

GENDER GAP IN HIGHER EDUCATION: PERSPECTIVE ON FACTORS INFLUENCING ENROLMENT IN MALAYSIAN UNIVERSITIES: A UNIVERSITY OF MALAYA SAMPLE

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Abstract: This study aims to identify why academic performance differs between male and female students at a school level that leads them to qualify for entrance into universities. Entrance qualification to university is based on the meritocracy system of their academic achievement. More female students have always outperformed the male students in their educational attainment. The inequality of gender in the enrolment of students into universities has become a serious phenomenon for the past decades. This qualitative and quantitative method of research utilizes data analysis from University Malaya samples. The findings revealed that female students have different characteristics and inspiration that influence their educational achievement. More male students are represented in subject choices like Engineering. The outcome from gender imbalance will hinder the country's development if more females dominated in the job market. In light of these results, several suggestions have been proposed for the solution and implication to increase the number of male students in tertiary institutions.

Key words: gender inequalities, gender characteristics, educational attainment, subject choice, enrolment

1. INTRODUCTION

In Malaysia, female students are currently over-represented in most public universities and nowadays females have outperformed male students in the examination at school level which then qualifies them for university entrance. As expected, the imbalance of ratio between male and female students enrolled at the universities is becoming a serious phenomenon from year to year as there is no indication showed that precaution had been taken. According to Department of Statistics Malaysia, in 2010, the ratio of females enrolled in public universities was 64.8% or 26,229 out of 46,506 places offered, compared to male students with only 35.2 %.

Generally, Malaysian women's contribution to the country is high and significant, particularly in the sector of education, where females formed the majority as teachers with 72.3% compared with males, 27.7%. Statistics shows that about 38.1 % female students pursuing PhD; 52.9 % in Master degree; 61.9 % in undergraduate and 64.8 % at Diploma level (Quick Facts, 2012).

Is the phenomenon a problem that should be subjected to valid debate? There are education experts who say that this is a global trend that cannot be escaped from and it is not something to be worried about. There are also some who are apprehensive that this eminent problem that has been seen since the last two decades is not a healthy development and it will bring about effects to the community that are yet to be fully comprehended.

According to Article 8 (2) of the Federal Constitution of Malaysia (2001), the constitution guarantees gender equality particularly from the perspective of employment in the private sector, pregnancy and gender discrimination. However, the equal opportunity and rights given to women in making decision or as policy makers at work place are still imbalanced.

Therefore, the Malaysian Cabinet approved a policy that set a target of 30% of women representation in decision making positions across all Malaysian public listed companies by 2016. The importance of improving the gender balance of corporate boards is increasingly recognized across the world. This figure indicates that, a number of women at companies as corporate leaders are still low compared to men. Why are there more men as leaders at corporate boards, organisation or companies when their number is smaller at tertiary institution?

A research study that has analysed and documented these gender inequalities in different countries include Africa, Grace W. Buny I (2003) entitled “The Interventions that Increase Enrolment of Women in African Tertiary Institutions”.

According to Dweck, and Licht (1980), gender characteristics determine how well boys and girls adapt to their academic tasks. They suggested that certain academic tasks and areas in general may possess characteristics that are compatibility with girls’ cognitive orientation and that is likely to facilitate their performance. Similarly, boys’ achievement orientations may make them better suited for certain academic pursuits. For instance, they found that mathematics is an area that, in general, possesses the characteristics that best fit the male cognition, whilst language-based subjects seem to possess those qualities that best fit the female cognition.

Borg E. (2013) examined how working hard in school contributes to explaining gender differences in academic achievement between students in Norwegian (n=8,002) and Pakistani (n=862) descent in secondary schools in Oslo.

In Indonesia, it appears that women have been acquiring secondary and tertiary education in relatively larger numbers than men in recent years, perhaps in response to the greater relative returns to female higher education (Deolalikar, 1993).

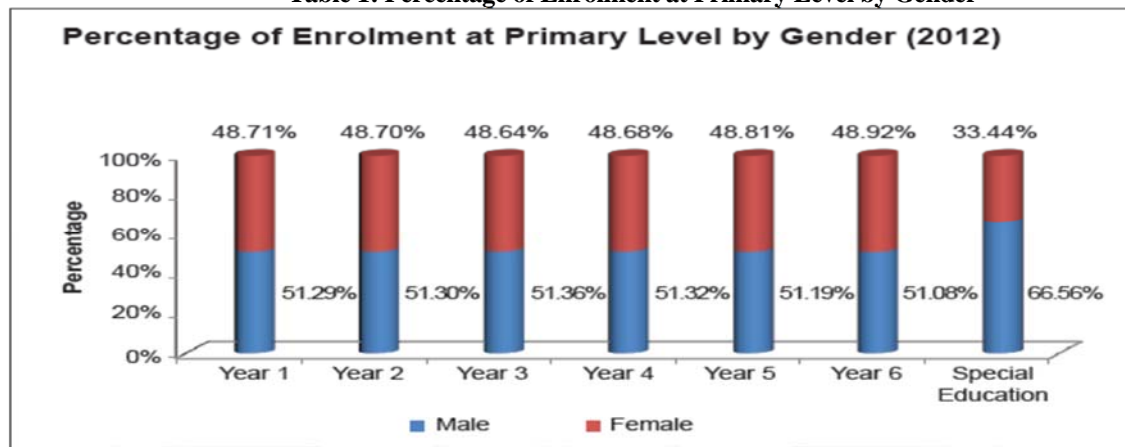
Pickering (1997) and Bleach (1998) claimed that one of the reasons boys in the United Kingdom did less well than girls is that boys considered schooling and the selection of stereotypically female subjects as unfair and biased. As a result, British boys tend to be less motivated to do well in schools. Wong, et al (2002:827) examined gender differences in educational achievements based on a longitudinal sample of more than 45,000 secondary school students in Hong Kong who took a public examination in 1997. The results coincided with the findings from Britain supporting the idea (Pickering, 1997; Bleach, 1998) that boys do less well than girls in all areas of the school curriculum. The multilevel analyses of the effects of schooling, after controlling initial ability, indicated that schooling does have effect on gender differences. Girls achieved better results studying in single-sex schools whereas boys achieve better in co-educational schools.

In Australia, gender differences in many areas of participation in school are receding, but the gap favouring males in mathematics study in senior secondary school persists (Lamb, 1997).

University of Sussex had investigated the key determinants of degree performance. The modest raw gender differential in first class degree rates favoured women but was found to be attributed to their better endowments, particularly pre-entry qualifications (Barrow, 2009).

2. BACKGROUND OF THE STUDY

Table 1: Percentage of Enrolment at Primary Level by Gender



Source: QUICK FACTS 2012

Table 1 shows the distribution of female students at Primary Schools from year 1 to year 6, which is never more than 50% of boys. It reveals that, since at Primary school level, the claimed made on more girls than boys entered schools is

wrong.

Table 2: Distribution of Teachers at Pre-school, Primary and Secondary School

Number of Schools, Enrolment and Teachers (2012)							
Schools		Enrolment			Teachers		
		Male	Female	Total	Male	Female	Total
Pre-school	5,857	94,338	91,960	186,298	971	7,198	8,169
Primary	7,723	1,441,522	1,362,883	2,804,405	72,266	164,047	236,313
Secondary	2,296	2,326,049	2,296,034	2,281,775	55,155	121,252	176,407
TOTAL	10,019	3,767,571	3,658,917	5,086,180	127,421	285,299	412,720

Source : EPRD - MOE (Data as of 31 January)

In 2012, the number of female teachers at Pre-School, Primary School and Secondary School is high, with 285,299(69.1%), compared to male teachers, 127,421 (30.9%). This data indicates that only one third from the total number of Malaysian teachers is represented by male teachers.

Table 3: Distribution of Teachers at Secondary School

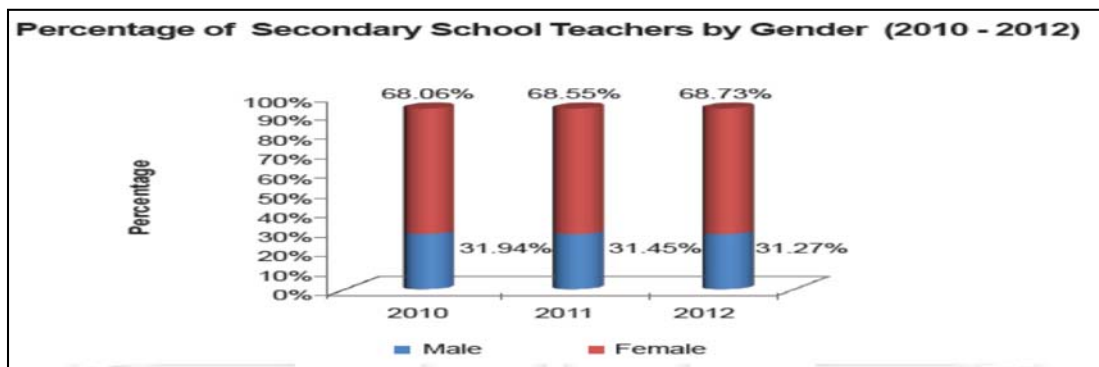


Table 4: Enrolment of Female Students in Matriculation (Pre-University)

Table 3.5 Post Secondary : Matriculation Level (2008 - 2011)				
	2008	2009	2010	2011
Number of Matriculation Colleges	11	13	13	13
Total Enrolment	23,340	18,850	22,375	21,473
% Female	66.3	68.0	69.1	68.0
No. of Academic Personnel	1,464	2,045	2,228	2,264
% Female	65.8	67.1	66.9	65.7

Source : Matriculation Division, MOE (Data as of 15 March 2012)

For years, the number of female students always exceed male students in Matriculation Colleges. Matriculation is a stepping stone for students to qualify themselves for entrance to universities. As the number is already big for female at this level, therefore it is no surprise why more females qualify for university entrances.

Table 5: Enrolment by Gender in Government and Government Assisted Educational Institutions in 2012

Level	Male	Female	Total
Secondary School	965 054 (49.5%)	985 692 (50.5%)	1 950 746
Post-Secondary School	15 334 (32.0%)	32 664 (68.0%)	47 998
Matriculation	7 425 (37.5%)	12 407 (62.6%)	19 832
College/Polytechnics	44 847 (53.1%)	39 688 (46.9%)	84 535
University	215,900 (39.5%)	331,087 (60.5%)	546,987
Total	2 619 690	2 602 128	5 221 818

Source: QUICK FACTS 2012

Table 5 shows the overall figures of students' enrolment which reveals that female is mainly represented at Secondary School level with 50.5%, Post-Secondary School where they prepare for the examination for entrance to university with 68.0%, Matriculation with 62.6%, and university with 60.5%. While at Polytechnics, where technical and vocational subjects are being offered, male students dominate the population in this type of school with 53.1%.

Table 6: Distribution of Gender by Subject Choice at Public University

14 : TERTIARY EDUCATION - MINISTRY OF HIGHER EDUCATION						
Table 14.2 Entrants and Enrolment of Public University Students by Fields of Study and Gender						
	Entrants (Sept 2011)		Enrolment (Oct 2011)		Graduate (Jan-Oct 2011)	
	Male	Female	Male	Female	Male	Female
1 SOCIAL SCIENCES, BUSINESS AND LAW	15,711	34,112	65,314	134,460	7,428	15,615
2 ENGINEERING, MANUFACTURING AND CONSTRUCTION	18,162	13,583	70,800	51,535	9,554	7,467
3 SCIENCE, MATHEMATICS & COMPUTER	8,405	14,562	27,732	45,925	4,005	6,979
4 ARTS AND HUMANITIES	4,412	7,723	17,659	29,711	2,329	4,696
5 HEALTH AND WELFARE	2,170	5,670	9,299	22,342	1,029	2,811
6 EDUCATION	1,979	5,300	12,890	30,017	2,274	5,072
7 SERVICES	1,502	2,617	6,721	10,397	897	1,083
8 AGRICULTURE & VETERINARY	1,471	1,889	5,485	6,700	559	756
TOTAL	53,812	85,456	215,900	331,087	28,075	44,479

Source : Fakta Ringkas IPTA 2011 - Ministry of Higher Education Malaysia (MOHE)
(Data as of November 2011)

Table 6 shows that female students specialise more in the field of Social Science, Business and Law, Humanities, Health and Welfare and Education. Meanwhile, male students mostly specialise in Engineering, Manufacturing and Construction sectors.

3. THE OBJECTIVES OF THE STUDY

This study aims:

- i. to identify why academic performance differs between male and female students
- ii. to investigate factors contributing to the imbalance of gender in tertiary institutions
- iii. to identify differences of subject choices between male and female students
- iv. to find solutions and implications for the increase of male students in tertiary institutions

4. METHODOLOGY

The data obtained was accessed using Program of *Statistical Package for Social Science Version 16.0 (SPSS for Windows Version 16.0)*. A descriptive statistic is used for the data on demography of respondents. Data analysis in descriptive form such as frequency, percentage, mean, std. deviation and statistical inference like chi-square will be used for research analysis.

The instruments used are self-administered questionnaire and semi-structured interviews, where the open-ended questions were also included.

The sample for the quantitative method comprises of (167) of University of Malaya students, were randomly selected. A set of questionnaire asking questions on their perception on the imbalance gender at the university was constructed to obtain data and information.

Other than quantitative method, the qualitative method is applied to 70 Matriculation students at the Center for Foundation Studies in Science of the University of Malaya. The open ended questions and interview are used to examine different factors that contribute to different educational attainment between male and female students from upper secondary schools to pre-university level.

The category of question asked is based on the previous study which indicated the major constraints for gender's unequal achievement in education as follows:

- Secrets of successful behaviors between male and female students
- Different characteristics and positive values between male and female students towards success in education
- Time management, self- management and attitudes towards their studies
- Motivation, vision, inspiration, aspiration in accomplishing them
- Different level of maturity between male and female students

Due to gender differences in their characteristics and behaviors, therefore these factors affect their Sijil Pelajaran Malaysia (SPM or equivalent to O-Level), and their matriculation examination results and their entry qualification and requirements to enter tertiary institutions.

4. RESULTS

The demography of sample of population from the questionnaire is shown in Table 7.

Table 7: Demography of Respondents

Response Profile	Category	%	(f)
Gender	Male	19.4	32
	Female	80.6	133
Education Status	Matriculation	2.4	4
	Diploma	1.2	2
	Degree	19.4	156
	Master	0.6	1
	Total	19.8	163
	Missing Value	2	1.2
<i>N=165</i>			

Table 7 shows that 80.6% (133) of respondents were males and 19.4% (32) were females. Most of the respondents were the undergraduates with a total of 19.4% (156).

Table 10 shows the evaluation made by the respondents on factors that have impact on the enrolment or entry to the university in Malaysia. The highest mean is shown in Item 2: 'Different characteristic between male and female students affect their educational attainment and thus their entry requirement to universities (M=4.12, SD=.96); followed by Item 14: 'It does not mean men without high academic achievement, have no job prospects' (M=4.08), SD=1.00); Item 11: Composition of subject choice is different between gender (M3.90, SD=.87); Item 17: Malaysian women are dedicated towards work (M=3.6,SD.90) and so on.

According to Kuebler and Smith (1976), mean score between 3.51- 4.50 shows the factors have high impact or influence on the enrolment of Malaysian students to the universities.

Table 8: Factors Influence Imbalance Enrolment in University

Item	STATEMENT	Scale					M	SD
		1 Less *	2	3	4	5 Most*		
1	Different characteristics between male & female affect their educational attainment & thus their entry requirement to universities	17 5.5%	56 10.3%	57 33.9%	26 34.5%	3.45 15.8%	1.05	
2	School examination results affect entry requirement to university	4 2.4%	6 3.6%	25 15.2%	62 37.6%	68 41.2%	4.12	.96
3	Career planning is different between genders	6 3.6%	16 9.7%	48 29.1%	57 34.5%	38 23.0%	3.64	1.05
4	Female put priority in academic achievement, Male focus on vocational skills	9 5.5%	14 8.5%	32 19.4%	58 35.2%	52 31.5%	3.79	1.14
5	Female are more hardworking, dedicated & ambitious	3 1.8%	13 7.9%	31 18.8%	62 37.6%	56 33.9%	3.94	1.00
6	'Future educational decision' of male & Female influence imbalance enrolment	6 3.6%	14 8.5%	42 25.5%	72 43.6%	30 18.2%	3.65	1.00
7	Enrolment of girls in schools level is more than boys	12 7.3%	14 8.5%	52 31.5%	49 29.7%	36 21.8%	3.51	1.15
8	Male students aim to be engineers while females aim for careers in education	3 1.8%	10 6.1%	26 15.8%	76 46.1%	50 30.3%	3.97	.93
9	'Job consideration' for their future careers influence their academic achievement	5 3.0%	13 7.9%	48 29.1%	66 40.0%	32 19.4%	3.65	.98
10	Ladies have high 'occupational aspiration'	10 6.1%	14 8.5%	49 29.7%	65 39.4%	27 16.4%	3.52	1.06
11	Composition of subject choice is different between genders	3 1.8%	4 2.4%	41 24.8%	76 46.1%	41 24.8%	3.90	.87
12	Girls frequently outperform boys in public examination	12 7.3%	19 11.5%	47 28.5%	54 32.7%	33 20.0%	3.47	1.15
13	Ministry of Education should interfere in for boys to enter residential schools	12 7.3%	22 13.3%	54 32.7%	48 29.1%	28 17.0%	3.35	1.13
14	It does not mean that men without high achievement have no job opportunities	3 1.8%	4 2.4%	30 18.2%	67 40.6%	61 37.0%	4.08	.90

15 Since women highly educated, they hold higher post at work place	5 3.0%	13 7.9%	33 20.0%	77 46.7%	36 21.8%	3.77	.98
16 If more women are highly educated, it will lead to social instability in a household	13 7.9%	34 20.7%	39 23.6%	44 26.7%	34 20.6%	3.32	1.24
17 Malaysian women are dedicated and determine towards work	3 1.8%	6 3.6%	43 26.1%	72 43.6%	41 24.8%	3.86	.90
18 There is no gender discrimination in Malaysia	4 2.4	3 1.8	23 13.9	80 48.5	55 33.3%	4.08	.87
19 The government should take drastic action to overcome this phenomenon	8 4.8%	9 5.5%	42 25.5%	56 33.9%	50 30.3%	3.79	1.08

N=167, 1-Not important at all, 2- Not important, 3-Average, 4-Important, 5-Very Important

M-Mean, SD-Standard Deviation

Table 9: Results of chi-square test of association for comparing opinion on issues related to gender disparity in higher education in Malaysia

Statement	Factor		
	Gender	School Type	Income
1 Do you agree that female students exceed male students at Public & Private Universities?	0.256 (0.613)	0.903 (0.342)	0.985(0.321)
2 Do you agree the imbalance of gender will hinder job opportunities for males	1.242 (0.265)	2.215 (0.137)	3.960 (0.047)
3 Difference of enrolment happen from Primary School, Secondary School and university	0.017 (0.896)	0.833 (0.361)	0.508 (0.476)
4 Do you think Educational Policy should give special priority for men to enter university	2.833 (0.092)	0.740 (0.390)	0.020 (0.887)
5 Do you think meritocracy system should be implemented in the university admittance?	0.011 (0.918)	0.005 (0.945)	0.032 (0.857)
6 There are more female students are in Education, Linguistics & Social Science while there are more men in Engineering, Mathematics and Physics	4.013 (0.045)*	1.324 (0.250)	0.533 (0.465)
7 Do you agree that male students are slow to mature, tend to not work hard, and not motivated as compared to females	0.019 (0.889)	2.822 (0.093)	0.013 (0.909)
8 This phenomenon does not affect the nation's development and the country's leadership	2.991 (0.084)	2.584 (0.108)	4.367 (0.037)
9 Male and female have different attitude, vision and inspiration towards education	0.011 (0.916)	9.571 (0.002)	<0.001 (1.000)
10 Although there are more females at universities, their output at work is less than men	0.153 (0.697)	0.714 (0.398)	0.089 (0.765)

*Figures in parentheses are the *p*-values

Table 9 shows the cross-tabulation results of factors that influence enrolment to the university and gender male and female. Of the total sample of 167 respondents, the association between factor 'There are more females students in Education, Linguistic and Social Science, while male students are more in Engineering, Mathematics and Physics' is supported by the Chi-square results at $p < 0.045$. Since it is significant, we can conclude that there is relationship between gender and subject choices.

The relationship between types of school that the students attended has an association with factor that ‘male and female students have different attitude, vision and inspiration towards educational achievement’ with Chi-square results at $p < 0.002$.

And there is a relationship between ‘Income Status of Student’ with ‘The phenomenon does not affect the nation’s development and the country leadership’ with Chi-square result at $p < 0.037$.

Table 10: Perception on the factors associated with gender disparity in higher learning

Statement	Factor	
	Gender	School Location
11 Different characteristics between male and female affect their educational attainment and thus their entry requirement to universities	-0.017 (0.986)	-0.136 (0.892)
12 School examination results affect entry requirement to university	-0.093 (0.926)	-1.492 (0.136)
13 Career planning is different between the genders	-0.938 (0.348)	-0.150 (0.881)
14 Female put priority in academic achievement. While male focus on vocational and technical skills	-0.960 (0.337)	-1.727 (0.084)
15 Female are more hardworking, dedicated and ambitious	-2.907 (0.004*)	-1.043 (0.297)
16 ‘Future educational decision of male and female influence imbalance enrolment	-0.053 (0.958)	-2.142 (0.032*)
17 Enrolment of girls in schools level is more than boys.	-3.176 (0.001*)	-0.732 (0.464)
18 Male students aim to be engineers while females aim for careers in education	-1.350 (0.177)	-0.158 (0.875)
19 ‘Job consideration’ for their future careers influences their academic achievement	-4.054 (<0.001*)	-0.423 (0.672)
20 Ladies have high ‘occupational aspiration’	-1.404 (0.160)	-0.996 (0.319)
21 Composition of subject choice is different between genders	-1.170 (0.242)	-1.084 (0.279)
22 Girls frequently outperform boys in public examinations	-2.636 (0.008*)	-1.368 (0.171)
23 Ministry of Education should interfere in order for boys to enter residential schools	-2.115 (0.034)	-1.202 (0.230)

Number in parentheses is the p-value

*Significant at the 5% level of significance

Table 10 shows there is a significant relationship between variables ‘gender’ and ‘enrolment of girls in schools level is more than boys’, with Chi-square result at $p < 0.001$; and also between ‘gender’ and ‘female are more hard -working, dedicated and ambitious’ with Chi-square results of $p < 0.004$.

Table 11: Perception on the impact of academic excellence

Statement	Factor			
	Gender	School Type	Income	Area of Study
24 Academic achievement determine the imbalance in university enrolment	-0.172 (0.864)	-0.192 (0.848)	1.083 (0.582)	1.083 (0.582)
25 It does not mean that men who are not highly educated will hinder from job opportunities	-2.201 (0.028*)	-0.965 (0.335)	2.928 (0.231)	2.928 (0.231)
26 Since women are highly educated, therefore they hold higher posts at work place	-1.577 (0.115)	-2.201 (0.028*)	2.929 (0.231)	2.929 (0.231)
27 If more women are highly educated, it will lead to social instability in the household	-1.031 (0.303)	-1.260 (0.208)	.344 (0.842)	0.344 (0.842)
28 It is true that Malaysian women are dedicated and determined in their academic achievements and employment	-3.763 (<0.001**)	-0.021 (0.984)	6.611 (0.037*)	6.611 (0.037)
29 There is no gender discrimination in Malaysia	-2.043 (0.041*)	-0.916 (0.360)	5.459 (0.065)	5.459 (0.065)
30 The government should take drastic action to overcome this phenomenon	-1.057 (0.291)	-0.290 (0.771)	4.453 (0.108)	4.453 (0.108)

Number in parentheses is the p-value

*Significant at the 5% level of significance; ** Significant at the 1% level of significance

Table 11 shows there is a significant relationship between variables 'gender' and 'It is true that Malaysian women are dedicated, determine in academic achievement and employment', with Chi-square result at $p < 0.001$; and also between 'gender' and 'There is no gender discrimination in Malaysia' with Chi-square results of $p < 0.041$.

From the open ended survey of questionnaire and interviews, various reasons and factors were indicated that contributed and influenced the success in educational attainment. Table 8 and 9 show the different characteristics between genders that lead students' attainment in education. Most of the Matriculation students who identified on gender characteristics that influence academic achievement were from Center for Foundation Studies in Science, of University Malaya. Their answers were sorted to the following factors:

Table 12 : The Female Students Characteristics that Contribute for their Success in Educational Attainment
1. Females students are hard working in their studies.
2. Female students are very determined in achieving their visions.
3. Female students are more serious in their work and pay more attention in class.
4. Female students have better self- discipline.
5. Female students listen to advises and highly motivated.
6. Female students are more dedicated.
7. Female students have long sighted views.
8. Female students give priorities to their studies
9. Female students getting matured faster than male students

Table 13: The Reasons Why Male Students do not Perform Well in Educational Attainment
1. Most male students are not serious in their studies.
2. Most male students are not determined in their work.
3. Most male students are not aware of the life goals.
4. Some male students prefer to work earlier rather than pursuing their tertiary education.
5. Male students prefer technical work and specialize in engineering.
7. Male students spend more time in sports.
8. Male students' maturity growth is slower than females.

Table 14: The Outcomes if More Females than Males are Highly Educated
1. More females will become leaders for the country.
2. More highly educated females will not marry.
3. Females are superior to males either at home or at work place.
4. Males in exchange play as female roles at home.
5. More Males need not go to work. Instead wives play vital roles to find money.

Table 15: Implication and Overcoming the Phenomenon for Balance Gender Enrolment at University
1. The government should set up a balance quota for male and female students, for entry to university.
2. The Ministry of Education should set up motivational programs to make male students aware of their lagging in educational attainment.
3. The policy of university intakes should give priority and flexibility to male students.
4. The entry requirement into university is not based entirely on academic merit. Consideration should be given more to students' co-curriculum activities and leadership abilities.

Table 12 and 13 show the different characteristics of gender that contribute for the imbalance of enrolment in Malaysian universities. Table 14 reveals the outcome if more females dominated in tertiary education. Table 15 shows the implications and solutions to create a more balanced gender enrolment at the university.

5. FINDINGS

Academic performance differs between male and female students. Different characteristics become the determinant factors that affect the educational attainment. Among the important characters found in this study is that female are more hard working, determine, dedicated, high ambitious in their studies as well as at work. Females formed the majority in subject choice like Education, Linguistic, and Social Science while male incline toward vocational and technical subjects such as Engineering, Mathematics and Physics. However, male are better leaders and good decision makers. As more women are highly educated, they hold higher posts at work place and earning higher pays. This scenario creates an unhealthy social trend where many females tend not to marry or cause social instability in the household. Both male and female students have agreed that, academic achievement as a key factor that determines the unequal of enrolment in university.

6. CONCLUSION

Malaysia needs a balanced enrolment of male and female students at tertiary institutional levels. In order to achieve the objectives of Vision 2020 to be a developed country, Malaysia needs quality human resource in Science and Technology. In Malaysia, it is obvious that men play a more vital role in leaderships and decision makings. If men were not as highly educated as females, and lagging behind women in terms of academic achievement, then these phenomena would destruct the social harmony and stability of Malaysian society. Effective measures should be taken in order to overcome the trends where females are more superiors than males in terms of the educational attainment.

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