



الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
يُونِيسَيتِي إِسْلَامِيّ أَنْتَارَا بَغْسِيَا مَلِيسِيَا

Garden of Knowledge and Virtue

**KULLIYAH OF INFORMATION AND COMMUNICATION
TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE
FINAL YEAR PROGRESS REPORT**

PROJECT ID

1141R

PROJECT TITLE

INVESTIGATING THE RELATIONSHIP BETWEEN SOCIAL MEDIA USAGE
DURATION AND ACADEMIC SUCCESS AMONG MUSLIM STUDENTS USING
DATA SCIENCE PROCESS

STUDENT

1. AHMED RAMADAN ALI HASSAN (191683)

SUPERVISOR

RAINI BINTI HASSAN (Dr.)

JANUARY 2024

SEMESTER 1 2023/2024

FINAL YEAR PROGRESS REPORT

PROJECT ID

1141R

PROJECT TITLE

INVESTIGATING THE RELATIONSHIP BETWEEN SOCIAL MEDIA USAGE
DURATION AND ACADEMIC SUCCESS AMONG MUSLIM STUDENTS USING
DATA SCIENCE PROCESS

PROJECT CATEGORY

RESEARCH

by

1. AHMED RAMADAN ALI HASSAN (1916883)

SUPERVISED BY

SUPERVISOR'S NAME

In partial fulfillment of the requirement for the
Bachelor of Computer Science

Kuliyyah of Information and Communication Technology
International Islamic University Malaysia

ACKNOWLEDGEMENTS

All praise to Allah SWT for His guidance and blessings throughout the completion of this project. I extend my heartfelt gratitude to my dedicated and supportive supervisors, Dr. Raini Binti Hassan, for their invaluable guidance, mentorship, and encouragement. Their expertise and constructive feedback played a pivotal role in shaping this project and enhancing my understanding of the subject matter. I am also thankful for the unwavering support of my family and friends who stood by me during this academic journey. Their encouragement and belief in my abilities fueled my determination to excel.

In conclusion, I am grateful to everyone who contributed to the successful completion of this project. Your support has been instrumental, and I am truly appreciative.

ABSTRACT

This study explores how social media use affects the academic success of Muslim students, investigating the nuanced relationship between social media engagement and academic performance in this student group. The research contributes to a deeper understanding of the educational experiences of Muslim students, providing insights for interventions to help them navigate social media more effectively. By analyzing unique social media usage patterns and potential correlations with academic achievement, the study addresses existing research gaps. Three key questions guide the research: 1) How does social media usage duration relate to academic success among Muslim students? 2) What are the most commonly used social media platforms and their purposes for Muslim students? 3) Do institutions have policies regarding social media use in study spaces? Employing a data science approach, a survey is distributed to 222 Muslim students to collect data on their social media habits, academic performance, and institutional policies. The study aims to illuminate the complex interplay between social media use and academic success for Muslim students, providing insights for students, educators, and institutions.

TABLE OF CONTENTS

ABSTRACT.....	4
TABLE OF CONTENTS	5
LIST OF FIGURES.....	6
LIST OF APPENDICES.....	7
CHAPTER ONE.....	8
INTRODUCTION	8
1.1 Project Overview.....	8
1.1 Problem statement	8
1.3 Project Objectives	8
1.4 Significance of Project	9
1.5 Project Scope	9
1.5.1 Scope:	9
1.5.2 Targeted User:	9
CHAPTER TWO	10
REVIEW OF PREVIOUS WORK.....	10
2.1 Introduction.....	10
2.2 Social media in Current Situation	10
2.3 Academic success for Muslims.....	12
2.4 Data science process	13
2.5 Relationship between social media usage duration and academic success	14
CHAPTER THREE.....	16
METHODOLOGY.....	16
3.1 Introduction.....	16
3.2 Implementation.....	17
3.3 Conclusion	19
CHAPTER FOUR	21
ANALYSIS OF RESULTS AND OUTCOMES.....	21
CHAPTER FIVE.....	25
CONCLUSION AND FUTURE WORK	25
REFERENCES	28

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE NO.
3.1.1.	Data Science Process	17
3.2.1.	Histogram distribution	20
4.1	Visualizations	21
4.2	Used platforms	21
4.3	Guidelines	22
4.4	GPA & hours spending on social and studying	23
4.5	GPA distribution	24

LIST OF APPENDICES

APPENDIX	TITLE	PAGE NO.
A	Gantt Chart for Project schedule 1	30
B	Gantt Chart for Project schedule 2	30

CHAPTER ONE

INTRODUCTION

1.1 Project Overview

This research project focuses on investigating the relationship between social media usage duration and academic success among Muslim students. The project recognizes the growing influence of social media in our lives and aims to understand its impact on the productivity and success of Muslim students. Through data science analysis, the project seeks to explore the implications of social media usage on their daily lives, identify strategies to enhance their productivity, and align with the principles of the Maqasid Shariah and the United Nations' Sustainable Development Goals. The project's findings have the potential to contribute to the well-being and success of Muslim students, ultimately leading to a more productive and sustainable workforce.

1.1 Problem statement

The pervasive influence of social media on the academic journey of Muslim students presents a complex and multifaceted challenge. As these students navigate the digital realm, understanding the intricate relationship between social media usage, time management, and academic success becomes paramount. Social media's influence on nearly every aspect of life underscores its potential impact on academic performance (Jamil et al., 2020). While social media can have a positive impact by connecting individuals and sharing information, it can also lead to behaviors that negatively affect students' academic performance (Bedua et al., 2021). Through analyzing survey data, we aim to identify specific patterns in social media use and share recommendations for effective time management strategies that maximize the positive potential of these platforms while mitigating negative impacts on academic performance.

1.3 Project Objectives

- To determine whether a correlation exists between social media usage and academic performance among Muslim students.
- To identify the most popular social media platforms used by Muslim students, as well as their motivations for using them.

- To assess the presence and nature of social media policies within universities and institutions regarding student usage.

1.4 Significance of Project

- Enhanced Awareness: The project will increase awareness among Muslim students.
- Bridging the knowledge gap: Little research exists specifically examining the social media habits and academic performance of Muslim students. This study helps address this gap, offering unique insights into this understudied segment.
- Informing educational practices: Understanding the impact of social media on Muslim students' academic performance can inform educators and institutions in developing strategies to support social media use in a balanced and productive manner.

1.5 Project Scope

1.5.1 Scope:

The population for this research project will focus on Muslim students who use social media platforms. This targeted population will consist of students from diverse backgrounds, ages, and educational levels who are actively using social media for various purposes, including communication, entertainment, and academic activities.

1.5.2 Targeted User:

This research is targeting 200 Muslim students from the population of social media users who identify as Muslims.

CHAPTER TWO

REVIEW OF PREVIOUS WORK

2.1 Introduction

Social media has become an inseparable part of our lives, particularly evident during the ongoing COVID-19 pandemic. As a primary means of communication, it has raised concerns regarding its impact on mental health, public opinion, and societal dynamics. Studies highlight the association between social media usage and the well-being of young adults, emphasizing its role in shaping emotional experiences. Additionally, social media's significance extends to health promotion, with widespread usage observed during the pandemic, especially in healthcare settings for community engagement and patient education. Shifting focus to academic success, researchers have explored the experiences of Muslim individuals, investigating factors such as supportive teacher-student relationships and the challenges posed by Islamophobia. The data science process, encompassing risk management and machine learning, has garnered attention for its potential to innovate education. Moreover, the relationship between social media usage duration and academic success has been a subject of extensive research, exploring aspects like gender variations, the moderating role of innovation characteristics, and the purposes of social media use influencing academic performance. This overview touches on the diverse impacts of social media, academic success for Muslims, and the potential of the data science process. As we explore these topics, a nuanced understanding emerges, providing insights into navigating challenges and harnessing the benefits of our interconnected world.

2.2 Social media in Current Situation

Social media has indeed become an integral part of modern society, especially during the current situation. The COVID-19 pandemic has led to increased reliance on social media as a means of communication. This increased usage has raised concerns about its impact on mental health, public opinion, and societal manipulation. Studies have shown that social media usage is associated with mental well-being, with significant positive relationships between various dimensions of social media usage and mental well-being among young adults (Majeed et al., 2022). Furthermore, the impact of social media on depression cognition and help-seeking behavior has been studied, highlighting the need to

understand the implications of social media use on mental health (Guo & Cai, 2022).

In addition to mental health, social media has also played a crucial role in health promotion during the pandemic. Research has shown that social media platforms are important tools for promoting health practices in public health, with widespread usage among the public (Li & Liu, 2020). Moreover, the impact of social media usage in healthcare settings has been recognized, particularly in community engagement, health promotion, patient education, and outreach (Surani et al., 2017).

The responsibility of social media in shaping public opinion and societal manipulation has also been a topic of interest. Scholars have emphasized the need for assessment, regulation, and control of social media, similar to those applying to traditional media, to address ethical issues and potential manipulation (Reisach, 2021). Furthermore, the impact of social media usage on depression cognition, disclosure of depression information, and stigmatization of depression has been studied, highlighting the complex interplay between social media and mental health (Guo & Cai, 2022).

The relationship between social media usage and mental well-being has been a subject of extensive research. Majeed et al. (2022) found a significant positive relationship between various dimensions of social media usage, including academic, socialization, entertainment, and information, and mental well-being among young adults. This highlights the need to understand the nuanced impact of different types of social media engagement on individuals' mental health. Moreover, the impact of social media usage on depression cognition and help-seeking behavior has been studied by Guo and Cai (2022). Their research delves into the disclosure of depression information in social media, the stigmatization of depression, and the social impact of celebrity depression exposure in social media. Understanding these dynamics is crucial for developing targeted interventions to address mental health challenges exacerbated by social media.

In the realm of healthcare, social media has emerged as a powerful tool for health promotion and dissemination of health-related information. Li and Liu (2020) highlighted the importance of social media platforms in promoting health practices during the COVID-19 pandemic. Their study emphasized the widespread usage of social media among the public and its potential for influencing preventive behaviors and disease knowledge. Furthermore, the utilization of social media in healthcare settings has been a topic of

interest. Surani et al. (2017) discussed the increasing use of social media among healthcare providers for community engagement, health promotion, patient education, and outreach. This underscores the evolving role of social media in shaping healthcare practices and patient-provider interactions.

The ethical implications and societal impact of social media have also been a focal point of scholarly inquiry. Reisach (2021) highlighted the responsibility of social media in times of societal and political manipulation, emphasizing the need for assessment, regulation, and control of social media to address ethical issues and potential manipulation. In conclusion, the current situation has underscored the pervasive influence of social media on mental health, public opinion, and healthcare practices. Understanding the multifaceted impact of social media is essential for developing evidence-based strategies to harness its potential benefits while mitigating potential harm.

2.3 Academic success for Muslims

The academic success of Muslim individuals has been a subject of scholarly inquiry across various disciplines (Oberoi & Trickett, 2018). examined the academic performance and psychological distress among immigrant origin Muslim adolescents in high schools, predicting that Muslim students with more supportive relations with their teachers would have higher academic achievement and educational expectations. This highlights the importance of supportive environments in fostering academic success among Muslim students. Furthermore, Alizai (2020) explored the impact of Islamophobia on post-secondary Muslim students attending Ontario universities, shedding light on how rising anti-Muslim sentiment affects the academic performance of Muslim students. Understanding the challenges posed by Islamophobia is crucial for creating inclusive and supportive educational environments for Muslim students.

In addition, Fauzi et al. (2019) delved into the knowledge sharing practices of Muslim academics in Malaysian higher learning institutions, emphasizing the importance of good relationships with other employees for knowledge acquisition. This highlights the role of collaboration and knowledge exchange in fostering academic success among Muslim academics. Moreover, the role of religiosity in academic achievement was investigated by Aflahah (2022) in the context of Indonesian Muslim students at Monash University, revealing that religiosity contributes positively to academic achievement. This

underscores the potential influence of religious beliefs and practices on the academic success of Muslim students.

The challenges faced by Muslim women leaders in higher education were explored by (Almaki et al., 2016), providing insights into the obstacles encountered by Muslim women academic leaders in their leadership positions and communities. Understanding and addressing these challenges is essential for promoting gender equity and leadership opportunities for Muslim women in academia. The impact of entrepreneurial orientation success factors on Muslim small and medium-sized enterprise (SME) success was investigated by multiple researchers, including Silalahi (2020), highlighting the relationship between innovation, proactive factors, and SME success among Muslim entrepreneurs. This sheds light on the factors contributing to the success of Muslim-owned businesses.

The psychological state and academic success of students, including Muslim students, during the coronavirus pandemic were explored by (Edith et al., 2021), highlighting the impact of the pandemic on students' psychological well-being and academic success. This underscores the need for support and resources to address the challenges faced by students, including those from Muslim communities, during times of crisis.

In conclusion, the academic success of Muslim individuals has been examined from various perspectives, including the impact of Islamophobia, religiosity, knowledge sharing, entrepreneurship, and the broader socio-political context. Understanding the multifaceted factors influencing academic success among Muslim individuals is crucial for creating inclusive and supportive educational environments and promoting equitable opportunities for academic achievement.

2.4 Data science process

The data science process encompasses a wide array of topics, including risk management, visualization, analytics, and machine learning. The implications of data science in fostering the educational process have been explored by (Buraga & MP, 2022), highlighting the role of data in developing innovative strategies and applications within the educational system (Buraga & MP, 2022). Additionally, the risk management process for data science projects and the gaps in current practices were examined by (Lahiri &

Saltz, 2022), emphasizing the need for a deeper understanding of risk management and success criteria in data science projects Lahiri & Saltz (2022). Provided insights into the people and process of data science projects, offering a comprehensive understanding of the typical process flow for data science projects based on the experiences of practicing data scientists (Aho et al., 2020). Furthermore, Larson (2020) focused on best practices to accelerate the data science process using Python, addressing the changing data landscape and identifying strategies to enhance data science processing (Larson, 2020).

The role of cloud-based processing in data science for visualization was investigated by (Ashari et al., 2016), emphasizing the importance of knowledge in defining business processes within the context of data science (Ashari et al., 2016). Moreover, innovative methods for biomedical data analysis were highlighted by (Veltri, 2021), underscoring the significance of data-driven approaches to improve procedures and knowledge extraction in biomedicine (Veltri, 2021).

The impact of student motivation on science process skills and the educational process was explored by (Perdana et al., 2022), shedding light on the activities and skills involved in basic science processes (Perdana et al., 2022). Additionally, the exploration of visualization technology in Sichuan opera by Ma et al. (2023) provided insights into the data of Sichuan opera and the characteristics of the data, demonstrating the application of visualization techniques in a specific cultural context (Ma et al., 2023).

Overall, the data science process encompasses a diverse range of topics, including risk management, visualization, educational implications, and application-specific analyses. Understanding the multifaceted nature of the data science process is essential for leveraging its potential in various domains, from education to biomedicine and cultural contexts.

2.5 Relationship between social media usage duration and academic success

The extensive exploration of the correlation between the duration of social media usage and academic success has been a subject of considerable research. Gender distinctions in social media engagement and academic performance among university students were underscored by Alnjadat et al. (2019), underscoring the imperative to comprehend the influence of social media on academic accomplishments (Alnjadat et al., 2019). In examining the relationship between social media usage and academic

performance, Boahene et al. (2019) delved into the moderating influence of innovation characteristics of social media, emphasizing the necessity of accounting for contextual factors in comprehending this connection (Boahene et al., 2019). Significantly, Alamri (2019) discovered a notable association between the purposes of social media usage, particularly personal objectives, and students' academic performance (Alamri, 2019).

Moreover, the role of social media self-control failure as a moderator in the association between non-academic social media usage and students' academic performance was underscored by Hameed et al. (2022), highlighting the criticality of self-regulation in the utilization of social media (Hameed et al., 2022). The importance of investigating the correlation between teenage social media usage and academic success was emphasized by Elias and Mirunalini (2022), indicating the necessity for targeted research in specific demographic groups (Elias & Mirunalini, 2022). Barton et al. (2018) conducted a survey to ascertain the connection between social media usage and overall academic performance, drawing attention to the potential moderating roles of attention and motivation in this relationship (Barton et al., 2018).

Furthermore, (2021) found that excessive usage of social media for non-academic activities, especially in the context of multitasking with learning, could potentially impact negatively on academic performance, emphasizing the need to consider multitasking behaviors (Adjin-Tettey et al., 2021; Mohammed et al., 2021) examined the relationship between social media usage, multitasking of social media, and students' academic self-efficacy on academic performance, shedding light on the complex interplay of these factors (Mohammed et al., 2021; Bedua et al., 2021) revealed a significant relationship between time spent on social media and academic performance, emphasizing the need to consider the temporal aspects of social media usage (Bedua et al., 2021).

In conclusion, the relationship between social media usage duration and academic success is multifaceted, influenced by factors such as gender, innovation characteristics, self-control, multitasking, and temporal aspects. Understanding this relationship requires a nuanced approach that considers the diverse purposes and contexts of social media usage among students.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

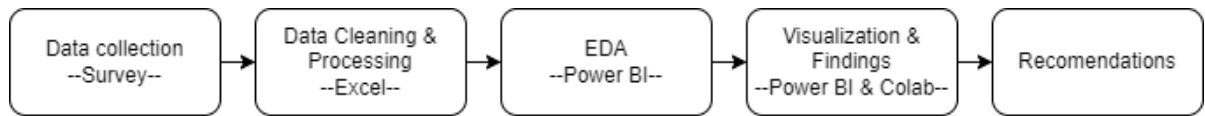


Fig. 3.1.1 Data Science Process

This research project adopts a structured approach, guided by the data science process “Fig. 3.1.1”, to methodically progress through key stages. The initial phase involves data collection, utilizing Google Forms to create customized surveys aligned with research objectives. Following the initial data collection, a thorough data refinement process is undertaken with Microsoft Excel. This includes addressing missing or inconsistent data, removing duplicates, and structuring the dataset for effective analysis. Subsequently, the third stage involves Exploratory Data Analysis (EDA), where statistical methods and visualizations are employed to uncover patterns and relationships within the dataset. This step lays the groundwork for further analysis. In the implementation phase, a combination of Microsoft PowerBI, Google Colab, and statistical calculations is utilized for a comprehensive analysis, extracting valuable insights from the refined dataset. The findings from this stage are then simplified and communicated through visualization, leveraging the visualization capabilities of Microsoft PowerBI. For the visualization and finding stage will be discussed in chapter four. The conclusive stage incorporates the formulation of recommendations within the last chapter, offering insights and suggestions for future actions based on the analysis conducted. Throughout the research project, the tools employed predominantly include Microsoft PowerBI, Excel and Google Colab for analysis, cleaning, and visualization, ensuring a comprehensive and rigorous approach to data processing. Google Forms facilitates efficient data collection aligned with research objectives. The recommendation stage seamlessly integrates into the conclusion, while other key stages are expounded upon in the results section, providing a clear and structured presentation of the research methodology.

3.2 Implementation

3.2.1 Data Collection

The first step in the research project involved the collection of data through the utilization of an online service, specifically Google Forms. The form was published on October 20, 2023, and was accessible for responses until November 2, 2023. The target was to obtain 200 responses by the end of October 2023, and the form successfully received 222 responses. To maximize the reach of the survey, it was shared across various social media platforms, with a particular focus on WhatsApp, Instagram, and Facebook. Additionally, the survey was also disseminated within educational settings, specifically in classes. However, several challenges were encountered during the data collection process. Initially, the response rate was slow, and respondents expressed concerns about the length of the form. Furthermore, as the survey targeted Muslim students in universities across Arab countries, language comprehension issues were reported. Additionally, the requirement for respondents to provide their name and email posed a barrier, as some individuals were hesitant to disclose this information due to privacy concerns. Moreover, difficulties were encountered when attempting to share the survey on university pages, as administrative rejections were frequently encountered. To address these challenges, the decision was made to make the provision of name and email optional, a modification that was approved by the supervisor.

Survey Questions: The survey encompassed a series of questions designed to gather comprehensive insights into the social media usage patterns and academic experiences of the respondents. The questions included inquiries about demographic information such as age, country of origin, and current educational institution. Additionally, the survey delved into the respondents' social media habits, academic engagement, and perceptions regarding the impact of social media on their academic performance. Furthermore, the survey sought to ascertain the strategies employed by respondents to reduce social media usage and their awareness of institutional policies or guidelines related to social media usage within their educational institutions.

3.2.2 Data Processing and Cleaning

Upon the acquisition of 222 responses through the online survey, the subsequent phase of the research endeavor necessitated meticulous data processing and cleaning to ensure the integrity and reliability of the dataset. This critical phase involved addressing

several challenges encountered during the data collection process, with a focus on the conversion of GPA scales, standardization of categorical responses, and simplification of multi-choice questions.

The first challenge pertained to accommodating the diverse GPA scales utilized by respondents, particularly those from educational institutions in Egypt, where both 4.0 and 5.0 GPA scales are prevalent. To address this, the survey was structured into two distinct sections, each tailored to the specific GPA scale. Subsequently, the responses were consolidated, and a conversion process was undertaken to align the 5.0 GPA scale data with its approximate equivalents on the 4.0 scale. An alternative approach was also considered, involving the sole inquiry about GPA on a 4.0 scale, accompanied by the provision of a conversion formula for respondents utilizing the 5.0 scale, thereby streamlining the data processing and cleaning process. Furthermore, the standardization of categorical responses emerged as a significant endeavor, particularly in instances where varied spellings and formats were observed for categorical variables such as country, educational institution, and program. This necessitated meticulous efforts to ensure uniformity and consistency in the dataset. Notably, responses referring to the same educational institution were harmonized to eliminate inconsistencies, thereby enhancing the accuracy and reliability of the dataset. Additionally, personalized follow-up was conducted to address instances where respondents left certain categorical questions unanswered, ensuring comprehensive and complete data. Moreover, the simplification of multi-choice questions, such as those pertaining to the main purposes for using social media, was undertaken to facilitate streamlined analysis and interpretation. This involved the transformation of complex multi-choice responses into a format conducive to rigorous analysis, thereby enhancing the utility of the dataset for subsequent research endeavors. The execution of these data processing and cleaning tasks was facilitated by the utilization of advanced data manipulation tools, including Excel, Power Pivot, and Power Query. These tools provided the necessary functionalities for seamless data transformation, standardization, and cleaning, ultimately contributing to the quality and reliability of the dataset for rigorous analysis.

3.2.3 EDA

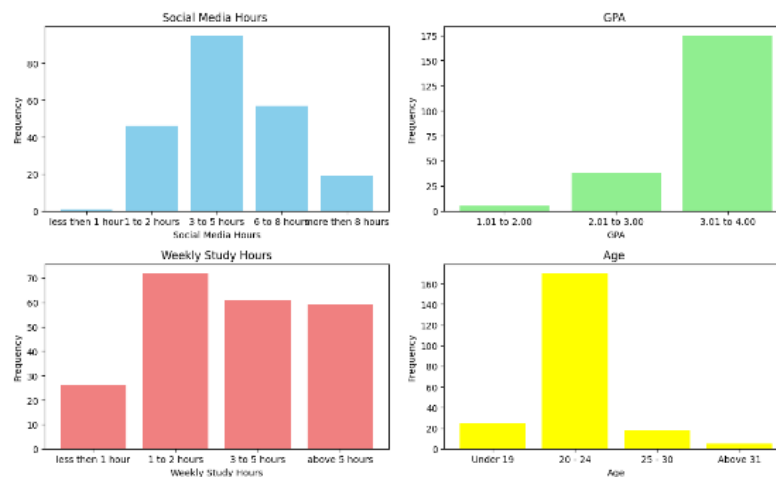


Fig. 3.2.1 Histogram distribution

In this comprehensive exploration of the research methodology, PowerBI and Google Colab were leveraged to visually dissect the dataset, uncovering diverse insights. The dataset, consisting of 222 responses from 32 countries and 27 universities, disclosed a rich tapestry of academic backgrounds. Notably, 74.3% pursued bachelor's degrees, with the 20–24 age group spanning over 40 academic fields. Malaysia emerged as a focal point, housing 110 respondents, predominantly from the International Islamic University Malaysia (IIUM). “Fig. 3.2.1” Transitioning to the data-driven revelations, the study unveils a spectrum of social media engagement (mean of 4.54 hours) and academic excellence (GPA range: 1.5–3.5, mean: 3.2). Varied study habits (average weekly study hours: 3.57) and a broad age distribution (15–50 years) further accentuate the study's complexity. Intriguing trends, such as a social media usage concentration around 4 hours, consistently high GPAs, and a clustering of study hours at 1.5 per week, beckon deeper exploration. These findings fortify the groundwork for subsequent research stages, guiding nuanced interpretation and recognizing the profound implications of sample characteristics on the study's outcomes.

3.3 Conclusion

The methodology detailed in chapter three serves as a meticulous roadmap, meticulously crafted to achieve two fundamental objectives: first, to gain a profound understanding of the dataset, and second, to ensure the creation of a clean and well-structured dataset ready for in-depth analysis. Each step in the process, from data collection using Google Forms to the comprehensive Exploratory Data Analysis (EDA)

employing PowerBI and Google Colab, has been strategically designed to unravel insights and refine the dataset.

The intricacies of data collection, processing, and cleaning were met with adaptive measures to address challenges and guarantee the reliability of the information collected. The systematic transformation of raw data, including the handling of diverse GPA scales and standardizing categorical responses, ensures that the dataset is not only robust but also uniform and conducive to rigorous analysis. As the research journey advances into the next chapter, the culmination of these efforts will unfold in the Data Analysis and Findings section. The groundwork laid in this methodology section lays the foundation for meaningful insights into the relationships between social media usage patterns and academic experiences among Muslim students in universities across Arab countries. The emphasis on a clean and comprehensible dataset positions the upcoming analysis to be insightful, reliable, and, most importantly, actionable. The forthcoming chapter will delve into the nuanced details and unveil the discoveries that this methodical approach has set the stage for, contributing to the broader understanding of the subject matter and offering valuable implications for both academia and practical applications.

CHAPTER FOUR

ANALYSIS OF RESULTS AND OUTCOMES

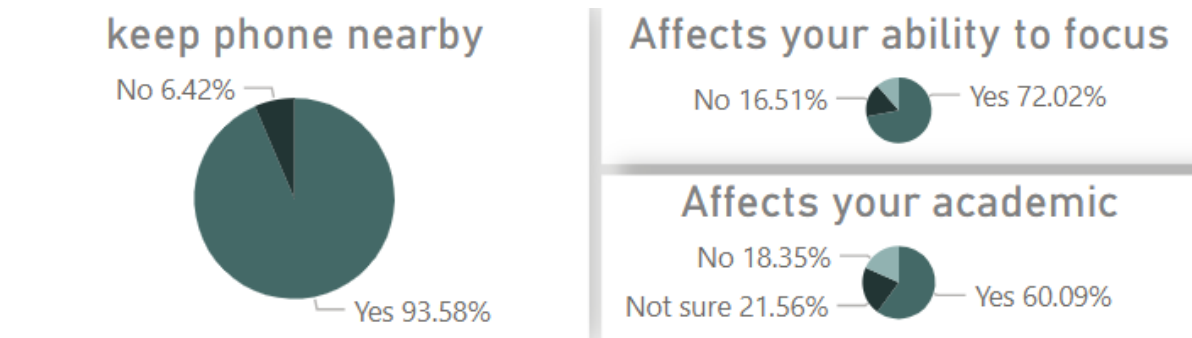


Fig. 4.1 Visualizations

In the analysis of the data collected, it is evident that the use of mobile phones and social media platforms among students has a significant impact on their academic performance and focus. The findings indicate that 93% of students keep their phones nearby while studying, with 70% acknowledging that it affects their ability to focus. Furthermore, 60% of students believe that the use of mobile phones and social media platforms has a detrimental effect on their academic performance “Fig. 4.1”. These statistics highlight the pervasive nature of mobile phone usage and its potential impact on students' academic endeavors.

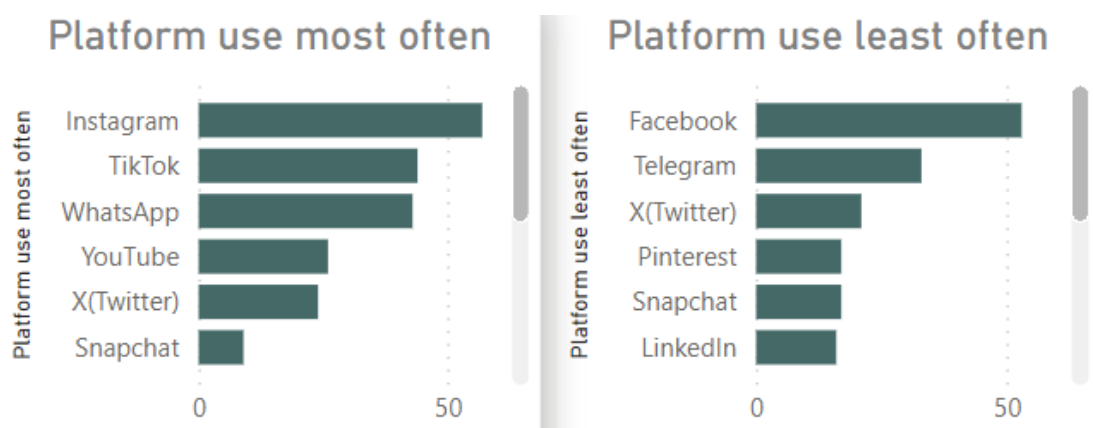


Fig. 4.2 Used platforms

In terms of social media platform usage “Fig. 4.2”, the study reveals that Instagram is the most popular platform among students, followed by TikTok and WhatsApp, which collectively account for 66% of the usage compared to other platforms. Notably, almost every student has an account on WhatsApp, indicating its widespread adoption among the

student population. Conversely, Facebook is the least used platform, 24% of students reporting Facebook as the least used platform. These findings shed light on the preferences and habits of students in relation to social media platforms and address the first part in the second research question which is What are the most frequently used social media apps/platforms by Muslim students, and what purposes do they serve for these students?

The purposes of using social media platforms among students were also examined, with the majority of respondents indicating that they use social media for purposes such as connecting with friends, staying updated with current news, and seeking entertainment. These purposes collectively represent more than 50% of the total responses, while only 13% of students reported using social media for educational purposes. This disparity underscores the predominance of social and recreational uses of social media among students, as opposed to its potential educational utility.

Any Guidelines from your institution

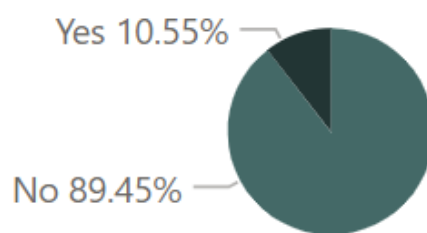


Fig. 4.3 Guidelines

Furthermore, “Fig. 4.3” the study investigated the existence of guidelines for social media usage within the university context. It was found that 90% of students reported the absence of specific guidelines for social media usage, indicating a lack of institutional regulation in this area. However, the remaining 10% mentioned a few guidelines that were in place, including promoting accountability and responsibility in social media use, preventing the spread of false information, restricting access to certain applications under university Wi-Fi, organizing programs to help students manage their social media time, and prohibiting the use of phones during class time. These guidelines reflect the efforts of some institutions to address the challenges associated with social media usage among students. This answers the third data science question which is Do institutions/universities have policies in place pertaining to social media usage at study places?

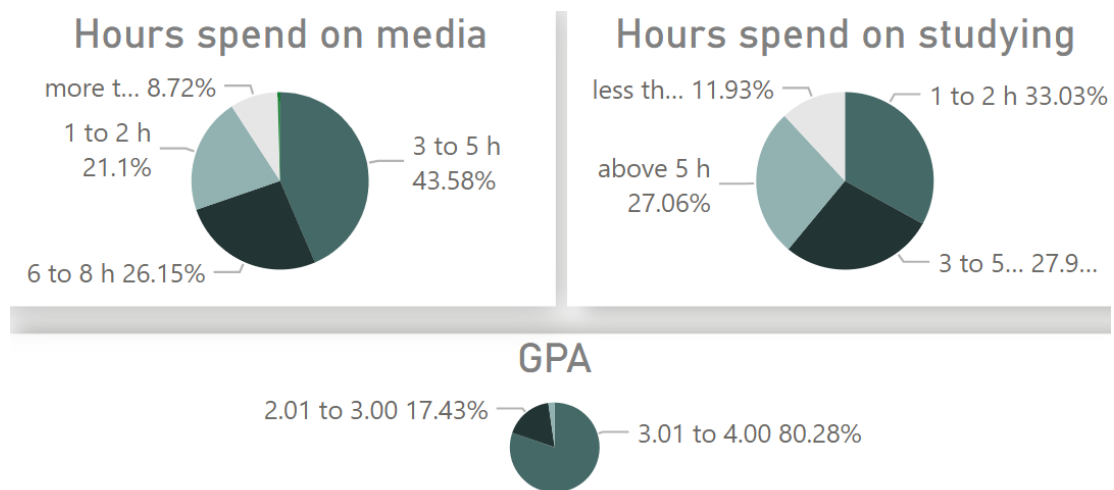


Fig. 4.4 GPA & hours spending on social and studying

The initial analysis suggests a relationship between social media usage and academic success among Muslim students. Students who have difficulties focusing on their studies experience a negative impact on their academic performance. There is a positive correlation between students who keep their phones nearby and their ability to focus. Specifically, the category of students spending 3-5 hours on studying increased from 26.96% to 42.84% among those who keep their phones nearby compared to those who do not. This suggests that students who keep their phones nearby spend less time studying, and the hours spent on studying is a significant factor in measuring the academic success of Muslim students. The proximity of the phone and social media usage are also related. The percentage of students who do not keep their phones nearby and use social media for more than 8 hours is 0%, while for those who keep their phones nearby, the percentage for the same category is 9.3%. This finding indicates that the duration of social media usage increases when the phone is kept nearby “Fig. 4.4”.

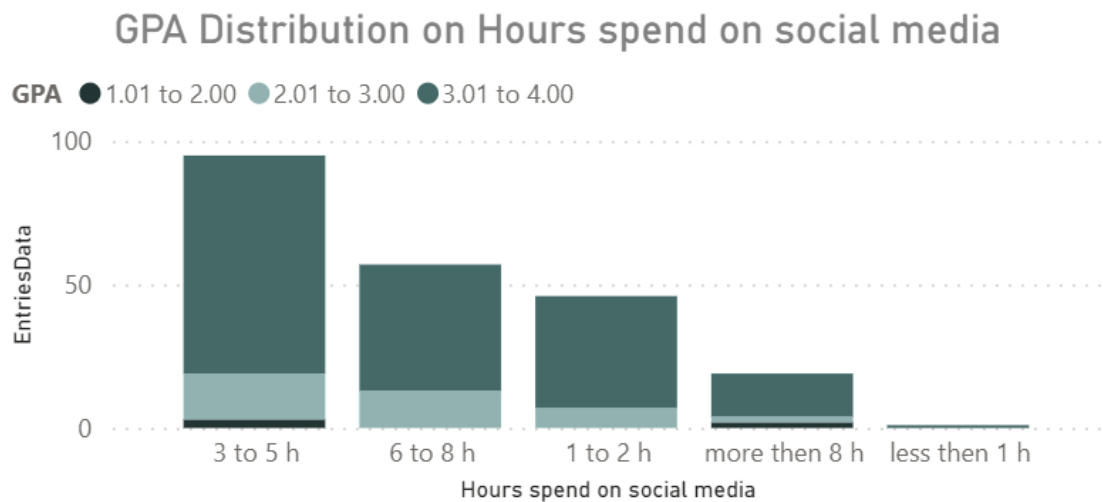


Fig. 4.5 GPA distribution

In examining the relationship between social media usage duration and academic success among Muslim students, the analysis reveals noteworthy insights. Specifically, the data indicates that there is a discernible association between social media usage duration and students' GPA. The percentage of students using social media for 1-5 hours and achieving a GPA of 3.01 – 4.00 is 81.56%. However, when the usage exceeds 5 hours, the percentage decreases to 77.6%. This observation suggests a modest relationship between social media usage duration and GPA for Muslim students “Fig. 4.5”.

CHAPTER FIVE

CONCLUSION AND FUTURE WORK

1. Refine GPA Categories

Beyond the quantitative evaluation of academic success, future research could refine the analysis by categorizing GPA into specific academic disciplines or focusing on particular GPA ranges. This granular approach may uncover nuanced correlations between social media engagement and academic performance within distinct academic fields or among students with varying levels of scholastic achievement.

2. Include Gender as a Variable

The integration of gender as a variable in future studies could provide a more nuanced understanding of how social media usage impacts academic success differently among male and female Muslim students. Exploring potential gender-specific patterns and perceptions would contribute valuable insights to the broader discourse, allowing for tailored interventions and support mechanisms.

3. Look Beyond Grades

In addition to traditional academic metrics, future investigations could explore qualitative aspects of academic success, such as critical thinking skills, creativity, and adaptability. A holistic examination of these dimensions could offer a more comprehensive view of the diverse ways in which social media may influence the overall educational experience.

4. Expand the Reach

While expanding the sample size remains crucial, future efforts could also focus on reaching students in specific academic majors or institutions, allowing for targeted insights. This targeted approach may uncover discipline-specific trends and shed light on how social media impacts academic success within distinct academic contexts.

5. Comprehensive Analysis

Building on the call for a comprehensive analysis, future research could explore

the synergies between various factors influencing academic success and social media usage. Investigating the interplay between study habits, mental well-being, and social media engagement would contribute to a more holistic understanding, guiding the development of multifaceted support strategies for students. As the research journey continues, these suggested avenues offer pathways for more nuanced exploration, ensuring that the evolving complexities of social media's impact on academic success among Muslim students are thoroughly understood and appropriately addressed. These considerations will undoubtedly contribute to the ongoing discourse on effective strategies for navigating the digital landscape while maintaining a focus on academic excellence.

The conclusion of this project encompasses a comprehensive review of previous works and an in-depth exploration of four key levels: Social Media in Current Situation, Academic Success for Muslims, Data Science Process, and the Relationship between Social Media Usage Duration and Academic Success. The project has employed the data science process, encompassing data collection, data processing, data cleaning, EDA, and analysis & findings. From the analysis, it is evident that a direct conclusion regarding the impact of social media usage on the academic success of Muslim students cannot be drawn. However, it is clear that students are cognizant of the potential influence of social media on academic success.

The final stage of the data science process involves simulation and recommendations, which have been intentionally reserved for the conclusion. One of the survey questions focused on recommendations for utilizing social media in the best way. The most frequently made recommendations include setting time limits, disabling notifications, replacing social media with a hobby, and practicing mindfulness. Additionally, some individuals advocate for the complete removal of social media from their lives. This aligns with the Islamic perspective on time management, as emphasized in the Hadith: "Man's feet will not move on the Day of Resurrection before he is asked about his life, how did he consume it, his knowledge, what did he do with it, his wealth, how did he earn it and how did he dispose of it, and about his body, how did he wear it out" (At- Al-Nawawi, p. 407). Therefore, it is crucial for Muslim students to effectively manage their time and make the most of their free time.

In summary, this study provides a nuanced overview of students' mobile phone and social media usage, exploring its prevalence, potential impact on focus and performance,

and individual preferences. Despite student perceptions suggesting a connection between social media use and academic success, the investigation produced inconclusive results, emphasizing the complexity of the issue. This underscores the need for further research focusing on specific platforms, usage patterns, and their interaction with study habits and learning styles. Improving our understanding of this multifaceted relationship can inform better support strategies for students in the digital age, enhancing their academic performance.

REFERENCES

- Dixon, S. J. (2023, August 29). Average daily time spent on social media worldwide 2012-2023. Statista. <https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide>
- Uma, E., Nieminen, P., Mani, S., Haapanen, E., Laitala, M., Lappalainen, O., et al. (2021). Social media usage among dental undergraduate students—a comparative study. *Healthcare*, 9(11), 1408. <https://doi.org/10.3390/healthcare9111408>
- Zhang, Z., & Zhang, D. (2021). What is data science? An operational definition based on text mining of data science curricula. *Journal of Behavioral Data Science*, 1(1), 1-16. <https://doi.org/10.35566/jbds/v1n1/p1>
- Jamil, M., Ain, Q. u., Batool, S., Saadat, S., Malik, S., Arshad, M., ... Latif, B. (2020). Impact of social media on academic performance. *European Journal of Medical and Health Sciences*, 2(5), 1-6. <https://doi.org/10.24018/ejmed.2020.2.5.512>
- Bedua, A. B. S. V., Bengan, C. V. P., Erich, P., Goleng, D. J. G., Posanso, R. G. D., Pueblo, C. T., ... Abusama, H. (2021). Social media on the students' academic performance. *Indonesian Journal of Educational Research and Technology*, 1(2), 41-44. <https://doi.org/10.17509/ijert.v1i2.33397>
- Majeed, S., Ateeque, A., Rehman, M., Riaz, A., & Paul, A. (2022). The relationship between social media usage and mental well-being among young adults. *PJMHS*, 16(12), 128-131. <https://doi.org/10.53350/pjmhs20221612128>
- Li, X., & Liu, Q. (2020). Social media use, ehealth literacy, disease knowledge, and preventive behaviors in the COVID-19 pandemic: Cross-sectional study on Chinese netizens. *Journal of Medical Internet Research*, 22(10), e19684. <https://doi.org/10.2196/19684>
- Surani, Z., Hirani, R., Elias, A., et al. (2017). Social media usage among health care providers. *BMC Research Notes*, 10(1). <https://doi.org/10.1186/s13104-017-2993-y>

Reisach, U. (2021). The responsibility of social media in times of societal and political manipulation. *European Journal of Operational Research*, 291(3), 906-917.

<https://doi.org/10.1016/j.ejor.2020.09.020>

Oberoi, A., & Trickett, E. (2018). Religion in the hallways: Academic performance and psychological distress among immigrant origin Muslim adolescents in high schools.

American Journal of Community Psychology, 61(3-4), 344-357.

<https://doi.org/10.1002/ajcp.12238>

Alizai, H. (2020). Impact of Islamophobia on post-secondary Muslim students attending Ontario universities. *Race Ethnicity and Education*, 24(3), 357-374.

<https://doi.org/10.1080/13613324.2020.1798388>

Almaki, S., Silong, A., Idris, K., & Wahat, N. (2016). Challenges faced by Muslim women leaders in higher education. *Journal of Educational and Social Research*.

<https://doi.org/10.5901/jesr.2016.v6n3p75>

Aflahah, S. (2022). The role of religious center in Monash University: Perspective of three Indonesian Muslim students. *Religió Jurnal Studi Agama-Agama*, 12(2), 170-192.

<https://doi.org/10.15642/religio.v12i2.1931>

Fauzi, M., Nya-Ling, C., Ramayah, T., Ojo, A., & Shogar, I. (2019). Muslim academics' knowledge sharing in Malaysian higher learning institutions. *Journal of Islamic Marketing*, 10(2), 378-393.

<https://doi.org/10.1108/jima-10-2017-0111>

Silalahi, S. (2020). Factors influencing academic participation of undergraduate students. *Journal of Education and Learning (Edulearn)*, 14(3), 369-376.

<https://doi.org/10.11591/edulearn.v14i3.16044>

Edith, N., Eric, C., & Janet, N. (2021). Impact of coronavirus pandemic on the psychological state and academic success of students. *Journal of Depression and Anxiety Disorders*, 3(1).

<https://doi.org/10.36959/362/478>

Aho, T., Sievi-Korte, O., Kilamo, T., Yaman, S., & Mikkonen, T. (2020). Demystifying data science projects: A look on the people and process of data science today. https://doi.org/10.1007/978-3-03064148-1_10

Lahiri, S., & Saltz, J. (2022). The risk management process for data science: Gaps in current practices. <https://doi.org/10.24251/hicss.2022.147>

Larson, D. (2020). Best practices in accelerating the data science process in Python. <https://doi.org/10.5772/intechopen.84784>

Ashari, A., Tjoa, A., & Riasetiawan, M. (2016). Cloud-based processing on data science for visualization. *International Journal of Advanced Computer Science and Applications*, 7(2). <https://doi.org/10.14569/ijacsa.2016.070260>

Buraga, R., & MP, S. (2022). Implications of data science in fostering educational process. *Technoarete Transactions on Application of Information and Communication Technology (ict) in Education*, 1(2). <https://doi.org/10.36647/ttaicte/01.02.a005>

Veltri, P. (2021). Guest editorial innovative data analysis methods for biomedicine. *IEEE Journal of Biomedical and Health Informatics*, 25(11), 4066-4067. <https://doi.org/10.1109/jbhi.2021.3116336>

Adjin-Tettey, T., Selormey, D., & Nkansah, H. (2021). Ubiquitous technologies and learning. *International Journal of Information and Communication Technology Education*, 18(1), 1-16. <https://doi.org/10.4018/ijicte.286758>

Alamri, M. (2019). Undergraduate students' perceptions toward social media usage and academic performance: A study from Saudi Arabia. *International Journal of Emerging Technologies in Learning (Ijet)*, 14(03), 61. <https://doi.org/10.3991/ijet.v14i03.9340>

Alnjadat, R., Hmaid, M., Samha, T., Kilani, M., & Hasswan, A. (2019). Gender variations in social media usage and academic performance among the students of University of Sharjah. *Journal of Taibah University Medical Sciences*, 14(4), 390-394. <https://doi.org/10.1016/j.jtummed.2019.05.002>

Barton, B., Adams, K., Browne, B., & Arrastia-Chisholm, M. (2018). The effects of social media usage on attention, motivation, and academic performance. *Active Learning in Higher Education*, 22(1), 1122. <https://doi.org/10.1177/1469787418782817>

Bedua, A., Bengan, C., Erich, P., Goleng, D., Posanso, R., Pueblo, C., et al. (2021). Social media on the students' academic performance. *Indonesian Journal of Educational Research and Technology*, 1(2), 41-44. <https://doi.org/10.17509/ijert.v1i2.33397>

Boahene, K., Fang, J., & Sampong, F. (2019). Social media usage and tertiary students' academic performance: Examining the influences of academic self-efficacy and innovation characteristics. *Sustainability*, 11(8), 2431. <https://doi.org/10.3390/su11082431>

Elias, J., & Mirunalini, M. (2022). Social media usage and academic achievement of higher secondary students. *International Journal of Health Sciences*, 5934-5940. <https://doi.org/10.53730/ijhs.v6ns1.6214>

Hameed, I., Haq, M., Khan, N., & Zainab, B. (2022). Social media usage and academic performance from a cognitive loading perspective. *On the Horizon the International Journal of Learning Futures*, 30(1), 1227. <https://doi.org/10.1108/oth-04-2021-0054>

Mohammed, M., Ibrahim, F., & Yunus, N. (2021). Exploring the relationship of social media usage and multitasking of social media on self-efficacy and academic performance. *Jurnal Komunikasi Malaysian Journal of Communication*, 37(1), 227-243. <https://doi.org/10.17576/jkmjc-2021-3701-13>

At-Tirmidhi. (n.d.). *Riyad as-Salihin* 407. Sunnah.com. <https://sunnah.com/riyadussalihin:407>

United Nations. (n.d.). Goal 4: Quality education. Sustainable Development Goals. Retrieved December 24, 2023, from <https://www.globalgoals.org/goals/4-quality-education/>

APPENDICES

A. GANTT CHART

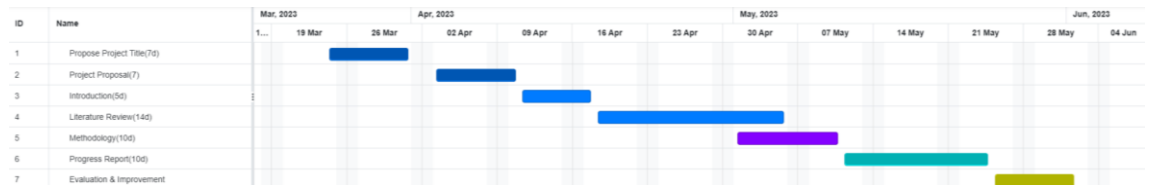


Figure A: Gantt Chart for Project schedule 1

B. GANTT CHART

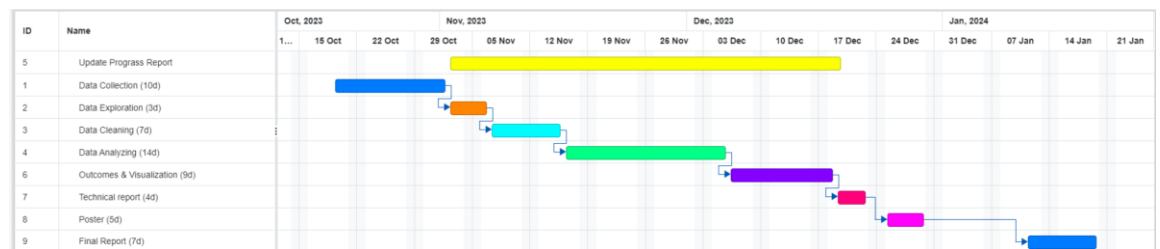


Figure B: Gantt Chart for Project schedule 2