0.716	0.000*		
I feel anxious if someone asks me something in English.	SF14	0.717	0.000*		
I would feel calm and sure of myself if I had to order a meal in English.	SF16	0.718	0.000*		
I feel confident when asked to speak in my English class.	SF4	0.794	0.000*		
I am calm whenever I have to speak in my English class.	SF8	0.755	0.000*		
Instrumental Motivation (SI)				0.693	0.780 (0.871)
Studying English is important because I will need it for my career.	SI1	0.839	0.000*		
Studying English is important because it will make me more educated.	SI2	0.814	0.000*		
Studying English is important because it will be useful in getting a good job.	SI5	0.843	0.000*		

$p<0.001$
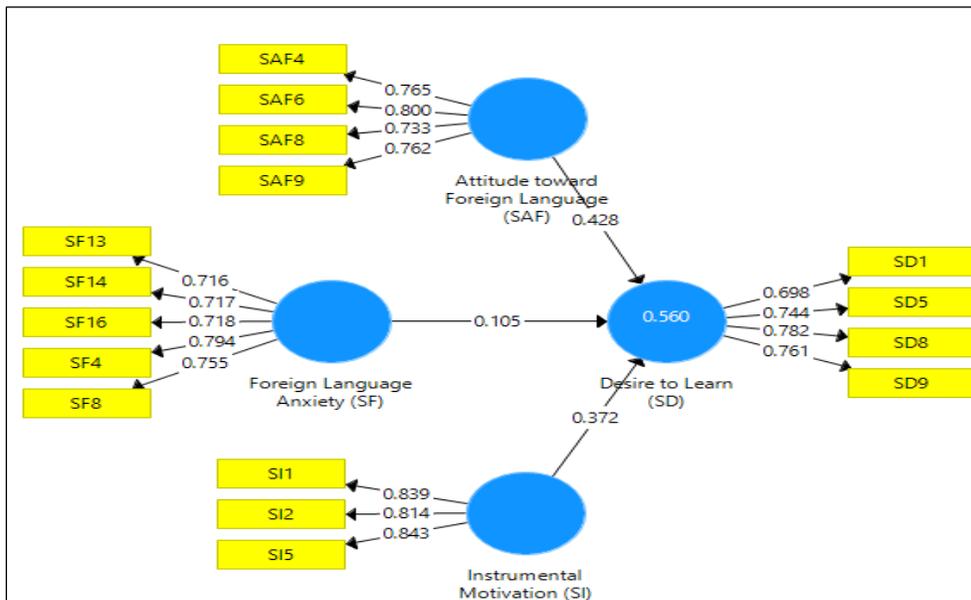
Figure 1. Algorithm result

Recent studies have recommended that the discriminant validity be additionally tested using the Heterotrait–Monotrait (HTMT) ratio. Similar to AVE, the HTMT method is a relatively new technique used to evaluate the distinctiveness of constructs with cut-off values of 0.850 or 0.900 (Hair et al., 2020). Table 4 shows the results of the discriminant validity assessment using the Fornell–Larcker criterion (1981) and the HTMT ratio.

Table 4. *Discriminant validity based on Fornell and Larcker Criterion (1981) and Heterotrait–Monotrait ratio*

Construct	Attitude toward Foreign Language (SAF)	Desire to Learn (SD)	Foreign Language Anxiety (SF)	Instrumental Motivation (SI)
SAF	**0.765**	-		
SD	0.672 (0.877)	**0.746**	-	
SF	0.320 (0.380)	0.329 (0.393)	**0.741**	-
SI	0.567 (0.730)	0.640 (0.823)	0.236 (0.270)	**0.832**

Abbreviations: SAF = Attitude toward Foreign Language, SF = Foreign Language Anxiety, SI = Instrumental Motivation, SD = Desire to Learn. The square roots of AVEs are shown on the diagonal in bold. The HTMT ratios are in the brackets.

The results in Table 4 indicates that each of the two groups' models possess acceptable discriminant validity.

Assessment of Structural Model

Following the guideline proposed by Hair et al., (2017), the assessment of the structural model comprises six-step procedure as follows:

Step 1: Assessing the Structural Model for Collinearity

Table 5 demonstrates the outcome of the lateral collinearity test.

Table 5. *Collinearity Assessment*

Construct	Desire to Learn (SD)
Attitude toward Foreign Language (SAF)	1.561
Foreign Language Anxiety (SF)	1.120
Instrumental Motivation (SI)	1.483

The variance inflation factor (VIF) score for each individual construct is lower than the offending value of 3.3 (Diamantopoulos & Siguaw, 2006), indicating that collinearity is not an issue in the model.

Step 2: Assessing the Path Coefficients

Table 6 presents the results of path co-efficient assessment for each hypothesized relationship.

Table 6. *Structural model hypothesis testing*

Hypothesis (H)	Relationships	Standardized path coefficients	Standard Error	T-Statistics	P-Values	Decision
H1	Attitude toward Foreign Language (SAF) -> Desire to Learn (SD)	0.430	0.057	7.570	0.000	Supported
H2	Foreign Language Anxiety (SF) -> Desire to Learn (SD)	0.108	0.037	2.832	0.005	Supported
H3	Instrumental Motivation (SI) -> Desire to Learn (SD)	0.374	0.055	6.777	0.000	Supported

All hypothesized relationships are significant at 99% and 95% confidence interval (p value < 0.01 and < 0.05) with t-value ranging from 2.832 to 7.570, indicating that the postulated hypotheses of the relationships between the constructs are all supported. Refer to Figure 2 below for the bootstrapping results.
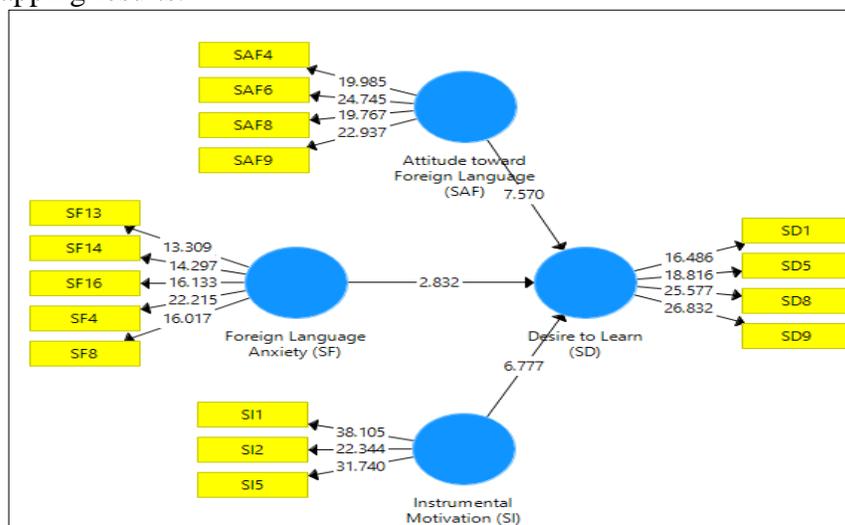

Figure 2. Bootstrap result (Complete)

Step 3: Assessing the Variance Explained in the Model (R^2)
        Table 7 presents the variance explained (R^2) for the endogenous constructs of Desire to Learn. The R^2 value of 0.556 shows that all the exogenous constructs; Attitude toward Foreign Language, Foreign Language Anxiety and Instrumental Motivation explains 55.6% of the variance for Desire to Learn. Overall, it shows that the relationships between the constructs under investigation are slightly above the moderate level (Hair et al., 2017).

Step 4: Assessing the Effect Size (f^2)
        Based on the results in Table 7, Foreign Language Anxiety (0.016) has a small effect size (f^2) on Desire to Learn, whilst Attitude toward Foreign Language (0.264) and Instrumental

Motivation (0.207) exhibits a substantial medium effect size on Desire to Learn. The effect size (f^2) (indicates that Foreign Language Anxiety, Attitude toward Foreign Language and Instrumental Motivation are crucial in explaining students' Desire to Learn.

Table 7. *The Assessment of determination of coefficient (R^2), effect size (f^2) with predictive relevance (Q^2) and effect size (q^2)*

Exogenous Latent Variable	f^2	q^2	R^2	Q^2
● Attitude toward Foreign Language (SAF)	0.264	0.090		
● Foreign Language Anxiety (SF)	0.016	0.006		
● Instrumental Motivation (SI)	0.207	0.071		
Endogenous Latent Variable				
● Desire to Learn (SD)			0.556	0.3000

Note: Effect size of Impact indicator f^2 values: 0.35 (large), 0.15 (medium) and 0.02 (small). Predictive relevance of predictor exogenous latent variables q^2: 0.35 (large), 0.15 (medium) and 0.02 (small)(Hair et al., 2017).

Step 5: Assessing the Predictive Relevance (Q^2)
        To measure the predictive relevance, blindfolding method is used. Table 7 shows the predictive relevance (Q^2) value of 0.300 for Desire to Learn. A Q^2 value above zero indicates that the path model has predictive relevance for the selected reflective endogenous variable. The results in Table 8 also indicate that Attitude toward Foreign Language (0.090), Foreign Language Anxiety (0.006) and Instrumental Motivation (0.071) have small predictive relevance on Desire to Learn.

Step 6: Assessing the Effect Size (q^2)
        Based on the results in Table 7, Foreign Language Anxiety (0.006) has very small effect size (q^2) on Desire to Learn. Likewise, Attitude toward Foreign Language (0.090) and Instrumental Motivation (0.071) exhibit a small effect size on Desire to Learn. The results indicate that these constructs are still important in explaining students' Desire to Learn despite small effects.

Partial Least Squares – Multi Group Analysis (PLS-MGA)
        The second part of this study examined the differences in relationships between the constructs; Attitude toward Foreign Language, Foreign Language Anxiety, Instrumental Motivation and Desire to Learn English language among students of three universities. As the data capturing different universities is categorical, a multigroup analysis PLS-MGA is used for moderation analysis. The parametric test is a parametric significance test for the difference of group-specific PLS-SEM results that assumes equal variances across groups. Additionally, the Welch-Satterthwait Test is a parametric significant test for the difference of group-specific PLS-SEM results that assume unequal variances across groups. Table 8a, 8b and 8c demonstrate the structural path coefficients (β) and significance differences (p) between the groups.
Table 8a. *PLS-MGA Moderation Analysis (IIUM – UiTM)*

H	Relationship	Path Coefficients		Confidence Interval (2.5%)		Confidence Interval (95%)		PCD	P-Values		
		IIUM	UiTM	IIUM	UiTM	IIUM	UiTM		PLS-MGA	PT	WST
H1	SAF -> SD	0.375	0.446	0.218	0.230	0.503	0.692	-0.071	0.631	0.602	0.610
H2	SF -> SD	0.035	0.214	-0.162	0.049	0.131	0.414	-0.179	0.117	0.122	0.127
H3	SI -> SD	0.526	0.241	0.355	0.018	0.659	0.478	0.285	**0.049***	**0.040***	**0.045***

Note: PCD = Path Coefficient Difference, PT = Parametric Test, WST = Welch-Satterthwait Test, SAF = Attitude toward Foreign Language, SF = Foreign Language Anxiety, SI = Instrumental Motivation
*Significant at 0.005

The results in Table 8a demonstrate that there is a significant difference only in the relationship between Instrumental Motivation and Desire to Learn among students of IIUM and UiTM (p >.95). It is demonstrated that the relationship is stronger in IIUM than UiTM as indicated by respective β values.

Table 8b. *PLS-MGA Moderation Analysis (IIUM – NU)*

H	Relationship	Path Coefficients		Confidence Interval (2.5%)		Confidence Interval (95%)		PCD	P-Values		
		IIUM	NU	IIUM	NU	IIUM	NU		PLS-MGA	PT	WST
H1	SAF -> SD	0.375	0.287	0.218	0.055	0.503	0.536	0.088	0.522	0.531	0.524
H2	SF -> SD	0.035	0.080	-0.162	-0.282	0.131	0.166	-0.045	0.629	0.655	0.655
H3	SI -> SD	0.526	0.510	0.355	0.276	0.659	0.684	0.016	0.916	0.903	0.902

Note: PCD = Path Coefficient Difference, PT = Parametric Test, WST = Welch-Satterthwait Test, SAF = Attitude toward Foreign Language, SF = Foreign Language Anxiety, SI = Instrumental Motivation

The results in Table 8b demonstrate that there is no significant difference in the relationship between all the three variables (Attitude toward Foreign Language, Foreign Language Anxiety, Instrumental Motivation) and Desire to Learn among students of IIUM and NU.

Table 8c. *PLS-MGA Moderation Analysis (UiTM – NU)*

H	Relationship	Path Coefficients	Confidence Interval (2.5%)	Confidence Interval (95%)	PCD	P-Values

		UiTM	NU	UiTM	NU	UiTM	NU		PLS-MGA	PT	WST
H1	SAF -> SD	0.446	0.287	0.230	0.065	0.694	0.517	0.159	0.354	0.349	0.349
H2	SF -> SD	0.214	0.080	0.050	-0.227	0.423	0.176	0.134	0.250	0.248	0.257
H3	SI -> SD	0.241	0.510	0.013	0.290	0.485	0.683	-0.269	0.094	0.087	0.091

Note: PCD = Path Coefficient Difference, PT = Parametric Test, WST = Welch-Satterthwait Test, SAF = Attitude toward Foreign Language, SF = Foreign Language Anxiety, SI = Instrumental Motivation

The results in Table 8C demonstrate that there is no significant difference in the relationship between all the three variables studied (Attitude toward Foreign Language, Foreign Language Anxiety, Instrumental Motivation) and Desire to Learn among students of UiTM and NU.

Discussion
In this study, the three latent variables (Attitude toward Foreign Language, Foreign Language Anxiety and Instrumental Motivation) moderately explain the variance in Desire to Learn. The effect size indicates the overall contribution of this study. The analysis of the model shows that Attitude toward Foreign Language, Foreign Language Anxiety and Instrumental Motivation can only explain 56% of the variance in Desire to Learn. This suggests that there are other factors that explain the variance.

The model suggests that of the three variables, Attitude toward Foreign Language has the strongest effect on Desire to Learn, followed by Instrumental Motivation and Foreign Language Anxiety. The students' readiness to use the language spoken by speakers of the host country was found to be the strongest indicator of Attitude towards Foreign Language, followed by their interest in learning many foreign languages and their wish that they could speak many foreign languages. With this knowledge, it is vital to create an authentic learning environment (Benson, 2011). In order to do this, teachers might want to include as much elements of the target language culture in teaching as possible. ESL students who have ample opportunity to use English both inside and outside classroom, with exposure to the culture, demonstrated more engagement, a positive attitude and increased level of engagement in English classes (Dimitroff, Dimitroff & Alhashimi, 2018). This implies that if teachers can improve students' attitude towards learning English, the students' desire to learn the language will be enhanced. Providing every opportunity for them to utilise English inside and outside classroom will assist them in terms of reducing the use of L1 in class and decreasing anxiety while communicating in English. This will result in the students becoming more enthusiastic and more motivated in learning the language.

The study has also shown that multi-group comparisons can be made using PLS-SEM. This is made obvious when the relationship between Instrumental Motivation and Desire to Learn was analysed. The study shows that though the distance between two universities is close (in the same country), the students can be different in terms of how Instrumental Motivation affect their

students' desire to learn. Similarly, a long distance (involving two different countries) may not differentiate two universities that are offering the same programme where these variables are concerned.

Conclusion

This paper discusses how Partial Least Squares - Structural Equation Modeling (PLS-SEM) is applied to understand the relationships between Attitude toward Foreign Language, Foreign Language Anxiety and Instrumental Motivation, and Desire to Learn. It illustrates how the characteristics of PLS-SEM can make it a useful tool in language research. In the study involving ESL undergraduates of three universities from Malaysia and Thailand, Attitude toward Foreign Language, Foreign Language Anxiety and Instrumental Motivation were found moderately affecting the variance in Desire to Learn. It is thus implied that positive attitude towards the language, reduced language anxiety and heightened instrumental motivation can help improve one's desire in learning a language. As this study indicates the three factors explain 56% of the variance, it is interesting to investigate other factors that could have cause-effect relationship with students' desire to learn.

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