

Identifying Factors Affecting Freshman Students' Academic Performance in Mai-Nefhi College of Science, Eritrea

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Abstract. Due to various factors freshman students are exposed to academic failures, which leaves a black spot on their mind and destroys their ardent hope and good expectations of parents. Bearing this in mind, the present study was conducted to identify the major factors that affect freshman students' academic performance in Mai-Nefhi College of Science. A sample (N=155) of freshman students both with high and low GPA were recruited through stratified random sampling. A self-developed questionnaire was then distributed among freshman students. The data analysis employed descriptive statistics, Chi-square test of independence and multi-variable logistic regression model. Twenty-three covariates were tested for their effects on students' academic performance. Based on the test of association, eight covariates were then selected for modeling multi-variable logistic regression. The tests of associations then indicated that demographic variables of marital status and responsibility at home had a statistically significant effect, whereas variables of brother/sister at college and father education show a marginally significant effect on students' academic performance. From the personal factors, variables of matriculation score and class attendance had a statistically significant effect on students' academic performance. Besides, study variables of social media, matriculation score and way of assessment had a significant effect on the performance of freshman students. Furthermore, the logistic regression model showed that a total of 63.3% variability in the academic performance of the students was explained by the eight study variables.

Keywords: Freshman students; Academic performance; Demographic factors; Personal factors; Environmental factors; Social Media and Economic factors

Introduction

Institutions of higher education continue exerting efforts on attracting excellent students and assisting them to retain and complete their academics successfully. These students are potential nation builders who contribute a lot in satisfying the dreams of their people through participating in various sectors of their country (Sansgiry, 2012). During the last decades, most developing countries have faced a rapid increase in higher education admissions. However, the rapidly growing influx of students into higher education over the past decades is not free from challenges that lower the academic permanence and academic success of students (Rossi, 2017).

College life is a developmentally crucial period. It remarks on the transition from late adolescence to emerging adulthood (Arnett, 2000). Entering college is an important turning point for freshmen students where they are encountered with various attractive colors of adolescent life and demanding academic works. College students are more likely to feel grown-up, have more time to spend with peers, have more opportunities to explore different lifestyles and values, enjoy greater independence from parental monitoring, and at the same time be challenged intellectually by academic work. Thus, college life is both an opportunity and a challenge for them. Freshman students are required to cultivate adaptive skills and remain adjusted to the complex and new social and academic environment quickly. Those who fail to adjust themselves in colleges have difficulties in their academic, social and psychological developments (Wang et al., 2015). During their college life, students are vulnerable to many

cognitive, behavioral, and environmental factors which are potential threats for their safe learning. In this academic stage, students are required to balance academic works, extracurricular activities, financial concerns (like having part-time jobs), social life, as well as protecting their physical and psychological well-being. Thus, meeting all these complex college life demands is mandatory and supportive for students to excel in their academics and remain physically, psychosocially and socially healthy (Wang, Harari, Hao, Zhou, & Campbell, 2015).

The determinants of students' performance have received considerable attention in the education literature, and it continues to be a challenging theme (Rajandran et al., 2015). As part of these reports, Mushtaq (2012) found that freshmen academic performance can easily be influenced by demographic, social media and economic, environmental and personal factors. Similarly, A study conducted in Turkey reported that many factors are considered as determiners of the students' cumulative GPA such as gender, previous academic performance, living place and income level of family, social environment, the type and quality of the high school graduated, the high school grade point average, the score obtained from nationwide university entrance exam (OSS), time spend for studying, learning ability and living place during the university life (Erdem, Şentürk & Arslan, 2007).

Wang et al. (2015) explained academic performance as it is usually associated with educational outcomes which is best represented by a students' Cumulative Grade Point Average (CGPA). This measure typically captures a continuous assessment of a students' academic achievement in terms of results from assignments, quizzes, tests, midterms, and final examinations as they move through their college years. Moreover, academic performance is linked to a student's intellectual curiosity and ability (e.g., as measured by IQ), their drive and motivation, the educational environment, health, prior test results (e.g., SATs), and personality traits (e.g., conscientiousness). Stewart, Lim, & Kim (2015) study also described that high school grades and scholastic measures are the most reliable predictors of academic achievement and college persistence. Furthermore, Rajandran et al. (2015) argued that academic performance is the product of socio-economic, psychological and environmental factors.

Though several pieces of literature were produced in this area, there are very few studies conducted in developing countries like Eritrea. Most of the study findings in the existing literature are from the western countries which may not fully represent the context and practices of education in the other corners of the world. Besides, the factors are not universally the same; they vary from one country to another (Rajandran et al., 2015). Putting this gap into consideration, this study was initiated to identify the prevailing factors among freshman students in Eritrea; factors which are the first and most causes of the academic failures in Eritrea. This study made a thorough exploration to identify the main factors among the many others and suggested certain noteworthy mechanisms to overcome the situation. This study was specifically conducted to identify the prevailing factors that severely affect the academic achievement of freshman students in the College of Science, Mai-Nefhi. Accordingly, this study discovered the impact of some relevant factors such as the economic status, adaptation with the new places, peer pressure, gender difference, teaching methodology, class environment, family education background and administrative problems of the freshman students. Therefore, the effect of each factor on the academic achievement of the students was thoroughly examined with the help of several statistical techniques.

The Eritrean Higher Education

Education has long been recognized as a central element in Eritrean development policy. It is a vital input in modernization where the developing country Eritrea began its drive for social and economic development since its independence. Education is perceived as a means

not only of raising political and social consciousness but also of increasing the number of skilled workers and raising the level of trained manpower (Rena, 2000). For so many years Eritrea had only one university which was called as the University of Asmara, which was known to open by the Missionary Congregation Piae Matres Nigritiae of the Comboni Sisters in 1954 as the Holy Family University Institute (Rena, 2005). However, with the increment in the number of students enrolled, the government decided to open colleges in various corners of the country (MOE, 2001-2002). During this time, Eritrea had established about eight colleges at the tertiary level within a short period to build human resources required for the present and future (Rena, 2008). One of the remarkable developments in the education sector of Eritrea is the opening of the Eritrean Institute of Technology- Mai-Nefhi and Orotta School of Medicine (both started in February 2004). Further, the government embarked on other colleges like Agricultural College, Marine Technology College, College of Business and Economics, College of Social Sciences, and other professional colleges in the country (Rena, 2005).

Currently, in the Eritrean education system, secondary school is extended from grade ninth to twelfth grade. When students complete their twelfth grade, they are supposed to participate in secondary education certificate examination. The students who scored 2.00 and above in certificate examination join to College of Art and Social Science (Adi-Keih), College of Science and College of Engineering to complete their freshman courses (common courses). However, the students obtained 1.60 or 1.80 (diploma level) are enrolled in the College of Health Sciences to complete the common course of their first-year study. After the completion of their freshman course, both the degree and diploma program students are allocated to the different colleges in Eritrea based on their freshman course scores and choices. Once they join the college, students are made to follow their studies under different departments available in their respective colleges.

Literature Review

Literature witnessed that several studies have been conducted to identify the factors which have a potential impact on the student's success in higher education. These studies revealed that many factors are considered as determinants of the freshman students' academic achievement such as gender, previous academic performance, living place and income level of family, social environment, the type and quality of the high school graduated, the high school grade point average, the score obtained from nationwide university entrance exam (OSS), time spend for studying, learning ability and living place during the university life (Erdem, Şentürk and Arslan, 2007). Similarly, other studies reported that demographic factors, previous experiences, or background are associated with students' course performances (Rajandran, et al., 2015).

Demographic Factors

Demographic factors like marital and family status of the students, family background in education, parent's motivation, their responsibility at home, the influences of their peers and gender difference, etc., determine the academic achievement of freshman students. For instance, according to Kraemer (1995) factors such as the type of high school graduates, gender, the number of sisters/brothers in school, education level of parents, and expression of family expectations about the school and study time have an impact on the grade point average. In line with these combined reports, Herzog (2005) specifically talked about parent's educational level and their result tells that there is a significant gradient between each parent's education level and their child's educational attainment. Relative to a parent with no qualifications, the mother's education has a stronger association with her child's educational achievement than the father's education. Furthermore, Phillips, McDaniel, and Croft, (2018)

added that the level of mother's education has been found to exert the strongest influence on academic achievement as compared to level of father's education.

The effect of gender is the most frequently studied factor in the literature, although research has not reached a definitive conclusion (Orhan, Fathollah, & Thomas, 2009). After a detailed analysis of the previous studies' findings, De Berard, Spielsman, and Deana (1995) were not able to draw any strong conclusion, but they concluded that gender differences start developing during high school and extend to college years. A study by Rajandran et al. (2015) also revealed that gender and place of origin appeared to be insignificant determinants of freshman students' academic performance. Apart from this, Erdem, Şentürk, and Arslan (2007) found that female students get higher CGPA than male students. Moreover, Mau (2016) argued that gender differences might be explained by the type of exams students take.

Various studies had been done and found that peer influence does have an impact on student performance. These studies revealed that peer influence has more powerful effects than immediate family. Peer support was positively related to students' cumulative grade point average (Zhang, Anderson, Ohland, & Thorndyke, 2004). De Berard, Spielsman, and Deana (1995) concluded that by grouping students in heterogeneous learning ability (low ability students grouped with high ability students) will show an improvement in the learning process and outcomes. Top students can positively affect poor learners. Similarly, Kraemer (1995) found that peer interaction could increase students' ability to solve qualitative questions. Moreover, peer interaction promotes students' participation and improves students' academic performance. Russo (2014) also found that mixing abilities will affect weak students positively however the effect for good students is negative. In contrast to these findings, Phillips, McDaniel, and Croft (2018) who found that students in the homogeneous group (regardless of high ability or low ability) perform better than students in the heterogeneous group.

Personal Factors

Various personal factors like study hours spend, class attendance, sitting position in the class, being employed student, actively learning, etc. are believed to affect the academic achievement of freshman students. For instance, according to Erdem, Şentürk, and Arslan (2007), the number of study hours freshman students spend on studying their courses increases the probability of getting a higher GPA. Similarly, Dee et al. (2018) mentioned that the time freshman students spend affect their GPA. In contrary to these reports, however, Hijazi and Naqvi (2006) found that more study hours are not significant as far as student performance, rather factors such as intelligence level, memory, and method of learning play significant role. Many researchers also recognized that class attendance is an important aspect in improving students' performance. For instance, Orhan, Fathollah, and Thomas (2009) reported that students who missed class on a given date were significantly more likely to respond incorrectly to questions relating to material covered that day than were students who were present. Crisp and Nora (2010) also indicated that class attendance enhances learning; on average, students who came to the most classes made the highest grades, although they received no points for coming to class. Similarly, Deangelo, Pryor, and Franke, (2011) found that there is a causal effect of absence on performance for students; the missing class can lead to poorer academic performance. Apart from these, Orhan et al. (2009) found that there are no significant effects of class attendance on freshman students' academic performance.

Various studies reported that employed college students obtain lower academic performance (Dee et al., 2018). Similarly, Astin (1993) reported a negative relationship between academic performance and working hours in which students spend. Students who are employed were obliged to have less involvement in campus activities. Therefore, the academic performance of employed students tends to decrease dramatically. Wohlgemuth et al. (2006) also stated that students who devote their time to working more than 22 hours per week have

lower academic performance. Furthermore, De Berard et al. (1995) also found that students working at least 15 hours per week are prompt to have more negative academic performance than the ones that do not work. Concerning the impact of the sitting arrangement, Benedict and Hoag (2004) found that students sitting in front seats in a classroom have a higher probability of receiving A's, rather students who prefer rear seats have a higher probability of receiving D's or F's. Usually, the seating location is also related to the personality type of students and their preferences.

Active learning has received notable attention over the past several years. In the context of the college classrooms, active learning involves students in doing things and thinking about the things they are doing. Active learning involves the students to solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm during class. It was also known that active learning leads to better student attitudes and improvements in students' thinking and writing (Huang & Fang, 2013). A study by Yu, DiGangi, Jannasch-Pennell, and Kaprolet, (2010) also indicated students in both the treatment and control groups demonstrated a positive attitude toward active learning, believed it helped (or would help) students to learn the material. A study by Huang and Fang (2013) also recommended that active learning is one of the teaching methods that work. Moreover, they added that as little as five minutes of active learning in a 50-minute class session can produce a major boost in learning. Active learning wakes students up students who complete a task own the knowledge in a way they never would from just watching a lecturer do it.

Matriculation score is also one of the frequently mentioned factors in predicting the academic achievement of freshman college students. For instance, Astin (1999) argued that matriculation score is the most effective predicting metrics of all the accessible measures of students' academic achievement. High school GPA can easily be used to predict the retention and academic performance of freshman students in their first-year college work. Similarly, Alonazi (2018) stated that factors such as high school GPA, achievement test, aptitude test, gender, stress, and mother's education level predicted first-year students' GPA.

Social Media and Economic Factors

According to a study by Bruffaerts et al. (2018), there is a negative relationship between the use of social media sites and students' low academic performance. It was found that 97% of the freshmen students use social media, with the number one site being Face book. The results of the survey showed that students who spend less time on social media sites have a higher GPA than those who frequently use social media. Similarly, a study by the National Association for college admission counseling (2016) also found a negative correlation between the high use of social media and the GPA of freshman students. Furthermore, this study revealed that for every hour of electronic media exposure reported by students on average, GPA was reduced between 0.05 and 0.07 points". Krumrei-Mancuso et al. (2013) found that there is a negative correlation between social media and GPA. The result further suggested that students should know if they are spending time on social media sites, they could be hurting their GPA, which can negatively affect their performance.

With respect to family economic background, Erdem, Şentürk, and Arslan (2007) found that family income is one of the most important factors which have an impact on a students' academic performance since a high-income level of the family creates a good learning environment for their children. Therefore, freshman students from low-income families tend to score lower in their academic activities. Similarly, Krumrei-Mancuso, Newton, Kim, and Wilcox (2013) found that students whose parents are highly educated and high income have a greater opportunity to achieve a better GPA. Herzog (2005) also stated that freshman students from upper-income families show lower academic failures and dropouts compared to those from middle and lower incomes families. Moreover, Kraemer (1995) in his study on university

education in Italy reported that richer parents invest more resources in the education of their children.

Environmental Factors

Erdem et al. (2007) explained that the freshman students have to win in the adjustment process, in which the students attempt to deal with stress, tensions, conflict and meet his or her needs. In, this process, the freshman students also make efforts to maintain harmonious relationships with the environment. Students who come to college from different backgrounds possess different norms and values. The college has its norms and values which are in line with the institution's mission, vision and core values. Students have to fit in the college set up by adjusting their values and behaviors to fit those of the college. The adjustment differs from one student to the other depending on their developmental stage. Yu et al. (2010) also reported that almost all freshman students go through an adjustment phase upon entry to a university with each student varied in his or her own pace of development. Freshman students come to college with various questions about themselves and the world. They enter the university community with an enthusiasm that is often replaced by disappointment. Herzog (2005) explained that freshman students confront with a unique amount of stressors specifically related to the new experiences they confront including new lifestyle, friends, roommates, exposure to new cultures and alternate ways of thinking. Erdem et al. (2007) assert that when students can't manage these firsts, they're more likely to struggle. If students do not feel adequate or prepared to cope with the new environment of a college campus, they could easily become susceptible to depression and anxiety. Higher rates of psychological morbidity are being recorded among first-year university students throughout the world.

For most college students, the transition to the college classroom requires an adjustment of academic habits and expectations. They often must study harder to improve their study habits. Classes may be larger, instructors have different teaching styles, assignments are lengthier and standards are higher. Students need to learn to set and balance priorities (Yu et al., 2010). Mau, (2016) points out that the discourses of academic disciplines in higher education can be confusing and mysterious for the freshman. The confusion can be particularly greater for students coming from cultural and language backgrounds that are different from those underpinning the dominant ideologies of higher education institutions. Huang and Fang (2013) revealed that academic demands increase and new social relations are established when students join higher-level institutions. Students are often uncertain of their abilities to meet these demands. Thinking independently might be a new experience for some students who are accustomed to relying on the teacher as the ultimate authority on the course subject.

Kraemer (1995) found that students' performance is significantly correlated with satisfaction with the academic environment and the facilities of the library, computer lab, and so on they get in their institutions. Moreover, the effort students exert in learning and the proper use of the facilities provided by the institution to the students positively affect the student's performance (Wohlgemuth et al., 2006). Deangelo et al. (2011) also reported that freshman students' performance is linked with the use of the library and its services. The presence of a well-established library in colleges has a positive impact on students' academic performance. On top of this, the type of instructors in colleges also determines freshman students' academic success and learning. College instructor has measurable effects on freshman students' academic performance by introducing new ways of teaching assisted with advanced technological apparatus (De Berard et al., 1995). The class size is also another variable of interest that predicts freshman students' success in learning. Earlier studies did not produce evidence about the effect of class size on freshman students' success (McConnell and Sosin, 1984), but recent studies do conclude that smaller classes are correlated with greater success (Wang et al., 2015).

Putting the existing reviewed literature into consideration, the present study has stated the following five hypotheses.

1. There is a relationship between the demographic factors and the academic performance of freshman students.
2. There is a relationship between freshman students' character and academic performance.
3. The economic status of freshman students influences their academic performance.
4. Freshman students' exposure to social media influences their academic performance.
5. There is a relationship between freshman students' environmental factors and academic performance.

Methods

This study employed a cross-sectional method where the necessary data obtained through the survey method. In this study, 155 students were recruited through stratified random sampling; the students were categorized into dichotomous groups in terms of their grade (high and low GPA). Of the 155 participants, 67 (43.2%) were males and 88 (56.8%) were females. Moreover, 68 (43.9%) of the participants were from a lower GPA and 87 (56.2%) were from a higher GPA (see table 1.). A self-developed questionnaire was distributed among the participants. The questionnaire was consisted of 25 items in five sections, i.e., demographic factors, social media, economic factors, personal factors and environmental factors. 24 items of this instrument were a closed-ended type with a diverse alternative type and one item was an open-ended type. The instrument was found to have a satisfying reliability (Social media, $\alpha=.89$; Economic factors, $\alpha=.83$; Personal factors, $\alpha=.81$; Environmental factors, $\alpha=.91$). Thereby, the data obtained were analyzed through SPSS (Statistical Packages for Social Sciences). For this purpose, statistical techniques like Descriptive statistics, Chi-square test of independence and Multiple Logistic Regression were applied. The descriptive statistics were used to describe the effect of demographic factors, personal factors, environmental factors, economic and social media factors on the students' academic performance in terms of counts and percentages. The Chi-square test of independence was also applied to test the significance of the associations between each of the variables and the academic performance level of freshman students. Furthermore, a Multiple Logistic Regression was utilized to examine the predicting effect of the dichotomous study variables.

Results

Descriptive Analysis and chi-square Test

A descriptive statistics of the sample on the four main factors (i.e, demographic, personal, environmental, economic and social media) was explained against their academic performance (GPA) using cross-tabulation based on frequencies and percentages of students on both high and low GPA. Furthermore, the chi-square test was executed to test the significance of the relationship of each study variable with the students' GPA.

1. Descriptive Analysis of the Demographic Factors

Table 1 showed the characteristic of the demographic factors contrasting to the two categories of GPA of the participants. Hence, most of the freshman students in this academic year were females; the number of females (56.8%) participants excelled in the number of boys (43.2%) in both categories of GPA. In the case of marital status, there was a higher percentage of single students (48.4%) in the high GPA and 42.6 % in the low GPA and very few students were found married. The result on the family status indicated that most students have no family problem but it was higher in the students who have high GPA (46.5%) and students who have a family member with chronic illness and death of first relatives during their study was higher

percentages in the low GPA students was 5.2% and 3.2%, respectively. Most of the students with a higher GPA have educated parents and have a brother or sisters who graduated from college as compared to the low GPA students. The good motivation of parents was found in both low GPA students (43.2%) and was for a high GPA (52.9%). This implied that there are only very few numbers of students learn without parental motivation. 31% and 38.1% of the low and high GPA students had peers serious in their studying and the negligent in their studies, respectively.

Table 1. Descriptive analysis of demographic factors

Demographic factors			Student GPA		Total
			GPA < 2	GPA ≥ 2	
Gender	Male	Count	26	41	67
		% of Total	16.8%	26.5%	43.2%
	Female	Count	42	46	88
		% of Total	27.1%	29.7%	56.8%
Marital status	Single	Count	66	75	141
		% of Total	42.6%	48.4%	91.0%
	Married	Count	2	12	14
		% of Total	1.3%	7.7%	9.0%
Family status	Divorced parent	Count	5	5	10
		% of Total	3.2%	3.2%	6.5%
	Death of 1 st relative	Count	8	6	14
		% of Total	5.2%	3.9%	9.0%
	Family member with chronic illness	Count	5	4	9
		% of Total	3.2%	2.6%	5.8%
	Family without any problem	Count	50	72	122
		% of Total	32.3%	46.5%	78.7%
Father Education	Illiterate	Count	5	5	10
		% of Total	3.2%	3.2%	6.5%
	Primary Education	Count	24	17	41
		% of Total	15.5%	11.0%	26.5%
	Secondary Education	Count	39	65	104
		% of Total	25.2%	41.9%	67.1%
Mother Education	Illiterate	Count	7	7	14
		% of Total	4.5%	4.5%	9.0%
	Primary Education	Count	26	29	55
		% of Total	16.8%	18.7%	35.5%
	Secondary Education	Count	35	51	86
		% of Total	22.6%	32.9%	55.5%
Brother or sister graduated from college	Yes	Count	31	27	58
		% of Total	20.0%	17.4%	37.4%
	No	Count	37	60	97
		% of Total	23.9%	38.7%	62.6%
Motivation from parents	Yes	Count	67	82	149
		% of Total	43.2%	52.9%	96.1%

	No	Count	1	5	6
		% of Total	.6%	3.2%	3.9%
Responsibility at home	Yes	Count	33	58	91
		% of Total	21.3%	37.4%	58.7%
	No	Count	35	29	64
		% of Total	22.6%	18.7%	41.3%
Peer Influence	Serious in Study	Count	48	59	107
		% of Total	31.0%	38.1%	69.0%
	Not Serious in Study	Count	20	28	48
		% of Total	12.9%	18.1%	31.0%

As indicated in table 2, the students' GPA has a statistically significant relationship with marital status and responsibility at home. Having a brother or sister who graduated as well as father education was found also a marginally significant relationship with students' GPA. However, the rest of the variables in this table remain with no statistically significant relationship with students' GPA.

2. Descriptive Analysis of the Personal Factors

Table 2. Chi-square test for independence of the demographic factors against students GPA

Demographic factor	Gender	Marital status	Family status	Brother or sister	Motivation	Responsibility-home	Peers Influence.	Father Edu.	Mother Edu.	
GPA	Chi-square	1.2	5.47	2.07	3.45	1.88	5.18	.14	5.45	.82
	df	1	1	3	1	1	1	1	2	2
	Sig.	.27	.02*	.56	.06	.17	.02*	.71	.07	.66

Table 3 shows that the participation of students in a class was higher in a high GPA (35.5%) than in a low GPA (30.3%). About 51% of the high GPA and 40% from low GPA students were not employed; this shows that about 91% of the students were not employed. Concerning the way of studying, students who prefer to study alone were 30.3% of the high GPA and 23.2% from the low GPA. Similarly, students who study with one of their colleagues were 14.8% and 13.5% from the high and low GPA, respectively. The rest 11% and 7.1% from the high and low GPA respectively prefer to study in a group. The majority of students with a high GPA spend their time studying (7.7%) than low GPA students (5.2%). However, in below 3 study hours, high GPA students (16.8%) are greater than the low GPA students (8.4%). Students who never attend class were a little bit higher in high GPA students than low GPA students which were 0.6% and 1.3% respectively, alternatively, students who attend class sometimes were 5.2% in low GPA students and 2.6% in high GPA. Students who attend class regularly were 36.1% in low GPA and 39.4% in high GPA students. In the sitting position case, the percentage of students that sit in halfway and the front was higher among students with a high GPA; it was 32.9% and 12.9%, respectively. Whereas, among students with a low GPA, it was 25.8% and 12.3%, respectively. Regarding the matriculation score, students who have a low score in matriculation have low GPA; that is the 25.2% of students whose matriculation score from 1.8 to 2.4 were in low GPA and 5.8% in high GPA. Among students with a high matriculation score (3.4 – 4.0), .6% were in a low GPA and 33.5% in high GPA.

Table 3. Descriptive analysis of the personal factors

Personal factors			Student GPA		Total
			GPA < 2	GPA ≥ 2	
Class participation	Yes	Count	47	55	102
		% of total	30.3%	35.5%	65.8%
	No	Count	21	32	53
		% of Total	13.5%	20.6%	34.2%
Employment	Yes	Count	6	8	14
		% of Total	3.9%	5.2%	9.0%
	No	Count	62	79	141
		% of Total	40.0%	51.0%	91.0%
Studying style	Alone	Count	36	47	83
		% of Total	23.2%	30.3%	53.5%
	With one of my colleagues	Count	21	23	44
		% of Total	13.5%	14.8%	28.4%
	In group	Count	11	17	28
		% of Total	7.1%	11.0%	18.1%
Study hours	<3 hrs.	Count	13	26	39
		% of Total	8.4%	16.8%	25.2%
	4-6 hrs.	Count	47	49	96
		% of Total	30.3%	31.6%	61.9%
	>6 hrs.	Count	8	12	20
		% of Total	5.2%	7.7%	12.9%
Class Attendance	Never	Count	1	2	3
		% of Total	.6%	1.3%	1.9%
	Sometimes	Count	8	4	12
		% of Total	5.2%	2.6%	7.7%
	Frequently	Count	3	20	23
		% of Total	1.9%	12.9%	14.8%
	Regularly	Count	56	61	117
		% of Total	36.1%	39.4%	75.5%
Sitting position	Front	Count	19	20	39
		% of Total	12.3%	12.9%	25.2%
	Back	Count	9	16	25
		% of Total	5.8%	10.3%	16.1%
	Halfway	Count	40	51	91
		% of Total	25.8%	32.9%	58.7%
Matriculation score	1.8-2.4	Count	39	9	48
		% of Total	25.2%	5.8%	31.0%
	2.6-3.2	Count	28	26	54
		% of Total	18.1%	16.8%	34.8%
	3.4-4.0	Count	1	52	53
		% of Total	.6%	33.5%	34.2%

As indicated in table 4, matriculation score ($p < .001$) and class attendance ($p < .05$) were only found to have a significant association with the GPA of students. Whereas, other variables of the study like the way of study, study hours, sitting position, employment and participation in a class were found to have a statistically insignificant relationship with freshman students' GPA.

Table 4. Chi-square test of independence for the personal factors against students GPA

Personal Factors		Way of study	Study Hours	Sitting Position	Employment	Matriculation Score	Class Participation	Class Attendance
GPA	Chi-sq	.51	2.89	1.00	.01	66.57	.59	12.30
	df	2	2	2	1	2	1	3
	Sig.	.77	.24	.61	.94	.000*	.44	.01*

3. Descriptive Analysis of the Social Media and Economic Factors

Table 5 presented that students who are not abundant in their financial status were higher in low GPA than high GPA students 5.8% and 5.2%, respectively. Moreover, students with moderate and affluent in their financial status were more in the high GPA students than low GPA students. According to the results on social media, students who do not spend their time in social media were much greater in low GPA (13.5%) than high GPA students (10.3%). However, students who spend their time in social media greater than 4 hours were 5.2% in low GPA and 13.5% in high GPA.

Table 5. Descriptive analysis of the social media and economic factors

Economic factors and social media			Student GPA		Total
			GPA < 2	GPA \geq 2	
Financial status	Not abundant	Count	9	8	17
		% of Total	5.8%	5.2%	11.0%
	Moderate	Count	54	67	121
		% of Total	34.8%	43.2%	78.1%
	Affluent	Count	5	12	17
		% of Total	3.2%	7.7%	11.0%
Social media	No Time	Count	21	16	37
		% of Total	13.5%	10.3%	23.9%
	0-2 Hours	Count	21	33	54
		% of Total	13.5%	21.3%	34.8%
	3-4 Hours	Count	18	17	35
		% of Total	11.6%	11.0%	22.6%
	>4 Hours	Count	8	21	29
		% of Total	5.2%	13.5%	18.7%

Furthermore, as indicated in table 6, the financial status of the students had no statistically significant relationship with the students' GPA. Whereas social media was found to have a statistically significant association with the student's GPA.

Table 6. Chi-square test for independence of social media and economic factors against student GPA

Economic status and social media factor		Financial Status	Social Media
GPA	Chi-square	2.04	6.97
	df	2	3
	Sig.	.36	.07

4. Environmental Factors

Table 7 showed that 34.8% of the students of the high GPA group and 25.2% of the low GPA group were found to adapt their environment better. Similarly, 21.3% of students from the high GPA group and 18.7% were found to be challenged by the environmental difficulties. Most of the students didn't care about the class size compared to 33.5% of the students who preferred a small class size and 18.1% is preferred large class size. The evaluation of the participants for the learning facilities provided by the college was 57.4% moderate, 27.1% was very good and 15.5% is not sufficient. From the students who had low and high GPA use the college facility appropriately was 31% and 41.3%, respectively. However, 12.9% and 14.8% of the student didn't use. Most of the students accept the lecturing and assessment method, while those who score high GPA didn't satisfy in lecturing and assessment method which was 11.6% and 15.5%, respectively.

Table 7. Descriptive analysis of the environmental factors

Environmental factor			Student GPA		Total
			GPA < 2	GPA ≥ 2	
Challenge	Yes	Count	39	54	93
		% of Total	25.2%	34.8%	60.0%
	No	Count	29	33	62
		% of Total	18.7%	21.3%	40.0%
Class size	Large	Count	12	16	28
		% of Total	7.7%	10.3%	18.1%
	Small	Count	26	26	52
		% of Total	16.8%	16.8%	33.5%
	Neither	Count	30	45	75
		% of Total	19.4%	29.0%	48.4%
College learning facilities	Not Sufficient	Count	11	13	24
		% of Total	7.1%	8.4%	15.5%
	Moderate	Count	39	50	89
		% of Total	25.2%	32.3%	57.4%
	Very Good	Count	18	24	42
		% of Total	11.6%	15.5%	27.1%
Lecture Method	Not Good	Count	15	18	33
		% of Total	9.7%	11.6%	21.3%
	Good	Count	44	56	100
		% of Total	28.4%	36.1%	64.5%
	Very Good	Count	9	13	22
		% of Total	5.8%	8.4%	14.2%

Way of Assessment	Not Good	Count	13	24	37
		% of Total	8.4%	15.5%	23.9%
	Good	Count	51	47	98
		% of Total	32.9%	30.3%	63.2%
	Very Good	Count	4	16	20
		% of Total	2.6%	10.3%	12.9%

The chi-square result presented in table 8 showed that the way of assessment was found to have a highly significant relationship with students' GPA. However, Class size, challenges, facilities, and lecturing method showed an insignificant association with students' GPA.

Table 8. Chi-square test of independence of environmental factors against students GPA

Environmental factor		Class size	Challenge	Learning Facilities	Way of Assessment	Lecture Method
GPA	Chi-square	1.26	.35	.06	8.43	.11
	df	2	1	2	2	2
	Sig.	.53	.55	.97	.02*	.95

Multiple Logistic Regression

Based on the chi-square test of independence eight factors showed significant or marginal significant associations with freshman students' GPA during their first-semester study. These factors were marital status, brother or sister graduated from college, responsibility at home, father education, matriculation score, class attendance, social media and way of assessment. This result provoked further investigation on exploring the effect of the factors. Multiple logistic regression was conducted for this purpose considering the type of data. In this test, three types of model fit tests, which were -2 Log-likelihood, Cox and Snell R Square and Nagelkerke R Square were carried out. Based on these tests' results, the -2 Log-likelihood test result (106.771) was not too large, meaning that the logistic model fitted well to the statistical models. Similarly, the Cox and Snell R Square and the Nagelkerke R square values were higher, which indicated the model fit is better. This result tells that about 66.3% of the total variability in the freshman students' GPA performance was explained by the eight factors considered in the model. On top of these tests, Hosmer and Lemeshow test was performed. The result was found with insignificant chi-square value ($X^2=2.75$, $p>.05$) which implied that the model was good.

The multiple logistic regression results in table 10 indicated that factors of matriculation score were found to have a highly significant ($P < 0.001$) effect on freshman student GPA performance during the first semester of their academic study. Students who had a score of 3.4 to 4 in their matriculation exam (entrance exam) had 291 times more likely of scoring a GPA of ≥ 2.00 (good GPA) as compared to those who had a score of 1.8-2.4 on their matriculation examination. And students who had a score of 2.6-3.2 were 6.5 times more likely of scoring a good GPA than those who had a score of 1.8-2.4 on their entrance exam. The 95% confidence interval for the odds ratio also supports this significant evidence since it was not included one (unity) between the upper and lower limits. Social media was the second factor with a significant effect on students' performance ($P=0.046$). Students who daily spend 4 or more hours on social media had about 8 times more likely of scoring a good GPA as compared to those who never spend time on social media. Moreover, students who spend about 2 hours on social media were 2.9 times more likely to score a good GPA as compared to those who never

spend time on social media. Although results are not statistically significant results indicated that married freshman students were 4.2 times more likely of scoring a good GPA than freshman single students.

Furthermore, freshman Students who had no responsibility at home were 27% less at scoring a good GPA as compared to those freshman students who had some degree of responsibility at keeping their families. Alternatively, freshman students who had responsibility at home were 1.37 times more likely of scoring a good GPA as compared to those who didn't have any kind of responsibilities at home. Father's educational level and brother/sister graduating from college were also the other factors which expected to have some degree of effect on the freshman students' GPA performance. Students with a father's educational level of secondary or higher were 1.4 times more likely at scoring a good GPA than those who had illiterate fathers. A student who hadn't a brother or sister graduate from college was 1.96 times more likely of scoring a good GPA as compared to those who had siblings who graduated from college. In other words, students who had a brother/sister graduated from college were 49% less likely of scoring a good GPA in their semester exam as compared to those hadn't college graduated siblings. Both variables were not statistically significant. Both variables of class attendance and students' satisfaction regarding the way of assessment/evaluation (Mid-term + final exams) show an insignificant effect on freshman students' performance.

Table 10. Analysis of multiple logistic regression

Variables	B	S.E	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Marital status (Married)	1.44	1.11	1.69	1	0.19	4.22	0.48	36.93
Responsibility (No)	-0.32	0.53	0.35	1	0.55	0.73	0.26	2.08
Siblings graduated (No)	0.67	0.57	1.39	1	0.24	1.96	0.64	6.01
Father edu.			1.82	2	0.40			
Father edu. (Primary)	-0.48	1.03	0.22	1	0.64	0.62	0.08	4.60
Father edu.(Sec/higher)	0.36	0.98	0.14	1	0.71	1.43	0.21	9.69
Matricu. Score			24.24	2	0.00			
Matricu. Score (2.6 - 3.2)	1.87	0.66	7.99	1	0.01	6.48	1.77	23.68
Matricu. Score (3.4 - 4.0)	5.67	1.18	23.17	1	0.00	291.08	28.88	2933.65
Attendance			3.14	3	0.37			
Attendance (Sometimes)	-1.08	1.82	0.35	1	0.55	0.34	0.01	12.03
Attendance (Frequent)	0.79	1.64	0.23	1	0.63	2.21	0.09	55.11
Attendance (Regular)	-0.52	1.50	0.12	1	0.73	0.59	0.03	11.09
Social Media			7.99	3	0.04			
Social Media (0 - 2 hrs)	1.08	0.73	2.19	1	0.14	2.93	0.71	12.17
Social Media (3 - 4 hrs)	-0.20	0.83	0.06	1	0.81	0.82	0.16	4.19
Social Media (\geq 4 hrs)	2.08	0.93	5.05	1	0.03	8.00	1.31	49.02
Assessment			2.45	2	0.29			
Assessment (Good)	-0.80	0.61	1.72	1	0.19	0.45	0.14	1.49
Assessment (Very good)	0.07	1.00	0.01	1	0.95	1.07	0.15	7.61
Constant	-2.01	2.03	0.98	1	0.32	0.13		

Discussion

The objective of this study is to identify the prevailing factors that determine the fluctuation of freshman students' academic achievement. Accordingly, this study attempted to shed light on all suspected factors to identify the most contributing factors. As indicated in the results of this study, matriculation score (college entrance exam) is the strongest and most significant factor in students' GPA. Based on these objectives, the present study discovered that factors such as the way of assessment, marital status, brother or sister graduated from college, responsibility at home showed a significant relationship with the students' academic performance. Similarly, Erdem, Şentürk, and Arslan (2007) reported that having a graduate sister or brother, education level of parents, family expectations and study time has an impact on the grade point average. Kraemer (1995) also found that students score before entering university is one of the immediate factors that can influence the freshman students' academic achievement. They claimed that students' score before entering university has a positive relationship with their final GPA in their first-year study. However, this study reported that family economic status has an insignificant relationship with the students' academic performance. In contrary to this finding, Herzog (2005) reported that the socio-economic status of freshman students' parents plays a great role in regulating academic achievement. As indicated in this study, students from upper-income families show lower academic failures and dropouts compared to those from middle and lower-income families. Likewise, a study conducted at the University of Canberra indicated that parents' socioeconomic status played an important role in freshman students' persistence in their college (Le, 2001). Alike family economic status, the way of studying was found to have insignificant relationship with freshman students' academic achievement.

Parental education is frequently raised as an important factor that is related to freshman students' academic outcomes. For instance, Alonazi (2018) found that parental education significantly correlated with the academic achievement of freshman students. In contrary to this, the present study revealed that maternal education has no significant relationship with the academic achievement of freshman students. However, this study found that fathers' education has a significant relationship with the student's academic performance. Likewise, Kraemer (1995) found that fathers' education plays a great role in students' academic outcomes more than mothers' education. Unlike this, Herzog (2005) argued that mothers' educational level has a high significance effect than the father educational level. Apart from these, (Erdem et al., 2007) argued that the educational level of students' parents is expected to be positively related to the CGPA since a highly educated father and mother are expected to be a good role model and be more supportive of their children in many ways.

It was expected that the relationship between student GPA and their attitude toward class attendance to be positive. In concord to this expectation, this study reported that class attendance has a significant association with GPA, in which students who attended regularly were more likely to score a high GPA. Similarly, Orhan, Fathollah, and Thomas (2009) shared that students who attend classes regularly score better. In contrast to this, Herzog (2005) stated that class attendance has no significant effect on students' GPA. Furthermore, this study found that the lecturing method has no statistically significant relationship with the students' GPA. In contrary to this finding, a study by Mau, (2016) found that the quality of instructors has a statistically significant effect on students' academic performance.

The socioeconomic status was one of the main factors tested in this study, in which the result revealed that there is no significant association between financial status and students' GPA. This shows that students having high and low financial status don't affect their performance if they concentrate on their studies. In contrary to this, a study by Krumrei-Mancuso, Newton, Kim, and Wilcox (2013) reported that students with high financial status have a high academic performance. Furthermore, Rossi (2017) added that family status was

positively correlated with the academic performance of freshman students. Similarly, this study revealed that gender difference has no statistically significant effect on student's academic performance. In line with this, previous studies explained that there are no strong conclusions of gender effect on students' academic performance (Orhan et al., 2009).

This study also discovered that the variable active learning (participation) has a positive impact on student's performance. Similarly, Erdem, Şentürk, and Arslan (2007) reported that students who spend more time studying increase the probability of getting a higher GPA. However, DeLong (2008) reported that there is no significant relationship between class participation and students' academic performance. On the contrary, Krumrei-Mancuso, Newton, Kim, and Wilcox, (2013) revealed that active participation in classroom activities has a positive relationship with freshman students' academic achievement.

This study found that a student's GPA has no relationship with the challenges of the environment and the learning facilities provided by the college. On the contrary, Kraemer (1995) reported that learning environment bound with challenges harms freshman students' academic performance. Furthermore, this study also revealed that the amount of time spend in studying has no significant effect on freshman students' academic performance. Unlike this, Erdem et al. (2007) argued that an increase on the time spent studying for the courses increases the probability of getting a higher CGPA which is similar to the findings of previous studies.

The results of this study indicated that employment has no impact on students' academic performance, which is that employed student is more motivated to do well. In contrary to this, Dee et al. (2018) explained that employed students usually get lower grades in colleges. Likewise, a study revealed that there was a negative relationship between academic performance and employed students (Rossi, 2017). Furthermore, in this study seating position of students was found to have no relationship with their academic performance. However, a study by Benedict and Hoag (2004) assured that students sitting in front seats in their classrooms have a higher probability of receiving a high GPA. Apart from this, this study also measured the effect of class size and peer influence. The result then revealed that that class size and peer influence have a significant impact on students' academic performance. Similarly, McConnell and Sosin (1984) reported that class size and peers influence the academic performance of college students. In contrary to this some studies reported that class size and peer influence have no significant association with students' academic achievement (Orhan et al., 2009). Besides, this study found that students who spend more time in social media were more likely to score a high GPA than those who don't use it. This is explained that because it may help them in improving their studies since the mind always needs time for relaxation. This result contradicts the finding of Mau (2016), which reported that social media has a negative impact on the students' GPA.

Conclusion

The objective of this study was to identify the most influential factors that affect freshman students' academic performance. About 66.3% of the variability in students' academic performances is explained by the factors of marital status, brother or sister who graduated from college, responsibility at home, class attendance, father education, time spent on social media, matriculation score and way of assessment. This study addressed that, the two most influential factors on the freshman students' academic performance were matriculation score and time spends for social media. Freshman students who were married, and having some degree of responsibility at home showed a better chance of scoring a good GPA than those who were unmarried and don't have any responsibility at home. Moreover, this study confirmed that having a sibling graduated from college doesn't guarantee the students' performance in achieving a better GPA.

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