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UNRAVELLING THE NEXUS: EXTRACURRICULAR INVOLVEMENT, ENGAGEMENT FREQUENCY, AND CGPA AMONG AL AKHAWAYN UNIVERSITY STUDENTS

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Abstract

This study investigated the link between extracurricular involvement, engagement frequency, and academic performance in 4,092 undergraduates at Al Akhawayn University. Utilizing SPSS 28, a variety of statistical techniques, including the Kruskal-Wallis test, quantile regression, and two-way ANOVA, were employed. Meaningful differences in CGPA based on club types were found, with Educational and Cultural clubs linked to higher CGPAs. Gender disparities in participation and leadership were also noted, highlighting the need for promoting equity in academia.

Keywords: Extracurricular involvement, engagement frequency, academic performance, gender disparity, gender-smart initiatives.

INTRODUCTION

Extracurricular activities (ECAs) have a pivotal role in academic success in universities across the globe. Frequently, student-driven, and often, faculty-supported, these activities provide a unique learning environment which transcends the classroom dynamics. Solid evidence suggests that ECAs are among the most important factors which can directly complement formal education through real-world experiences and indirectly boost student well-being, leading to higher motivation, satisfaction, and retention, categorically improving academic achievement (Abizada et al., 2020; Chan, 2016; Che Hashim & Ahmad, 2019; Eccles et al., 2003; Hunt, 2005; Kanar & Bouckenooghe, 2021; Lau et al., 2014; Mansi, 2023; Xu & Hu, 2024). Recently, there has been renewed interest in Extracurricular activities (ECAs). Existing research incontestably recognizes the critical role played by ECAs in improving academic performance, fostering personal Growth, yielding greater well-being and reduced stress, and climatically refining future career readiness skills (Gutierrez et al., 2024; Xu & Hu, 2024). To this end, the current study is a humble attempt to investigate the crucial role of ECAs in Moroccan higher education. Markedly, it aims at providing practical insights for students, educators, and decision-makers on ways to promote and support these student-driven, and often, faculty-supported, activities. Finally, yet importantly, the study explores the differential effects of various ECAs on academic performance (CGPA).

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Literature Review

Previous research overwhelmingly supports the diverse benefits of extracurricular participation for university students, ranging from leadership skills and self-concept to improved academic performance (Griffiths et al., 2021). The following literature review sub-sections scrutinise the impact of ECAs, and lay emphasis on how different types and levels of involvement influence student outcomes.

Extracurricular Activities and Academic Performance

To start with, the fact that extracurricular activities (ECAs) play a critical role in shaping student outcomes has long been acknowledged in educational research. ECAs provide students with a platform that enables them to develop key soft skills and achieve personal growth which the formal academic curriculum cannot suffice to obtain. As a result, this can complement and enhance academic performance (Astin, 1999; Eccles et al., 2003). According to Abizada et al. (2020), participation in ECAs substantially advances student motivation and engagement, which in turn indirectly boosts academic success by means of improved well-being and satisfaction.

Studies on specific types of extracurricular involvement assert that structured activities, such as academic clubs, sports, and arts, leads to the most positive outcomes for students (Pol & Prakash, 2023). Defined as those with clear objectives and adult supervision, structured activities foster crucial qualities like discipline, teamwork, and time management. Precisely, all of these contribute to improved academic performance (Svensson et al., 2022). On the contrary, unstructured activities, such as casual socializing, have been found to have limited academic benefits and might even detract from academic focus (Griffiths et al., 2021).

Types of Clubs and Student Outcomes

Essentially, students' academic performance is greatly impacted by the type of club they participate in. Research shows that participation in educational and cultural clubs is positively correlated with higher academic performance, particularly in terms of GPA (Chan, 2016; Hunt, 2005). In particular, these types of clubs often foster intellectual development and critical thinking, which subsequently translates into better academic attainment (Mansi, 2023).

In contrast, participation in recreational and sports clubs presents a more complex picture. Whereas recreational activities offer relaxation and stress relief, excessive participation has been linked to lower academic performance (Mayhew et al., 2016). Likewise, while sports may enhance self-discipline and emotional development, as Nakazawa (2014) points out, their effects on academic achievement are less reliable and frequently contingent upon the level of participation.

Intensity of Involvement in Extracurricular Activities

It has been demonstrated that the duration and frequency of participation in ECAs, which indicate the degree of involvement, have a complex impact on academic results. According to Astin's (1999) Involvement Theory, the more students devote physical and psychological energy to academic experience, the more effect will be on their development and growth. Precisely, this energy is what defines the level of involvement both quantitatively and qualitatively, making growth and learning directly proportional to their success (Astin, 1999). Interestingly, moderate involvement in extracurricular activities is often linked to higher academic performance, as students are able to balance their academic and non-academic commitments effectively (Zacherman & Foubert, 2014). However, excessive involvement—spending over 30 hours per week on ECAs—has been shown to detract from academic duties, particularly for male students (Zacherman & Foubert, 2014).

Similarly, Hyatt (2011) found that excessive involvement in social or recreational activities correlates with lower GPAs, whereas Foreman and Retallick (2012) noted that moderate engagement in leadership and educational clubs fosters better leadership skills and academic outcomes. Thus, the

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balance of time and commitment to ECAs is a critical factor in concluding their effect on student success.

Gender Differences in Extracurricular Participation and Leadership

Research constantly showed gender disparities in not only participation rates, but also in leadership roles within ECAs. Eventually, females participate in extracurricular activities at a higher rate than men, but the latter are more likely to hold leadership roles. (Jones et al., 2021). In particular, leadership roles in clubs, such as presidents or vice-presidents, are often dominated by male students, which can impact the opportunities for personal and academic growth that female students experience (Choudhury & Singh, 2023).

This gender disparity extends to academic outcomes as well. Studies suggest that female students typically achieve higher academic performance (as measured by GPA) than their male counterparts, despite engaging in fewer leadership roles (Smith et al., 2021). This aligns with findings that females tend to prioritize academic clubs, which are more closely associated with higher academic performance (Griffiths et al., 2021). However, as (Nakazawa, 2014) points out, males may benefit from leadership experiences in sports or recreational clubs, which help develop soft skills but may not have a direct impact on academic performance.

Interaction of Club Type and Engagement Frequency and its impact on Academic Performance

While both club type and engagement frequency independently influence academic outcomes, the interaction between these variables needs more scrutiny. Some studies suggest that participation in certain types of clubs, like academic or cultural organizations, can increase the benefits of frequent engagement (Gutierrez et al., 2024). Nonetheless, other studies indicate that the frequency of engagement in non-academic clubs (e.g., recreational or social clubs) does not substantially boost academic performance and might, in fact, lead to tapered outcomes if participation becomes too time-consuming (Leksuwankun et al., 2023).

The current literature is divided on the extent to which engagement frequency interacts with club type to influence academic success. Some studies highlight the potential for over-engagement in social clubs to negatively affect academic outcomes (Hossan et al., 2019), whereas others draw attention to the advantages of high engagement in educational clubs, which fosters academic discipline and personal growth (Subhadrammal et al., 2010).

The literature evidently backs up the idea that extracurricular activities have a significant impact on how well students succeed academically and develop their leadership. Nevertheless, the relationship between specific types of club participation, engagement frequency, and academic success remains complex and multifaceted. While educational and cultural clubs have been shown to significantly enhance academic performance, recreational activities might have a more limited or even negative impact when over-engaged. Furthermore, gender disparities in participation and leadership roles further complicate the relationship between ECAs and student outcomes. Future research should continue to explore these nuanced interactions to provide a clearer understanding of how extracurricular involvement can be optimized for student success.

METHOD

Research Objectives

To address the limited research on extracurricular activities in Moroccan universities, this study is geared towards achieving four objectives:

(1) To investigate the relationship between the type of club participation (e.g., academic, sports, arts) and the academic performance (CGPA) of undergraduate students in Moroccan universities.

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(2) To examine the influence of the frequency of engagement in student activities on the academic performance (CGPA) of undergraduate students at Moroccan universities.

(3) To explore any potential interaction effect between the type of club participation and the frequency of engagement on the academic performance (CGPA) of undergraduate students in Morocco. This objective aims to understand if the impact of one factor (club type) depends on the other factor (engagement frequency).

(4) To determine how gender (male/female) influences participation in extracurricular activities, leadership roles within clubs, and overall CGPA among undergraduate students in Moroccan universities. This objective seeks to understand potential gender differences in these areas.

Research Questions

In line, this research explores the complex interplay between extracurricular involvement and academic performance in undergraduate students. Thus, three central research questions guide the investigation. The first question examines whether the type of club participation (humanitarian, educational, cultural, recreational, arts, and sports) exerts a significant influence on a student's CGPA. The second question delves into the independent effect of engagement frequency within a club (1-35) on academic performance. Most importantly, the third question explores the presence of an interaction effect. In simpler terms, this question investigates whether the impact of belonging to a specific club type on a student's CGPA is contingent upon the level of their participation within that club.

This research sought to answer the following questions:

- Research Question 1: Does the type of club participation have a significant effect on the academic performance (CGPA) of undergraduate students?
- Research Question 2: Does the frequency of engagement in student activities have a significant effect on the academic performance (CGPA) of undergraduate students?
- Research Question 3: Is there a significant interaction effect between the type of club participation and the frequency of engagement on the academic performance (CGPA) of undergraduate students?
- Research Question 4: How does gender influence participation, leadership roles in clubs, and overall CGPA?

Data Collection & Analysis

To tackle the research questions, this study employed a quantitative approach to investigate the relationship between club participation, engagement frequency, and academic performance (CGPA) in 4,092 undergraduate students (1,636 males, 2,456 females) at Al Akhawayn University in Ifrane, Morocco (2010-2023). Data was collected through a survey on club type, engagement frequency, and CGPA points. The research aimed to determine if there are significant differences in CGPA between students involved in various club types, if engagement frequency within a specific club type impacted CGPA, and whether the influence of club participation on CGPA varied depending on the level of engagement and the parameter of gender. The data was analysed using SPSS 28, employing a range of statistical tests. Descriptive statistics were used to summarize the data. The Kruskal-Wallis test was applied because the assumptions of normality and homogeneity of variance were violated for the variables of engagement frequency and club participation. Tukey's HSD and means plots were utilized for post-hoc analysis. Quantile regression provided insights into the relationship between predictor variables and the CGPA distribution. A two-way ANOVA on ranked CGPA data helped examine the interaction effects. Estimated marginal means of ranked CGPA were calculated for a deeper understanding of the results. Crosstabulation and Chi-Square tests were conducted to explore relationships between categorical variables. The independent samples t-test and effect size calculations were performed to compare CGPA points across different groups.

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Limitations

As this study brings insightful ideas about the relationship between club participation, involvement frequency, and academic performance, the findings of this study have to be seen in light of some limitations.

First, the present research is based on self-assessment data that have been collected from students through an online survey. This fact may present a certain bias that affects the accuracy of the responses obtained. Besides, this can be a result of the respondents' intention to answer the survey questions untruthfully or imprecisely. In addition to this, this study utilized non-parametric tests like Kruskal-Wallis test as a result of violations of normality and homogeneity of variance. This matter may weaken the robustness of the results when compared to parametric alternatives. The third limitation concerns the lack of tackling socio-economic factors, such as the family background and financial status, that can affect the academic achievement. Finally, the cross-sectional nature of our research limits the evidence it bright to infer causal relationship. In spite of the fact that this study has explored the linkage between the clubs participation and CGPA, a longitudinal approach would be more prolific to assert whether the clubs participation impacts the academic performance over time. These limitations should be considered when interpreting the results of this study.

RESULTS

Demographic Information

As shown in Figure 1, 60.02% of participants identified as male and 39.98% of participants identified as female.

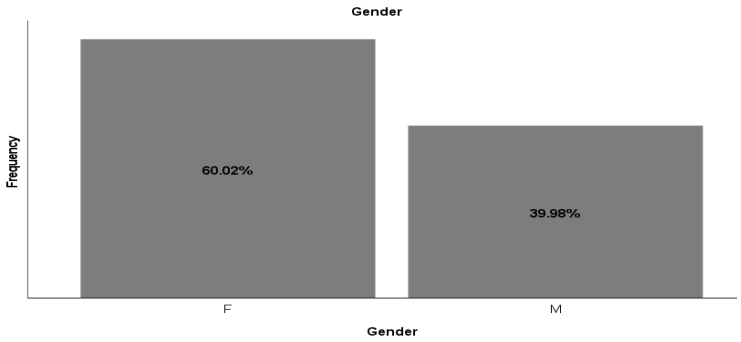

Figure 1. Gender Representation.

Club Type Involvement

Figure 2 shows the percentage of students involved in five different clubs (Humanitarian, Cultural, Educational, Recreational, and Sports). Educational clubs are the most popular (30.77%.), followed closely by Humanitarian clubs (30.35%.). Cultural clubs hold the third position (19.67%.), while Recreational and Sports clubs come in fourth (15.57%.) and fifth (3.64%.) respectively.

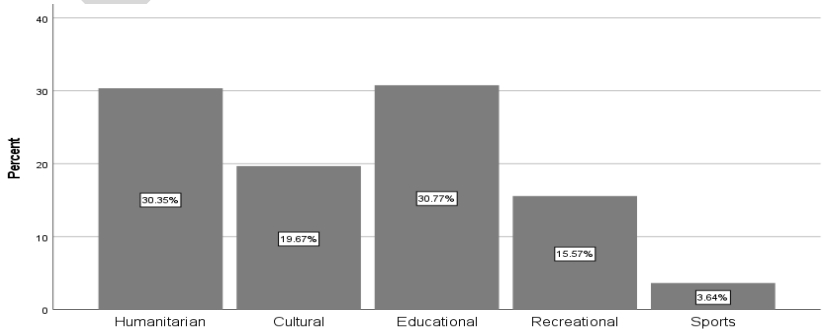

Figure 2. Club Type Involvement

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The Figure 2 provides a summary of how many students are involved in each type of club, which helps to understand the distribution of the sample used in the analysis. The high involvement in Educational and Humanitarian clubs might reflect a student body that values intellectual development and social responsibility. The popularity of these clubs could also be influenced by factors like specific programs offered or the perceived benefits of participation (e.g., college applications, leadership skills).The lower involvement in Sports and Recreational clubs could be due to various reasons, such as scheduling conflicts, or a preference for other forms of leisure activities.

Engagement Frequency

Table 1 summarizes the number of clubs that students participate in (Engagement Frequency). The data includes information for 4,092 students (N). Engagement frequency ranges widely, from a minimum of 1 to a maximum of 35. On average, students participate in 3.27 clubs (Mean), but there is a substantial spread around this value (Std. Deviation = 3.389). This suggests some students are minimally involved (1 engagement), while others are highly engaged (up to 35 engagements).

Table 1. Engagement frequency.

	N	Minimum	Maximum	Mean	Std. Deviation
Engagement Frequency (number of clubs involved in)	4092	1	35	3.27	3.389
Valid N (listwise)	4092				

Understanding this variability is important for club management. This helps devise context-bound strategies to reach students with different engagement levels and encourage participation from those with minimal involvement and supporting highly involved students to avoid burnout.

Participation in Clubs

Figure 3 depicts the frequency of students holding various roles within clubs. The bar chart lists various roles that students can hold in clubs, including "Active Member," "President," "Co-President," "Vice President," "Secretary," "Treasurer," and many others. "Active Member" is the most common role, with a frequency of 3,406 students. The other roles have significantly lower frequencies, ranging from 1 to 138 students.

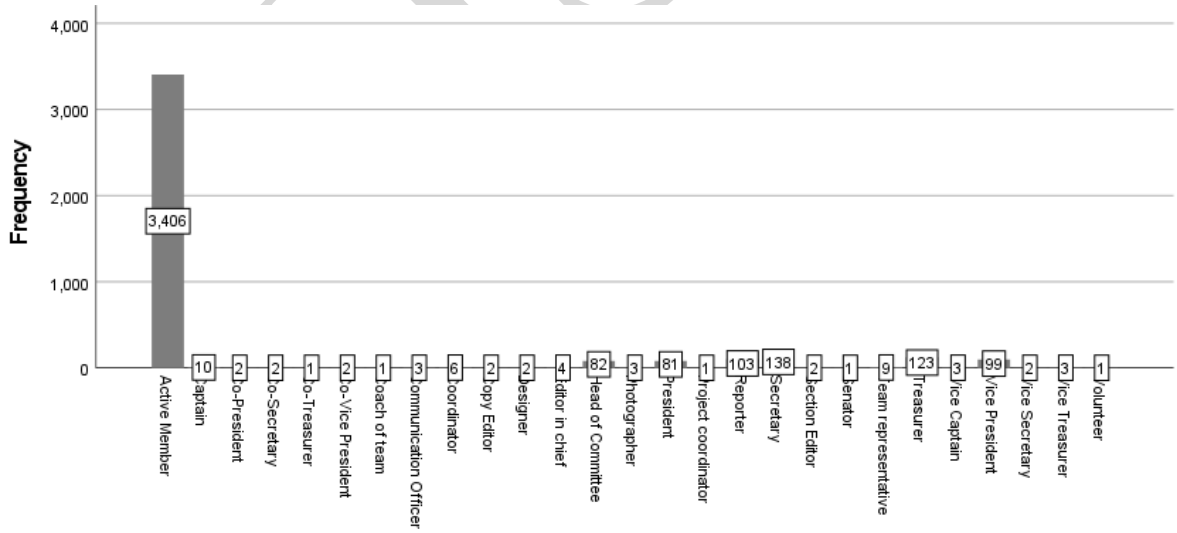

Figure 3. Participation in clubs.

Examples include "Project Coordinator" (1 student), "Head of Committee" (82 students), and "Team Representative" (9 students).The overwhelming majority of students are "Active Members," with 3,406 out of 4,092 students (about 83%) holding this role. This indicates that most students participate in clubs without taking on specific leadership or specialized roles. A smaller number of students take

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on leadership or specialized roles. For example, there are 138 "Secretary" roles, 123 "Treasurer" roles, and 103 "Reporter" roles.

Leading Status

Figure 4 displays the distribution of students between leadership roles and regular membership roles within clubs.

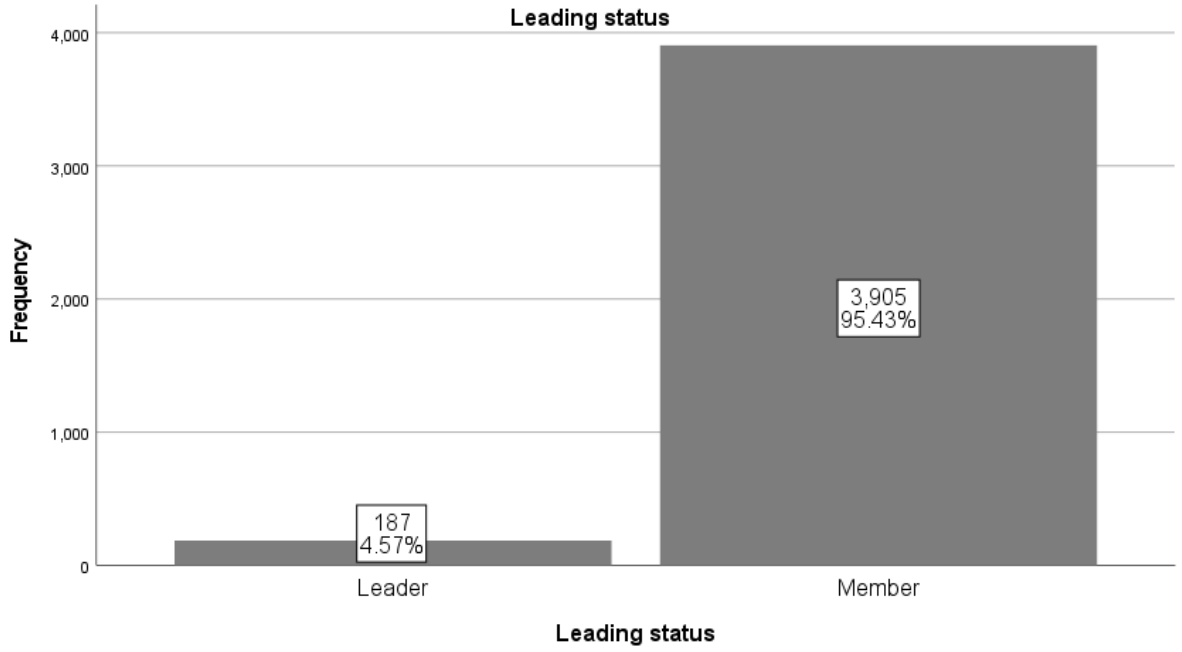

Figure 4. Leading Status.

The "Leader" category has a frequency of 187 students. The "Member" category has a frequency of 3,905 students. Most students (3,905 out of 4,092) are categorized as Members. This indicates that most students participate in clubs without holding leadership positions. Members constitute approximately 95.4% of the total student population involved in clubs. A small number of students (187) hold leadership roles within clubs. This accounts for about 4.6% of the total student population involved in clubs. This relatively low number suggests that leadership positions are limited and possibly more competitive or demanding.

CGPA

Table 2 provides descriptive statistics for the CGPA of 4,092 students, showing a minimum CGPA of 1.06 and a maximum of 4.00. The average CGPA is 3.1702, indicating overall good academic performance, with the mean being above the midpoint of the CGPA scale. The standard deviation of 0.52073 suggests moderate variability in the CGPA scores, meaning most students' CGPAs are close to the mean, but there are some who perform significantly better or worse.

Table 2. Participants' CGPA

	N	Minimum	Maximum	Mean	Std. Deviation
CGPA points	4092	1.06	4.00	3.1702	.52073
Valid N (listwise)	4092				

As depicted, the range of CGPAs from 1.06 to 4.00 highlights a wide diversity in student academic achievements and raises various important questions.

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Involvement and Club Types in Relation to Academic Performance

Table 3 shows the differences in mean ranks and suggests that there might be a significant effect of club type on CGPA. Students participating in educational and cultural clubs tend to have higher CGPA points, while those in recreational clubs tend to have lower CGPA points.

Table 3. Ranks of CGPA Points and Club Type

	Club type	N	Mean Rank
CGPA points	Humanitarian	1242	1930.81
	Cultural	805	2139.18
	Educational	1259	2186.91
	Recreational	637	1890.07
	Sports	149	1992.48
	Total	4092	

Based on this, a Kruskal-Wallis H test is necessary to assess statistical significance. Table 4 contains the results of the Kruskal-Wallis H test, which allows us to determine whether there are statistically significant differences in CGPA points based on club type.

Table 4. Kruskal-Wallis H test statistics

Test Statistics[a,b]	
	CGPA points
Kruskal-Wallis H	46.129
df	4
Asymp. Sig.	<.001

Note. a. Kruskal Wallis Test. b. Grouping Variable: Club type

In line, the p-value (p<.001) is less than the commonly used significance level (e.g., .05). This indicates that there are statistically significant differences in CGPA points among the different club types. Since the Kruskal-Wallis test is significant, we can conclude that the type of club participation has a significant effect on the academic performance (CGPA) of undergraduate students. The Kruskal-Wallis H test shows that there is a significant effect of club type on CGPA points among undergraduate students (H = 46.129, df = 4, p<.001). Specifically, Educational clubs have the highest mean rank, indicating that students in these clubs tend to have higher CGPA points. Recreational clubs have the lowest mean rank, indicating that students in these clubs tend to have lower CGPA points. Other club types (Humanitarian, Cultural, Sports) fall in between. To crosscheck things out, the Tukey HSD test is performed to control for Type I error across multiple pairwise comparisons (Table 5).

Table 5. CGPA points: Tukey HSD

		Subset for alpha = 0.05		
Club type	N	1	2	3
Recreational	637	3.0968		
Humanitarian	1242	3.1213	3.1213	
Sports	149	3.1664	3.1664	3.1664
Cultural	805		3.2058	3.2058
Educational	1259			3.2332
Sig.		.259	.104	.300

In turn, the Tukey HSD test results for CGPA points among different club types show that Recreational clubs (3.0968) have significantly lower mean CGPAs compared to Cultural (3.2058) and Educational clubs (3.2332). Humanitarian clubs (3.1213) overlap with Recreational and Cultural clubs, and Sports clubs (3.1664) show no significant differences with other club types. Cultural and Educational clubs have the highest mean CGPAs, but the difference between them is not statistically

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significant. Figure 5, a means plot, visually confirms the Kruskal Wallis H Test results, showing that there are differences in mean CGPA points among the different club types.

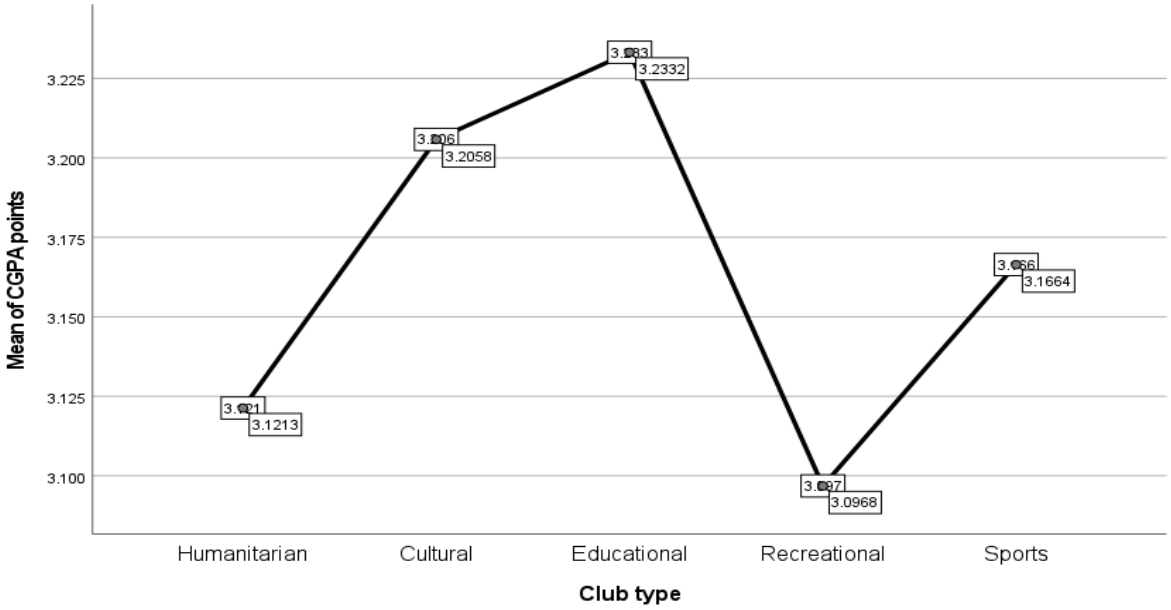

Figure 5. Means Plot

Succinctly, students in Educational clubs tend to perform better academically, while those in Recreational clubs tend to have lower academic performance. The differences between certain club types are statistically significant as indicated by the previous analyses.

The Level of Involvement in Student Activities and **Academic Performance**

Considering the nature of data (violations of normality and homogeneity assumptions of two main variables), a robust regression technique, known as Quantile Regression, was used to address the second question. It does not require assumptions about the distribution of the residuals or the homogeneity of variance and can handle skewed or heteroscedastic data well. Table 6 shows the results of a statistical model that examined the relationship between engagement frequency (number of involvement times) and CGPA points as a measure of academic performance.

Table 6. Quantile Regression

Model Quality (q=0.5)[a,b,c]	
Pseudo R Squared	.007
Mean Absolute Error (MAE)	.4143

Note. a. Dependent Variable: CGPA points
b. Model: (Intercept), Engagement Frequency (number of clubs involved in)
c. Method: Interior Point non-linear optimization

As shown above, the model's Pseudo R-squared of .007 suggests that the model explains very little of the variance in CGPA points. In other words, there is very weak evidence to indicate that engagement frequency has a significant effect on a student's CGPA. Largely, the analysis suggests that there is no statistically significant relationship between frequency of involvement (number of times, ranging from 1 to 35) in extracurricular activities and academic performance (CGPA) for undergraduate students.

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The Interaction Effect between **Type of Club Participation** and **Frequency of Engagement** on the **Academic Performance**

Table 7 shows the results of a two-way ANOVA on the ranked CGPA data, focusing on the effects of club type and frequency of engagement on academic performance.

Table 7. Two-way ANOVA on the Ranked CGPA Data

Tests of Between-Subjects Effects
Dependent Variable: Rank of CGPA points by Students

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	106304640.826[a]	34	3126607.083	2.264	<.001	.019
Intercept	341605601.604	1	341605601.604	247.335	<.001	.057
REngagem	41924631.407	30	1397487.714	1.012	.448	.007
RClubtype	61974224.274	4	15493556.068	11.218	<.001	.011
Error	5603316353.174	4057	1381147.733			
Total	22847580921.000	4092				
Corrected Total	5709620994.000	4091				

Note. a. R Squared = .019 (Adjusted R Squared = .010)

In line, there is a significant main effect of club type on CGPA ranks ($p < .001$, Partial Eta Squared = .011), indicating that different types of club participation influence academic performance. However, the frequency of engagement does not have a significant effect on CGPA ranks ($p = .448$, Partial Eta Squared = .007). Table 8 shows the Tukey HSD (Honestly Significant Difference) test, which is used here to compare the mean ranks of CGPA across different club types to identify homogeneous subsets where the means are not significantly different from each other.

Table 8. Tukey HSD Test for Rank of CGPA Points by Club Type

Rank of Club type by Students	N	Subset 1	Subset 2	Subset 3
3625.000	637	1890.07378		
621.500	1242	1930.80958	1930.80958	
4018.000	149	1992.47651	1992.47651	1992.47651
1645.000	805		2139.17826	2139.17826
2677.000	1259			2186.90866
Sig.		.687	.061	.095

The Tukey HSD test for CGPA ranks shows that Recreational (1890.07) and Humanitarian (1930.81) clubs form a homogeneous subset with no significant difference (Sig. = .687). Humanitarian and Sports (1992.48) clubs also form a subset with no significant difference (Sig. = .061). Sports, Cultural (2139.18), and Educational (2186.91) clubs form another subset with no significant differences (Sig. = .095). These results indicate that CGPA ranks gradually increase from Recreational to Humanitarian to Sports, with Cultural and Educational clubs having the highest ranks. In relation with this, Figure 6 shows the estimated marginal means of rank of CGPA plotted by frequency of engagement (number of clubs involved in) and broken down by club type. Estimated marginal means are a way to visualize the average effect of one variable on another variable after accounting for the effects of other variables in the model.

The graph suggests that there is no significant interaction effect between the type of club participation and the frequency of engagement on CGPA. Lines for the different club types (academic, social, or recreational) are roughly parallel. This means that the effect of engagement frequency on CGPA is similar regardless of the type of club a student participates in. There is some variation in the slopes of the lines. Steeper slopes would indicate a stronger relationship between engagement frequency and CGPA. However, none of the slopes are particularly large, and the differences between the slopes are relatively minor. Largely, the evidence from this graph suggests that the effect of engagement frequency on CGPA is independent of the type of club a student participates in.

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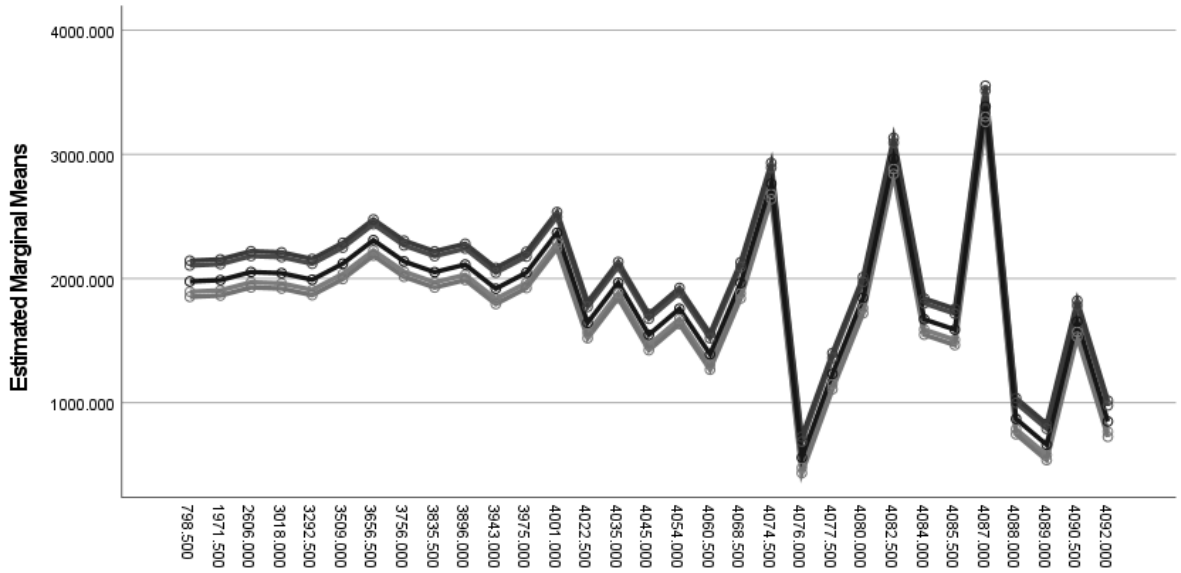

Figure 6. The Estimated Marginal Means of Rank of CGPA

Gender and Participation, Leadership Status, and Overall CGPA

Nature of Participation in Clubs and Gender.

Figure 7 shows the distribution of different participation roles in clubs broken down by gender.

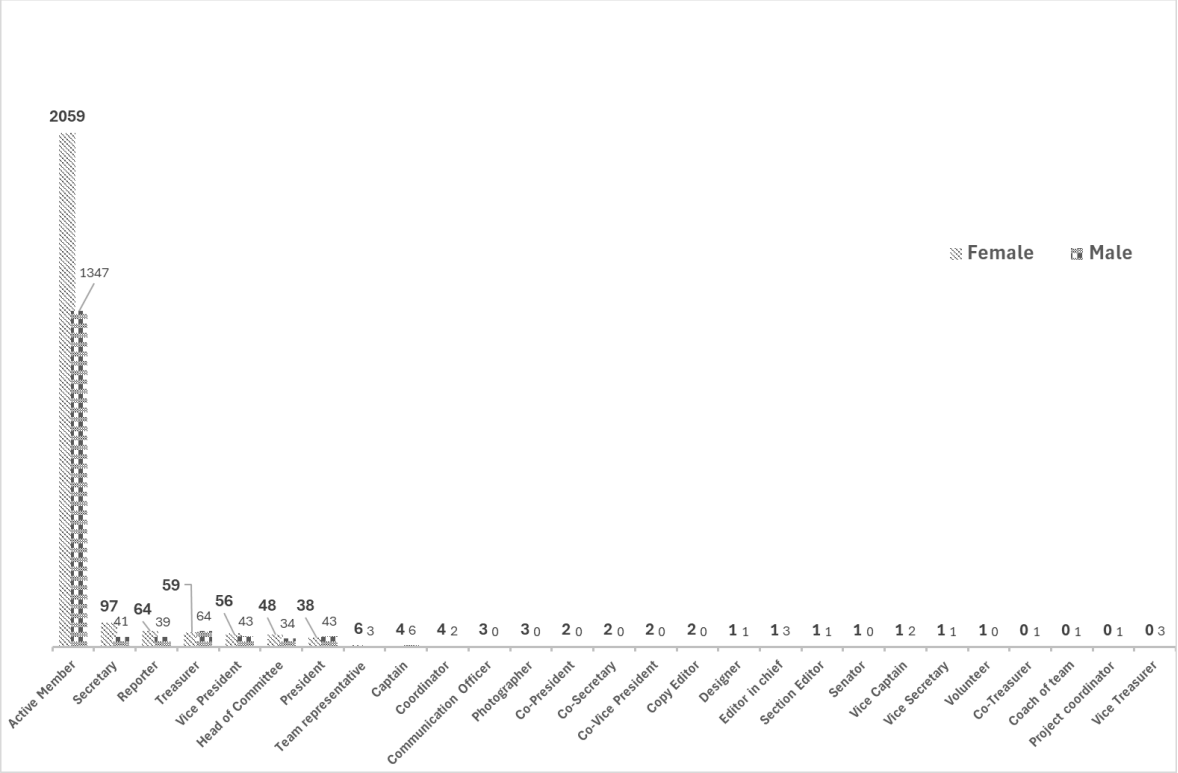

Figure 7. Distribution of different participation roles across gender

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Figure 7 presents the distribution of participation roles in clubs by gender, revealing key insights. While females show a higher overall participation rate (2059 as active members), males dominate leadership positions (43 as presidents). The data also highlights roles with minimal participation, indicating areas needing increased engagement. Table 9 further analyses this by providing statistical evidence to determine if there is a significant association between gender and participation roles in clubs.

Table 9. Chi-Square tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.132	26	.011
Likelihood Ratio	52.639	26	.002
N of Valid Cases	4092		

With reference to Table 9, the Chi-Square tests suggest that there is a significant relationship between gender and the various participation roles within clubs. Both the Pearson Chi-Square and the Likelihood Ratio tests yield p-values less than .05, supporting this conclusion.

Nature of Leading Status in Clubs and Gender.
Table 10 shows the distribution of gender across different leading statuses (Leader vs. Member) within clubs.

Table 10. Gender Leading status Crosstabulation

		Leading status		
		Leader	Member	Total
Gender	F	97	2359	2456
	M	90	1546	1636
Total		187	3905	4092

Interestingly, the crosstabulation reveals that while females form a larger part of clubs' total membership (2359), males have a slightly higher proportion of leadership roles relative to their total number (1546). Specifically, 5.50% of females (97) are leaders compared to 3.95% of males (90). This suggests a gender disparity in leadership within clubs, with females being more likely to hold leadership positions than males. Table 11 provides statistical analysis to determine if there is a significant association between gender and leading status within clubs.

Table 11. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.421	1	.020		
Continuity Correction	5.071	1	.024		
Likelihood Ratio	5.330	1	.021		
Fisher's Exact Test				.022	.013
N of Valid Cases	4092				

The Chi-Square tests consistently indicate a significant association between gender and leading status within the organization. Both the Pearson Chi-Square and the Likelihood Ratio tests yield p-values below .05, as does Fisher's Exact Test, confirming the relationship. The continuity correction also supports this result. These results, combined, suggest that gender is significantly related to whether an individual is a leader or a member, with females being slightly more likely to hold leadership positions compared to males.

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Gender and CGPA.
Table 12 shows the distribution of CGPA points across gender categories (F for female and M for male). It reveals a statistically significant difference; Females (Mean = 3.2408, SD = 0.49949) tend to have a higher CGPA compared to males (Mean = 3.0642, SD = 0.53397).

Table 12. CGPA Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
CGPA points	F	2456	3.2408	.49949	.01008
	M	1636	3.0642	.53397	.01320

As indicated, the difference in means, coupled with the narrow standard error, suggests a reliable variation between the groups. This result underscores potential gender-based disparities in academic performance, warranting further exploration into underlying factors influencing CGPA outcomes. To check if their results are due to chance or not, independent samples t-test was performed after checking for and meeting the t-test assumptions. According to Table 13, the independent samples t-test, assuming equal variances, indicates a significant difference in CGPA points between genders ($t = 10.777$, $df = 4090$, $p < .001$). The mean difference in CGPA points remains highly significant, favouring females, with a difference of .17662 (SE = .01639). The 95% confidence interval (CI) for the difference in means (.14448 to .20875) suggests that females consistently achieve higher CGPA points than males.

Table 13. The Independent Samples T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
CGPA points	Equal variances assumed	11.108	.001	10.777	4090
	Equal variances not assumed			10.634	3340.591

		t-test for Equality of Means			
		Significance		Mean Difference	Std. Error Difference
		One-Sided p	Two-Sided p		
CGPA points	Equal variances assumed	.000	.000	.17662	.01639
	Equal variances not assumed	.000	.000	.17662	.01661

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
CGPA points	Equal variances assumed	.14448	.20875
	Equal variances not assumed	.14405	.20918

Thus, the results persist even when assuming unequal variances ($t = 10.634$, $df = 3340.591$, $p < .001$), reaffirming the robustness of the gender-based disparity in academic performance. Relating to this, Table 14 shows the effect sizes for CGPA points between genders are indicative of a moderate to large difference. Cohen's d (.51355), Hedges' correction (.51364), and Glass's delta (.53397) all suggest a substantial effect favouring females in academic performance. The 95% confidence intervals for these effect sizes (.344 to .407 for Cohen's d, .344 to .407 for Hedges' correction, and .331 to .394 for Glass's delta) further support the magnitude of this gender-based discrepancy.

Table 14. The Effect Sizes for CGPA Points

				95% Confidence Interval	
		Standardizer	Point Estimate	Lower	Upper
CGPA points	Cohen's d	.51355	.344	.281	.407
	Hedges' correction	.51364	.344	.281	.407
	Glass's delta	.53397	.331	.267	.394

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These effect sizes underscore the practical significance of the observed difference in CGPA points between male and female students, suggesting a meaningful gender gap in academic achievement.

DISCUSSION and CONCLUSIONS

It is primordial to note that the study results are discussed in line with the research questions respectively. Each question is addressed individually. This approach helps achieve a thorough examination of each research question.

The Effect of Club Participation on the Academic Performance (CGPA)

To address the question whether the type of club participation significantly affects the academic performance (CGPA) of undergraduate students, the analysis reveals several key points. Table 3 indicates that students in Educational and Cultural clubs tend to have higher CGPAs, while those in Recreational clubs tend to have lower CGPAs. The Kruskal-Wallis H test (Table 4) confirms these differences are statistically significant ($H = 46.129$, $df = 4$, $p < 0.001$), implying that the type of club participation does have a significant effect on CGPA. The Tukey HSD test (Table 5) further supports these results, showing that Recreational clubs have significantly lower mean CGPAs compared to Cultural and Educational clubs, with the latter having the highest mean CGPAs. Humanitarian clubs overlap with both Recreational and Cultural clubs, while Sports clubs show no significant differences with other club types. Figure 5, a means plot, visually corroborates these results, indicating clear differences in mean CGPA points among the different club types. Largely, the data suggest that club type significantly influences academic performance, with students in Educational clubs performing the best academically and those in Recreational clubs performing the worst. These results tie well with previous research (Eccles et al., 2003; Hawkins, 2010; Hunt, 2005; Magolda & Astin, 1993; Marsh & Kleitman, 2003; Rahman et al., 2021; Wang et al., 2024).

The Effect of Frequency of Engagement in Student Activities on the Academic Performance (CGPA)

To address the question whether the frequency of engagement in student activities significantly affects the academic performance (CGPA) of undergraduate students, a Quantile Regression analysis was employed due to violations of normality and homogeneity assumptions. This robust method can handle skewed or heteroscedastic data effectively. The results, shown in Table 6, reveal a pseudo R-squared value of 0.007 and a Mean Absolute Error (MAE) of 0.4143. The very low pseudo R-squared indicates that the model explains only a tiny fraction of the variance in CGPA points, suggesting that the frequency of engagement in student activities has minimal impact on academic performance. The Mean Absolute Error indicates the average magnitude of errors between predicted and observed CGPA values. Overall, the analysis provides weak evidence of a significant relationship between the frequency of involvement in extracurricular activities and academic performance (CGPA) for undergraduate students. Engagement frequency, ranging from 1 to 35, does not significantly influence CGPA, as highlighted by the negligible pseudo R-squared value. These results contrast with some existing studies (Issahaku, 2017; Mohamed Mohamed Bayoumy & Alsayed, 2021; Zacherman & Foubert, 2014) that have highlighted a positive association between student engagement frequency and academic performance.

The Interaction Effect between the Type of Club Participation and the Frequency of Engagement on the Academic Performance (CGPA)

To address the question whether there is a significant interaction effect between the type of club participation and the frequency of engagement on the academic performance (CGPA) of undergraduate students, a two-way ANOVA was conducted on ranked CGPA data. The results, summarized in Table 7, indicate a significant main effect of club type on CGPA ranks ($F(4, 4057) = 11.218$, $p < .001$, Partial Eta Squared = .011), suggesting that different types of club participation influence academic performance. However, the frequency of engagement does not significantly affect

CGPA ranks (F(30, 4057) = 1.012, p = .448, Partial Eta Squared = .007). The Tukey HSD test (Table 8) reveals that Recreational and Humanitarian clubs form a homogeneous subset with no significant difference in CGPA ranks (Sig. = .687). Humanitarian and Sports clubs also form a subset with no significant difference (Sig. = .061), and Sports, Cultural, and Educational clubs form another subset with no significant differences (Sig. = .095). Visual analysis (Figure 6) of the estimated marginal means of rank of CGPA by frequency of engagement and club type shows roughly parallel lines, indicating no significant interaction effect between club type and engagement frequency on CGPA. The minor variation in slopes suggests that the effect of engagement frequency on CGPA is consistent across different club types. Overall, the analysis indicates that while the type of club participation significantly affects CGPA, the frequency of engagement does not, with Educational and Cultural clubs generally having higher CGPA ranks and Recreational clubs having lower ranks. These results differ from previous findings (Çapa Aydın et al., 2016; Che Hashim & Ahmad, 2019; Hawkins, 2010; Rahman et al., 2021) that have shown a significant relationship between student engagement in extracurricular activities and academic performance. Unlike those studies, the current analysis does not find a significant interaction effect between club participation and engagement frequency on CGPA.

The Influence of Gender on Participation, Leadership Roles in Clubs, and Overall CGPA

The analysis investigates the distribution of different participation roles in clubs based on gender. While females show higher overall participation rates, males hold a significant share of leadership positions. The Chi-Square tests confirm a significant relationship between gender and participation roles within the organization. The examination of gender distribution across leading statuses (Leader vs. Member) within clubs reveals a disparity, with males slightly more likely to hold leadership roles. Statistical analysis confirms a significant association between gender and leading status, indicating that males are more likely to be leaders compared to females. An analysis of CGPA letter grades across genders indicates a clear disparity, with females achieving higher grades on average than males. Statistical tests confirm a highly significant association between gender and CGPA letter grades, suggesting that gender significantly influences academic performance.

These results align with previous studies that have highlighted gender disparities in participation, leadership roles, and academic performance (Choudhury & Singh, 2023; Jones et al., 2021; M. Fournier & M. Ineson, 2014; Smith et al., 2021). The results underscore the importance of addressing gender imbalances within organizations and academic settings to promote equity and inclusivity. Moreover, they emphasize the need for targeted interventions to support academic success and leadership opportunities for all genders.

Implications for Practice

Based on the results of this study, it becomes clear that the type of club participation is a crucial factor in positively influencing academic outcomes, particularly CGPA. Among the five types of clubs, Educational and Cultural organizations prove to be essential for students to reap academic benefits, provided that they are actively involved.

Besides this, this study explored also the effect of the frequency of engagement in student clubs on the academic attainment of undergraduate students as measured in CGPA. In our data analysis, it becomes evident that there is no considerable association between the level of engagement (ranging from 1 club to 35 clubs in students' university journey) and the academic performance (CGPA) for undergraduate students.

Another aspect we considered in our study is the interaction effect between the type of club participation and the frequency of engagement on the academic performance (CGPA) of undergraduate students. As the results indicated, no interaction effect was detected between the type of club participation and the frequency of engagement on CGPA of undergraduate students.

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Finally, our study tackled the aspect of gender in influencing level of participation, leadership roles and overall CGPA. The evidence suggests that even the females have greater level of participation than males, the latter are inclined to hod more sensitive roles that require obligatory commitment. Compared to males, girls tend to select positions with fewer responsibilities, which gives them a space of relaxation and easiness to step back from serious responsibilities that may pop up due to the involvement with the administration. Likewise, the CGPA is reported to be influenced by the gender suggesting that girls academically perform better than males.

This study provides a comprehensive assessment of the effect of clubs participation on the academic performance. Thus, it provides important insights of how to deal with the programming of student club participation within colleges and universities. The results of our study are of paramount importance to students, faculty, students affairs professionals and top managers in the field of higher education. First, the students can rely on the findings of this study to make sure that their club participation should be meaningful and purposeful. Hence, they become aware that they should prioritize educational clubs more than any other types when they decide to be involved. This study's findings make it clear for students that by adhering to education and cultural clubs, they can both perform well academically and socially. Second, our study can motivate faculty to opt for getting more involved in advising more student clubs outside of the classroom in an attempt to link their efforts for the betterment of their student's academic performance. Also, faculty will have the evidence to consider diversifying their teaching activities by creating student groups within classes and assigning different roles within these groups to enhance their teaching endeavour. Thus, the students will foster their understanding of the curriculum and develop soft skills such as teamwork and critical thinking. Third, this study can serve the student affairs professionals as a guidance through their efforts to program and manage student activities. Their responsibility is to set out the priorities for student involvement and align them with academic mission of their institutions. Additionally, our insights will give the reason to justify their decision to prioritize funding educational clubs more than other types and forms of club participation. Furthermore, student affairs practitioners can cooperate with faculty and school deans to prioritize the creation of new student clubs that can spring up from the academic courses and programmes to complement the mission of the formal curriculum. As a matter of fact, these initiatives can result in procedural guidelines of student affairs divisions to warrant allocating an important portion of resources to educational and cultural clubs since they align closely with the academic objectives of their institutions.

Finally, the results of our study will be in the service of the top managers in the field of higher education as this will guide them to identify the best types of extracurricular activities that can be both appealing and beneficial to students, and to tailor extracurricular programs that meet the students' needs and interests. Top managers can exploit our data to promote extracurricular participation as a unique strategy to enhance student overall performance. Also, the present study will help top managers to create a more inclusive campus environment that becomes more conducive to student satisfaction and belonging.

Based on the current results and their implications for research and practice, the authors recommend: (1) promoting active engagement in educational clubs by organizing academic events, workshops, and mentoring programs; (2) providing academic counselling and support services tailored to students with irregular or low engagement frequency to improve their academic performance; (3) developing gender-inclusive leadership programs to ensure equitable opportunities for leadership roles across genders; (4) implementing gender-sensitive policies to reduce gender disparities in participation and leadership within clubs, fostering a more inclusive campus environment; and (5) conducting ongoing research to continuously monitor and assess the impact of interventions and policies on student engagement, leadership, and academic success, using research findings to inform future initiatives.

Implications for Research

The current study provides valuable insights into the relationship between extracurricular involvement and academic performance among undergraduate students at Al Akhawayn University in Ifrane, Morocco. Despite valuable insights on student involvement at Al Akhawayn University, limitations exist. Self-reported data and the cross-sectional design restrict causal conclusions. Future studies should use longitudinal designs and qualitative methods, along with replicating the research in broader contexts to improve generalizability.

Conclusion

In a nutshell, this study sheds light on the intricate relationship between extracurricular involvement and academic performance among 4092 undergraduate students at Al Akhawayn University in Ifrane, Morocco. The results reveal significant associations between club participation, engagement frequency, and academic performance, albeit with some notable nuances. Educational clubs emerged as particularly influential in enhancing academic performance, while engagement frequency showed a non-significant relationship with academic outcomes. Furthermore, the interaction between club participation and engagement frequency did not significantly impact academic performance. Gender disparities were evident in participation rates, leadership roles, and academic achievement, highlighting the need for targeted interventions to promote equity and inclusivity within the college community. Despite these valuable insights, the study is not without its limitations, including reliance on self-reported data and a cross-sectional design. Future research should address these limitations and explore the underlying mechanisms driving the observed relationships, eventually contributing to a deeper understanding of how extracurricular involvement shapes academic success.

Ethics and Conflict of Interest

As the authors of this article, we have acted in accordance with ethical rules at all stages of the research. We also declare that there is no conflict of interest among the authors.

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