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# The Role of Competitiveness, Gender and Ethnicity in Influencing Academic Performance

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**ABSTRACT**

This study seeks to examine the impact of competition on student academic performance across different gender and ethnic groups. This study is based on real observations of the performance of 266 undergraduate Accounting students in taxation courses at the University of Malaya. It has been found that competition has different impacts on gender and ethnic groups. Prior to the introduction of the competition, this study found females outperformed males for both ethnic groups. The post competition results suggest academic performance among Chinese males significantly improved but not those of Bumiputera males. In the case of Bumiputeras, competition has widened the performance gap between males and females. This suggests that Chinese males are motivated by competition whilst no evidence exists to support the same effect among Bumiputra males. This result questions the motivational effects of competition toward improving the academic performance of male Bumiputeras which may suggest that the new generation of Bumiputeras is moving away from a patriarchal society.

***Keywords:*** Competitiveness, academic performance, gender, ethnicity

**INTRODUCTION**

Recent literature around the globe documents empirical evidence that women are outperforming men academically (Goldin, Katz, & Kuziemko, 2006; Niederle & Vesterlund, 2010).This phenomenon is apparent in schools and also universities. Compared with men, more and more women are enrolled in university education. Recent research (Jurajda & Münich, 2011; Niederle & Vesterlund, 2010;Ors, Palomino, & Payrache,2013) has attempted to understand and suggest how to reduce the gender gap in academia. One area that sounds promising is competitiveness. Elements of competition, introduced through monetary incentives, have reduced the gender gap performance, by motivating males to perform better than their female counterparts. Ors et al. (2013) found that females' performances dominated those of males in uncompetitive settings but males outperformed females when competition is introduced. Similar results are reported by Niederle and Vesterlund (2010) where gender gap performance increases three times under competitive environments.

This study adds to the existing literature by analyzing the influence of competitiveness on the gender gap performance for different ethnic groups in Malaysia: Chinese and Bumiputera[1] Malaysians. This study focuses on the academic performance of different genders in an undergraduate Accounting program. The next section of the paper argues that different genders exhibit different academic performances. This is followed by the methodology section, research results and discussion. Lastly, the conclusion is highlighted.

**GENDER GAP AND ACADEMIC PERFORMANCE**

Most of the literature that examines gender gap and academic performances (Ghazvinia & Khajehpoura, 2011; Guiso, Monte, Sapienza, & Zingales, 2008; Hyde, Lindberg, Linn, Ellis, & Williams, 2008; Machin & Pekkarinen, 2008) are concentrated on languages and mathematics. In these studies, female students are found to outperform male students in languages (Ghazvinia & Khajehpoura, 2011; Machin & Pekkarinen, 2008) while in mathematics, the findings are mixed (Guiso et al., 2008; Hyde et al., 2008). These results show that there is an increasing trend that female students are performing academically better than male students, in schools.

The level of achievement attained in schools has an effect on the level of education that an individual will ultimately attain such as college completion (Buchmann, DiPrete, & McDaniel, 2008). One possible consequence of female students outperforming male students in schools is the growing number of female students graduating from college as compared to male students (Buchmann & DiPrete, 2006). Female students are also earning higher grades in colleges than do male students (Mau & Lynn, 2001). Other possible causes of better academic performance among female students compared with male students are teacher characteristics (Falch & Naper, 2013), cognitive motivation such as locus of control (Ghazvinia & Khajehpoura, 2011), assessment type (Smith & Miller, 2005) and learning approaches (Marrs & Sigler, 2012; Rosander & Bäckström, 2012). Contrary to these findings, recent literature has observed that the element of competition (created by rewarding best performances with financial incentives) may lead to better performances among males compared to females. In these studies, competition is found to have improved the performance of males relative to females (Croson & Gneezy., 2009;

[1]Indigenous Malay

Gneezy, Niederle, & Rustichini, 2003; Gneezy & Rustichini, 2004). Gneezy et al. (2003) found that in situations where only the best person in the group is rewarded with money, males react with extra effort, while females do not. The choice of incentive schemes are also different between genders: males prefer winner-take-all tournament to piece rate compensation schemes (Niederle & Vesterlund, 2007). Unlike some studies (Angrist, Lang, & Oreopoulos, 2009; Fryer, 2011; Leuven, Oosterbeek, & van der Klaauw, 2010) which did not separate the effect of gender on financial incentives, their results showed that financial incentives have minimal effect on academic performance.

Ethnicity is also a factor on varying gender performances, motivated by competition. Diprete and Buchmann (2013) found that the size of the gender gap on academic performance differs considerably within ethnic groups. There is no conclusive literature observing the interaction between competition and ethnicity on better performances among gender. However, when competitiveness is introduced in an environment, females and males react differently in different ethnic groups (Gneezy, Leonard, & List, 2009). Gneezy et al. (2009) conducted an experiment on two ethnic groups: a patriarchal society, the Maasai in Tanzania, and a matrilineal society, the Khasi in India. In a patriarchal society, males are the primary authority figures and take a central role in leading and making decisions. The results show that Maasai men opt to compete considerably more than the Maasai women while the Khasi women choose to compete considerably more often than Khasi men.

**GENDER GAP ISSUES IN MALAYSIA**

Studies that observe the academic achievements of Malaysian Bumiputeras at the university level have consistently found that Malaysian Bumiputeras are not performing as well in their university education compared to those non-Bumiputera Malaysians, which mainly consist of those from Chinese ancestries (Alfan & Othman, 2005; Che Azmi & Harith, 2012; Othman et al., 2009). In Che Azmi and Harith (2012), Chinese Malaysians were seen to perform academically better than Bumiputera Malaysians across different cognitive level examination questions. Othman et al. (2009) found significant differences among the performances of first year engineering students from different pre-university qualification backgrounds. Those from the STPM pre-university qualification, dominantly consisting of non-Bumiputeras are performing better than those coming from a matriculation pre-university qualification consisting mainly of Bumiputeras. Alfan and Othman (2005) found that ethnicity influenced the students' academic performance in undergraduate programs. They found that the Bumiputeras are lagging behind in their academic performance when compared to Chinese Malaysians.

Clearly these studies show that Bumiputera and Chinese Malaysians have different academic capabilities. However, we found no studies have observed whether gender and the characteristics of these two ethnic groups may influence the differences in their academic capabilities. Our study contributes to the existing literature by observing how competitiveness (through the introduction of monetary incentives) could influence the gender gap performance of these two ethnic groups in Malaysia (Bumiputera and Chinese Malaysians). In addition, our study will observe these ethnic groups separately. We formulated two research questions. For our first research question, we analyzed whether the introduction of monetary incentives, an element of competition, will have a significant influence on the total grades of male students.

RQ1: Does competitiveness improve the academic performance of male students of Bumiputera and Chinese Malaysian?

This study predicts that the total grades of male students in both ethnic groups will increase when an element of competition is introduced.

The second research question observes whether the grades of different genders are influenced by the introduction of competition.

RQ2: Does competitiveness improve the academic performance of male students compared to female students who are Bumiputera and Chinese Malaysians?

As Bumiputera and Chinese Malaysians are likened to patriarchal societies (Ford, LaTour, & Henthorne, 1995; Kusago & Barham, 2001), this study expects that the males students in both ethnic groups will respond positively toward competition. Thus, this study foresees that females will outperform males for both ethnic groups when competition is absent but results will be reversed when competition is introduced. In the next section, this study outlines the research methodology.

**METHODOLOGY**

To answer the two research questions, the total grades of 266 students undertaking an undergraduate Accounting course, 'Malaysian Taxation System', were analyzed over a two-year period. This particular tax course was selected because monetary incentives, provided by one of the Big-4 accounting firms, are awarded to the best student in this tax course. Students were informed and reminded of this incentive at the start of and during the tax course. The course is also taught by the same lecturer for the entire period under study and there are no changes affecting the course contents, types of assessment or composition of the assessment. Thus, we argue that our sampling procedure enables us to minimize the influence of other factors such as assessment-type, course content and teaching strategy on students' total grade in this tax course.

This study compared total grades of students from two ethnic groups, Bumiputera and Chinese Malaysian; these are the dominant ethnic groups in our sample. The total grades of our students between the year prior to the introduction of monetary incentives (pre-competition period) and the year immediately after the monetary incentives were introduced (post-competition period) were also compared. This study analyzed the academic performance of pre-competition and post-competition periods of male and female students using independent-samples *t*-tests. This study also analyzed the magnitude of the differences in pre-competition and post-competition periods across gender and ethnicity using eta squared (Pallant, 2007). Our results are discussed in the next section.

**RESEARCH RESULTS AND DISCUSSION**

Table 1 illustrates the students' profile in our sample. The majority of the students are females, of which 105 students are Bumiputera and 80 students are Chinese Malaysians. The number of male students is more balanced, with 47 and 34 students being Bumiputera and Chinese Malaysians, respectively. There is a fairer distribution of students based on gender for Bumiputera Malaysians as compared to the Chinese Malaysians, during the pre-competition and post-competition period.

Table 1
*Demographic of students*

| Ethic Group | Conditions | Male | Female | Total |
|---|---|---|---|---|
| Bumiputera Malaysian | Pre-competition | 19 | 59 | 78 |
| | Post-competition | 28 | 46 | 74 |
| | Total | 47 | 105 | 152 |
| Chinese Malaysian | Pre-competition | 14 | 49 | 63 |
| | Post-competition | 20 | 31 | 51 |
| | Total | 34 | 80 | 114 |

In answering RQ1, independent-samples *t*-tests were used to compare the total grade of male students, based on ethnicity, for the pre-competition and post-competition periods. Our *t*-test results, presented in Table 2, showed different results for males in both ethnic groups. There is a statistically significant increase in the grades for Chinese males from the pre-competition period ($M$ = 55.60, $SD$ = 9.05) to the post-competition period (M = 75.50, $SD$ = 8.93); $t$ (32) = -6.42, $p$ < .005 (two-tailed). The magnitude of the differences in the means (mean difference = -20.1, 95% CI: -26.47 to -13.73) was large (eta squared = .56).

There is no statistically significant increase in grades for Bumiputra males from the pre-competition period ($M$ = 56.58, $SD$ = 8.23) to the post-competition period ($M$ = 57.91, $SD$ = 14.13); $t$ (45) = -0.37, $p$ = .71 (two-tailed). The magnitude of the differences in the means (mean difference = -1.33, 95% CI: -8.58 to 5.92) was very small (eta squared = .003).This suggests that Chinese males are motivated by monetary incentives while there is no evidence to support the same behavior among Bumiputera males.

Table 2

*Results from T-test based on the performance of Chinese and Bumiputera male students*

| Ethnic Group | Conditions | n | Mean (M) | Standard Deviation (SD) | t | p (two-tailed) |
|---|---|---|---|---|---|---|
| Chinese Malaysian | Pre-competition | 14 | 55.60 | 9.05 | -6.42 | 0.000*** |
| | Post-competition | 20 | 75.70 | 8.93 | | |
| Bumiputera Malaysian | Pre-competition | 19 | 56.58 | 8.23 | -0.37 | 0.71 |
| | Post-competition | 28 | 57.91 | 14.13 | | |

*Note: *p < .05. **p < .01. ***p < .001*

In answering RQ2, Table 3 and 4, respectively, present the results of the independent-samples of *t*-tests that compare the total grade of Chinese and Bumiputra male and female students, for the pre-competition and post-competition periods. Our results show that there is a statistically significant difference between the performance of Chinese males ($M$ = 55.60, $SD$ = 9.05) and females ($M$ = 63.57, $SD$ = 8.26); $t$ (61) = -3.12, $p$ < .005 (two-tailed) before the introduction of the competition. The magnitude of the differences in the means (mean difference = -7.97, 95% CI: --13.08 to -2.86) was large (eta squared = .14). The Chinese females are found to outperform the Chinese males whereby the mean of the grades obtained by Chinese female is 63.6 compared to the mean grades of Chinese males ($M$ = 55.6). However, after the introduction of the competition, the performance of Chinese males ($M$ = 75.70, $SD$ = 8.93) and females ($M$ = 72.31, $SD$ = 7.30) is no longer significant ($t$ (49) = 1.49, $p$ = .14 (two-tailed)) suggesting that Chinese males are possibly influenced by the monetary incentives offered. The magnitude of the differences in the means (mean difference = 3.39, 95% CI: -1.20 to 7.99) was small (eta squared = .043). Table 3 shows that the mean grades for Chinese males (75.7) are slightly higher than that of the females (72.3) after the introduction of competition. Through the introduction of monetary incentives in the tax course, the Chinese males are motivated to perform slightly better than the females. The result supports Gneezy et al. (2003) and Niederle and Vesterlund (2010) findings whereby females choose not to compete in a mixed-sex competition, causing them not to exert a lot of effort and this ultimately affects their performance. Figure 1 illustrates further the shrinking gender gap performance among Chinese Malaysians after competition is introduced.

Table 3

*Results from T-test based on the performance of Chinese students based on conditions and gender*

| Condition | Gender | n | Mean (M) | Standard Deviation (SD) | t | p (two-tailed) |
|---|---|---|---|---|---|---|
| Pre-competition | Male | 14 | 55.60 | 9.05 | -3.12 | .003** |
| | Female | 49 | 63.57 | 8.26 | | |
| Post-competition | Male | 20 | 75.70 | 8.93 | 1.49 | .14 |
| | Female | 31 | 72.31 | 7.30 | | |

*Note: *p < .05. **p < .01. ***p < .001*

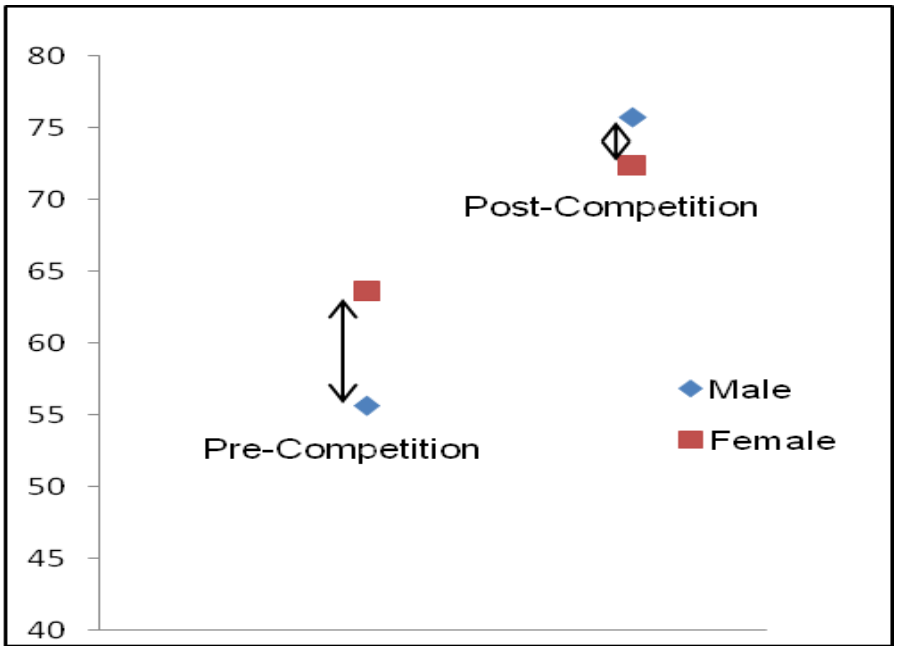


*Figure 1.*Performance gap between Chinese male and female before and after competition.

For Bumiputeras, our *t*-test results are slightly different. The results show that there are no significant differences between the performance between the grades of Bumiputera male (*M* = 56.58, *SD* = 8.23) and female (*M* = 60.01, *SD* = 9.06) before the introduction of competition (76) = -1.47, *p* = .147 (two-tailed). The mean grades of Bumiputera females (60) are slightly higher than that of males (56.6).The magnitude of the differences in the means (mean difference = -3.43, 95% CI: -8.09 to 1.23) was small (eta squared = .027).

However, the post competition results show that female Bumiputeras (*M* = 65.29, *SD* = 7.80) perform significantly better than the Bumiputera males (*M* = 57.91, *SD* = 14.13); *t* (37.18) = -2.54, *p* < .05 (two-tailed). The magnitude of the differences in the means (mean difference = -7.38, 95% CI: -13.27 to -1.49) was large (eta squared = .95). The mean marks of Bumiputera females (65.2) are still higher compared to the males (57.9). This suggests that female Bumiputeras are significantly influenced by the monetary incentives as compared to male Bumiputeras. Figure 2 illustrates that the performance gap among female and male Bumiputera has widened as a result of competition. This contradicts the current literature (e.g., Ors et al., 2013; Niederle & Vesterlund, 2010) that suggests males perform better than females in competitive environments.

Table 4

*Results from T-test based on the performance of Bumiputera students based on conditions and gender*

| Condition | Gender | n | Mean (M) | Standard Deviation (SD) | t | p (two-tailed) |
|---|---|---|---|---|---|---|
| Pre-competition | Male | 19 | 56.58 | 8.23 | -1.47 | .147 |
| | Female | 59 | 60.01 | 9.06 | | |
| Post-competition | Male | 28 | 57.91 | 14.13 | -2.54 | .015 |
| | Female | 46 | 65.29 | 7.80 | | |

*Note: *p < .05. **p < .01. ***p < .001*

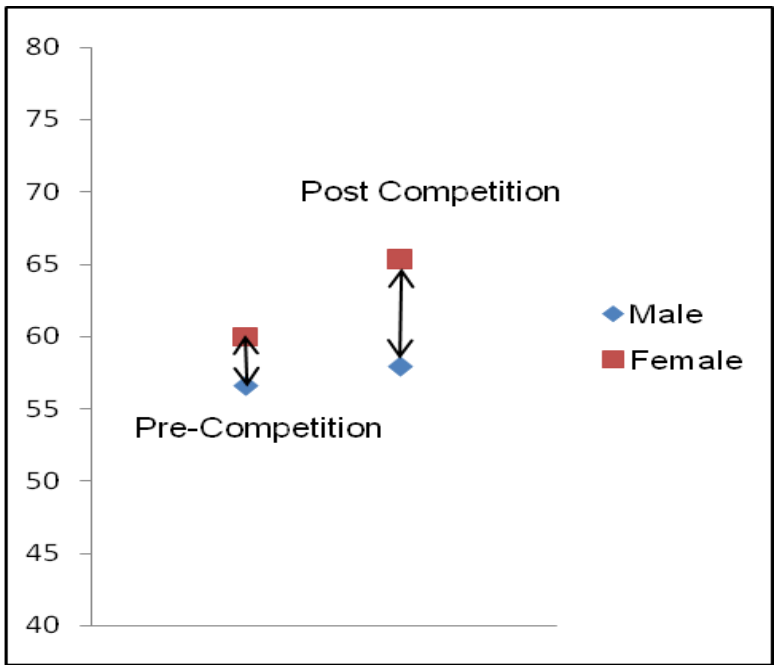


*Figure 2.* Performance gap between Bumiputera male and female before and after competition.

**CONCLUSION AND FUTURE RESEARCH**

Under competition, our results show that only Chinese male students perform significantly better while for male Bumiputeras, there are no changes. The introduction of competition does reduce the gender gap differences in academic performances among Chinese Malaysians. Thus, Chinese male students are able to perform better than their female counterparts. This is consistent with the current literature (Ors et al., 2013; Niederle & Vesterlund, 2010) suggesting that competition as a method of motivating males to perform better. However, competition does not have the same effect on Bumiputeras, as it seems to heighten the gender gap differences where females are increasingly performing better than males. It is uncertain why male Bumiputeras are unaffected by the competition element.

One possible reason to explain this behavior among Bumiputra males is that they do not exhibit similar confidence and self-esteem when compared to their Chinese counterparts. Therefore, even in the competitive setting, they failed to perform better compared to Chinese males. Furthermore, the competition may have created stress among the Bumiputera males that ultimately hindered their performance. Another possible reason for the lack of enthusiasm among Bumiputera males towards competition could relate to ethnicity. Contrary to the previous studies (Ford et al., 1995; Kusago & Barham, 2001) that have categorized Bumiputera as a patriarchal society, the findings from this study possibly suggest otherwise.

Future research could possibly analyze how two different ethnic groups who live closely with each other can exhibit very different patterns of behaviors under competition. Possible future research could answer the following questions: Are these two large ethnic groups in Malaysia exhibiting different forms of societies: Chinese Malaysians exemplify a patriarchal society while Bumiputeras exhibit characteristics of a matrilineal society? If so, why are the Bumiputeras depicting signs of moving away from the patriarchal society?

This study has the following policy implications to educators. Firstly, awarding monetary incentives, created to stimulate competitiveness among students, is a possible strategy for educators to reduce the gender gap issues among the academic performance of Chinese Malaysians. Secondly, competitiveness is also a stimulant to encourage female Bumiputeras to perform well in theirstudies.

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