Exploring Gender and Faculty Disparity in Academic Performance at UiTM Seremban Campus

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Abstract
Academic performance is a critical aspect of students' educational journey, reflecting their learning outcomes and overall success. Despite extensive research on academic performance, there is a need to specifically re-examine the differences in academic achievement between genders and across different faculties in different institutional settings, due to disparities in policies and environments. Understanding these disparities can provide valuable insights into the factors that contribute to variations in academic performance and help create targeted interventions and support systems tailored to the unique needs of students. By addressing this, this study aims to shed light on the gender and faculty factors that influence academic performance at the Universiti Teknologi MARA (UiTM), Seremban campus. The research utilised purposive sampling from three faculties: the Faculty of Administrative Science and Policy Studies (FSPPP), the Faculty of Computer and Mathematical Science (FSKM), and the Faculty of Sports Science and Recreation (FSR). The results from independent t-tests and analysis of variance (ANOVA) indicated no significant gender differences in academic performance, yet significant variations were found across faculties, with FSPPP demonstrating higher academic performance compared to FSR and FSKM. The Tukey HSD multiple comparisons test revealed significant differences between FSPPP and FSR, but no significant differences between FSPPP and FSKM, or between FSR and FSKM. These findings highlight the importance of considering faculty variations in understanding academic achievement.
Keywords: Academic Performance, Gender, Faculties, Independent T-Test, ANOVA

Introduction
Academic achievement holds immense significance in students' educational journeys, as it serves as a pivotal indicator of their overall learning and success. Extensive research has been

conducted over the years to comprehend the factors influencing academic performance. Particularly intriguing is the exploration of variances in academic achievement between genders and across different faculties within a university campus. Universiti Teknologi MARA (UiTM), Seremban Campus, a distinguished institution of higher education in Malaysia, encompasses a diverse student representing various backgrounds and disciplines. Investigating gender related disparities and variations among faculties concerning academic performance within this campus setting is of utmost importance.

Gender, being a fundamental aspect of one's identity, holds the power to influence an individual's academic trajectory. While extensive research on gender disparities in academic performance has been conducted in diverse educational settings, it is crucial to analyse these differences within the specific context of UiTM Seremban Campus. Some studies indicate that females tend to outperform males in academics across various subjects, with factors such as motivation, learning styles, and study habits contributing to these gender disparities (Abedin et al., 2021; Shahzad et al., 2021). Conversely, other studies have found no significant gender differences in academic performance (Nguyen & Huang, 2020). It is important to consider contextual factors, including the specific educational environment and cultural norms, as they can influence the magnitude and direction of gender disparities. By examining variations in academic achievement between male and female students in this particular environment, a deeper understanding of the factors contributing to gender-related disparities in learning outcomes can be gained.

Moreover, the influence of faculties on academic performance should not be overlooked. Research highlights variations in academic performance among different faculties within universities, where faculties with distinctive academic requirements, curriculum structures, and learning environments may impact students' academic achievements (Potts, 2019). Analysing variations in academic performance across faculties can provide valuable insights into the factors that influence student achievement within specific fields of study. Such insights can inform the development of targeted interventions and support strategies to enhance academic performance among students in different faculties. Therefore, this paper aims to address the following research questions

1. Are there significant differences in academic performance between male and female students at UiTM Seremban Campus?
2. Do the faculties within UiTM Seremban Campus exhibit variations in academic performance?

The findings of this study will contribute to the existing body of knowledge on academic performance, offering valuable insights for educators, administrators, and policymakers to foster an inclusive and supportive learning environment that promotes equal educational opportunities for all students. Understanding the intricacies of gender and faculty disparities in academic performance will enable targeted interventions that empower students and facilitate their educational growth and success.

Literature Review
Numerous studies have investigated gender differences in academic performance, yielding a range of findings. Some studies suggest that females tend to surpass males academically, demonstrating higher levels of achievement across various subjects (Abedin et al., 2021; Shahzad et al., 2021). These findings often attribute such disparities to factors like motivation, learning styles, and study habits. Conversely, other studies report no significant gender disparities in academic performance (Nguyen & Huang, 2020). One such factor is the variance in learning styles and strategies employed by males and females. Females tend to utilise deep

processing strategies, such as elaboration and organisation, which can positively impact their academic performance (Dindar & Akpinar, 2019). Additionally, self-regulatory skills like time management and goal setting have been found to differentially influence academic achievement between genders (Belayneh & Gebremedhin, 2020). Sociocultural factors, including gender stereotypes, societal expectations, and role models, also play a significant role in shaping gender disparities in academic performance (Nguyen & Huang, 2020).

In addition to gender disparities, the differences in academic performance across various faculties within a university campus are an area of interest. Different faculties often have unique academic requirements, curriculum structures, and learning environments that can influence students' academic performance. Research indicates that faculties emphasising technical or quantitative subjects, such as engineering or mathematics, tend to offer more challenging academic programmes, potentially impacting student achievement (Potts, 2019). Furthermore, the teaching methods and assessment practises employed by faculty members can influence students' learning experiences and, consequently, their academic performance (Sternberg, 2017).

This literature review has provided an overview of existing research on gender-related disparities and variations across faculties in academic performance. While gender disparities in academic performance have been extensively studied, examining these differences within the unique context of UiTM Seremban Campus is vital for understanding the factors contributing to academic achievement discrepancies. Similarly, investigating variations in academic performance across faculties sheds light on the distinct factors that influence student achievement within specific fields of study. The findings of this literature review underscore the need for further research to investigate the factors influencing academic performance at UiTM Seremban Campus and inform the development of targeted interventions and support strategies aimed at enhancing academic achievement for all students.

Methodology

This research paper employs a quantitative approach to investigate the impact of gender and faculties on students' academic performance. The cross-tabulation analysis between faculty and gender is presented in Table 1. Within the Faculty of Administrative Science and Policy Studies (FSPPP), there were 16 male participants and 53 female participants, resulting in a total of 69 (44.2%) participants. Similarly, in the Faculty of Computer and Mathematical Sciences (FSKM), there were 10 male participants and 48 female participants, totalling 58 (37.2%) participants. Lastly, in the Faculty of Sports Science and Recreation (FSR), there were 12 male participants and 17 female participants, amounting to a total of 29 participants (18.6%). The grand total across all faculties and genders was 156 sample sizes.

Table 1
Faculty and Gender Cross Tabulation

		Gender		
		Male	Female	Total
Faculty	Faculty of Administrative Science and Policy Studies	16	53	69
	Faculty Of Computer And Mathematical Sciences	10	48	58
	Faculty of Sports Science & Recreation	12	17	29
Total		38	118	156

Secondary data obtained from the university's Academic Affairs Division (HEA) is utilised in this study. The primary variable of interest is students' academic performance, measured using the cumulative grade point average (CGPA) as a proxy. The collected data was analysed using Statistical Package for Social Sciences (SPSS) software version 20. This software provides the necessary tools for conducting various statistical analyses, including independent t-tests and analysis of variance (ANOVA).

To investigate the differences in academic performance between genders, an independent t-test was conducted. This analysis compares the mean CGPA scores of male and female students to determine if there is a statistically significant difference between the two groups. The independent t-test allows for a comparison of means and assesses whether the observed differences are statistically significant or occurred due to chance. In addition to exploring gender differences, an analysis of variance (ANOVA) was performed to assess the variations in academic performance across the different faculties (FSPPP, FSKM, and FSR). ANOVA is a statistical technique used to compare the means of three or more groups and determine if there are statistically significant differences among them. The Levene test is a statistical test frequently employed in ANOVA to examine the uniformity of variances for the dependent variable across different groups or conditions. It allows researchers to determine if there are notable variations in the dispersion of academic performance measures among the faculties being studied.

Results

The minimum CGPA among the participants was 2.2, while the maximum CGPA was 3.89. The mean CGPA was found to be 3.27, with a standard deviation of .369. In terms of the gender distribution, Table 2 showed the mean CGPA for male participants was 3.226, with a standard deviation of .408 and a standard error mean of .066. On the other hand, the mean CGPA for female participants was 3.286, with a slightly lower standard deviation of .356 and a smaller standard error mean of .033. These statistics provide an overview of the distribution and central tendency of CGPA scores for male and female participants, indicating that female participants, on average, had just a slightly higher CGPA compared to their male counterparts.

Table 2
Gender Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
CGPA	Male	38	3.2261	.40777	.06615
	Female	118	3.2864	.35604	.03278

The results of the independent sample t-test for academic performance and gender are presented in Table 3. The first row, labelled "Levene's Test" provides the results of equality of variances. The test statistic, F, is .960, and the associated p-value is .329, indicating that there is no significant difference in variances between the two gender groups. The test statistic, t, is -.876, with a corresponding degree of freedom (df) of 154. The p-value is .382, which is greater than the alpha level of .05, indicating that there is no significant difference in means between the two gender groups. Additionally, the mean difference between the two groups is -.060, with a standard error difference of .069. Based on a 95% confidence interval, the mean difference falls within the range of -.196 to .076. This result provides additional evidence that there is no statistically significant distinction in academic performance between genders.

Table 3

Independent Sample t-Test for Academic Performance and Gender

| | Levene's Test | | t-test for Equality of Means | | | | | 95% Confidence Interval | |
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
H_0	.960	.329	-.876	154	.382	-.06030	.06885	-.19632	.07571
H_1			-.817	56.325	.417	-.06030	.07382	-.20817	.08756

H_0: Equal variances assumed, H_1: Equal variances not assumed

Table 4 displays the results of the ANOVA conducted to assess the differences in academic performance among the faculties. The F-value is 17.174, indicating a significant difference in academic performance among the faculties. The associated p-value (Sig.) is .000, which is less than the alpha level of .05, indicating a statistically significant result. Overall, the ANOVA results suggest that there are significant differences in academic performance among the faculties. Further post-hoc analyses were conducted to determine which specific pairs of faculties differ significantly from each other.

Table 4

Analysis of Variance (ANOVA) for Academic Performance and Faculties

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.866	2	1.933	17.174	.000
Within Groups	17.222	153	.113		
Total	21.088	155			

The results of Tukey HSD multiple comparisons between faculties are presented in Table 5. A significant mean difference was observed for all comparisons, except for the comparison between FSPPP and FSKM (sig. = .638). FSPPP and FSR had a mean difference of .302 (sig. = .000), and the 95% confidence interval ranged from .161 to .443, indicating that FSPPP has a significantly higher mean academic performance than FSR. Similarly, FSR and FSKM had a mean difference of .369 (sig. = .000), with a 95% confidence interval ranging from .189 to .550, indicating that FSR has a significantly lower mean academic performance than FSKM.

Table 5

Tukey HSD Multiple Comparisons between Faculties

(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
FSPPP	FSR	.30197[*]	.05977	.000	.1605	.4434
	FSKM	-.06717	.07425	.638	-.2429	.1086
FSR	FSPPP	-.30197[*]	.05977	.000	-.4434	-.1605
	FSKM	-.36914[*]	.07630	.000	-.5497	-.1885
FSKM	FSPPP	.06717	.07425	.638	-.1086	.2429
	FSR	.36914[*]	.07630	.000	.1885	.5497

*. The mean difference is significant at the 0.05 level.

Conclusion

The present study examines the influence of gender and faculties on academic performance within UiTM Seremban Campus. The findings revealed important insights regarding these factors and their association with students' academic achievement. Regarding gender differences, the analysis indicated that there were no statistically significant differences in academic performance between male and female students. This finding aligns with previous research by (Nguyen & Huang, 2020). Thus, it suggests that within the specific context of UiTM Seremban Campus, gender may not be a significant predictor of academic performance.

In terms of faculty variations, the analysis of variance (ANOVA) revealed a significant effect of faculties on academic performance. The differences observed among the faculties indicate that the academic requirements, curriculum structures, and learning environments unique to each faculty may contribute to variations in students' academic achievement. Specifically, the Faculty of Administrative Science and Policy Studies (FSPPP) exhibited higher mean academic performance compared to the Faculty of Sports Science and Recreation (FSR) and the Faculty of Computer and Mathematical Sciences (FSKM). The Tukey HSD multiple comparisons test further identified significant differences between certain faculties. FSPPP and FSKM showed significantly higher academic performance compared to FSR, while no significant differences were found between FSPPP and FSKM. These findings imply that students enrolled in specific faculties may experience different academic challenges and opportunities, which can influence their academic performance.

The study's findings have important implications for educational institutions and policymakers. Recognising that gender may not be a major factor affecting academic performance allows for a more inclusive and equitable approach to education. However, understanding the variations across faculties is crucial for tailoring teaching methods, curriculum design, and support systems to enhance academic performance within specific fields of study. These insights can inform interventions and strategies aimed at improving academic outcomes and promoting student success at the UiTM Seremban Campus.

The research focused solely on academic performance and did not consider other factors that may influence student achievement, such as socio-economic background, study habits, or extracurricular involvement. Future studies could incorporate a broader range of variables to gain a more comprehensive understanding of the factors influencing academic performance and validate the findings in other educational contexts.

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