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SCHOOL OF COMPUTING
Faculty of Engineering

Project 1 (Group)

SECI2143 PROBABILITY & STATISTICAL DATA ANALYSIS

SEMESTER II, SESSION 2019/2020

**Title: Effect of mobile application on
academic performance among students**

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1.0 Introduction and Background

Development of mobile phone has created a path for various type of mobile application to be launch in front of the public. Some of them for entertainment purposes such as games, music and video app. Some for convenience in cash trading like various bank app, while there are also for learning such as book and dictionary app. Those apps with different role have allowed us to live in this fast develop era with much more enjoyment and convenience does not matter what activities are currently conducting. Even students nowadays also need a mobile phone for them to find some better learning material.

However, since there allow for more than one entertainment app available in a mobile phone, are a student be able to not affected by those entertainment applications that commonly installed in a mobile phone such as YouTube, music app and also some installable famous app like Facebook, Instagram and various games apps during their learning? Therefore, our group had decided to research university students to investigate whether their academic performance will get affected by the type and using the time of the entertainment app they most often use.

To conduct this research successfully, we had the plan to launch a survey that could help us gather the data that useful for our research such as daily time spent in using various mobile phone apps by university student and their GPA result to investigate the relationship between the time spent in mobile phone apps and GPA result. Besides, we also planned to collect the response from a university student to make some assumption from our research based on their own opinion.

2.0 Methodology

To achieve the objective, the method used was 'Questionnaire'. A questionnaire is a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent. (Bhat, n.d.)

Target of survey

The objective is to investigate the effect of using social media app and mobile games on the academic result among the student. Thus, our target of the questionnaire is the University Student. Thus, a question was set in the first part to make sure our respondent is a University Student.

Type of question

The questionnaire is in the form of google form and it consists of 11 questions (7 multiple choice question, 2 questions with 5 liner scale answer, 2 short answer question which is asking the previous semester credit hour and GPA of the respondent).

Below is the questionnaire of this survey (Table 2.1):

Method to get respondent

To get the respondent to answer the questionnaire, the questionnaire was spread out to the social media group which consists most of University Teknologi Malaysia students. The number of respondents accepted was set to 80, once the number of respondents achieves 80, the google form was closed.

Table 2.1 Google Form Set Question

Question	Answer										
1. University student or not	<ul style="list-style-type: none"> • Yes • No 										
2. Gender (Nominal)	<ul style="list-style-type: none"> • Male • Female 										
3. Year of Study (Nominal)	<ul style="list-style-type: none"> • Year 1 • Year 2 • Year 3 • Year 4 										
4. Preference for learning materials (Nominal)	<ul style="list-style-type: none"> • Hardcopy (Ex: Printed Paper) • Softcopy (Ex: Online E-book) 										
5. Which category of mobile apps do you use the most? (Nominal)	<ul style="list-style-type: none"> • Social Media (Ex: YouTube, Facebook, Instagram...) • Mobile Game 										
6. Time using the (Social Media App) in a day. (Ratio)	<ul style="list-style-type: none"> • 0-29 minutes • 30-60 minutes • 1-2 hours • More than 2 hours 										
7. Time using the (Mobile Game) in a day. (Ratio)	<ul style="list-style-type: none"> • 0-29 minutes • 30-60 minutes • 1-2 hours • More than 2 hours 										
8. Previous Semester Credit Hour (Ratio)	<ul style="list-style-type: none"> • (Short answer question, accept only whole number) 										
9. Previous Semester GPA (Interval)	<ul style="list-style-type: none"> • (Short answer question, accept only decimal number between and include 0.00 to 4.00) 										
10. Mobile entertainment will affect academic performance. (Ordinal)	<ul style="list-style-type: none"> • 1-5 <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Strongly Disagree</td> <td>Disagree</td> <td>Undecided</td> <td>Agree</td> <td>Strongly Agree</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree							
1	2	3	4	5							
11. I often open smartphone and computer for learning purpose, but my attention is distracted by social media and mobile games. (Ordinal)	<ul style="list-style-type: none"> • 1-5 <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Strongly Disagree</td> <td>Disagree</td> <td>Undecided</td> <td>Agree</td> <td>Strongly Agree</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree							
1	2	3	4	5							

3.0 Data Analysis and Results

Year of Study

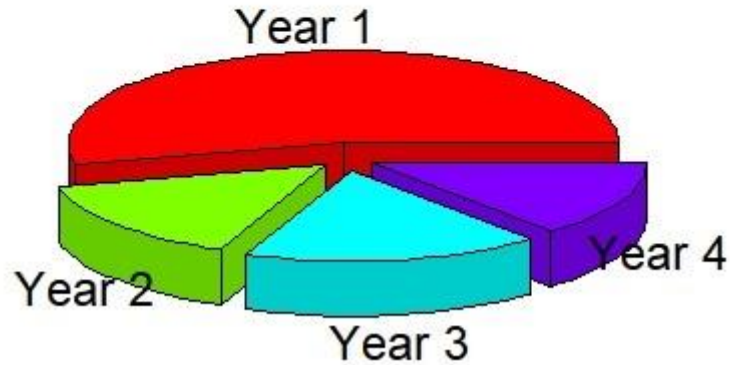


Figure 3.1: Pie Chart of Year of Study

This pie chart shows that the majority of students are Year 1 (43 students). Year 2 (12 students), Year 3 (14 students) and Year 4 (11 students) are almost the same people who in this investigation.

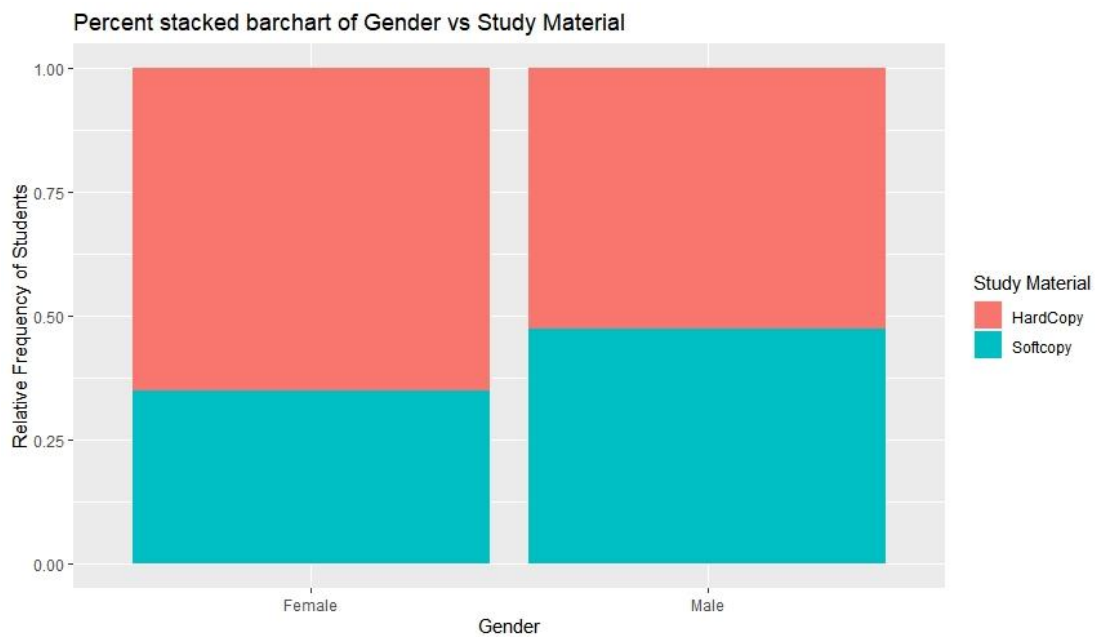


Figure 3.2: Percent stacked bar chart of Gender vs Study Material

This percent stacked bar chart shows that no matter female or male, most of the students prefer hardcopy than softcopy as study materials.

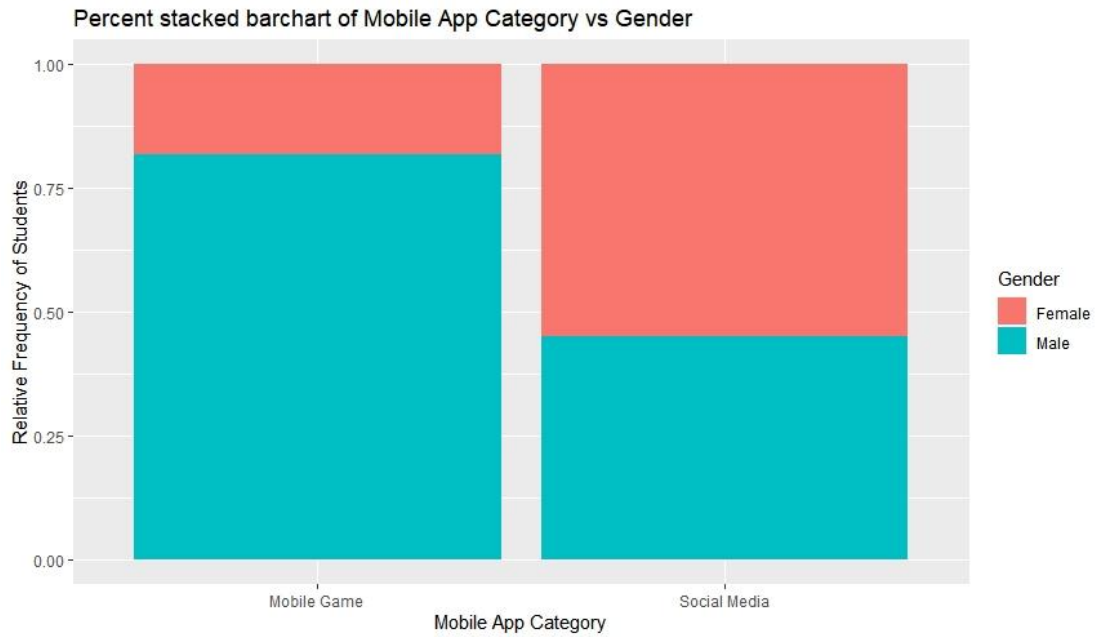


Figure 3.3: Percent stacked bar chart of Mobile App Category vs Gender

This percent stacked bar chart shows that male students are more using mobile game than social media, female students more than 50% are using social media more than mobile game.

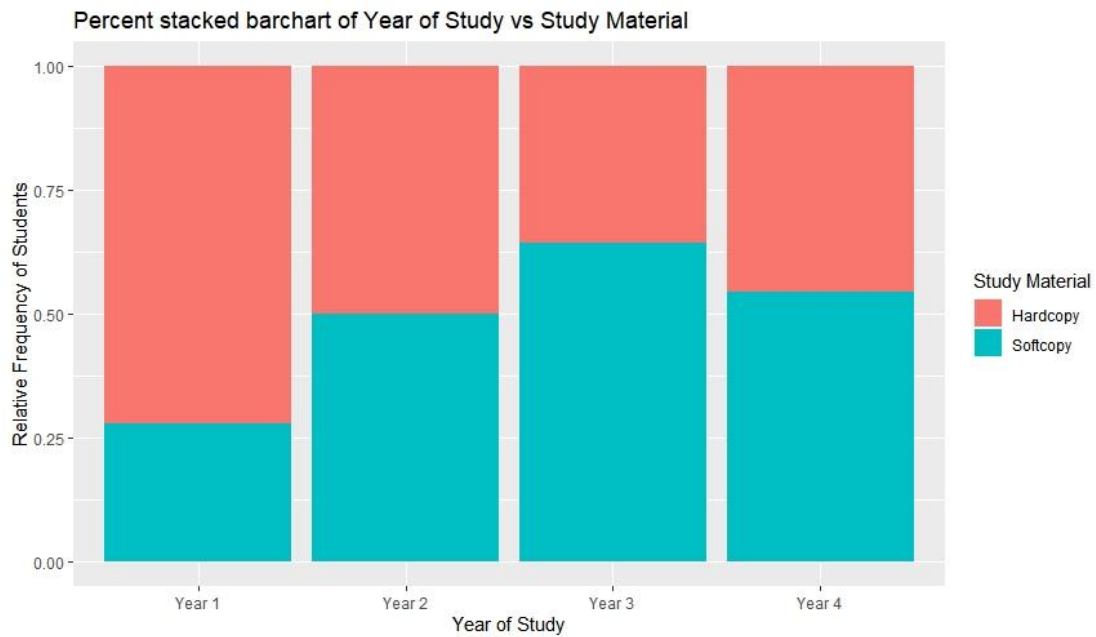


Figure 3.4: Percent stacked bar chart of Year of Study vs Study Material

This percent stacked bar chart shows that most of the Year 1 students prefer more hardcopy than softcopy, Year 2 students are both preferable, Year 3 and Year 4 students prefer more softcopy than hardcopy.

Box Plot of Previous Semester GPA of Students

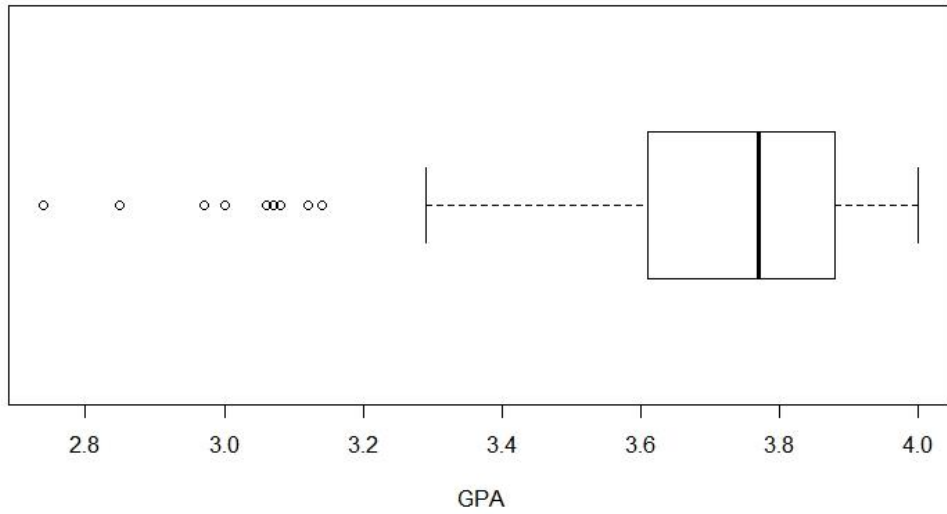


Figure 3.7: Box Plot of Previous Semester GPA of Students

This box plot shows that GPA has 3.77 as median, 3.60 as first quartile, 3.88 as the third quartile. Hence, GPAs lower than 3.29 are outlier.

Frequency Distribution of Academic Performance Question

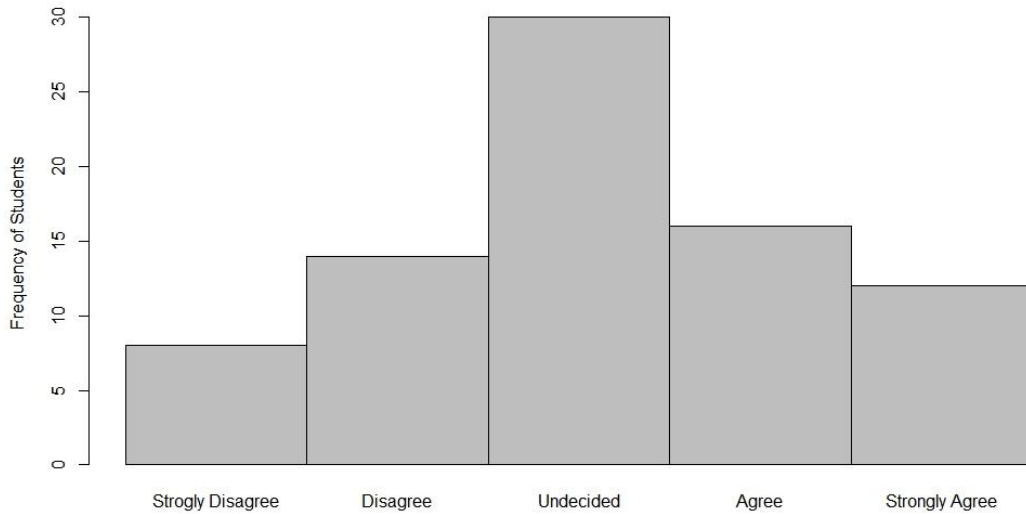


Figure 3.8: Frequency Distribution of Academic Performance Question

This frequency distribution of show that most students have a neutral opinion that mobile entertainment will affect academic performance.

Table 3.1: Frequency Distribution Table of Academic Performance Question

	Level of Agree	Frequency	Relative Frequency
1	Strogly Disagree	8	0.100
2	Disagree	14	0.175
3	Undecided	30	0.375
4	Agree	16	0.200
5	strongly Agree	12	0.150

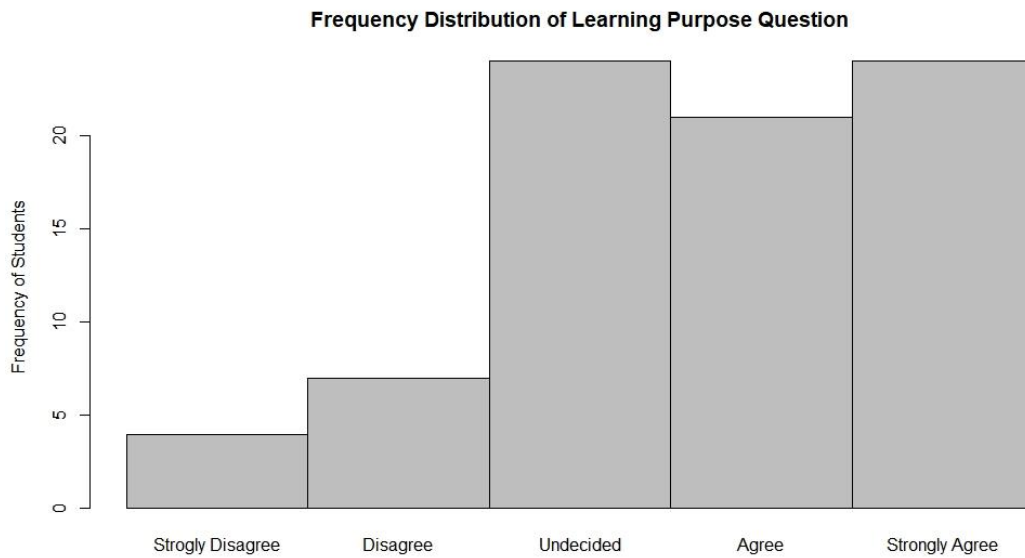


Figure 3.9: Frequency Distribution of Learning Purpose Question

This frequency distribution of show that most students strongly agree that mobile entertainment will distract the concentration of learning.

Table 3.2: Frequency Distribution Table of Learning Purpose Question

Level of Agree	Frequency	Relative Frequency
1 Strogly Disagree	4	0.0500
2 Disagree	7	0.0875
3 undecided	24	0.3000
4 Agree	21	0.2625
5 Strongly Agree	24	0.3000

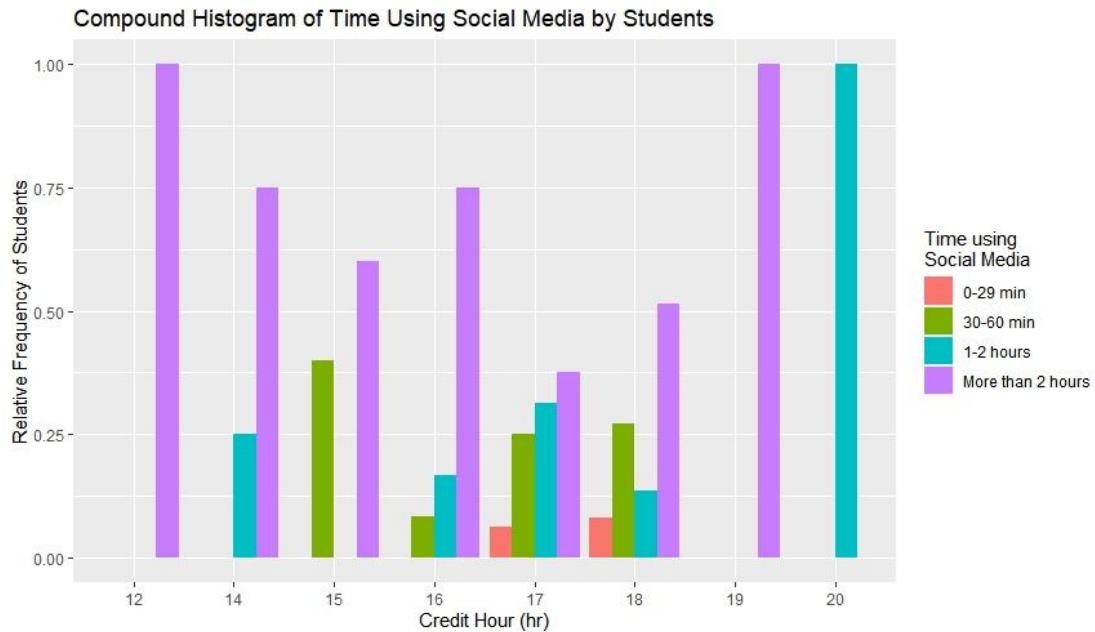


Figure 3.10: Compound Histogram of Time Using Social Media by Students

This compound histogram shows that the daily usage of social media among most students are 2 hours regardless of their credit hours.

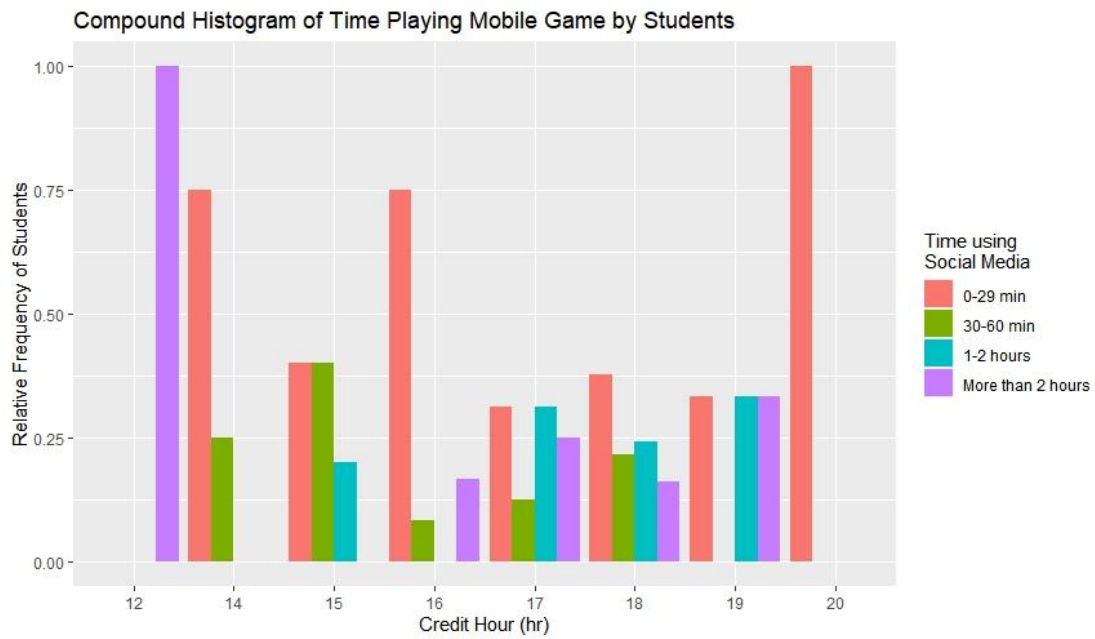


Figure 3.11: Compound Histogram of Time Playing Mobile Game by Students

This compound histogram indicates there is a decreasing trend of time playing the mobile game when the credit hours taken by students is more. Most students able to play games for more than 2 hours when their credit hours are low which is below 14. Those who have 20 credit hours are mostly only able to play less than 30 minutes.

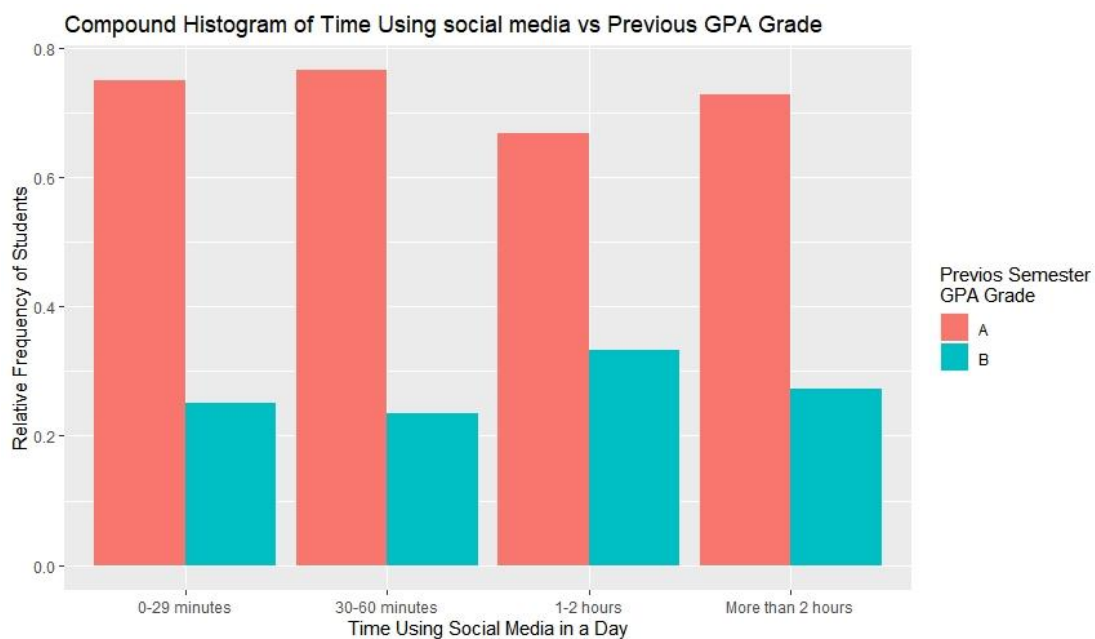


Figure 3.12: Compound Histogram of Time Using social media vs Previous GPA Grade

The histogram proved that more people get A rather than B regardless of their time when using social media.

4.0 Discussion and Conclusion

From Figure 3.1, we can conclude that more than half of the sample is from Year 1. The statistic in Figure 3.10 found out most of them use mobile for social media more than 2 hours regardless of the credit hours that they take. Since the usage of social media is constant regardless of credit hours taken by students and Figure 3.12 shows that most of the students still can perform well during the exam, the only statistic that affects academic result is the usage of mobile gaming. Figure 3.11 indicates that they are a decreasing trend of time consumption when playing game when there are more credit hours taken by the students. In Figure 3.7, we can see that most of the students score above 3.33 which is grade B and above. With that in mind, we can safely assume that students that take more credit hours use the gaming time on their study.

From the statistic in Figure 3.2, we found out that students like to use hardcopy rather than softcopy when studying. For those who can multitasking, the students can play the game while studying as they do not need to switch between application and the distraction is lesser than those who need to switch between applications. For example, they can play social media while studying as they have a hardcopy to help them. However, it can be different for those who only use softcopy as they need to switch between 2 applications and sooner or later, they will give up and focus either gaming or study. From Figure 3.4, we can observe that Year 3 and Year 4 students are more prefer softcopy than hardcopy. Hence, we speculate softcopy study material can let them more effectively learn academic knowledge.

Based on Figure 3.9, most of them agreed that mobile devices distract their concentration of learning. Thus, we can safely assume those students could choose the mobile device to play game instead of study. Looking on the skewness shape of Figure 3.8 and Figure 3.9, we can observe that Figure 3.9 has a left-skewed shape which means that least people are not affected by mobile entertainment. Most of the respondent disagree that social media will affect their academic performance but most of them agree that they have been distracted by social media when they are learning.

In conclusion, we can conclude that the mobile application will affect the academic performance of an individual, everything depends on personal time management skills. This survey successfully achieved our targeted objective.

5.0 References

Bhat, A. (n.d.). *QuestionPro*. Retrieved 23 March, 2020, from Questionnaire: Definition, Examples, Design and Types: <https://www.questionpro.com/blog/what-is-a-questionnaire/>

Davies, T. M. (2016). *The Book of R: A First Course in Programming and Statistics*. San Francisco: No Starch Press.