THE EFFECT OF DORMITORY LIVING ON ACADEMIC PERFORMANCE OF UBD STUDENTS

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Abstract

This research was to determine if living in a dormitory would affect negatively or positively on a student's GPA. Data were compiled from the survey distributed in January 2020. The multiple regression with interaction was used to analyse the data and it was found that students living in a dormitory on the average obtain a lower GPA than non-dormitory students. It was also identified that there is no relationship between a student's gender and the grade point average (GPA) at 5% significance level. Then, some recommendations are suggested to improve the model study in this research.

Keywords: GPA, academic performance, regression, dormitory.

INTRODUCTION

Upon entering the tertiary institution, dormitories are an obligation for some campuses. The dormitory is a residence provided for students who wish to study at the nearest campus. Previous studies on the impact of dormitory living of students suggest that living on campus would increase the students' academic performance (De Araujo & Murray, 2010; Flowers,

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2004: López Turley & Wodtke, 2010). This is believed that living on-campus increases the academic potential and, in turn, reduces the likelihood of being expelled (de Araujo & Murray, 2010)

Moreover, living in dormitories could reduce the burden on students who live further from campus. Thus, living near the campus would be a convenient location. Additionally, living close to campus would make students accessible to several facilities such as libraries, sports complexes and more. Living in a university dormitory may contribute to college perseverance and graduation, leading to increased social adjustment, giving a sense of community, decreasing isolation, and generally resulting in greater satisfaction with the university experience (Astin, 1977). Ernest, Louise, Amaury and Patricia (1992) found that staying on campus could enhance student's values, attitudes, personal development, and persistence, but could also enhance student's cognitive and intellectual development.

However, some researchers also found that living in a dormitory would not increase a student's academic performance. According to Delucchi (1993), students who are living off-campus and live near the campus have no statistically significant differences in academic performance. Students living in a dormitory might experience noise and lack of privacy. Students who are sensitive to noise might have a lower academic ability, feel less secure in social interactions, and have a higher desire for privacy than those who are less sensitive to noise (Weinstein, 1978). López Turley and Wodtke (2010) also stated that increased access to academic resources to students on campus was offset by social aspects that disrupt campus life, resulting in a negative impact on student grades.

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Universiti Brunei Darussalam (UBD) also offers dormitories to its students. Hence, this study is designed to determine whether being a commuter and dormitory residence differ in their academic performance for UBD students by using a regression test.

OBJECTIVES AND RESEARCH QUESTIONS

The primary objective of this study was to determine whether living in a dormitory has an effect on the grade point average (GPA) in UBD. The study also answers the following questions:

1. Is the student's gender affecting the grade point average (GPA)?
2. Is there a difference between students' GPAs from different semesters and faculties?
3. Does living in the dormitory motivate dormitory students to study?
4. Are dormitory students satisfied with the accommodation, facilities and services provided?

METHODOLOGY
Data Collection

The population of the study comprises of UBD students who enrolled in UBD in the 2016-2019 academic years. The study used primary data and collected from a self-completion questionnaire. Stratified random sampling was deployed to select the students that would receive the questionnaire. The questionnaire was distributed to all random 1200 representative undergraduate's degree UBD students through e-mail electronics form. Random number generator was used to ensure a random sampling of the student body. The data consists of information on the students' personal, academic and opinion on the condition

of the dormitory they are staying in. In January 2020, a total of 235 students answered the questionnaire with a response rate of 20 per cent.

Variables Identification

The grade point average (GPA) was employed as a dependent variable in this study along with other independent variables. The average GPA was 3.27 *(SD= 0.60)*. The minimum GPA reported in this study was 1.5 and the highest was 4.85.
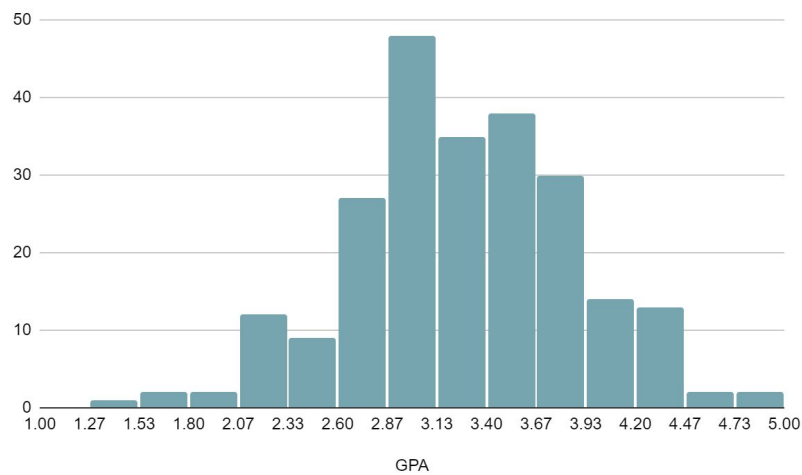

Figure 1. Bar chart of respondents' GPA

The other independent variable in the investigation are as follows:

Gender: Categorical variable used to account for differences in academic success rates between genders, represented by males and females. About three-quarter of the students in this sample are females.
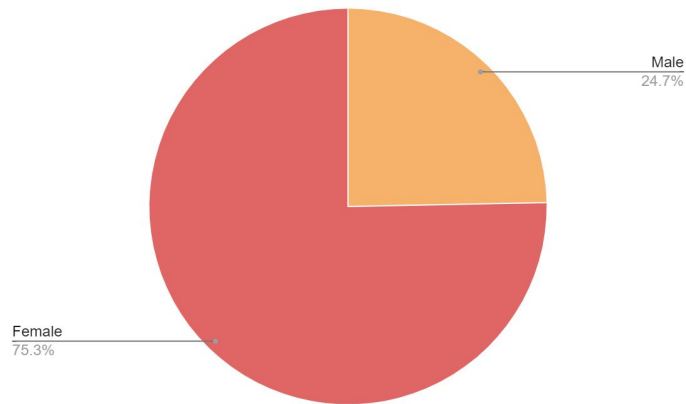
Figure 2. Pie chart of respondents' gender

Age: The variable indicates the reported age of the students at that time of the survey. The average age of students was 21.45 years *(SD= 2.04)*. The minimum reported age was 18 while the maximum was 28 years old.
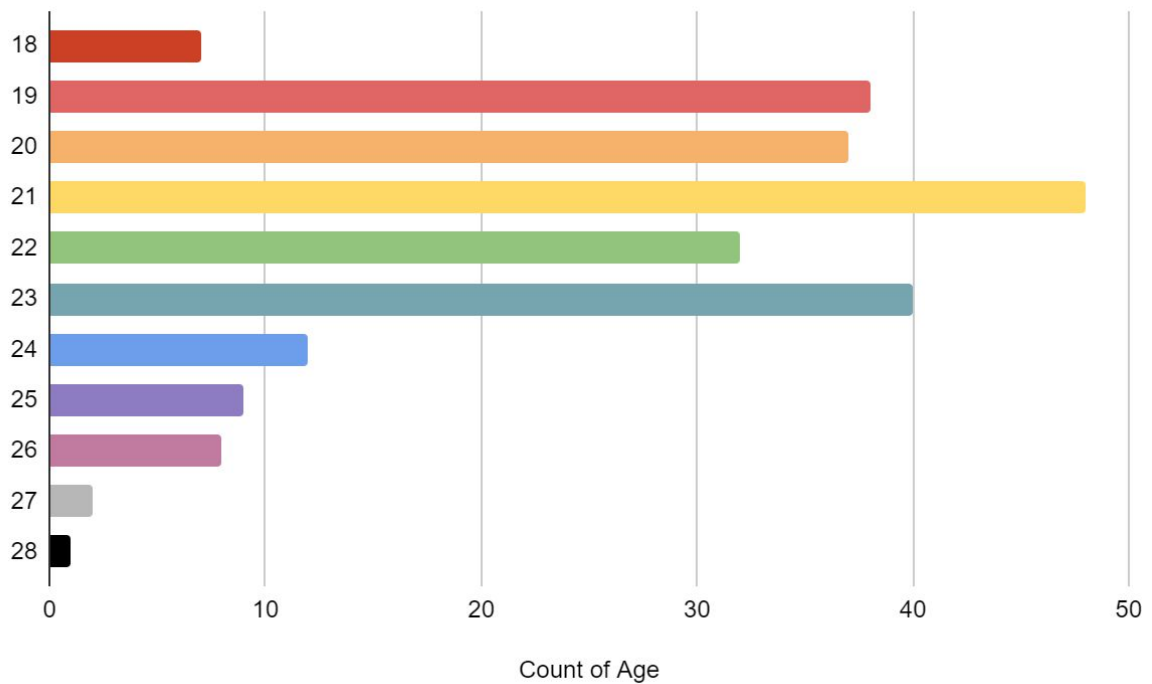

Figure 3. Bar chart of respondents' age

Hometown: A variable that indicates respondents' hometowns. This study reported that 69% of students are in Brunei-Muara, 12% in Tutong, 16% in Belait, 1% in Temburong District, while the other 1% is overseas.
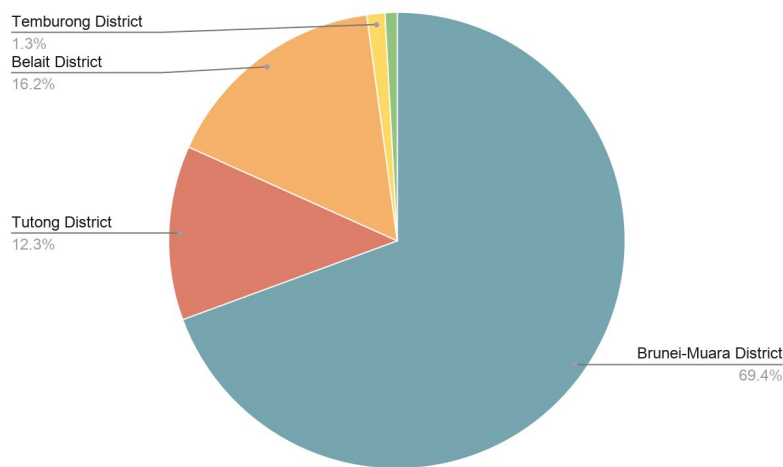

Figure 4. Pie chart of respondents' hometown

Faculty: There are five faculties offered for undergraduate's degree. Namely: Faculty of Science (FOS), Faculty of Arts and Social Sciences (FASS), Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah Institute of Health Sciences (IHS), UBD School of Business and Economics (SBE) and Faculty of Integrated Technologies (FIT). In this study, respondents from the FIT were not enough. Therefore, faculty from FIT is combined with FOS, as the knowledge is nearly the same and it is renamed as FOSFIT. This study reported 36% of students from FASS, 36% from FOSFIT, 12% from IHS and 16% from SBE.
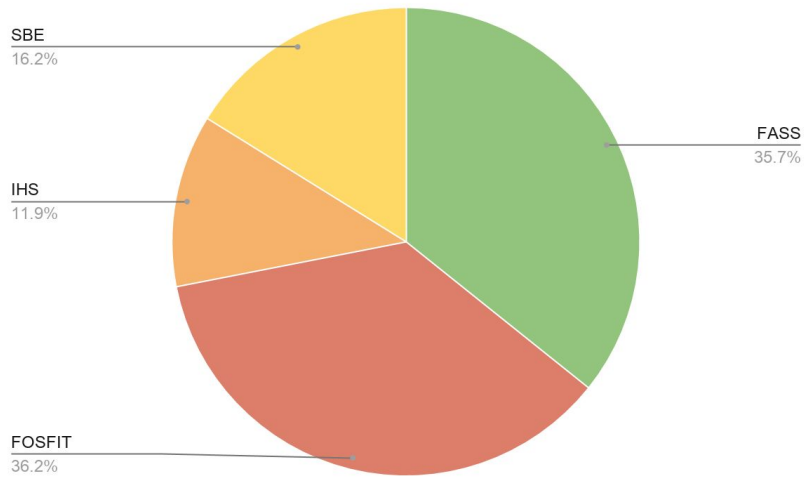
Figure 5. Pie chart of faculty

Semester: This variable was used to determine a student's semester clarification: 1st, 2nd, 3rd, 4th, 7th and 8th Semester. 5th and 6th Semesters are not included here because the 5th and 6th Semester is the Discovery Year. Students are not going to obtain their GPA in their 5th and 6th Semester. This study reported 30% students in semester 1, 7% in semester 2, 17% in semester 3, 30% in semester 4, 17% in semester 7, and none in semester 8.
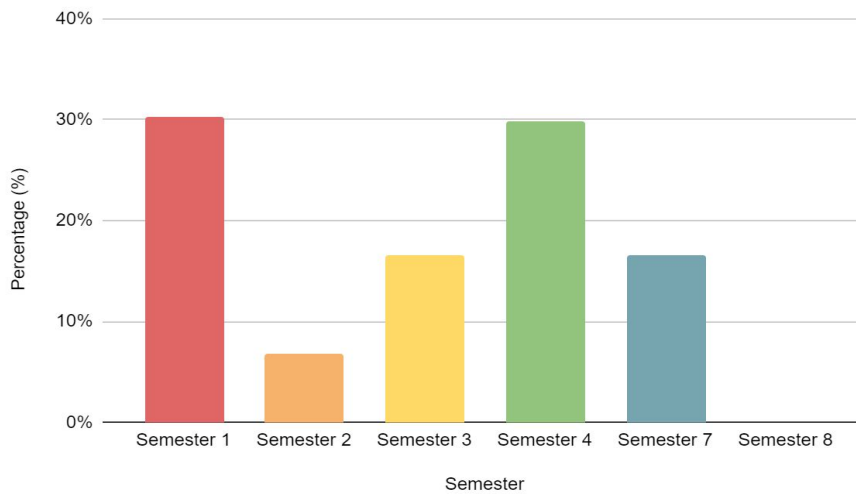

Figure 6. Bar chart of semester

Studying time: In this study, studying time in a day is categorised into 3: less than 1 hour (<1 hr), 1-3 hours (1-3 hrs) and more than 3 hours (>3 hrs). This study reported 24% students study < 1 hr, 65% students study for 1-3 hrs, and 11% study > 3hrs.
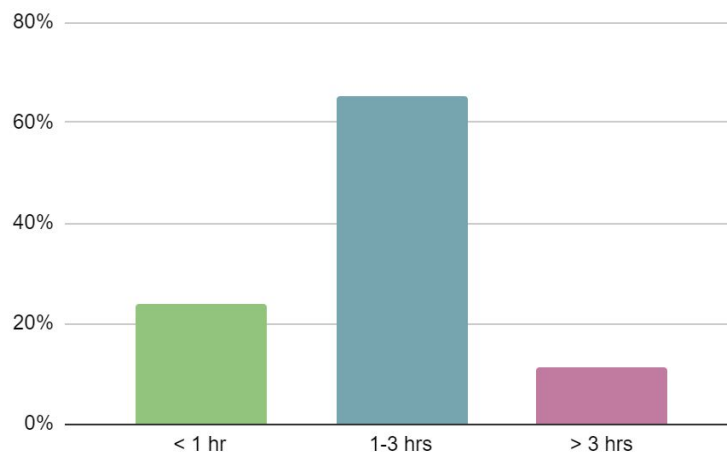
Figure 7. Bar chart of studying time

Dorm: This variable indicates whether academic performance in UBD can be predicted by living in a dormitory or not. "Yes" if they are staying in the dormitory while "No" if they are not staying in the dormitory, which is being a commuter. Approximately 19% of the students who completed the survey had lived in a dormitory during the last semester.
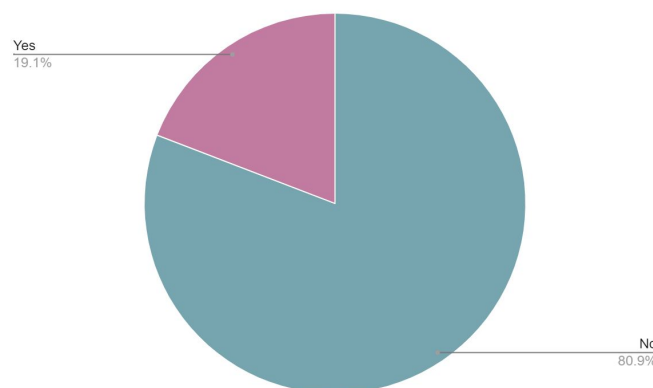

Figure 8. Pie chart of living in dormitory and non-dormitory

Method of Data Analysis

In order to answer the research questions, several tests were deployed for each or a couple of independent variables. This study was analysed using the R software package.

1. **Analysis of Variance (ANOVA):** In this analysis, Two-way ANOVA was used to analyse the means difference between groups that were split into two independent variables (factors) with the main purpose of understanding whether there is an association between the two independent variables on the dependent variable.

2. **Pearson's Chi-Square (χ^2):** It is applied to the contingency tables. It will establish how confident the relationship between the two variables in the population is. A contingency table is probably the most efficient of all methods of analysing relationships where they can be used in relation to any pair of variables, although they are not the most effective method for multiple pairs (Bryman, 2012).

3. **T-test:** Two-sample t-test was used in this study to test the difference between two population means.

4. **Regression:** Regression explains the relationship between one dependent variable with one or more explanatory variables. Multiple linear regression was used in this study to predict the GPA (dependent variable) using the independent variables mentioned above.

Ethical approval for this study was obtained from the Universiti Brunei Darussalam Faculty Research of Ethics Committee (FREC) [Ref: Ubd/FOS/E2(g)].

RESULTS

ANOVA

In this study, to test the effects of living in a dormitory from different semesters, two-way ANOVA was deployed. There was a significant main effect for Semester, $F(1, 231) = 4.40$, $p = .04$, and a significant interaction, $F(1, 231) = 5.09$, $p = .03$. The significance of Semester suggests that the relationship between Semester and GPA does not change based on the value of the other independent variables. The interaction effect indicates that the relationship between an independent variable changes based on the value of another variable. Therefore, the significant interaction indicates that the relationship between Semester and GPA depends on whether the students are living in a dormitory or not.

Table 1. ANOVA for Semester and Dorm

Source	Df	SS	MS	F	P
Semester	1	1.51	1.5133	4.396	0.0371*
Dorm	1	0.48	0.4772	1.386	0.2403
Semester*Dorm	1	1.75	1.7489	5.080	0.0251*
Error	231	79.52	0.3443		

Significance: *** = p < 0.001; ** = p < 0.01; * = p < 0.05

The two-way ANOVA was also used to test the effects of living in a dormitory from different faculties. There was a significant main effect for Faculty, $F(3, 227) = 4.46$, $p = .005$. The significance of Faculty suggests that the relationship between Faculty and GPA does not change based on the value of the other independent variable. The interaction effects indicate that the relationship between Faculty and GPA does not change based on the values of the other variables in the model. In other words, the effect of different faculties on average GPA does not change whether the students are living in a dormitory or not

Table 2. ANOVA for Faculty and Dorm

Source	Df	SS	MS	F	P
Faculty	3	4.53	1.5100	4.456	0.0046 **
Dorm	1	0.27	0.2707	0.799	0.3724
Semester*Dorm	3	1.54	0.5126	1.513	0.2120
Error	227	76.92	0.3389		

Significance: *** = p < 0.001; ** = p < 0.01; * = p < 0.05

Pearson's Chi-Square

All the Chi-Square tests in this study were used at 5% level of significance [$\chi2 = 5.991$, $p = 0.05$] as a rejection region. The null hypothesis for a chi-square independence test is that there is no relationship between the two categorical variables in the population. Meanwhile the alternate hypothesis is that there is a relationship between the two categorical variables in the population.

A chi-square test for independence was used to compare GPA and living in dormitory to see

whether it encourages students to study. From the test, there was a relationship between living in a dormitory and motivation to study, $[\chi^2 (2, N = 45) = 7.6, \ p = .02]$.
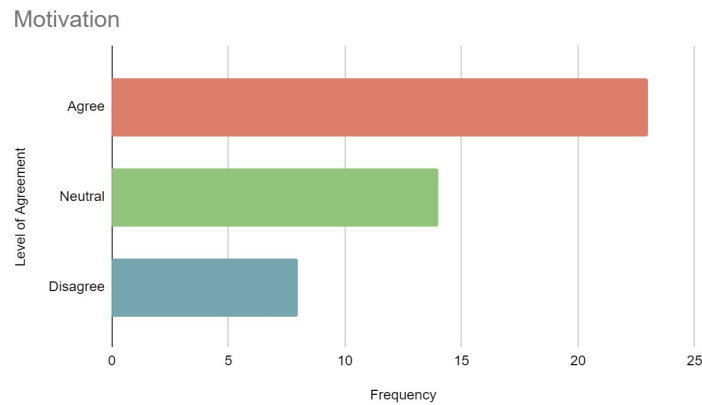

Figure 9. Bar chart of study motivation

A chi-square test of independence was also used to compare the frequency level of agreement toward satisfaction of dormitory's accommodation, facilities and services provided. Dormitory students' answers in the questionnaire are used as the data. Students were asked to rank their level of satisfaction regarding the dormitory they stayed in. It appears that there were no relationship between canteen in dormitory and satisfaction [$\chi^2(2, N = 45) = 1.6, \ p = 0.45$]; overall condition in individual room [$\chi^2(2, N = 45) = 1.56, p=0.46$]; bathroom provided [$\chi^2(2, N = 45) = 0.4, p = 0.82$]; safety and security in dormitory [$\chi^2(2, N = 45) = 2.8, \ p = .25$]. However, there is a relationship between the dormitory's kitchen and satisfaction, [$\chi^2(2, N = 45) = 1.6, \ p = 0.015$]. Furthermore, 100 per cent students demanded improvement in the dormitory.
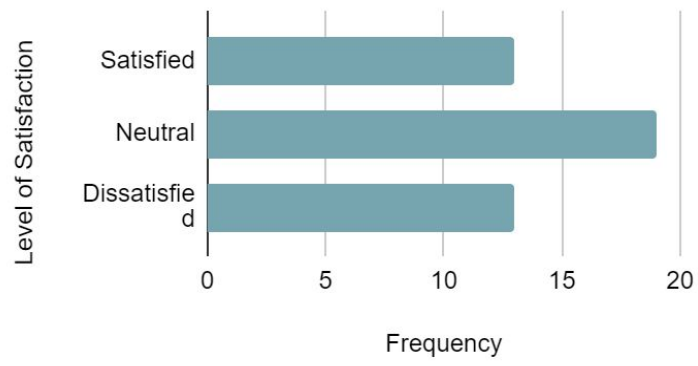
Figure 10. Bar chart of canteen satisfaction

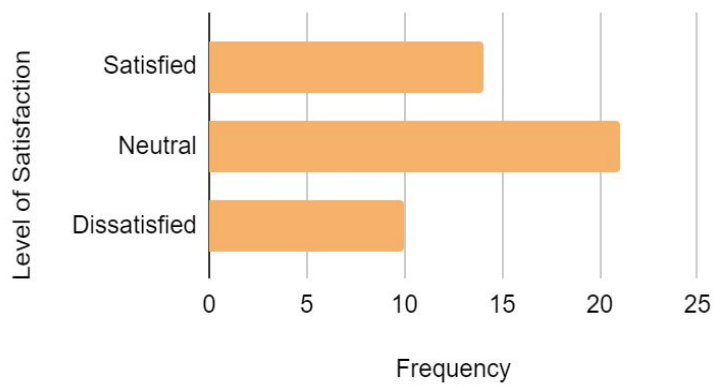Figure 11. Bar chart of room satisfaction

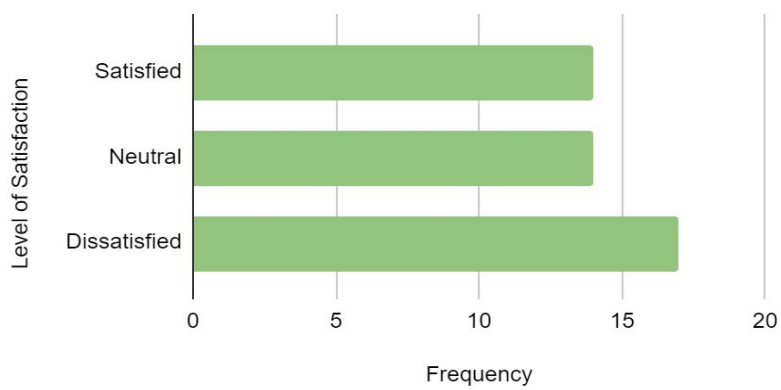Figure 12. Bar chart of bathroom satisfaction
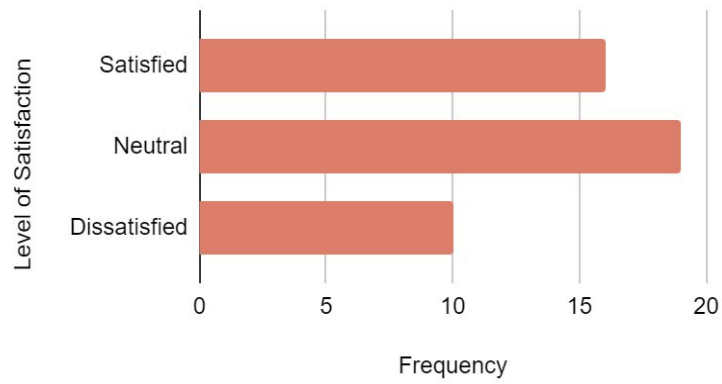
Figure 13. Bar chart of safety and security satisfaction
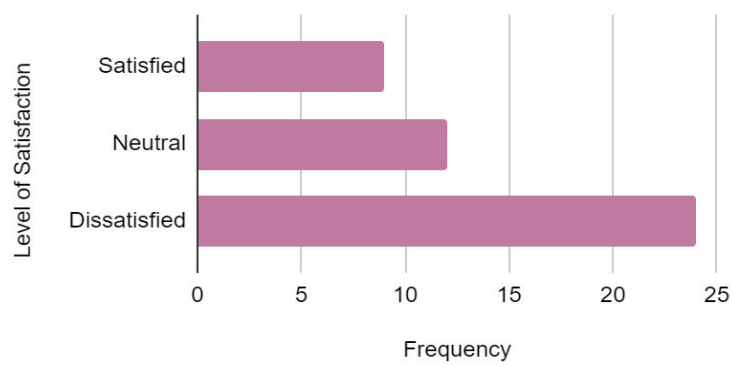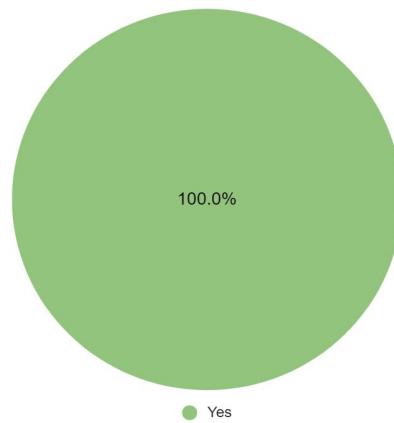

Figure 14. Bar chart of kitchen satisfaction

Figure 15. Pie chart of dormitory improvement's votes

T-test

T - tests in this study were used at 5% level of significance [t = 1.645, p = 0.05] as a rejection region. To test the differences in means between male and female's GPA, a two-sample t-test was used. There was no significant effect of gender, $t(95) = 0.93$, $p = .35$. As the p-value was larger than 0.05 for 95% confidence interval, this can be concluded that the difference between population means was not statistically significant. Therefore, there were no differences between males and females.

Regression

Multiple regression generally explains the relationship between one response variable, often denoted as y, and multiple explanatory variables, often denoted as $x_1,...,x_n$. the multiple regression equations described above take the following forms:

$$y = b_1x_1 + b_2x_2 + \ldots + b_nx_n + c$$

Here, bi's (i = 1,2…n) are the regression coefficients, which represent the value at which the response variable changes when the explanatory variable changes.

The results of multiple regression analysis for academic performance are shown in Model 3 (Table 3). The seven independent variables account for 22.66 per cent of the total variances in GPA. The effects of the five variables (i.e. age, semester and dorm, hometown and studying time) have significant (at 5% level) influences on academic performance. One of the background factors, age, has a strong negative effect on GPA. Specifically, for all other independent variables constant, a 1-year increase in age of students would result in a .11 decrease in GPA. This suggests that younger students tend to have a higher GPA than the

older students. The results showed that semester is positively associated with GPA. A unit increase in semester would result in a .09 increase in GPA, keeping all other variables constant. A positive value for the semester imparts a positive direction in the GPA. Surprisingly, being a dormitory student has a significant negative effect on academic performance in comparison to non-dormitory. Illustrative of this point, holding constant all other independent variables, dormitory students have GPAs of 2.27 grade points lower than commuters in the student community. The multiple regression analysis in Model 3 reveals that GPA was significantly influenced by interacting living in a dorm with hometown, overseas, age and studying time. All of these variables have a positive effect on GPA.

Table 3. Results: Regression Analysis

	Model 1	Model 2	Model 3
(Intercept)	4.788***	5.674***	5.571***
	(0.521)	(0.581)	(0.550)
Gender (ref: Female)			
Male	0.006	-0.001	
	(0.088)	(0.095)	-
Age	-0.079***	-0.104***	-0.110**
	(0.024)	(0.026)	(0.025)
Hometown (ref: Belait)			
Brunei-Muara district	-0.119	-0.349	-0.157
	(0.158)	(0.203)	(0.158)
Overseas	1.349**	1.439**	1.415***
	(0.414)	(0.463)	(0.405)
Temburong district	0.189	-0.649	0.130
	(0.345)	(0.586)	(0.349)
Tutong district	-0.107	-0.389	-0.192
	(0.161)	(0.237)	(0.167)

Faculty (ref: SBE)

FASS	-0.062	-0.125	-0.101
	(0.112)	(0.127)	(0.109)
FOSFIT	-0.147	-0.194	-0.164
	(0.113)	(0.128)	(0.109)
PAPRSB IHS	0.264	0.279	0.261
	(0.145)	(0.166)	(0.140)

Studying time (ref: <1hr)

1-3hr	0.049	-0.023	-0.040
	(0.089)	(0.098)	(0.096)
>3hr	0.063	-0.170	-0.187
	(0.139)	(0.154)	(0.152)
Semester	0.082***	0.0793**	0.086***
	(0.023)	(0.024)	(0.022)

Dorm (ref: other/none)

DormYes	-0.034	-3.017*	-2.716**
	(0.150)	(1.302)	(0.956)

Gender*DormYes (ref: Female)

Male*DormYes		-0.026	
	-	(0.237)	-
Age*DormYes		0.104.	0.106*
	-	(0.062)	(0.044)

Hometown*DormYes (ref: Belait)

Brunei-Muara district		0.948	
	-	(0.690)	-
Overseas			
	-	NA	-
Temburong district		1.190	
	-	(0.751)	-
Tutong district		0.311	
	-	(0.356)	-

Faculty*DormYes (ref: SBE)

	Model 1	Model 2	Model 3
FASS		0.162	
	-	(0.293)	-
FOSFIT		0.118	
	-	(0.278)	-
PAPRSB IHS		-0.028	
	-	(0.333)	-

Studying time*DormYes (ref: <1hr)

	Model 1	Model 2	Model 3
1-3hrs		0.393	0.355
	-	(0.243)	(0.227)
>3hrs		0.885*	0.969**
	-	(0.363)	(0.326)
DormYes*Semester		0.005	
	-	(0.061)	-
R-squared	0.1681	0.2472	0.2266
Adjusted R-squared	0.1191	0.1611	0.1737
AIC	409.8292	408.3497	396.6719

Significance: *** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$

In Table 3, Model 1 was transformed to Model 2 by interacting all variables with the Dorm. Model 2 was reduced to Model 3 to eliminate all insignificant variables. The R-squared from Model 3 means that 22.66% of the variance in GPA can be explained by predictors. It can also be seen from Model 1, AIC is 409.8292, Model 2 (408.3497) and Model 3 (396.6719). AIC decreases from Model 1 to Model 3. To conclude, models with the lowest information criterion were preferred. It is also important to note that from Table 3, the estimated multiple linear regression with the intercept may be written as:

$$y = 5.571 - 0.110x_1 - 0.157x_2 + 1.415x_3 + 0.130x_4 - 0.192x_5 - 0.101x_6 - 0.164x_7 + 0.261x_8 - 0.040x_9 - 0.187x_{10} + 0.086x_{11} - 2.716x_{12} + 0.106x_1{}^*x_{12} + 0.355x_9{}^*x_{12} + 0.969x_{10}{}^*x_{12}$$

Where: y – GPA

x_1 – Age

x_2 – HometownBrunei-Muara district

x_3 – HometownOverseas

x_4 – HometownTemburong district

x_5 – HometownTutong district

x_6 – FacultyFASS

x_7 – FacultyFOSFIT

x_8 – FacultyPAPRSB IHS

x_9 – `Studying time`1-3hrs

x_{10} – `Studying time'>3hrs

x_{11} – Semester

x_{12} – DormYes

DISCUSSION

As for the stated purpose of this study, students in dormitories and commuters differ in academic performance. There was a significant relationship between living in a dormitory and GPA. Living in a dormitory decreases the GPA by 2.72. Commuters have significantly higher GPAs than dormitory students, holding constant relevant characteristics. The results of this study are contrary to prior studies, as most of them found that living in a dormitory is not significant, and if it is significant, it would have a positive relationship with GPA. Nonetheless, the reduction in GPA value found in the current study could be due to the

dormitory living environment itself. According to de Araujo and Murray (2010), living in dormitories was significant and increased their GPA by 0.7 to 1.0 and they concluded that this could be due to increased use of on-campus academic resources, positive peer influence from other dormitory students, dormitory organisations, structures, and activities that provide a useful learning environment for their residents. Another possible reason for the reduction in GPA is students may be exposed to a variety of potentially distracting social activities (López Turley & Wodtke, 2010).

Age variable appears to be significant at a 5% level of significance and has a negative relationship with a student's GPA. A year increase in age tends to be related to a reduction of GPA by 0.10, with all other variables holding constant. This study shows that younger students were more likely to have a better performance than the mature students. The reason why mature students do not perform well in the class is due to poor time management (Macan, Shahani, Dipboye & Phillips, 1990). Age with interaction in the dorm is also associated with GPA. For all the other predictors held constant, a unit increase in age results in a 0.11 increase in GPA. Increase in age tends to make students more mature and independent.

The results indicate semester is associated with GPA at 5% significance level. A unit increase in semester resulted in a 0.09 increase in GPA. Every new semester, students' GPAs tend to increase. It is assumed that the senior students are more adaptable to the university environment, and therefore know how to cope and overcome the challenges, while freshmen students are still in the process of adjusting to the university. Freshmen students have ventured into a new academic environment where they find college subjects more difficult

than high school and they also have difficulty with time management and adaptation to the new learning environment, which would require time and greater effort (Suyu-Tattao, n.d.). Another study by Nelson, Misra, Sype and Mackie (2016) concludes that a senior student is more focused and serious about academic performance than a freshman. Age with an interaction dorm is also significant at 5% level. Older students increased in GPA compared to younger students. One of the reasons is because first year students struggle to achieve high levels of college satisfaction and achievement because they are homesick (Suyu-Tattao, n.d.)

Studying time for more than 3 hours when living in a dormitory was also found to be significant at a 5% level. It increases the GPA by 0.97. The reason for this is because students tend to be more motivated, and less interruption, for instance less chores and family matters. Furthermore, students who spend a lot of time studying would understand lessons better than students who do not spend much time learning because understanding a lesson could take a long time, especially for students who are weak academically. McFadden and Dart (1992) also reported that total study time influenced course grade. However, others found that studying time may not significantly improve the academic performance of college students (Nonis & Hudson, 2006; Mouw & Khanna, 1993).

Students' from overseas have higher GPAs than local students in Brunei. This may be due to the high spirit of self-reliance and motivation in other countries that enable them to study better. Another possible reason for international students performing better than local students may be due to future job prospects and reputations for business education, which may have a positive impact on the motivation and support provided by their social networks (Rienties, Beausaert, Grohnert, Niemantsverdriet & Kommers, 2011).

Although Khwaileh and Zaza (2011); Balkis and Duru (2017) reported that female undergraduates outperform male undergraduates students, there appears to be no relationship between a student's gender in this current study, no matter if they live in a dormitory or not. This is similar to what was found by Abgodah and Gofred (2012).

LIMITATION

Future investigations should address the two general limitations of the current study. The limitation of this study is the data set. Multistage sampling in order to get a good amount of respondents from each faculty is needed. With multistage sampling, it is more accurate than cluster sampling for the same-sized population. Secondly, data is analysed in relation to one university, the results cannot be judged from just one college. It should be studied from various colleges in this country and the results might show a different trend.

CONCLUSION

The present study has shown factors that influence the academic performance of dormitory students in UBD. Moreover, this study has shed lights on the institution in the effort to create a better environment and to improve facilities for students living in dormitories. Based on the current evidence: 1) there is a negative relationship between living in a dormitory on academic performance in UBD; 2) students' genders have no relation to GPA values; 3) living in a dormitory motivates students to study; 4) there is a difference between students' GPA from different semesters, but not between faculties; and 5) there were no relationship between canteen in dormitory, overall condition in individual room, bathroom provided,

safety and security in dormitory with satisfaction but there is a relationship between the dormitory's kitchen and satisfaction. Therefore, this study highlights the poor conditions of the dormitory environment that are related to their GPAs as 100 per cent dormitory students demanding for the improvement in dormitory. For future recommendations, variable transformation could be made to improve the value of R^2 to obtain a better model in linear fit or model of non-linear relationship. Additionally, future researchers can add more variables such as how many hours students spend in social activities.

ACKNOWLEDGEMENT

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