

The Perceivable Future Assessment of Technical Undergraduate Degrees

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ABSTRACT

The evolution of higher education institutions from public funded to private non-for-profit has provided opportunities to undergraduate students to choose their desired fields of study. It is assumed that quality of education in the private universities is lower than public higher institutions. This study provides insight information that can give a platform to the public regarding the pre-determination on different gender's perception on the technical undergraduate degrees. Indeed, the result shows there is a difference between genders. This will lead to a more comprehensive study onto perceivable assessment on private non-for-profit higher education institution in future for undergraduates who are moving towards higher degrees.

Keywords: Perceivable, technical, and undergraduate

INTRODUCTION

The Malaysian tertiary education sector has evolved since the 80s to meet the needs in the society and industry (Grapragasem, Krishnan, & Mansor, 2014). It has long

been perceived by parents that science stream students are smarter than art stream students and as such, teachers in secondary schools tend to put more efforts to science stream students than art stream students (Kususanto & Chin, 2012). Many female secondary school leavers now prefer to enrol in technical undergraduate degree programmes (Luan, 2009; Kususanto & Chin, 2012).

According to UNESCO (2015), a developed country must be able to achieve a technical to laymen ratio of 1:4000 to be

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classified as a developed country. However, according to Chin (2016), Malaysia still falls short of 236,000 technical personnel by the year 2020. In order to achieve the desired numbers of technical undergraduates, Malaysia has witnessed private universities offering a wide range of technical course to meet this demand (Naidu & Derani, 2016; MOHE, 2016).

In Malaysia, there are 20 public and 486 private universities including University Colleges (Ministry of Higher Education (MOHE), 2016). According to Beamer (2011) public higher education institutions are supported and operated by the government while the private ones can be either totally independent or affiliated with other institutions.

The perceivable functional values of the technical degrees will influence the students' choice of the institute. A perceivable functional value is defined as a perceived benefit which is normally derived from the consumption of a service. In higher education, the benefits such as guaranteed future employment, a good salary, and job promotions are examples of perceived functional values by students (Linda, Lai, Jane, & Lung, 2011). The loyalty of the customers or consumers will be increased if they perceived high functional values to the products, goods, or services (Bakon & Hassan, 2013).

Zain, Tahir Jan and Ibrahim (2013) examined effect of perception and promotion on the students' choice of institutions for higher education. However, Prashalini and Derani (2016) showed that there was

no significant correlation between private and public universities in term of student's perspective in satisfaction and quality. The main purpose of private institutions is to serve the public due to the growing demand for higher education which the public institutions are unable to meet (Bessolo, 2011). This study examines the perceivable future assessment of technical undergraduate degrees from private higher education institutions and assesses their performance.

METHODS

A pilot study was carried out to ensure reliability of data (Malhotra, 2010). The result of pilot test enables large scale data analysis (Hazzi & Maldaon, 2015) and hence, in this pre-determination study, 30 first year undergraduates from selected private higher education institutions in Malaysia were randomly selected. According to Arain, Campbell, Cooper, and Lancaster (2010), a minimum of 20 samples are sufficient to conduct the pilot test but Malhotra (2010) concluded that 15 to 30 respondents are sufficient to perform a pilot study. Stratified random sampling technique was used to select 15 male and 15 female respondents; this sampling method ensures sufficient data for quantitative analysis (Sekaran & Bougie, 2013).

The survey questions were adapted from LeBlanc and Nguyen (1999) who originally used them to examine perceived service value among students enrolled in a business degree programme. Alves (2010) used the same technique to assess the perceivable

future of Portuguese higher education via unidimensional approach while Rahman (2012) used the similar survey to study customer's perception and satisfaction in the mobile industry.

This study also used the latest non-parametric Bootstrapping technique. Bias corrected and accelerated (BCa) procedure of bootstrapping method produce confidence intervals which are adjusted in bias and more accurate than bootstrapping results (Efron & Tibshirani, 1994). Normally, a 1,000 random sampling will give accurate inferential results but this research used 2,000 sampling choice as recommended by Efron and Tibshirani (1994), and Efron (2010) to ensure a safe and valid inference through its generated confidence intervals. This inferential statistic was derived using IBM PASW version 18. Bootstrapping BCa statistics was selected for its robustness and the inferential ability through its confidence interval (Davison and Hinkley, 1997; Cox, 2006). The method neither assumes data normality nor has limitation in terms of data distribution. Additionally, bootstrapping provides a standard error and confidence interval for the median value, which are unavailable under most parametric tests (IBM, 2012).

All 30 correspondents' rating scores were used to generate BCa confidence intervals for each question to reflect their overall feedback. Male and female rating scores were also segregated for stratification and comparison study. Non-parametric inferential statistics was also employed for

the assessments of Null hypothesis stated as below:

Null Hypothesis (H₀): There is no difference in score rating between male and female respondents.

The minimum requirement for the rejection of H₀ was p<0.05 level. The rating scores from females from the males in order to create a rating score difference dataset for the H₀ assessment at 95% and 99% confidence level for each question. In the event that the inferential statistics confidence interval does not include zero, H₀ can be rejected to imply that there is a statistically significant rating difference between the genders for a particular question. If the upper confidence interval shows greater positive value than the lower confidence interval's negative value, the overall scores for the males are considered higher than the females.

RESULTS AND DISCUSSION

IBM PASW version 18 was used to determine the reliability coefficient of the pilot test. The Cronbach's Alpha is 0.864 (Table 1) and since it is above 0.8, the items and scales used in the questionnaire are reliable (Tavakol & Dennick, 2010; Zikmund et al., 2010; Sekaran & Bougie, 2013).

Table 1
Questionnaire reliability assessment

Total Respondent	Cronbach's Alpha	No of Items
30	.864	6

Table 2
Kolmogorov-Smirnov and Shapiro-Wilk Test

	Statistic	Sig.	Statistic	Sig.
Q1. I believe that technical degree in my chosen institution will guarantee future employment.	.360	.000	.786	.000
Q2. The knowledge I have acquired at my chosen institution will allow me to get job promotion.				
Q3. Technical degree in my chosen institution will allow me to earn a good salary.	.328	.000	.827	.000
Q4. I believe my chosen institution offers quality services.				
Q5. When considering the tuition fee I pay, I believe that my chosen institution offers sufficient services. Q6. The reputation of my chosen institution influences the value of my technical degree.	.190	.007	.903	.010

Table 3
Skewness and Kurtosis Test

	Q1	Q2	Q3	Q4	Q5	Q6
Mean Median Skewness	3.63	3.67	3.50	3.70	3.60	3.40
	4.00	4.00-.588	3.50	4.00-.859	4.00	4.00

Statistics and Null Hypothesis Assessment

statistics and its BCa results ($p = 0.05$) are shown in Figure 1.

30 rating scores were used to analyse each question separately. The descriptive

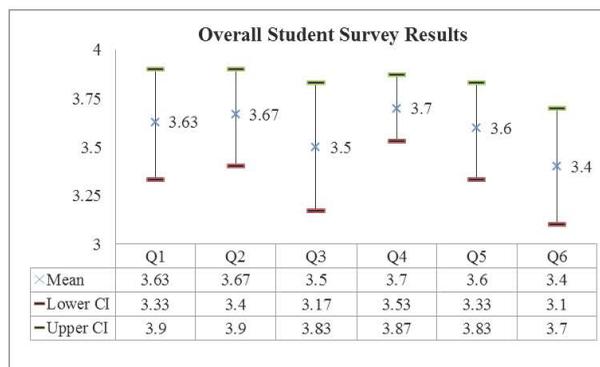


Figure 1. 30 rating scores and inferential statistics ($p=0.05$) for each survey question

Overall, question 3 has the largest rating followed by questions 1 and 6. Question 4 has the highest score in this pilot study. The average score is about 3.58 for each question. The same methodology was

repeated to study the rating score difference of each gender. The rating scores for males are shown in Figure 2 while those of the females are displayed in Figure 3.

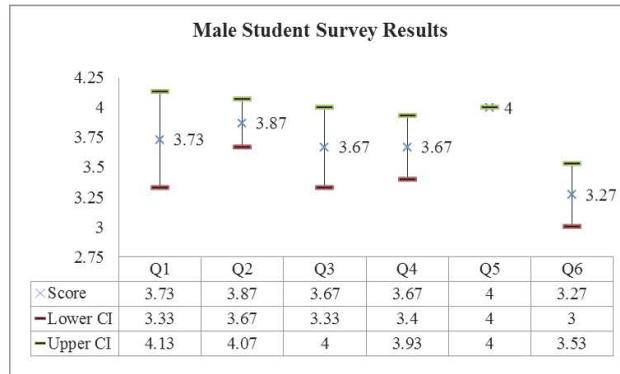


Figure 2. Male rating scores and inferential statistics ($p=0.05$) for each survey question
 Note: Data distribution for question 4 was skewed and hence, the median score value was adopted while the scoring data distribution for all other questions were considered as normally distributed and thus, represented by the mean rating score value

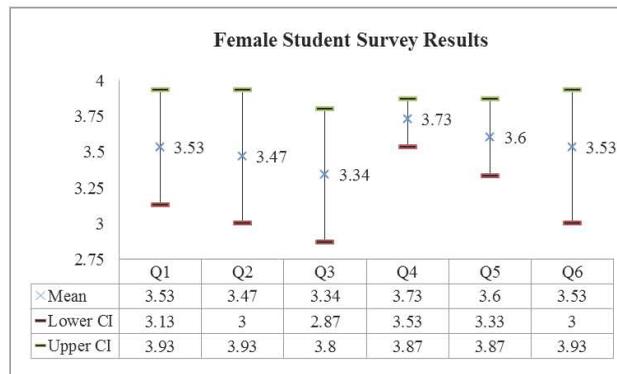


Figure 3. Female rating scores and inferential statistics ($p=0.05$) for each survey question

Overall, by comparing Figure 2 and Figure 3, male respondents had higher rating scores. The 95% confidence interval ranges of female rating scores was smaller than male respondents except for question number

6. This implies that the overall females rating scores had smaller spread than the male. Rating score difference dataset was computed for the inferential statistics analysis in order to study the possible

rating score behaviour of different genders. The descriptive statistics and inferential statistical analyses were conducted at 95% and 99% confidence levels and tabulated in Table 4.

Table 4
Descriptive statistics and Bootstrapping BCa results of rating score difference

30 respondents	Mean of rating difference	Mode of rating difference	Std. Dev. of rating difference	95% BCa Lower	99% BCa Lower
Q1	0.20	0	1.15	-0.27	0.73
Q2	0.40	-1	1.12	-0.07	0.87
Q3	0.33	0	1.18	-0.07	0.80
Q4	-0.07	0	0.96	-0.47	0.33

Note: Rating score difference = male rating score – female rating score. Rating score of zero implies that a rating indifference between the genders.

The overall mode of rating score’s difference is zero as shown in Table 4 while every confidence intervals above that indicate that it is highly likely that there is no rating score difference between the two genders at both $p=0.05$ and 0.01 level. Although H_0 appears to be acceptable, it is too early to conclude that there is no rating score difference between both genders at a larger scale. The overall mean rating score difference from all six questions is 0.10 but the upper confidence interval shows higher positive value than the negative value at its lower confidence interval (at both $p=0.05$ and $p=0.01$ level). As such, male respondents provided higher scores than their female counterparts. Male respondents gave higher scores for Question 1 to 3. The rating score pattern changed from question 4 onwards where the lower confidence interval showed higher negative values than the positive values at its lower confidence interval (at both $p=0.05$ and $p=0.01$ level). This implied for the last 3

questions, t female respondents gave higher rating scores than their male counterparts. For question 5, the rating score pattern was not obvious as the confidence interval evenly extended to both end limits at $p=0.05$ but at $p=0.01$ level lower confidence interval shows more negative values than the upper confidence interval indicating that female respondents gave higher rating scores than male respondents.

CONCLUSION AND RECOMMENDATIONS

It is clear from this study that male and female rating scores are significantly different from each other ($p=0.01$). Future research can focus on the modelling of male and female rating scores separately. Although this study involves only 30 respondents to assess the perceivable future assessment of undergraduate degrees, it offers an insight for further studies to include equal male and female population in order to avoid

bias rating scores. Hence, consequential studies in gender behavioural differences could provide detailed information useful for enhancing student services and offer programmes to cater to both genders. Future studies can also explore the intention of existing undergraduates to continue their tertiary studies within the same higher education institution.

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