Factors Influencing the Selection of Private Higher Education in Malaysia: Spearman Rank Correlation

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ABSTRACT

This study aims to measure the strength of the relationship between selection factors and recommendation that influence IPTS selection in Malaysia using Spearman Rank Correlation for Non-Parametric Statistics. There are three phases in this study namely *Identification of Variables*, *Distribution of Questionnaire* and *Analysis of Results*. The variables used in the questionnaire was adapted from the authors' earlier study. Nine factors in the selection of HEIs was identified and adapted in this study. Questionnaire was selected as the research tool and electronically distributed to the students of seven IPTS throughout Terengganu with a total response of 305. Results were loaded into SPSS for statistical analysis including descriptive, exploratory, normality, reliability and correlation. Results reveal only one factor is significant factors in the selection of IPTS namely *Job Prospects*. That factor has strong relationship with degree of correlation is greater than 0.70.

1. Introduction and Background

Higher education in Malaysia is under the purview of the *Ministry of Higher Education* (MOHE). There are two types of Higher Education Institutions (HEIs) in Malaysia: Public HEIs (IPTA) and Private HEIs (IPTS). Entry to HEIs is based on the *Sijil Pelajaran Malaysia (SPM)* and *Sijil Tinggi Pelajaran Malaysia (STPM)* examination results. As of January 2020, 20 IPTAs and 466 IPTSs were registered with MOHE [1,2]. Collectively, IPTA offers more than 1000 academic programs, whilst IPTS offers more than 8000 programs [3]. Although more than 50% of secondary school students are eligible to pursue higher education yearly, only some are offered a place to study at local HEIs.

For the last three years, the number of secondary school students taking the *SPM* and *STPM* examinations was reported to be around 400,000 and 40,000, respectively. However, the number of

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students accepting IPTS offers was very low and has affected student enrolment tremendously [4,5], with 33 IPTS reported to be closed in 2017.

The problem of students falling through the cracks is serious, and several government agencies have organised special initiatives to ensure eligible students can pursue higher education, for example, programs organised by the Terengganu State government and *Perbadanan Tabung Pendidikan Tinggi Negara*.

Post Covid-19, IPTS must identify new ways and devise new strategies to remain competitive in the industry. As such, this study aims to fill the research gap by statistically identifying significant factors that have strong relationship with the dependent factor influence IPTS selection in Malaysia using spearman rank correlation.

2. Literature Review

The literature has identified nine factors for IPT selection. The first factor is *cost, which* refers to education costs, study aids and cost of living [6-22]. The second is *program-specific factors* such as programmes offered, accreditation body, study duration, program content and structure [11,21-23,34]. *Reputation* is another factor considered, which includes image, reputation, and links with foreign universities [6,11,17-22,24,26]. Next is *social factors* such as input from family members, peers and social media [6-9,16-17,19,21,25-26]. Other factors include educational facilities (lecture hall, laboratory, library, etc.) and campus facilities (dormitories, sports complex, Wi-Fi, etc.) [6,18,20,24,27-29]. *Employment prospects* and alumni success stories are also considered as one of the factors for IPTS selection [15,17-18,22,30,34]. In addition, the *location* of IPT and distance from home also play a vital role, especially post-Covid-19 [10,13,22,28-29,31-32,34]. Finally, *marketing* includes advertising and promotion (TV, Internet, education carnival, etc) [6,29].

3. Methodology

The questionnaire was selected as the research tool and divided into three sections. Table 1 illustrate the sections in the questionnaire. Section 1 gathers the demographic profile of the respondents, such as *Gender, Age, Race, Education Level, Program of Study, Name of HEI* and *Alumni Status*. Section 2 identifies HEI-specific factors, for example, *Reputation, Location, Programs, Staff* and *Facilities* whilst Section 3 identifies non-HEI-specific factors, for example *Cost, Social, Marketing, Prospects,* and *Loyalty* in the selection of HEIs. A 5-point Likert scale ranging from 1 "*Strongly Disagree*" to 5 "*Strongly Agree*" as proposed by Khamis [33] is used in Sections 2 and 3.

Table 1
Questionnaire Section

Section	Component	Item
1	Demographics	• Gender • Age • Race • Education level • Program of study • Name of HEI • Alumni Status
2	HEI-Specific Factors	• Reputation • Location • Programs • Staff

3	Non-HEI-Specific Factors	• Facilities • Cost • Social • Marketing • Prospects • Recommendation

3.1 Identification of Variables

The variables used in the questionnaire were adaptations of the study by Wan Roslina *et al.,* [34]. Through a systematic literature review, the authors have identified nine factors for HEI selection: *Image*, *Programs*, *Social Factors*, *Cost*, *Facilities*, *Marketing*, *Location*, *Prospects*, and *Academics*. The questionnaire included the factors as variables with minor revisions to the terms used. A pilot survey was administered to 30 participants to evaluate feasibility before distribution to target respondents. Revisions to the questionnaire were made based on the pilot survey results.

3.2 Questionnaire Distribution

The questionnaire was electronically distributed to the respondents through *Google Form*. Respondents were students of seven IPTS throughout the state of Terengganu in Malaysia. The total number of responses was 305 from the 2000 questionnaires distributed, with a response rate of 15.35%, which is acceptable according to Krejcie [35]. The link to the questionnaire was disabled one month after the first distribution.

3.3 Analysis of Results

The survey results were loaded into SPSS (version 25) for statistical analysis. An assessment was conducted to test the reliability and validity of the measurements used. Basic and advanced statistical analyses such as *descriptive*, *exploratory*, *normality*, *correlation*, *reliability* and *spearman rank correlation* were then carried out.

4. Results and Discussion
4.1 Reliability Analysis

This analysis was performed after the pilot study to confirm the reliability of the research instrument. A value of 0.8 in *Cronbach's Alpha Coefficient Reliability Test* is considered highly reliable according to Carmines [36]. Since the value of all variables in Table 2 is higher than 0.8, it can be concluded that the questionnaire is a reliable measurement instrument.

Table 2
Cronbach's Alpha
Coefficient Reliability Test

Variables	Items	Alpha
Reputation	3	0.929
Location	2	0.933
Programs	3	0.926
Staff	2	0.924
Facilities	2	0.929
Cost	2	0.932
Social	3	0.926
Marketing	3	0.928
Prospects	2	0.925

4.2 Demographics

The respondents comprised 162 (53.1%) female and 143 (46.9%) male respondents. Figure 1 illustrates that 77.7% were between 18-20, 17.4% were between 21-23, and 4.9% were older than 23 years old.
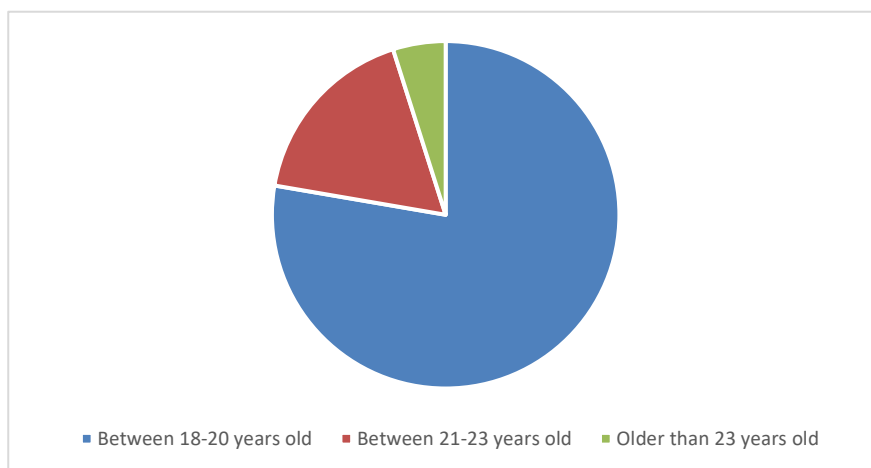

Fig. 1. Age of the Respondents

83.3% of the respondents are pursuing diploma whilst 16.7% are currently in foundation programs. Based on Figure 2, 31.8% of the respondents are from *University College TATI*, 13.8% from *Ranaco Training Institute,* 12.8% from *Kolej Yayasan Islam Terengganu,* 10.8% from *Kolej Al-Quran Terengganu, 10.8%* from *Kolej Cosmopoint,* 10.5% from *Kolej TESDEC* and 9.5% from *Kolej Universiti Bestari*.
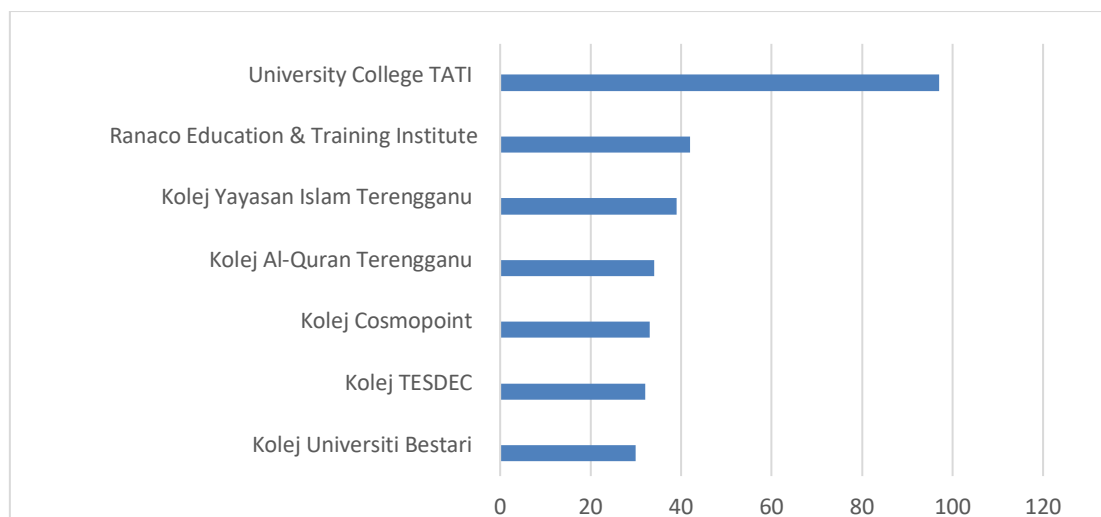
Fig. 2. Education Institution of the Respondents

4.3 Report Dependent Variable-Y Recommendation

The original dependent variable "*Recommendation of HEI to family and friends*" was transformed into two binary classes for logistic regression application (Disagree (0) and Agree (1)). Answers 1,2,3 (*Strongly Disagree, Disagree, Neutral*) were classified as Disagree and answers 4, 5 (*Agree, Strongly Agree*) were classified as Agree. As seen in Figure 3, 76.7% of the respondents recommended their current HEI to family and friends.
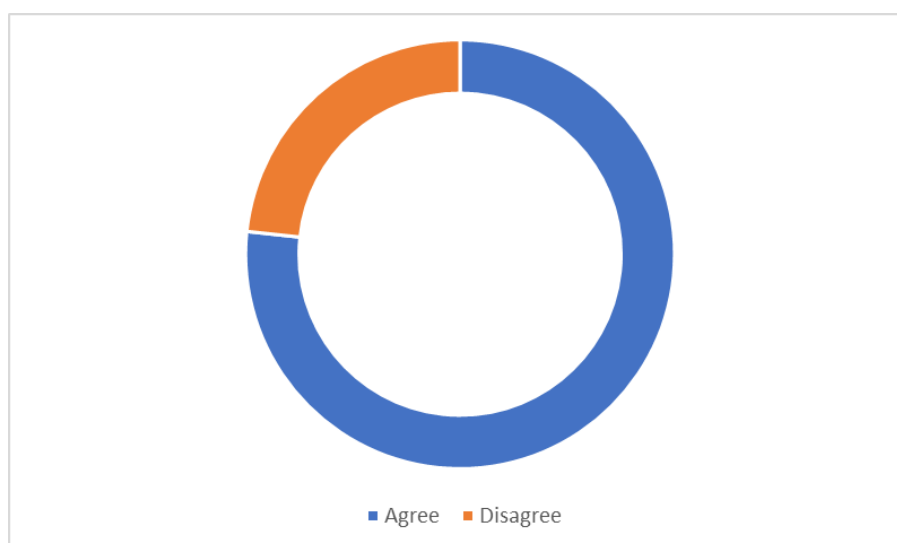

Fig. 3. Dependent Variable (Recommendation of HEI to family and friends)

4.4 Normality Test

According to Brown [37], Rule of Thumb for Skewness, suggests this rule of thumb:

  i.   If skewness is less than −1 or greater than +1, the distribution is highly skewed.
  ii.   If skewness is between −1 and -0.5 or between +0.5 and +1, the distribution is moderately skewed.
  iii. If skewness is between −0.5 and +0.5, the distribution is approximately symmetric.

All the variables are checked using Skewness and the result shown in Table 3. Assume that the data is not symmetric (not normally distributed).

Table 3
Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Reputation_Mean	305	1.00	5.00	3.6361	.69602	-.768	.140
Location_Mean	305	1.00	5.00	3.7492	.90423	-.926	.140
Programs_Mean	305	1.00	5.00	3.9169	.74020	-1.297	.140
Staff_Mean	305	1.00	5.00	3.8525	.75625	-1.028	.140
Facilities_Mean	305	1.00	5.00	3.7361	.89957	-.927	.140
Cost_Mean	305	1.00	5.00	3.6295	.83338	-.850	.140
Social_Mean	305	1.00	5.00	3.6951	.75165	-.951	.140
Marketing_Mean	305	1.00	5.00	3.5432	.78340	-.770	.140
Prospects_Mean	305	1.00	5.00	3.9246	.79737	-.879	.140
Valid N (listwise)	305						

The summary of the Skewness value of each variable referring in Table 4.

Table 4
Summary of Skewness

Variables	Skewness
Reputation	-0.768
Location	-0.926
Programs	-1.297
Staff	-1.028
Facilities	-0.927
Cost	-0.850
Social	-0.951
Marketing	-0.770
Prospects	-0.879

Since that the data is not symmetric (not normally distributed), the boxplot used to confirm the results. Justification on Normality Checking, all the boxplot for each variable is highly skewed to the left. (Falls between range -1 to +1). This confirms the skewness value given, where all variables are negatively skewed. Thus, it can be considered that all variables do not follow normal distribution (Figure 4).
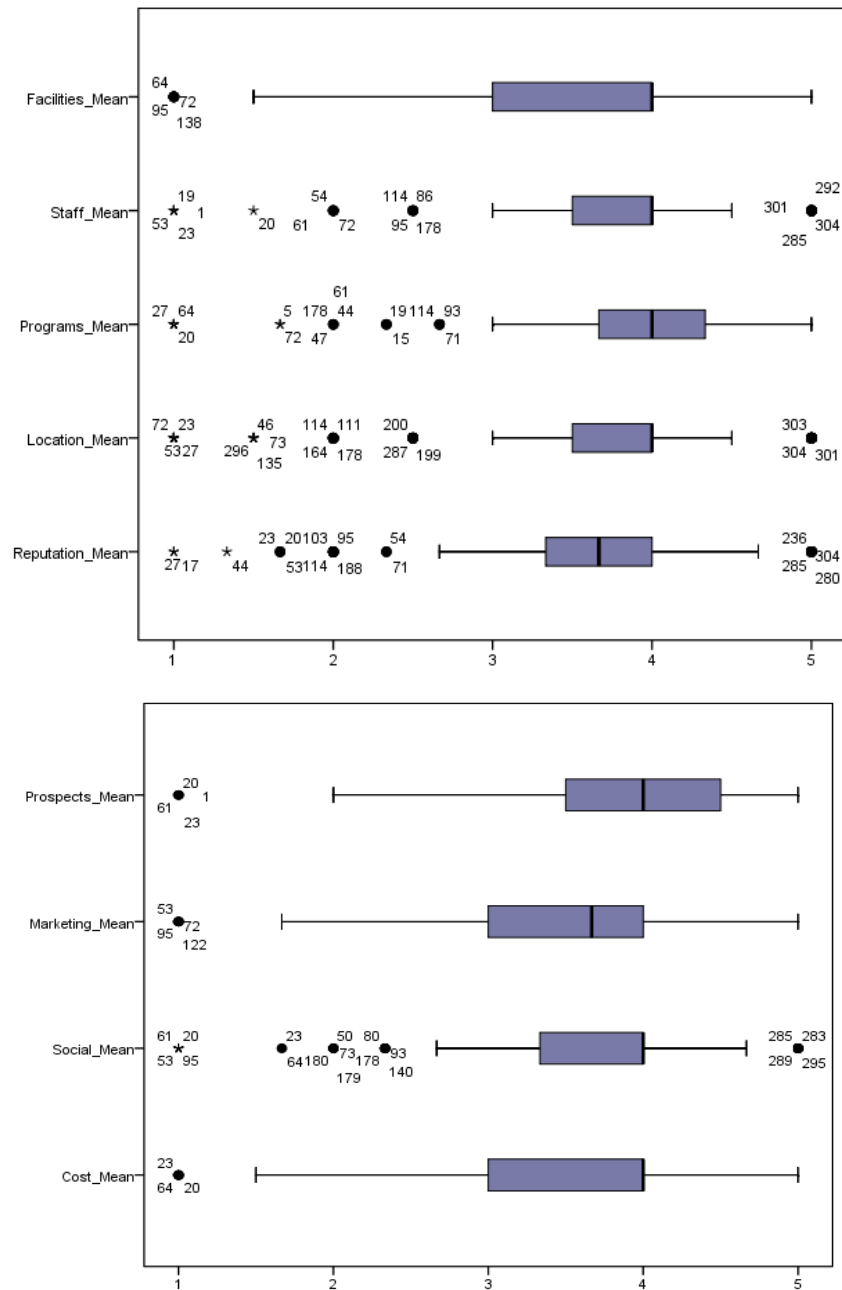
Fig. 4. Boxplot Result

4.5 Spearman Rank Correlation

Since all the variables are not normally distributed, spearman rank correlation is used to measure the strength of relationship between each independent variable and dependent variable. Even though the acceptable range of skewness for normal [38] is between -1.5 and 1.5, but the boxplot shows that the data is highly skewed to the left. (It is not normally distributed). When the assumptions underlying correlation cannot be met adequately, that's why a non-parametric alternative is using Spearman Rank Correlation. The assumption of the two variables should be measured on an ordinal, interval, or ratio scale. In this case, the independent variables ratio scale (it is not normal) and dependent variable is ordinal [39]. Refer the strength of a correlation suggested first by Connelly [40] are 0-0.19 "negligible correlation (very weak)", 0.20-0.39 "low correlation

(weak)", 0.40-0.69 "moderate correlation", 0.70-.89 "high correlation (strong)" and 0.90-1.0 "very high correlation (very strong)".

Based on the results obtained in Table 5 using Spearman Rank Correlation, it shows that all variables have significant relationship towards the dependent variable (Recommendation) since p-value is less than 0.05. There is only one variable that have strong relationship with the dependent variable (Recommendation) with degree of correlation is greater than 0.70 (r=0.705). The other eight variables appear to be no strong relationship with recommendation with degree of correlation is between 0.4 to 0.69. Reputation, Location, Programs, Staff, Facilities, Cost, Social and Marketing has moderate relationship with Recommendation. Prospects have high relationship with Recommendation.

Table 5
Spearman Rank correlations results

Variable	Correlation Coefficient	Sig.
Reputation	0.492	0.000
Location	0.456	0.000
Programs	0.598	0.000
Staff	0.643	0.000
Facilities	0.500	0.000
Cost	0.521	0.000
Social	0.617	0.000
Marketing	0.567	0.000
Prospects	0.705	0.000

5. Conclusion

This study started off to measure the strength of the relationship between selection factors and recommendation that influence IPTS selection in Malaysia. Reliability analysis concluded that the questionnaire was a reliable measurement instrument. The questionnaire was electronically distributed to the 305 respondents at seven IPTS throughout the state of Terengganu in Malaysia. Normality Check using Skewness and Boxplot were used to confirm the results. Spearman Rank Correlation (non-parametric statistics) was used to measure the strength of relationships between selection factors and recommendation. This study has managed to measure the strength of the relationship between HEIs selection factors and recommendation that influence IPTS selection in Malaysia using *Spearman Rank Correlation* for non-parametric statistics. Prospect strongly influence whether students' will recommend the college to their family and friends or not. Works in the near future include the development of a new IPTS selection model using *Interpretive Structural Modelling* and a methodology for identifying IPTS selection criteria.

Acknowledgement

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