

**MASTERS OF SCIENCE IN TECHNICAL EDUCATION
(MECHANICAL AND PRODUCTION ENGINEERING)**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Students' perceptions of the causes of poor academic performance in

Engineering: a case of IUT

by

Mohammed Khaled Mohammed

STUDENT NO: 181031101

MSC.TE (Mechanical Engineering)

Supervisor: Mr. Hamisi Ramadhan Mubarak

DEPARTEMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

ORGANIZATION OF ISLAMIC COOPERATION (OIC)

BOARD BAZAR, GAZIPUR 1704, BANGLADESH

February, 2021

**STUDENTS PERCEPTIONS OF THE CAUSES OF POOR ACADEMIC
PERFORMANCE IN ENGINEERING: A CASE OF IUT**

BY

Mohammed Khaled Mohammed

STUDENT NO: 181031101

MSC.TE (Mechanical Engineering)

Thesis submitted in partial fulfillment of the requirements of the degree of **Master
of Science in Technical Education** with specialization in **Mechanical
Engineering**

DEPARTEMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

ORGANIZATION OF ISLAMIC COOPERATION (OIC)

BOARD BAZAR, GAZIPUR 1704, BANGLADESH

February, 2021

RECOMMENDATION OF THE BOARD OF EXAMINERS

The thesis titled “**student’s perceptions of the causes of poor academic performance in engineering: a case of IUT**” submitted by **Mohammed Khaled, student No. 181031101** of the academic year **2019-2020** has been found satisfactory and accepted as partial fulfillment of the requirement for the degree of Master of Science in Technical and Vocational Education (TVE) on January 2020.

BOARD OF EXAMINERS

Mr. Hamisi Ramadhan Mubarak

Lecturer,

Department of Technical and Vocational Education (TVE)

Islamic University of Technology (IUT)

Gazipur, Bangladesh

Supervisor (Chairman)

Dr. Md. Abdullah Al Mamun

Associate Professor,

Department of Technical and Vocational Education (TVE)

Islamic University of Technology (IUT)

Gazipur, Bangladesh

(Member)

Dr. Md. Abu Raihan

Professor,

Head of Department of Technical and Vocational Education (TVE)

Islamic University of Technology (IUT)

Gazipur, Bangladesh

(Ex-officio)

Mr. Rezaul Karim

External Examiner,

Former chairman Bangladesh Technical Education Board

(External Examiner)

Declaration

I, Mohammed Khaled, hereby declare that the thesis titled “**student’s perceptions of the causes of poor academic performance in engineering: a case of IUT**” for the Master of Technical and Vocational Education (TVE) department with a specialization in Mechanical and Production Engineering (MPE), hereby submitted by me, and has not been submitted elsewhere for the award of any Degree or Diploma. I also declare that the sources used in this thesis were explicitly acknowledged with proper citation and references.

Mr. Hamisi Ramadhan Mubarak

Supervisor,

Lecturer TVE, IUT

Mr. Mohammed Khaled

Mohammed

Student No. 181031101

Academic Year: 2019-2020

Dedication

I dedicate my thesis titled “**student’s perceptions of the causes of poor academic performance in engineering: a case of IUT**” to my family and my friends. A special feeling of gratitude to my loving parents, khaled Mohammed, may Allah accept his soul and grant him Jannah and my lovely mother queen whose words of encouragement and push for tenacity ring in my ears.

To my brothers, Osama khaled who has never left my side and are very special, Akram khaled and Anas khaled who always has been honest and kind to me. I also dedicate this dissertation to my beautiful sisters who are always wished me, prayed for my success, and waited for me to come home. I will always appreciate all they have done.

‘Thanks to all of you my family and friends’

Table of contents

RECOMMENDATION OF THE BOARD OF EXAMINERS	III
DECLARATION	IV
DEDICATION	V
TABLE OF CONTENTS.....	VI
LIST OF TABLES AND FIGURES.....	IX
TABLE OF EQUATIONS.....	IX
LIST OF ABBREVIATIONS OF TECHNICAL SYMBOLS AND TERMS	X
ABBREVIATIONS AND TERMS:	X
ACKNOWLEDGMENT.....	XI
ABSTRACT.....	XII
CHAPTER 1: INTRODUCTION	1
1.1 Problem statement	2
1.2 Main objectives of the study	2
1.3 Research Questions	3
1.4 Hypothesis	3
1.5 Significance of the study	3
1.6 Conceptual definition of concepts.....	4
1.6.1 Poor Academic Performance.....	4
1.6.2 Engineering Education	4
1.6.3 Students.....	4
1.7 Scope of the research.....	4
CHAPTER 2: LITERATURE REVIEW	5
2.1 Introduction	5
2.2 Discussion of the literature review.....	5

2.2.1	<i>Factors contributing to poor academic performance</i>	5
2.2.2	<i>Lack of social support</i>	7
2.2.3	<i>Behavioral challenges</i>	8
2.2.4	<i>Teaching and learning at IUT</i>	8
CHAPTER 3: METHODOLOGY		10
3.1	Introduction	10
3.2	Research Approach	10
3.3	Research Population.....	10
3.4	Procedure of Data Collection.....	12
3.5	Ethical Consideration	12
3.6	Data Analysis procedure	12
3.7	The Research Tools.....	13
3.8	Validity and Reliability	14
CHAPTER 4: DATA ANALYSIS AND INTERPRETATION.....		15
4.1	Demographic data analysis of student’s backgrounds	15
4.2	Findings	16
4.2.1	<i>Academic performance predictor</i>	17
4.2.2	<i>Significant correlation between native and international students at IUT</i>	19
4.2.3	<i>Significance difference of the factors for poor academic performance perceived by male and female students at IUT</i>	20
4.2.4	<i>Significance difference of the factors for poor academic performance between international and native students at IUT</i>	21
CHAPTER 5: DISCUSSION, IMPLICATION, RECOMMENDATION, LIMITATIONS AND CONCLUSION		23
5.1	Discussion and Implication	23
5.1.1	<i>Predicting factors of poor academic performance</i>	23

5.1.2	<i>Significant difference in low academic performance between international and native student's with regards to their engineering backgrounds</i>	24
5.1.3	<i>Significant difference of student's perceptions towards the academic performance between male and female students.....</i>	24
5.1.4	<i>Correlation between the native and international student's entrance to IUT at their first academic year and their performance</i>	24
5.2	The implication of the study to engineering.....	25
5.3	Recommendations	25
5.4	Limitation.....	26
5.5	Conclusion.....	26
REFERENCES		28
APPENDIXES		30

List of tables and figures

Table 3. 2: Likert type scale of five points	13
Table 4. 1: Demographic Data of respondents.....	15
Table 4. 2: Model Summary of predictors	16
Table 4.3: ANOVA out test model	17
Table 4.4: the coefficient's Model of predictors to poor academic performance	18
Table 4.5: Correlations between study category and gender with regards to academic performance	19
Table 4. 6: significance difference of the factors perceived by male and female students at IUT with using one way-ANOVA.....	20
Table 4.7: Significant difference of the factors for poor academic performance between Native and International students using one way-ANOVA	21

Table of Equations

Equation Q 1: Cochran's formula	11
Equation Q 3: Weighted arithmetic mean formula	14

List of abbreviations of technical symbols and terms

Abbreviations and terms:

(OIC)	Organization of Islamic Cooperation
(IUT)	Islamic University of Technology
(IIT)	Islamic Institute of Technology
(TVE)	Technical and Vocational Education
(ICTVTR)	Islamic Centre for Technical and Vocational Training and Research
(CSE)	Computer Science and Engineering
(EEE)	Electrical and Electronic Engineering
(MPE)	Mechanical and Production Engineering
(SPSS)	Statistical Package for Social Science
(MRA)	Multiple Regression Analysis
(CGPA)	Cumulative Grade Point Average

Symbols:

(n)	Number of sample size of population
(SD)	standard deviation
(E)	Error Rate
(N_i)	Number of respondents
(w_{n-i})	The value on Likert scale
(w_i)	The weight of each scale.
(β)	Beta value

Acknowledgment

First and foremost, I feel grateful and wish to extend my deepest gratitude to, Mr. Hamisi Ramadhan Mubarak, lecturer of the Department of Technical and Vocational Education (TVE), Islamic university of technology (IUT). His deep knowledge in the field of research influenced me to carry out this study. His endless patience, scholarly guidance, continuous encouragement constant supervision, constructive criticism, valuable advice, and responding to my request at all circumstances have made it possible to come to this stage.

I would like to convey my deepest gratitude and appreciation to the TVE faculty for their guidance and valuable suggestions regarding this study.

Finally, I would like to appreciate and thank my family members and my colleagues for their patience and continuous encouragement for the completion of this thesis.

Abstract

The success and prosperity of any educational institution are highly dependent on students' academic performance. Students join a university with an aspiration to achieve good grades, graduate, and become successful in their future endeavors, but those hopes are shattered when their academic results are not pleasing. Despite students' academic concerns, the IUT administration has raised awareness to investigate why engineering students' performance is deteriorating and differs significantly among students of different groups. This study, therefore, aims to examine and predict the factors that cause engineering student's poor academic performance at IUT. The study adopted a descriptive survey design to collect data on factors that predict poor academic performance among engineering students in IUT. Using a random stratified technique and Cochran's formula, an ideal sample size of 221 students was selected from different engineering departments. The findings were analyzed with the help of multiple regression analysis and ANOVA techniques.

The results of the analysis showed that *stress* was the most significant contributing factor to poor academic performance among engineering students. This was followed by *poor reading habits* and *poverty factors*. International students were the most affected among the sample data. The qualitative synthesis also suggested that an overwhelming and complex nature of engineering had a significant implication on their academic performance. The empirical analysis of the study was in line with literature findings. The study recommends that the institution needs to focus more on guidance and counseling to support and intrinsically motivate learners towards achieving better academic grades.

Keywords: *student's perception; poor performance; academic performance; case of IUT; causes of poor academic performance; engineering area.*

CHAPTER 1: INTRODUCTION

Islamic University of Technology (IUT) is a subsidiary organ of Organization of Islamic Cooperation (OIC) located in Board Bazar Gazipur, Bangladesh, which was initially established as Islamic Centre for Technical and Vocational Training and Research (ICTVTR) in 1981. It was later renamed as Islamic Institute of Technology (IIT) in 1994 and thereafter the Islamic University of Technology (IUT) in 2000. IUT was established with a goal to improve and support students from the OIC states. Students, from different member states of OIC from South Asia, the Middle East, and Africa are admitted and pursue their studies in different programs. The main objective of IUT's establishment, as an institution of higher education, is to equip its students with knowledge and skills for human resources development of the OIC member states.

The students' performance (academic achievement) plays an important role in producing the best quality of graduates who will become a great leader and manpower for their respective countries, thus, responsible for the country's economic and social development (Ali et al., 2009). In order to achieve the university's objectives, as stated above, the institution must aim at providing quality education which will be reflected in students' academic performance.

However, a number of students have failed to meet their expected academic performance while others have poor academic grades. A few factors have been highlighted, by a number of scholars, that contribute to this poor academic performance among students ((Alami, 2016; Pascoe et al., 2020; Topal, 2019). Al-Zoubi & Younes, (2015) highlighted several factors that potentially limit students' academic achievements such as: (a) lack of good studying habits; (b) poor resistance to self-stress and irrational emotive, which would affect the trust-worthy of students whether during seating for the examination or self-studying in a certain period of time; (c) adjustments with the environmental factor, and for example, foreign students facing difficulties to adapt with the new environment; (d) lack of optimum competent instructors;(e) laziness factor such as the unwillingness to study and perform a specific activity within a specified period of time; and (f) linguistic factor, LIKE mastery of English language as a prerequisite for their studies (Alami, 2016).

1.1 Problem statement

Since 1981, IUT has been globally considered and recommend as an international institution given its contribution to the OIC member countries and its academic success. Although, it is an institution that admits students from different academic backgrounds globally and employs teachers with different qualifications with some having attained PhDs, Masters Degrees, and Bachelor's Degrees. The diversity of students' academic background and teachers' high qualification should have yielded good academic achievements among students.

Despite all efforts been made by IUT administration toward increasing the number of enrollments in every academic year, there is still a recurring failure rate among students that has affected their academic progress. There is also a growing concern among academic staff and administrators of what could be the contributing factors to these increased failure rates. To the best of the researcher's knowledge, no studies have been conducted in trying to investigate, from engineering students' point of view, the determinant factor of poor academic performance. Therefore, in this study, the researcher investigated and examined the reasons behind the student's poor academic performance among engineering students in IUT.

1.2 Main objectives of the study

The main aim of this study was to examine and explore the possible factors behind students' poor academic performance in engineering among IUT students. In order to achieve this aim, the following objectives were constructed:

1. To determine the main predictors of poor academic performance among engineering students.
2. To determine whether there is any significant correlation of factors that predict poor academic performance between international and native students.
3. To identify and predict students perceptions with regards to poor academic performance between male and female students at IUT.
4. To develop guidelines to help improve students' poor academic performance.

1.3 Research Questions

To achieve the above-mentioned objectives, the study identified and explore answers to the following research questions:

- i) What are the reasons behind student's low achievement, whether individually or generally, in their academic performance?
- ii) Is there any significant difference in low academic performance between international and native students with regards to their engineering backgrounds?
- iii) Is there any significant difference of student's perceptions towards the low academic performance between male and female students?
- iv) Is there any correlation between the native and international students' entrance to IUT at their first academic year and their performance?
- v) What are the main contributing factors to poor academic performance among engineering students?

1.4 Hypothesis

Null hypothesis (H_{o1}): *There is no correlation between factors for poor academic performance perceived by international and native students.*

Null hypothesis (H_{o2}): *There is no significant difference between factors for poor academic performance perceived by male and female.*

Alternative hypothesis (H_{a1}): *There is a significant difference between factors for poor academic performance perceived by international and native students.*

Alternative hypothesis (H_{a2}): *There is a significant difference between poor academic factors perceived by male and female.*

1.5 Significance of the study

This provides insights into the factors that contributed to the high failure rate among engineering students. The study will help administrators identify cohorts of students that need academic help and support towards becoming productive students. The study contributes two pieces of knowledge in the literature, the complexity of engineering courses causes stress which may contribute to poor

academic grades, and both male and female students are equally affected by academic performance.

1.6 Conceptual definition of concepts

1.6.1 Poor Academic Performance

Poor academic performance is the knowledge and skills attained by the learner that is significantly below the expected standard as set by the examiners (Narad & Abdullah, 2016).

1.6.2 Engineering Education

It involves teaching vital knowledge and principles needed to pursue a profession in the engineering domain. Cheville,(2014) highlighted that engineering education is one of the important knowledge areas that prepare students to meet their challenges in order to help them build, acquire their knowledge, and skills that they can readily adapt to address novels, complex problems that they will encounter.

1.6.3 Students

Students can be defined as young adults in an educational learning environment primarily seeking knowledge and skill for better academic achievement.

1.7 Scope of the research

This study was designed to examine students' perception of factors that contribute to engineering students' poor academic achievements. The scope of this study was limited to only IUT as its target population. This comes because of the limited period of time and movement restriction as imposed by the hosting country during this COVID-19 pandemic. Therefore, the study included, in its scope, IUT students of different academic Programme, diversity of their academic background, linguistic diversity, demography, and their current academic performance.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

There has been a significant number of research that have explored the reasons behind student's poor academic performance among students (Topal, 2019; Pascoe et al., 2020; Zainab & Zafar, 2019). These studies have highly contributed to the improvement of educational practices and teaching methodology, and thereby increasing the quality of graduates.

This chapter focuses on the literature studies that are relevant to this study to help the researcher familiarize with factors that affect students' academic performance. The discussion however was very comprehensive as there was a huge volume of research literature in the field.

2.2 Discussion of the literature review

Adjusting with university life has been a huge challenge for almost all students. The culture of learning at the tertiary level is quite different from that encountered at the secondary school level of learning. For instance, students come with an expectation that they will achieve the highest grade in their academics amongst other classmates, unfortunately, this is not often the case (Alami, 2016; Pascoe et al., 2020; Topal, 2019). The high failure rate at university has raised a great concern to the community and the researchers to take a step forward to solve these problems that rose recently in a student's life.

2.2.1 Factors contributing to poor academic performance

Most of the educational institutions as well as students themselves are much interested in excelling academically. Unfortunately, not every student can have a good academic performance as some go through critical difficulties that might hinder their general performance (Alami, 2016; Pascoe et al., 2020; Topal, 2019). Alami (2016) highlighted that there are several reasons for students' poor academic performance. In this section, the researcher will discuss the key factors that affect academic performance across disciplines. These include *sleep disorder, stress factor, depression and anxiety factor, poor reading habit, Lack of social support, poverty and Behavioral challenges*.

2.2.1.1 Sleep disorder factor

In pursuit of good academic grades, students tend to invest a lot of their quality time reading for extra hours and thereby ending up having a sleeping disorder. Topal (2019) carried out a study to examine the relationship of sleeping quality with academic performance. His study revealed that students with a sleeping disorders had a higher impact on their learning and likely to cause poor academic performance. This is likely to disrupt their learning activities and may lead to poor academic achievements.

2.2.1.2 Academic stress factor

Academic stress can be defined as student's response to academic-related demands that surpasses their academic adaptive capabilities (Alsulami et al., 2018). Stress has been suggested as a contributing factor to poor academic performance (Anwar et al., 2012; Pascoe et al., 2020). A study was carried out to determining the relationships between stress and academic performance among first-year medical students conducted at Allama Iqbal Medical College (Anwar et al., 2012). The study showed a diversity of stress sources and a high level of stress in medical students. The results also showed that a higher level of stress is associated with poor academic performance.

Besides, stress has also been taken as a reasonable factor in secondary and higher education associated with poor academic performance (Pascoe et al., 2020). Pascoe et al (2020) findings indicated that academic-related stress can reduce academic achievement, decrease motivation, and increase the high risk of school dropout. Academic stress, therefore, harms students' learning capacity as well as poor academic performance.

2.2.1.3 Depression and anxiety factor

Depression is a persistence feel of sadness among students that affects their ability to perform daily activities and leads to loss of interest or intrinsic motivation (Moreira de Sousa et al., 2018). Depression and anxiety have been found to be daunting issues among students and educationists who have also been challenged on how to address them among teenagers. Kebede et al (2019) carried out a study to analyze the impact of depression and anxiety on their academic background among medical students in Addis Ababa, Ethiopia. The study indicated that the diffusion of depression and anxiety could affect the student's overall academic performance since both are commonly classified under mental health problems. Their study showed a remarkable proportion

amongst medical students with depression (51.30%) and anxiety (30.10%) as contributing factors towards poor academic performance.

Also, Zainab & Zafar (2019) examined the depression factor and its impact on poor academic performance amongst university students by monitoring their corresponding Cumulative Grade Point Average (C.G.P.A). The findings of the study showed that depression is a vital element used whether to poor academic performance or achieving the required purposes of students associated with an education background.

2.2.1.4 Poor reading habit factor

While, Anyaegbu, Aghauche (2016) carried out a study to explore the effects of *poor reading habits* on academic performance among junior secondary school students in the Enugu South Local Government of Nigeria. They examined 90 students and 10 teachers from 2 different schools and they found out that the factors that contributed to students' poor reading habits included lack of resources at school, poor teaching methodology, students' poor reading habits and their academic, and cultural background. These factors later affected their corresponding academic performance and thereby achieving low grades.

2.2.2 Lack of social support

Much as human beings are naturally social beings, students also need to develop and granted social support to overcome their depression and enjoy good academic performance. A study was conducted to examine the role of sources of social support on depression and good quality of life among university students(Alsubaie et al., 2019). The findings highlighted that depression is a predictor of social support and has significant effects on the mental health of university students which may as well influence their high levels of poor academic performance.

2.2.2.1 Poverty

In most developing countries, students are still struggling with psychological factors as a result of their economic status. Lacour & Tissington (2011) suggested that poverty as a social problem has greatly affected students' academic performance. Students below poverty levels are seen to have no or low levels of confidence and concentration on their study and thereby, achieving poor academic results in the long run.

2.2.3 Behavioral challenges

The most important and significant factors that impact students' academic performance range from how students behave, study, interact amongst themselves and with their professors to the use of material and technology in facilitating their learning process towards achieving better academic performance. According to Mahmood et Al. (2018) factors that affect student performance broadly, fall into four domains namely: (i) use of technology, (ii) the interaction process, (iii) the characteristics of the student, and (iv) and the characteristics of the class.

2.2.4 Teaching and learning at IUT

2.2.4.1 Relationships between academic and background and students performance

In this part, the researcher briefly identified the differences between academic backgrounds and student's performance in the university education system.

2.2.4.2 Academic backgrounds at IUT

IUT ensures a rich academic environment by providing quality ICT pedagogues, educationists, scientists, and engineers equipped to face the rapidly growing technological and educational challenges currently encountered by the Muslim Ummah. Part of the student education expenses is funded by the OIC member states. This provides a lucrative opportunity for the students to get quality education at an affordable cost and resources necessary for supporting better academic performance.

The academic performance of students at universities has become a major interest in academic research (valentine kassaring, 2018). Pike (2016) studied the effects of background, coursework, and involvement on Students' Grades and Satisfaction. His study showed a satisfactory report that these variables are moderately correlated. However, the direction of the relationship remains an open question. The results of this study support the growing body of evidence that satisfaction influences grades.

Since 1981, IUT has been globally considered and recommended as an international institution given its contribution to the member state countries and its academic success. Even though it is an institution that admits students from different academic backgrounds globally and employs teachers with different qualifications with some having attained PhDs, Masters Degrees, and

Bachelor's Degrees. The diversity of students' academic backgrounds and teachers' high qualifications should have yielded good academic achievements among students.

Student's academic backgrounds play a critical role in a student's academic performance(Okioga, 2013). Okioga (2013) carried out a study to investigate the impact of students' socio-economic background on academic performance in universities, a case of students in Kisi University College. The result of the study indicated that 94% of the respondents felt that socio-economic background impacted positively the student academic performance, while 6% indicated socio-economic background does not affect the academic performance of the students.

Despite all efforts been made by IUT to increase the number of enrollments in every academic year, there are recurring failure rates amongst students that have affected their academic progress. There is also a growing concern among academic staff and administrators of what could be the contributing factors to these increased failure rates. To the best of the researcher's knowledge, no studies have been conducted in trying to investigate, from engineering students' point of view, the determinants of poor academic performance at IUT. Therefore, in this study, the researcher shall investigate and examine the reasons behind a student's poor academic performance among engineering students in IUT.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The research methodology is often defined as a research strategy used by the researcher to outline the plan to undertake his or her study and to achieve the intended aims and objectives (Sam, 2012).

This chapter seeks to give a comprehensive insight into the methods of research that were adopted to explore different factors that contribute to poor academic performance among IUT engineering students. Therefore, this chapter discusses the research method, sampling technique, and ethical considerations as applied to the research.

3.2 Research Approach

A quantitative research approach was used to achieve objective predictors of poor academic performance. Further, a descriptive survey design was adopted to enable the researcher to gain and assess IUT engineering student's opinions, attitudes, and views on factors that contribute to poor academic performance.

According to A.H et al (2020) a survey method is highly recommended to be used in obtaining information on a large sample of participants by means of self-reporting, participants respond to series of questions posed by an investigator. In addition, A.H et al (2020) recommended that a descriptive research design may be adopted if the researcher wants to accurately describe the opinions of the population of a given situation. Therefore, a descriptive research design was used to collect information, record, analyze, and report the findings.

3.3 Research Population

The goal of quantitative research is to enrich the understanding of experience, and it needs to elect fertile exemplars of the experience of the study (Kamba A.H*, Oladayo A.A, 2020). The target population (approximately 2300) were students enrolled at IUT of the academic year 2019-2020. This population consists of students who come from the hosting country (Bangladesh) and other OIC member states. Students from the hosting country were referred to as native students; while students from other countries were referred to as international students. The researcher of this

study adopted random stratified sampling technique to select participants. The participants in the study were students of faculty of engineer from three departments in IUT of the academic year 2019-2020.

The research adopted a Cochran's formula to mathematically calculate the ideal sample size with a desired level of precision, desired confidence level, and the approximate proportion of the attribute that are present in the population (IUT students). The formula is highly recommended especially in circumstances where the population is large (Khoshi et al., 2018).

$$n = \frac{1.96^2 SD^2}{E^2}$$

Equation Q 1: Cochran's formula

Where,

n= the number of sample size of population

SD = standard deviation

E= Error Rate

On the basis of the equation q1, the researcher assumed a standard deviation of 30, a significant level of 95%, and a marginal error rate of 4. And this, thereby, gave an approximate sample size of 216 students. The data collected was above the approximate sampling and thereby reducing the error rates.

$$n = \frac{1.96^2 * 30^2}{4^2} = 216 \text{ students}$$

On the basis of the sample size target (216 students), the researcher managed to collect 221 respondents which is above the calculated sample size.

The sample size was limited to only three different departments including; Mechanical and Production Engineering (MPE), Electrical and Electronic Engineering (EEE), and Computer Science and Engineering (CSE). These three different departments were selected by the means of a simple random sampling technique.

Finally, at the end of the Class level, participants were randomly drawn while ensuring demographic representation.

3.4 Procedure of Data Collection

With regards to the data collection procedure, the selected participants were given a questionnaire. The participants consented before filling out the questionnaire. The researcher then sent a Google form to collect the participant's opinions with regards to factors contributing to poor academic performance. Besides a formal email, the participants were constantly reminded via social network applications like Facebook and Whatsapp.

3.5 Ethical Consideration

Ethical consideration deals with issues pertaining to getting consent or permission from participants, their confidentiality, and voluntary participation (Bassey, 2018). Bassey (2018) highlighted the importance of ethical considerations as it helps ensure that a good image or research is maintained.

An email was sent to each participant and a button for accessing the questionnaire was provided. On the online questionnaire form, a section was provided detailing ethical issues to assure the respondent is aware of the level of confidentiality and seeking their consent to participate. The participants were given the option to proceed if they consented or to decline and thereby giving them provision to voluntarily participate. The participants that agreed to participate were given the guarantee of the confidentiality of their responses. Responses were pseudo-coded to ensure anonymity and confidentiality retention.

3.6 Data Analysis procedure

The study was carried out and analyzed with software called Statistical Package for Social Science (SPSS). It was divided into two sections of data analysis; basic descriptive statistics of frequency and percentage, and multiple regression analysis (MRA). The researchers used *Academic performance (AP)* as one continuous dependent variable, and the other four continuous variables as independent variables i.e. *Poor reading habit (PRH)*, *Stress(S)*, *Poverty (P)*, and *Sleep Disorder (SD)*.

The researcher was also aware of the multiple regression analysis (MRA) assumptions and ensured that data were not violated including; (i) sample size,(ii) multicollinearity, and (iii)independence of residuals other than statistical requirements of the data.

One way -ANOVA was utilized to find out the different criteria to the study, and to find out the significant differences between male and female or international and native students with regards to poor academic performance.

3.7 The Research Tools

This study adopted a questionnaire as a tool for data collection as it is the most recommended tool for collecting students’ opinion in research surveys and also it’s more reliable given its anonymity in its administration(Darawsheh & Tarczynski, 2020).

The first section included questions seeking demographic information, the second to sixth sections tries to find out the poor academic factors, which were designed according to a five-point Likert scale(table 3.1). The last section is an open-ended question seeking to find specific problems faced by students that would affect their performance.

Table 3. 1: Likert type scale of five points

Scale	Points
Strongly Disagree (SD)	1
Disagree (D)	2
Undecided (U)	3
Agree (A)	4
Strongly Agree (SA)	5

Table 3.1, shows the interpretation of weighted mean whereby Weight mean ≥ 4.5 implies that the respondents strongly agree and their opinions have superior confidence, whereas Weight means $4.5 > W.M \geq 3.5$ indicates that respondents agree and their opinions have high confidence. Lastly Weight means below 3.5, indicate respondents are either uncertain or disagree and their opinions on the item in question are low and have no confidence in them.

The weighted arithmetic means formula was adopted to calculate the weighted mean (equation Q2).

$$\bar{x} = \frac{\sum_{i=0}^n w_{n-i} N_i}{\sum_{i=1}^{n-1} w_i} . \quad \text{Equation Q 2: Weighted arithmetic mean formula}$$

Where, (w_{n-i}) is the value on the Likert scale of (1-5) that represents the level of agreement. While 1 for strongly disagrees and 5 for strongly agree. N_i Is the number of respondents who choose that option on the Likert scale, w_i is the weight of each scale.

3.8 Validity and Reliability

The questionnaire was validated by a researcher's colleague and then later sent for further scrutiny and validation by the corresponding supervisor. Once the questionnaire passed the validity test, a pilot study test was carried and administered to the selected three departments randomly. And participants were selected from those targeted populations to ensure the reliability of the research tool.

CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

4.1 Demographic data analysis of student’s backgrounds

The study included students from different backgrounds (departments) such as; (i) Mechanical and Production Engineering (MPE), (ii) Electrical and Electronic Engineering (EEE), and (iii) Computer Science and Engineering (CSE).

Table 4. 1: Demographic Data of respondents

Gender		Current year				Total		
		1 st Year	2 nd Year	3 rd Year	4 th Year			
Male	status	Native	Count	20	32	10	13	75
			% of Total	9.0%	14.4%	4.5%	5.8%	33.9%
		international	Count	23	34	32	26	115
			% of Total	10.4%	15.3%	14.4%	11.7%	52.03%
	Total	Count	43	66	42	39	190	
		% of Total	19.4%	29.8%	19.0%	17.6%	85.9%	
Female	status	Native	Count	3	2	5	4	14
			% of Total	1.3%	0.9%	2.2%	1.8%	6.3%
		international	Count	5	6	6		17
			% of Total	2.2%	2.7%	2.7%		7.6%
	Total	Count	8	8	11	4	31	
		% of Total	3.6%	3.6%	4.9%	1.8%	14.02%	
Total	status	Native	Count	23	34	15	17	89
			% of Total	10.4%	15.3%	6.7%	7.6%	40.27%
		international	Count	28	40	38	26	132
			% of Total	12.6%	18.09%	17.19%	11.8%	59.72%
	Total	Count	51	74	53	43	221	
		% of Total	23.0%	33.45%	23.95%	19.6%	100%	

As shown in the table 4.1, over 221 participants responded with varied demographic representation. Given the nature of the university, the majority of the participants were male with 85.6% and only 14.02% were of the female gender. However, 59.72% of international students

expressed more interest in the study than native students (40.27%). Male, as a higher majority, varied from first to the fourth year with 10.45%, 15.31%, 14.4%, 11.7%, and a total of 52.03% respectively. While native male students showed a lower number of participants and interests to contribute to the study, the total of respondents was 33.9%. More so, international female students have demonstrated a higher interest than native female students in their different academic years.

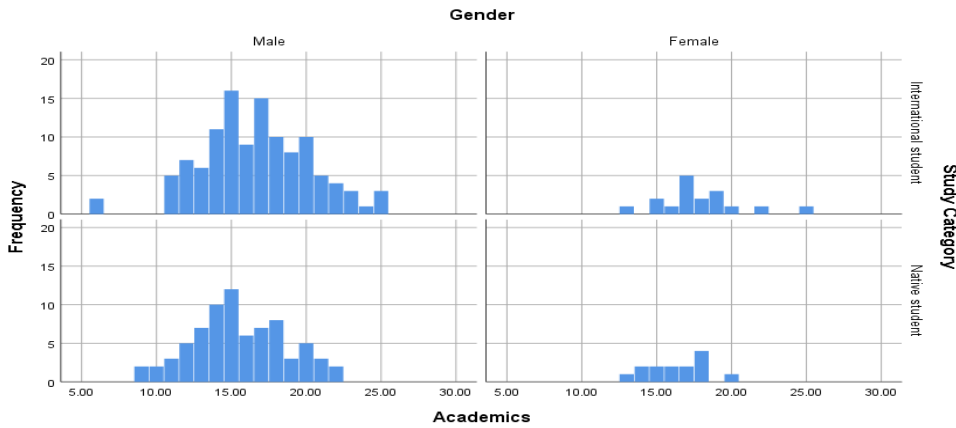


Figure 4.1: significant difference between study category and gender with regards students to academic performance

Figure 4.1, describes the different increase and decrease in scores amongst international and native students with due regards to *academic performance (AP)*. While international male students participated highly in this study.

4.2 Findings

Table 4. 2: Model Summary of predictors

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.550 ^a	.303	.290	2.84260

a. Predictors: (Constant), Sleep Disorder, Poverty, Poor Reading Habit, Stress
b. Dependent Variable: Academics

Table 4.2, describes one model in which *Sleep Disorder, Poor Reading Habit, Poverty, and Stress* are included as predictors and *Academic Performance* as the dependent variable. In the column

that referred to R, is the value of the multiple correlation coefficient between the predictors and the outcome. Where .550(55.0%) considered to be the simple correlation between Academic performance and the predictors.

In the next column, R² was considered as a measure of how much variability in the outcome is accounted for by the predictors. All the predictors together measured for about .303 (30.3%) and the remaining 69.7% accounted for by other factors.

Furthermore, the overall correlation between *sleep disorders, Poverty, Poor Reading Habits, and Stress* with academics was measured as R=.550, R²=.303, F=23.477, and with a significant level of (0.000). Therefore, the overall R, R², and F values indicated that there was a significant correlation between *sleep disorders, Poverty, Poor Reading Habits, and Stress with academic performance*.

To assess whether the proposed model is significantly appropriate for predicting the outcome of the causes of poor academic performance among engineering students, an analysis of variance (ANOVA) test was adopted.

Table 4.3: ANOVA out test model

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	758.806	4	189.702	23.477	.000 ^b
	Residual	1745.366	216	8.080		
	Total	2504.172	220			

a. Dependent Variable: Academics
b. Predictors: (Constant), Sleep Disorder, Poverty, Poor Reading Habit, Stress

Table 4.3, F-ratio was found significantly greater than 1 as given, and it was statistically significant to predict the academics performance of the students [F (4,221) =23.477, p<.001].

4.2.1 Academic performance predictor

Table 4.4, highlighted predictors of our study such as *poor reading habit, stress, sleep disorder, poverty, gender, and study category* associated with impact on academic performance.

Table 4.4: the coefficient's Model of predictors to poor academic performance

Model		Coefficients							
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	7.824	1.288		6.073	.000			
	Poor Reading Habit	.284	.079	.207	3.578	.000	.291	.238	.196
	Stress	.351	.061	.370	5.796	.000	.426	.368	.317
	Poverty	.223	.060	.230	3.723	.000	.372	.247	.204
	Sleep Disorder	.033	.072	.026	.459	.647	.200	.031	.025

a. Dependent Variable: *Academics*

#Ha1: *Poor reading habit* has made a greater impact on the student's academic performance. Our analysis has shown that *sleeping disorder* [$\beta=.026$, $p<.05$] was not the variable that impacted academic performance but rather *stress* predictor had the highest impact [$\beta=0.370$, $p<.05$] followed by *poverty* [$\beta=0.230$, $p<.05$] and *poor reading habit* [$\beta=0.207$, $p<.05$].

Hence, in consideration of beta (β) values and the magnitude of the t-statistic, it can be concluded that stress had the highest impact on students' *academic performance* [$\beta=0.370$, $p<.05$] higher than *a poor reading habit* that valued with [$\beta=.207$, $p<.05$]. Figure 4.1 depicts the *stress* frequencies among male and female students.

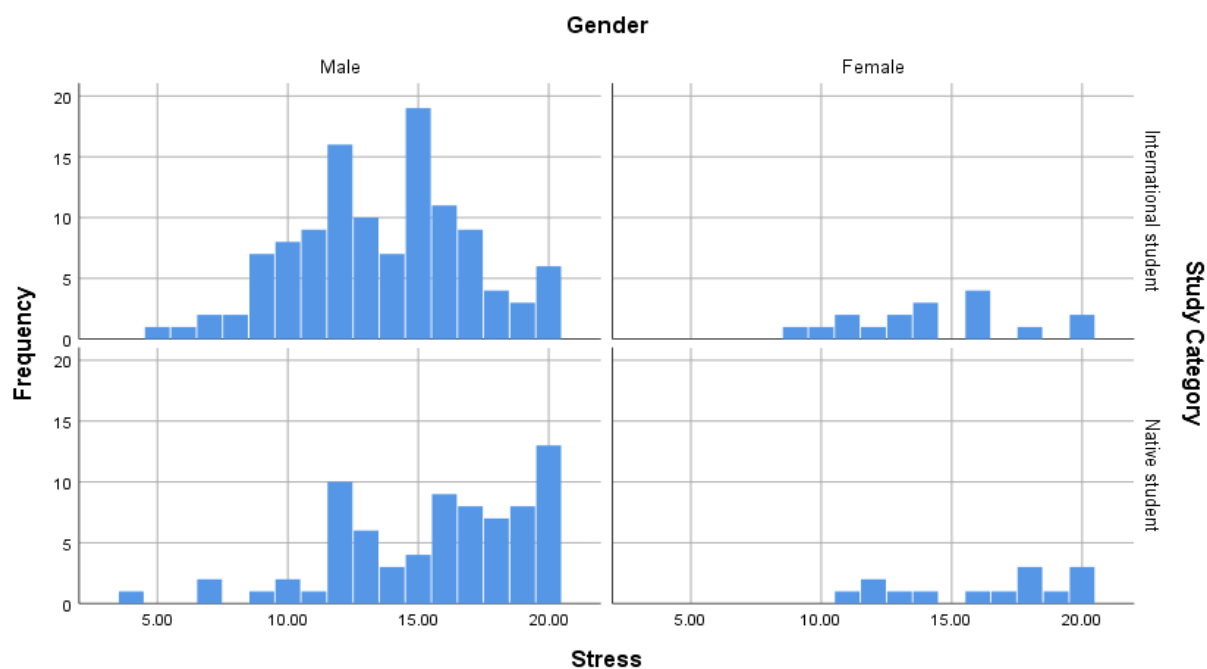


Figure 4 2: Histogram showing stress predictor and their impact on gender and study category

4.2.2 Significant correlation between native and international students at IUT

Table 4.5: Correlations between study category and gender with regards to academic performance

		Academics	Study Category	Gender
Pearson Correlation	Academics	1.000	-.167	.101
	Study Category	-.167	1.000	.040
	Gender	.101	.040	1.000

Regarding to the first null hypothesis (H_{01}): *there is no correlation between factors perceived by international and native students*. Table 4.5, shows the correlation between *Study Category* scoring a value of (-.167) and *Gender* with (.101) in regards to *Academic Performance (AP)*, where *gender* includes; male and female students. While the *study category* included international and local students of IUT. From the data, we conclude that there is a significant correlation between the

independent variable of *Gender (G)* and the dependent variable *Academic Performance (AP)* with a value of 0.101 in opposite to the study category variable with a negative output value.

More so, the study showed us that there was no significant correlation between native and international students. Therefore, we accepted the null hypothesis as well as rejected the alternative hypothesis in regards to whether there is no correlated perspective amongst international and native students at IUT.

4.2.3 Significance difference of the factors for poor academic performance perceived by male and female students at IUT

The significant difference of the factors for poor academic performance perceived by male and female students' at IUT was determined using a one-way ANOVA test which compares the means of these gender groups, as shown in table 4.6. In this table, the researcher examined the significant difference between males and females.

Table 4. 6: significance difference of the factors perceived by male and female students at IUT with using one way-ANOVA

		N	Mean	Std. Deviation	F	Sig
Poor Reading Habit	Male	190	10.0316	2.51326	.557	.456
	Female	31	10.3871	2.09249		
	Total	221	10.0814	2.45740		
Stress	Male	190	14.4316	3.59203	1.221	.270
	Female	31	15.1935	3.35081		
	Total	221	14.5385	3.56174		
Poverty	Male	190	10.5211	3.43605	3.944	.048
	Female	31	9.1935	3.54419		
	Total	221	10.3348	3.47407		
Academics	Male	190	16.2105	3.47750	2.276	0.133
	Female	31	17.1935	2.53534		
	Total	221	16.3484	3.37381		
Sleep Disorder	Male	190	11.9211	2.67836	.592	.442
	Female	31	12.3226	2.78552		
	Total	221	11.9774	2.69080		

Significant level 0.05

In regards to the second hypothesis (H_{02}): *There is no significant difference between factors for poor academic performance perceived by male and female.*

The results from Table 4.6, Shows no significant difference between poor academic factors perceived between male and female. We observed the total mean performance between male and female in *Poor Reading Habit, Stress, Poverty, Academics, and Sleep Disorder* to be 10.814), (14.5385), (10.3348), (16.3484), and (11.9774) respectively. Where, the F value for *Poor Reading Habit, Stress, Poverty, Academics, and Sleep Disorder* were F (.557), F (1.221), F (3.944), F (2.276), and F (.592) respectively. Considering the results from the table at a confidence interval (CI) of 95% and significant level of 0.05, there was no significant difference in the performance of male and female students in *Poor Reading Habit, Stress, Poverty, Academics, and Sleep Disorder* with (.456), (.270), (0.448), (0.133), and (0.442) respectively.

In addition, to the findings, we accepted the null hypothesis and rejected the alternative hypothesis. Therefore, the researcher concluded that there exists no significant difference of the factors for poor academic performance perceived by male and female students.

4.2.4 Significance difference of the factors for poor academic performance between international and native students at IUT

The significance difference of the factor for poor academic performance between native and international students at IUT was further examined by adopting a one-way ANOVA to compare mean differences between the countries of origin groups.

Table 4.7: Significant difference of the factors for poor academic performance between Native and International students using one way-ANOVA

			N	Mean	Std. Deviation	Std. Error	F	Sig.
Poor Reading Habit	Reading	International student	132	9.8182	2.58539	.22503	3.810	0.052
		Native student	89	10.4719	2.21097	.23436		
		Total	221	10.0814	2.45740	.16530		
Stress	Stress	International student	132	13.7045	3.30334	.28752	19.477	0.000
		Native student	89	15.7753	3.58898	.38043		
		Total	221	14.5385	3.56174	.23959		
Poverty	Poverty	International student	132	11.1591	3.12055	.27161	20.048	0.000
		Native student	89	9.1124	3.62579	.38433		

	Total	221	10.3348	3.47407	.23369		
Academics	International student	132	16.8106	3.55788	.30967	6.300	0.013
	Native student	89	15.6629	2.96933	.31475		
	Total	221	16.3484	3.37381	.22695		
Sleep Disorder	International student	132	11.9697	2.67570	.23289	0.003	0.959
	Native student	89	11.9888	2.72820	.28919		
	Total	221	11.9774	2.69080	.18100		

Significant level 0.05

According to the first alternative hypothesis (H_{a1}): *There is a significant difference between factors for poor academic performance perceived by international and native students.*

The results from table 4.7, showed a significant difference for poor academic performance perceived by native and international students. Besides, we observed that the total mean performance between native and international in a *poor reading habit, stress, poverty, academics, and sleep disorder* respectively. While, for *poor reading habit, stress* scored (10.0814), (14.5385), and for, *poverty, academics, and sleep disorder* were equal to (10.3348), (16.3484), (11.9774). Furthermore, the F scores for *poor reading habit, stress, poverty, academics, and sleep disorder* were [($F_1=3.810$, $\alpha_1=0.052$), ($F_2=19.477$, $\alpha_2=0.000$), ($F_3=20.048$, $\alpha_3=0.000$), ($F_4=6.300$, $\alpha_4=0.013$), ($F_5=0.003$, $\alpha_5=0.959$)] respectively. Considering the given results from table 4.7 at the confidence interval (CI) of 95% and a significant level of 0.05. Therefore, the study showed a significant difference in the academic performance of native and international students.

CHAPTER 5: DISCUSSION, IMPLICATION, RECOMMENDATION, LIMITATIONS AND CONCLUSION

5.1 Discussion and Implication

This study aimed at discovering the predicting factors that cause poor academic performance among engineering students, a context of IUT. To achieve this aim, the study took a research survey design to assess student's opinions and later analyzed the findings by using SPSS, as descriptively explained in the previous chapter. This chapter will discuss the results according to the research questions.

5.1.1 Predicting factors of poor academic performance

As clearly depicted in table 4.4, the analysis revealed that it's not *sleeping disorder* that is affecting students' performance but rather it's the high-stress level, followed by poor backgrounds and student's *poor reading habits*. The high-stress factor has also been emphasized by Anwar et al., (2012) and Pascoe et al. (2020) in their studies. More importantly, engineering is considered to be highly complex and requires extensive reading, like science (Pleasant & Olson, 2019). This could be seen as a reason to why students feel stressed and in the long run, this affects their academic performance.

This has been qualitatively synthesized by several respondents. Some students have expressed this inform of unbiased assessment methodology that is not transparent and fair.

".. IUT teacher's mark and judge students' mistake by deducting our marks...which is not fair" q3

While other students qualitatively reported that they are given inadequate time for their exam preparation. This can be attributed to a lack of proper reading habits and poor time management. For example, some of the participants reported that they are not given enough reading time:

"I think before mid or semester final we need a 10-day break for preparing ourselves." q4

"Yes, we get a very less amount of time before the exam. Most of the time semester final starts with e 3-4 days' vacation." q5

When students developed a sense of tension, stress, and fear of engineering (Pleasant & Olson, 2019), they tended to hesitantly withdraw from participating in class. This was also highlighted by Al-Zoubi & Younes (2015) and thereby, students become more passive than active in their learning.

5.1.2 Significant difference in low academic performance between international and native student's with regards to their engineering backgrounds

The results in table 4.7, showed that there was a significant difference in the performance between native and international students. Based on our research this significant difference is due to the difficulties in adjustments with the environment. This explains that our results indicated the difference in performance as a result of slow adaptation to the environment.

Qualitative synthesis suggests that most of the foreign students are challenged with language barriers in their first year and thereby facing difficulties in adjusting to the environment.

For instance, participant emphasized on this.

"...we face a challenge to adjust with language at campus..." q1

5.1.3 Significant difference of student's perceptions towards the academic performance between male and female students

The results in the ANOVA test in table 4.3, revealed that there was no significant difference between the academic performance of male and female students aligned with these factors.

As for demographic data analysis, females had low participations compared to males. This unequal distribution can be attributed to the fact that generally, the female's population is considerably low at the campus. This shows that, given that small representation of female in the study, female have low chances of having low academic results than male students.

5.1.4 Correlation between the native and international student's entrance to IUT at their first academic year and their performance

Results from Multiple Regression Analysis (MRA), as shown in table 4.5, revealed that the *study category* had no significant correlation on students' academic performance as compared to gender.

This can be attributed to the fact that there is still a significantly low number of female enrolment since the female intake starts a couple of years back.

5.2 The implication of the study to engineering

The study was conducted to evaluate engineering students' perceptions on causes and reasons behind students' low achievements in engineering background.

The study was conducted on the basis of four different hypothesis. The findings of the study indicated that in fact these four factors which are *stress*, *poverty*, *sleep disorder*, and *poor reading habit* were significant to predict poor academic performance of engineering students [$F(4,221) = 23.477$, $p < .001$]

However, the researcher found out that *stress* was the most significant factor that contributed to poor academic performance in engineering [$\beta = 0.370$, $p < .05$] than *a poor reading habit* that valued with [$\beta = .207$, $p < .05$]. This implies, the university administration needs to look into how to curb and reduce academic stress among graduates. Guidance and counselling services can be put in place to address anxiety and academic stress issues. More importantly, good reading habits and hands-on class activities can be encourage to demystify complex engineering concepts. This study will be found very useful to educational institutions that are currently experiences low performance among engineering students.

5.3 Recommendations

Taking into consideration the quantitative analysis and qualitative (open-ended data) results, the following are a few of the recommendation that might be important in academia:

1. University teaching methodology needs to be revised to take into consideration a simple approach to introducing complex engineering concepts.
2. Guidance and counseling services need to be introduced to eradicate cases of stress and financial strains. Counseling will also play a significant role in guiding students toward better time management and approaches to good examination preparations.
3. A students' centered teaching approach should be introduced in place of the traditional teacher-centered approach. This will grant students the opportunity to engage more in

learning rather than replicating the content and thereby reducing cases of engineering students' stress level.

4. Taking into consideration of gender equality, the university can consider recruiting more female teachers and students to create a conducive and safe learning environment for female students.
5. Given the presence of international students, a specific program could be designed to assist expatriate students with the language barrier and psychological factors. English language courses and other basic prerequisite subjects may be introduced to help international students better prepare for complex engineering concepts.
6. Since the study focused on the students, it would be recommended that in the future to conduct a study of similar nature on teachers to assess their perceived challenges students are facing.

5.4 Limitation

Our study had some limitations within which the findings may not necessarily be generalized to the entire population. The main limitation of this study was that given the current crisis of COVID-19 pandemic, the scope of this study was limited to only IUT students who can access the research tool remotely. Secondly, given the time constraint of this study, the study focused on only IUT students within three selected departments, and as such generalization cannot be made to other institutions. Lastly, given that, in the study, collection of student's grades was essentially needed to be provided by IUT administration, but unfortunately we couldn't have such data because of the university's restrictions and the level sensitivity of the data. Since the study focused on the students, it would be recommended that in the future to conduct a study of similar nature on teachers to assess their perceived challenges students are facing with. Therefore, students' truthfulness and point's accuracy cannot be assured.

5.5 Conclusion

The current study was designed to explore predicting factors of poor academic performance through engineering students' lens. In addition to these factors, the study also examined whether there is any significant relationship in gender, study group, and current status and their

corresponding academic performance. The study comprised 221 engineering students with the majority being represented by male (190) respondents and only 31 female students.

This study has unveiled the predicting factors that particularly affect engineering students' academic performance. The factors were also found to be in line with the previous studies, as discussed in the discussion section.

In this study, we concluded, using multiple regression analysis, that there are a few predictors that made an impact on the academic performance of students. Stress factor had a higher score on the academic performance [$\beta=0.370$, $p<.05$] higher than poor reading habit [$\beta=.207$, $p<.05$].

On the basis of ANOVA analysis, there were no significant differences between males and females regarding their academic performance taking into consideration their engineering background. There was also no significant correlation between gender and academic performance. It should be noted, however, that females were underrepresented and this could have affected the findings. Based on the qualitative synthesis, other factors were identified including, but not limited to environmental factors like inadequate classrooms, internet, medical care, library, hygiene in the halls of residence. Moreover, teachers' behavior, huge course load, High tuition fees, labs and quizzes, packed learning schedule, and pressure of assignment could be taken into consideration as contributing factors to their poor academic performance.

The finding of this study will contribute to the literature of engineering educationists. Given the complexity of the engineering field, educationists will find our study very important in explaining the factors that need more attention when handling academically weak students. Particularly, stress and poor reading habits need a close consideration to overcome this academic drawback.

In the future, we hope to conduct studies to ascertain the relationships among variables that affect students' academic performance in general a crossing all other departments. Studies that represent the academic performance of students in the university and their post-university performances at the place of work are fascinating in the future.

REFERENCES

- Al-Zoubi, S. M., & Younes, M. A. B. (2015). Low Academic Achievement: Causes and Results. *Theory and Practice in Language Studies*, 5(11), 2262. <https://doi.org/10.17507/tpls.0511.09>
- Alami, M. (2016). *Causes of Poor Academic Performance among Omani Students*. 4(1), 126–136. <https://doi.org/10.5296/ijssr.v4i1.8948>
- Ali, N., Jusoff, K., Ali, S., Mokhtar, N., & Salamat, A. S. A. (2009). The Factors Influencing Students' Performance at Universiti Teknologi MARA Kedah, Malaysia. *Management Science and Engineering*, 3(4), 81–90.
- Alsubaie, M. M., Stain, H. J., Webster, L. A. D., & Wadman, R. (2019). The role of sources of social support on depression and quality of life for university students. *International Journal of Adolescence and Youth*, 24(4), 484–496. <https://doi.org/10.1080/02673843.2019.1568887>
- Alsulami, S., Al Omar, Z., Binnwejim, M. S., Alhamdan, F., Aldrees, A., Al-Bawardi, A., Alsohim, M., & Alhabeeb, M. (2018). Perception of academic stress among health science preparatory program students in two saudi universities. *Advances in Medical Education and Practice*, 9, 159–164. <https://doi.org/10.2147/AMEP.S143151>
- Anwar, M. I., Iftikhar, N., Hasnain, S. H., & Ishaq, B. M. (2012). Pseudoainhum in acute psoriasis. *Journal of the College of Physicians and Surgeons Pakistan*, 22(12), 786–788.
- Anyaegbu, Aghauche, and N. (2016). Poor reading habit and the academic performance of Junior Secondary School students in Enugu South Local Government Area of Enugu State. *Education Research Journal*, 6(8), 112–121. <http://resjournals.com/journals/educational-research-journal.html>
- Bassey, A. (2018). Ethical Issues in Educational Research. *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*, 1287–1301. <https://doi.org/10.4135/9781506326139.n236>
- Chevillat, A. (2014). A century of defining engineering education. *ASEE Annual Conference and Exposition, Conference Proceedings*.
- Darawsheh, H. Y., & Tarczynski, A. (2020). FIR Filtering of Discontinuous Signals: A Random-Stratified Sampling Approach. *ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings, 2020-May*, 5800–5804. <https://doi.org/10.1109/ICASSP40776.2020.9054310>
- Kamba A.H*, Oladayo A.A, F. A. . (2020). Factors and Effect of Poor Background on the Students Academic Performance in Physics at Senior Secondary School in Birnin Kebbi Metropolis. *Saudi Journal of Engineering and Technology*, 05(03), 114–119. <https://doi.org/10.36348/sjet.2020.v05i03.004>
- Kebede, M. A., Anbessie, B., & Ayano, G. (2019). Prevalence and predictors of depression and anxiety among medical students in Addis Ababa, Ethiopia. *International Journal of Mental Health Systems*, 13(1), 1–8. <https://doi.org/10.1186/s13033-019-0287-6>

- Khoshi, A., Shams Gooshki, H., & Mahmoudi, N. (2018). The data on the effective qualifications of teachers in medical sciences: An application of combined fuzzy AHP and fuzzy TOPSIS methods. *Data in Brief*, 21, 2689–2693. <https://doi.org/10.1016/j.dib.2018.10.165>
- Lacour, M., & Tissington, L. D. (2011). *The effects of poverty on academic achievement*. 6(July), 522–527.
- Moreira de Sousa, J., Moreira, C. A., & Telles-Correia, D. (2018). Anxiety, depression and academic performance: A study amongst Portuguese medical students versus non-medical students. *Acta Medica Portuguesa*, 31(9), 454–462. <https://doi.org/10.20344/amp.9996>
- Narad, A., & Abdullah, B. (2016). Academic performance of senior secondary school students: Influence of parental encouragement and school environment. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, 8(2), 12–19. <https://doi.org/10.21659/rupkatha.v8n2.02>
- Okioga, C. K. (2013). The Impact of Students' Socio-economic Background on Academic Performance in Universities, a Case of Students in Kisii University College. *American International Journal of Social Science*, 2(2), 38–46.
- Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, 25(1), 104–112. <https://doi.org/10.1080/02673843.2019.1596823>
- Pike, G. R. (2016). *The Effects of Background, Coursework, and Involvement on Students' Grades and Satisfaction* Author(s): Gary R. Pike Source: *Research in Higher Education*, Vol. 32, No. 1, AIR Forum Issue (Feb., 1991), pp. 15- Published by: Springer Stable. 32(1), 15–30.
- Pleasant, J., & Olson, J. K. (2019). What is engineering? Elaborating the nature of engineering for K-12 education. *Science Education*, 103(1), 145–166. <https://doi.org/10.1002/sce.21483>
- Sam, G. (2012). Chapter 3 – Research Methodology and Research Method. *Research Methodology and Research Method*, March 2012.
- Topal, I. (2019). The effect of sleep quality on academic performance. *Annals of Medical Research*, 0, 1. <https://doi.org/10.5455/annalsmedres.2019.05.265>
- Zainab, T., & Zafar, A. (2019). Poor academic performance as predictor of depression among university students. *International Journal of Latest Research in Humanities and Social Science (IJLRHSS)*, 02(10), 1–5. www.ijlrhss.com%7C%7CPP.01-05

APPENDIXES

QUESTIONNAIRE

To the respondents:

Dear Respondents:

I am a student of Master of Science in Technical Education with specialization in Mechanical and Chemical Engineering (MSc.T.E-MCE) of the Islamic University of Technology (IUT). As a partial requirement of my Degree, I should complete and submit a thesis on the topic titled “Student’s perceptions of the causes of poor academic performance in engineering: a case of IUT”.

Of recent, there has been a growing concern among teachers, administrators and students themselves of what could be the causes of increased academic performance in IUT. This study, therefore, seeks student’s experience and opinions regarding the possible causes of poor academic performance among IUT students.

Upon that, I need your information/data as mentioned in the attached questionnaire. Your perception and response to the questionnaire will be highly appreciated and the information will be used for only research purpose and will remain confidential. Thanks for your cooperation.

Proceed or **decline**

Section one: introduction of the study

Email address:

Section two: A Background information

Choose the option that best represent yourself by ticking on the provision () provided.

Nationality:.....

Gender: () Female () Male

Study category: () international () Native

Department/specialization:

() Mechanical & Production Engineering (MPE)

() Electrical & Electronic Engineering (EEE)

() Computer Science & Engineering (CSE)

Section three: Questionnaire

The following rating scales give the weighted average of the opinion.

SA: Strongly Agree, **A:** Agree, **N:** Neutral, **D:** Disagree and **SD:** Strongly Disagree

SN	ITEMS	1	2	3	4	5
Part 1	Sleep disorder	SD	DA	N	A	SA
	I don't usually sleep earlier at night					
	I used to sleep a lot before mid and final examination.					
	I spend much of my night time reading					
	I do usually sleep 10-15 minutes inside the classroom.					
Part 2	poor reading habit	SD	DA	N	A	SA
	I do read the subject before I write any assignment and extra work regularly.					
	I do not read the contents before going to the class room.					
	I have difficulties in understanding mathematical calculations					
Part 3	poverty	SD	DA	N	A	SA
	I think IUT pocket allowance is not sufficient to meet my monthly needs					
	I usually spend most of my money given within almost a week.					
	I often borrow some money from close friends to buy tools and other things.					

Part 4: **Stress** **SD DA N A SA**

Sometimes, I found myself grinding my teeth during exams and other works.

I am unable to perform tasks and other works whenever I'm feeling stressful.

I usually used to get a huge depressed during the exam and tests.

I do think stress is a factor that affect my low academic performance.

Part 5 **Academics** **SD DA N A SA**

I sometimes feel afraid or panic before and/or during an exam or assessment.

The exam questions are difficult to understand

The exam time given is not adequate enough to complete it within a short period of time.

Most of IUT teachers use good teaching methods which makes my learning easier.

I think most of the teachers are sometimes biased when marking

Section four: Open ended question

Is there any other issue a rises at your institution that is not mentioned above?

.....
.....