

Modeling the Relationship between University Brand Image and Alumni Loyalty Using a Partial Least Squares-Structural Equation Model (PLS-SEM) Approach

Siti Aiesya Kamarulzaman*

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia

Zalina Zahid

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia

Haryani Haron

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia

Adzhar Rambli

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia

Nabilah Abdullah

Faculty of Education, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia

Abstract

In today's competitive business world, marketing is critically important to universities in positioning a product to attract the interest of its clients, which are the prospective students. As for public universities such as University Teknologi Mara (UiTM), the key to survive the increasing competition and financial difficulties is through their alumni loyalty. The purpose of this study is to determine the factors that affects the Alumni Loyalty towards UiTM. This study tests a model derived from a relationship marketing perspective to investigate the effects of components of University Brand Image which are Academic System, Reputation, Employability, Shared Values and Social Network on the Alumni Loyalty towards UiTM. Based on the literature review, a theoretical model is proposed and tested through Partial Least Square - Structural Equations Modelling (PLS-SEM) using a sample of 815 UiTM alumni. The results reveal that the significant factors that affect Alumni Loyalty are Reputation, Employability and Shared Values. In addition, the results highlight that Academic System do not affect Alumni Loyalty directly but rather indirectly through the mediation of Satisfaction. Overall, Academic System, Reputation, Employability and Shared Values are important in explaining the variance of Alumni Loyalty. University should be careful about the quality of the course offered and methods of delivery by the academicians since the implication of an Academic System is significant toward the loyalty of alumni.

Keywords: Alumni loyalty; Structural equations modelling (SEM-PLS); Mediator.



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1. Introduction

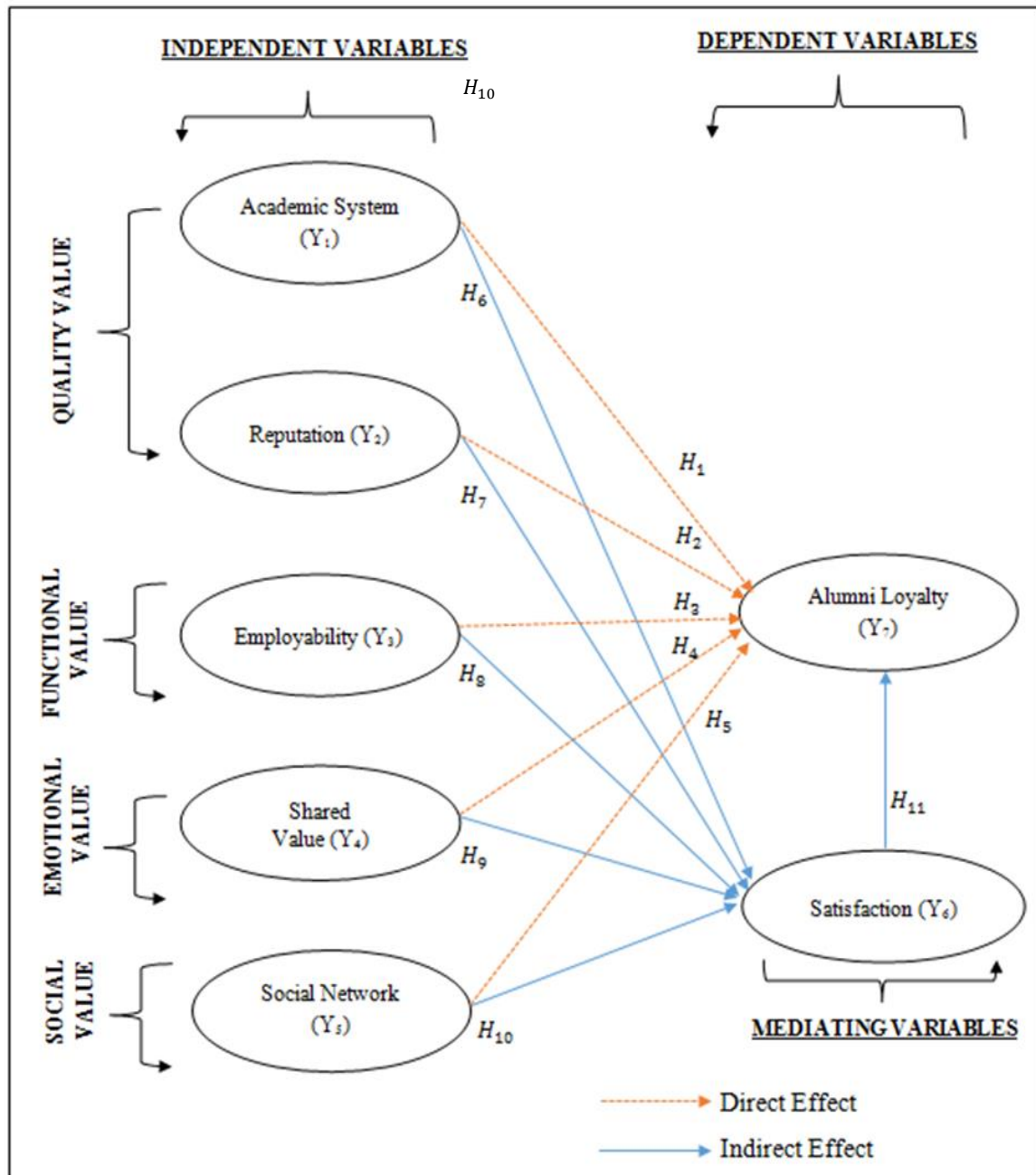
Image branding is vital for every university as it will help them to develop their own strategies in marketing their products (graduates) which in turn will boost the alumni loyalty. As alumni are the most loyal support group of an institution, their relationship is crucial to an institution's improvement and advancement (Lertputtarak and Supitchayangkool, 2014). As for public universities such as University Teknologi Mara (UiTM), the key to survive the increasing competition and financial difficulties is through their alumni loyalty. For a university such as UiTM which has been long established since 1956 and has produced thousands of graduates, the size of its alumni is expected to be huge. The strength of the university' alumni can bring huge benefit for the long-term development and sustainability of the learning institution. Loyalty between the alumni and its alma mater can help the university to be more competitive than its competitors, where the alumni are the lifetime ambassadors of the universities who may bring good name to the university and to some extent, the alumni can extend financial commitment towards the university.

Therefore, it is important for universities to identify the key factors that influence alumni loyalty towards their alma mater. With better understanding of what are the factors that attract alumni loyalty, universities can improve their services and facilities, build a strong relationship with the alumni and lead the university to strategize the position better in the education industry. The objective of this study is to determine the direct and indirect factors that affect the loyalty of UiTM alumni. Generally, this study adds a value to the literature on how the components of university branding image directly affects alumni loyalty by assessing indirect factor which is satisfaction.

2. Methodology

This study adapted the theoretical framework from Wang *et al.* (2004). Their framework included the independent variables, dependent variables and mediating variables. The independent variable is the components of university brand image which comprises of four values; quality, functional, emotional and social. The quality value for the framework is the Academic System and Reputation, functional value is the Employability, emotional value is the shared value and lastly the social value is the Social Network. Meanwhile, the dependent variable is the alumni loyalty towards UiTM and the mediating variables are satisfaction. Hypothesis 1 until 5 (H1, H2, H3, H4, H5) is the hypothesis for the direct effect of the components of brand image. Meanwhile hypothesis 6 until 11 is the indirect effect of the components of brand image towards alumni loyalty through satisfaction as the mediating variable.

Fig-1. Theoretical Model for Testing Alumni Loyalty in Universiti Teknologi Mara (UiTM)



This research focuses on the target population of the UiTM alumni who graduated in between 2007 and 2018. This study employed the method of stratified sampling technique, where the alumni was divided 3 different area of expertise namely science and technology group, social science and humanities group and business and management group. The total samples selected from the alumni list is based on each stratum presented as in Table 1 below. From the table, the calculated number of samples required for this study is 384 from the total population of 361180 registered alumni. This study used structured questionnaire with numerical Likert Scale to reach a wide range of the population (McGowen, 2007). There are five sections in the questionnaire where the first two sections consist of the student's profile and their alumni experience, while the remaining three sections comprising questions replicated from previous studies (Chen, 2016; Fornell, 1992).

Table-1. Number of respondents from each stratum

Strata	Total (N _h)	Sample Size (n _h)	Sample Size Collected
Science and Technology	131729	140	311
Social Sciences and Humanities	63926	68	177
Business and Management	165525	176	327
Total	361180	384	815

3. Results

3.1. Descriptive Analysis

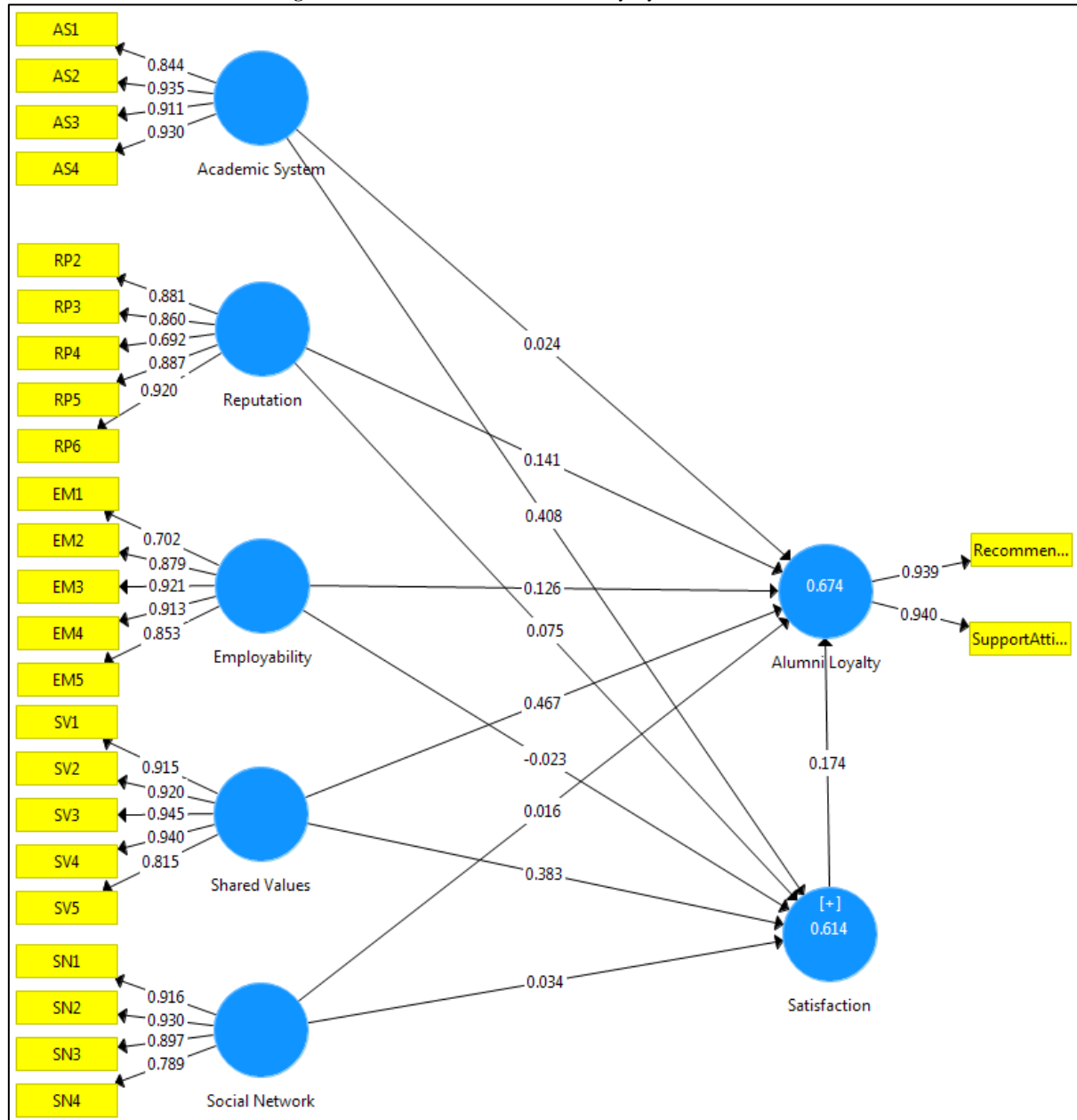
In the descriptive analysis, the alumni's profile was analysed in order to determine the background of their education during their study and also the experience that they obtained before. The information as shown in Table 2 describes the gender, age and the ethnicity of the alumni. Information such as the employment of the alumni, the sector they serve, range of income and the time taken for them to get the first employment after graduation is also provided in the table below.

Table-2. Alumni's Demographic Profile

	Description	Respondents (n=815)	Percentage (%)
Gender	Male	262	32.1
	Female	553	67.9
Age	21 – 25 years	217	26.6
	26 – 30 years	477	58.5
	More than 30 years	121	14.8
Ethnicity	Malay	745	91.4
	Bumiputera Sabah	36	4.4
	Bumiputera Sarawak	34	4.2
Current Status	Employed	686	84.2
	Unemployed	129	15.8
Working sector (If Employed)	Engaged with own business	28	3.4
	Government	183	22.5
	Private	480	58.9
Time taken to get the first employment	Less than 1 year	587	72.0
	More than 1 year	143	17.5
	(Missing/Not Working)	85	10.4
Income	Less than RM1,000	13	1.6
	RM 1,000 – RM 3,000	394	48.3
	RM 3,001 – RM 5,000	210	25.8
	RM 5,001 – RM 10,000	59	7.2
	More than RM 10,000	14	1.7
Highest education level	Diploma	71	8.7
	Bachelor's Degree	589	72.3
	Masters	152	18.7
	PhD	3	0.4

3.2. Path Model Estimation

The path modelling shows the relationships develop based on the theoretical framework using the SmartPLS 3 software. Figure 2 shows the reflective constructs in the path modelling. The structural model below shows that all of the constructs explain 67.4% of the variance of the endogenous construct of Alumni Loyalty ($R^2 = 0.674$) and 61.4% ($R^2 = 0.614$) for Satisfaction as indicated by the value in the circle. The structural model results show that Shared Values has the strongest effect on Alumni Loyalty (0.467).

Fig-2. Path Model Estimation for Alumni Loyalty after Items Deletion

3.3. Reflective Model Assessment

Table 3 summarizes the results of the reflective measurement model assessment where all the model evaluation criteria have been met, thus providing the support for the measures' reliability and validity. Since the results show that all reflective assessment exhibit satisfactory levels of quality, the next step is to assess the structural model assessment.

Meanwhile the second approach for discriminant validity is the Fornell-Larcker criterion where it compares the square root of the AVE values with the latent variables correlations. The discriminant validity is established if the square root of each construct's AVE is greater than its highest correlation with any other constructs.

Table-3. Results Summary for Reflective Model Assessment

Reflective Construct	Convergent Validity	Internal Consistency Reliability	
	AVE	Cronbach's Alpha	Composite Reliability
	>0.50	0.60 – 0.90	>0.60
Academic System	0.820	0.926	0.948
Reputation	0.725	0.902	0.929
Employability	0.735	0.908	0.932
Shared Values	0.825	0.946	0.959
Social Network	0.783	0.908	0.935
Satisfaction	0.830	0.949	0.962
Alumni Loyalty	0.883	0.867	0.938

Table 4 below shows that the results of the Fornell-Larcker criterion assessment with the square root of the reflective constructs' AVE on the diagonal and the off-diagonal position are the correlations between the constructs. Overall, the square roots of the AVEs for the reflective constructs Academic System (0.906), Reputation (0.852), Employability (0.857), Shared Values (0.908), Social Network (0.885), Satisfaction (0.911) and Alumni Loyalty (0.940) are all higher than the correlations of these constructs with other latent variables in the path model, thus indicating that the constructs are valid measures of unique concepts.

Table-4. Fornell-Larcker Criterion value for each latent construct

	Academic System	Reputation	Employability	Shared Values	Social Network	Satisfaction	Alumni Loyalty
Academic System	0.906						
Reputation	0.614	0.852					
Employability	0.610	0.570	0.857				
Shared Values	0.697	0.641	0.612	0.908			
Social Network	0.403	0.450	0.487	0.464	0.885		
Satisfaction	0.721	0.574	0.520	0.717	0.399	0.911	
Alumni Loyalty	0.646	0.632	0.606	0.784	0.437	0.680	0.940

3.4. Structural Model Assessment

Since the model assessment for the reflective model has been met and has been confirmed to be valid and reliable, the next step is to assess the structural model results. VIF values above 5 indicate collinearity issues and vice versa. Meanwhile, the effect size of 0.02, 0.15 and 0.35 are used to indicate whether the predictor variable has a small, medium or large effect on the structural level (Fornell, 1992). Table 5 shows that there is no effect of Academic System and Social Network, but all other variables have small and medium effect on Alumni Loyalty. However, there is a medium effect of Academic System and Shared Values on the mediating variable which is Satisfaction. There is also a small effect size of Satisfaction on Alumni Loyalty. Using the blindfolding procedure, the predictive relevance was obtained to determine whether the model was well constructed. Q2 value less than zero indicates that the model has lack of predictive relevance (Reinartz *et al.*, 2009). Hence the result shown in Table 5 proves that all the constructs have achieved the predicted relevance since all constructs predictive relevance values were more than 0. Both the endogenous constructs which is the Alumni Loyalty (0.567) and Satisfaction (0.473) Q2 value provides clear support for the model's predictive relevance.

Table-5. Structural Model Path Coefficient Results

Hypothesis	Relationship	Path Coefficients	t Values	p Values	Significance (p<0.05)	Decision	R ²	f ²	Q ²
H1	AS -> AL	0.024	0.592	0.554	NO	Not Supported	0.674	0.001	0.567
H2	RP -> AL	0.141	3.985	0.000	YES	Supported		0.030	
H3	EM -> AL	0.126	3.782	0.000	YES	Supported		0.025	
H4	SV -> AL	0.467	11.677	0.000	YES	Supported		0.236	
H5	SN -> AL	0.016	0.608	0.543	NO	Not Supported		0.001	
H11	ST -> AL	0.174	4.488	0.000	YES	Supported	-	0.036	-
H6	AS -> ST	0.408	11.089	0.000	YES	Supported	0.614	0.188	0.473
H7	RP -> ST	0.075	2.039	0.041	YES	Supported		0.007	
H8	EM -> ST	-0.023	0.742	0.458	NO	Not Supported		0.001	
H9	SV -> ST	0.383	9.771	0.000	YES	Supported		0.155	
H10	SN -> ST	0.034	1.315	0.188	NO	Not Supported		0.002	

Path coefficients values lies between -1 and +1 where values closer to +1 indicates a strong positive relationship and vice versa (Hair *et al.*, 2011). The results in Table 5 below showed that Employability, Reputation and Shared Values are significant towards Alumni Loyalty. However, Social Network is not significant towards Alumni Loyalty and towards the mediating variable, Satisfaction. Even though Academic System is not directly significant towards Alumni Loyalty, there is a significant relationship towards Satisfaction. Hence, further analysis on the indirect relationship was done in using Mediator Analysis (Reinartz *et al.*, 2009); (Hair *et al.*, 2011).

3.5. Mediator Analysis

Table 6 below shows the comparison of significance testing of the three models where the first model is tested on the direct relationship towards Satisfaction only, while the second model is tested towards the Alumni Loyalty only. The full structural model with the mediator is tested as the third model as shown above. The coefficients values decrease in Model 3 as compared to Model 2 without the Mediator. This shows that the mediation effect exists in the model. The types of mediation were later discussed in the next section.

Table-6. Summary of Results for Significance Testing Comparison

Construct	Model 1	Model 2	Model 3
	Direct Effect towards Satisfaction Only	Direct Effect towards Alumni Loyalty Only	Direct Effect towards Alumni Loyalty Only With Mediator
	Path Coefficient (Sig P-Value)	Path Coefficient (Sig P-Value)	Path Coefficient (Sig P-Value)
Academic System	0.406 (0.000)	0.099 (0.006)	0.024 (0.554)
Reputation	0.074 (0.045)	0.154 (0.000)	0.141 (0.000)
Employability	-0.024 (0.429)	0.124 (0.000)	0.126 (0.000)
Shared Values	0.389 (0.000)	0.531 (0.000)	0.467 (0.000)
Social Network	0.034 (0.179)	0.021 (0.436)	0.016 (0.543)
Satisfaction	-	-	0.174 (0.000)

3.6. Types of Mediation Model

Testing the type of mediation in the model requires a few steps. The first step to be addressed is to examine the direct effect of Academic System (Y_1) towards Alumni Loyalty (Y_7) without the mediating variable. Table 7 shows the significant direct effect of Academic System (Y_1) towards Alumni Loyalty (Y_7). Table 8 shows that Academic System (Y_1) has a weak positive relationship towards Alumni Loyalty (Y_7). The next step is to examine the indirect effect of Academic System (Y_1) on Alumni Loyalty (Y_7) through Satisfaction (Y_6) as the mediating variable as shown in Table 8. However, the direct effect of Academic System (Y_1) on Alumni Loyalty (Y_7) is not significant after the mediator enters the model. Therefore, it can be concluded that Satisfaction acts as a complete mediation on the relationship between Academic System (Y_1) and Alumni Loyalty (Y_7).

Table 8 also shows the significant direct effect of Reputation (Y_2) towards Alumni Loyalty (Y_7). The next mediation model to be analysed is the indirect effect of ($p_{2.6} \cdot p_{6.7}$) through the mediator variable, Satisfaction (Y_6). Since Satisfaction (Y_6) is significant, it can be concluded that Y_6 function as the mediator in the relationship between Reputation (Y_2) and Alumni Loyalty (Y_7). When both direct and indirect effects are significant, the type of mediation can be differentiated through the product of the direct and indirect effect ($p_{2.7} \cdot p_{2.6} \cdot p_{6.7}$). Since the product of the direct and indirect effect are positive, it can be concluded that there is a complementary mediation which explains that Satisfaction acts as a partial mediation on the relationship. The direct effect of Reputation (Y_2) on Alumni Loyalty (Y_7) is also significant after the mediator enters the model. Therefore, it can be concluded that Satisfaction acts as a complementary partial mediation on the relationship between Reputation (Y_2) and Alumni Loyalty (Y_7).

Table-7. Summary of Results for Mediation Model

Construct	Path	Construct	Coefficient	P-Value	Result	Types of Mediation
Academic System	→	Alumni Loyalty	0.024	0.554	Not Significant	Complete Mediation
Academic System	→	Satisfaction	0.406	0.000	Significant	
Satisfaction	→	Alumni Loyalty	0.174	0.000	Significant	
Reputation	→	Alumni Loyalty	0.141	0.000	Significant	Partial Mediation
Reputation	→	Satisfaction	0.074	0.045	Significant	
Satisfaction	→	Alumni Loyalty	0.174	0.000	Significant	
Employability	→	Alumni Loyalty	0.126	0.000	Significant	No Mediation
Employability	→	Satisfaction	-0.024	0.429	Not Significant	
Satisfaction	→	Alumni Loyalty	0.174	0.000	Significant	
Shared Values	→	Alumni Loyalty	0.467	0.000	Significant	Partial Mediation
Shared Values	→	Satisfaction	0.389	0.000	Significant	
Satisfaction	→	Alumni Loyalty	0.174	0.000	Significant	
Social Network	→	Alumni Loyalty	0.016	0.543	Not Significant	No Mediation
Social Network	→	Satisfaction	0.034	0.179	Not Significant	
Satisfaction	→	Alumni Loyalty	0.174	0.000	Significant	

4. Conclusions

The purpose of this research is to determine the factors which have the most influence on alumni loyalty towards UiTM. The research was designed to provide insight on how UiTM can improve the components of University Brand Image in influencing the alumni-university relationship in a mutually beneficial manner. The empirical findings from this study shows that only three variables determine alumni loyalty which are; Reputation, Employability and Shared Values. The findings highlight the contribution of variables derived from the marketing relationship approach theory which are also applicable in explaining alumni's perceptions and behaviours. The results imply that reputation is a factor that influence alumni loyalty and this finding is consistent with results of previous researches (Alves and Raposo, 2010; Brown and Mazzarol, 2009) where their findings found that image has significant effect on loyalty.

Hence, this result may raise interest on the relevant authority of UiTM to design a competitive strategy to enhance the alumni loyalty, where university should measure and improve their image (Alves and Raposo, 2010). Competition have been stiff in Malaysia education industry where public and private universities have flourished over the past fifteen years, thus making reputation as part of branding the universities to not only attract new students but also to encourage loyalty of its alumni. Being able to secure employment as soon as students graduate would boost satisfaction and encourage them to be loyal to their alumni. The result is supported by Pike (1994) where he concluded that satisfied alumni in their careers development are more likely to report satisfaction with their educational experience.

The result of this study also found that the effect of shared values on university image is positive and the strong effect size suggests a substantial influence. Therefore, it can be concluded that if alumni share their common values and ideals with their alma mater, they will assess their former university's image more positively. Although Academic System has no direct effect on alumni loyalty, using Satisfaction as a mediating variable proved that it can affect the loyalty of alumni towards UiTM. Alumni's giving to their university was linked to a specific level of satisfaction with the academic system variables in the student experience (Wong and Wong, 2011). As suggested by Alves and Raposo (2010), graduate satisfaction is the most important antecedent of loyalty, hence universities should strive to increase satisfaction.

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