Exploring the relationship between social media usage and academic performance among faculty of science undergraduates at university of Kelaniya

STAT 22632- Survey Methods & Sampling Techniques

Department of Statistics & computer Science

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By

Group 11

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Introduction

Background of the Study

The world is today celebrating the improvements in communication technology which has broadened the scope of communication through Information and Communication Technologies. It is a well-known fact that modern technology in communication has impacted and influenced the global world positively and negatively. Social media is a composition of activities that contains socializing through the use of words, pictures, and videos. It is a form of digital communication media which gives the ability for everyone to interact, associate, and share and form a room to disseminate content with the use of the internet. It has become a powerful and impactful the whole world in every aspect, especially students. Social media has changed how people communicate, interact, and share information worldwide. Among its various impacts, social media's influence on academic performance has been a subject of growing interest and concern, particularly among undergraduate students. However, there exists a gap in understanding how social media utilization affects the academic performance of faculty of science undergraduates specifically.

Our survey wants to understand the relationship between social media usage and academic performance of Faculty of Science students at the University of Kelaniya. It will look at how often and why students use social media, and compare it with their grades, course completion rates, and satisfaction levels. The goal is to see how social media use relates to academic success. In the new normal learning system, students learn and study by using a medium which they also use for browsing social media platforms. The aim of this study is to know if the students' use of social media platforms affects their academic performance in the new normal learning system. The answer to this study might be helpful for developing new learning methods that will be effective in the new normal setting.

Our survey at the University of Kelaniya focused on Faculty of Science undergraduate students to gather data on the link between social media usage and academic performance. All selected students participated willingly, providing self-reported information. The accuracy of the data may be affected by respondents' awareness. The survey covered all years within the Faculty of Science to ensure representation.

We used a technique called stratified sampling to select a sample from the population. This involved dividing the population into smaller groups, or strata, based on specific criteria. We then selected a proportional number of participants from each stratum. To collect data from the selected sample, we used a Google Form questionnaire, which was a convenient and efficient method. We also applied random sampling within each stratum to ensure that the sample was representative of the population. This helped us gather data that accurately represented the population and allowed for reliable analysis.

Academic performance plays an important role of an undergraduate. So, understanding how social media usage impact the lives of university students is a crucial aspect of identifying

appropriate methods for managing their time and academic activities. Therefore, we conducted a detailed questionnaire to examine students' awareness towards it. Our objective was to identify how they use those platforms effectively on academic purposes and whether excessive usage affects their studies.

Objectives

To determine the effect of social media on the GPA of the students.

To examine the correlation between social media activity and academic performance.

To identify different social media platforms used by the undergraduates

Time proportion and frequency on social media for a day by an undergraduate.

To examine the reasons of using social media.

Whether social media usage helps undergraduates to share their thoughts

Whether undergraduates share educational resources on social media.

.

Methodology

At first, we conduct a pilot survey for a better understanding of our main survey and to get to known the mistakes of the survey that might occur. We used a questionnaire with 16 questions to conduct this survey.

Used Sampling Techniques

We use stratified sampling technique and simple random sampling to conduct our survey. We use stratified sampling technique because, the population of faculty of science has distinct subgroups with potentially different characteristics. When we get a first-year student his academic related performance is quite different from other three years. That is same for all other years. Therefore, all four years in faculty of science are non-overlapping subgroups. So, we separate the faculty of science into non-overlapping groups as the years, and then selecting a simple random sample from each year. Then we distribute them the questionnaire and got responses.

First, we pre-test or pilot survey to get the general information about the questionnaire and population.

Pilot Survey

We got 25 responses for the pilot survey. The participation and the mean GPA according to the time spent for a day are shown below.

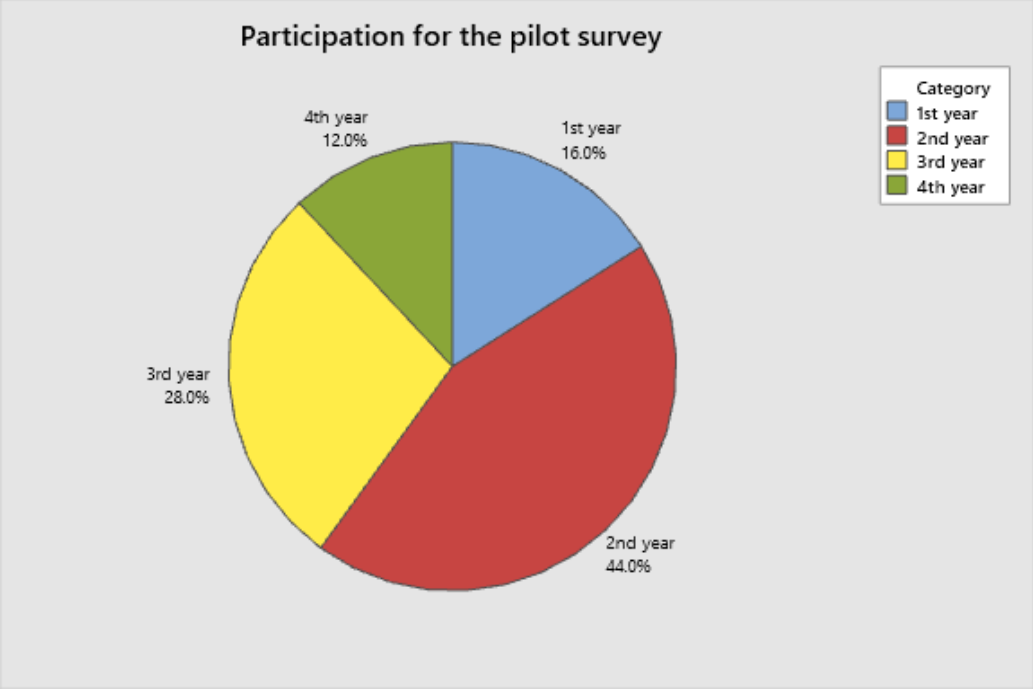


Figure1- Participation for the pilot survey

From Our Pilot Survey We analyze about the mean GPA with the time spent on social media. (we get below results using Minitab statistical software)

1st year

Statistics

Variable	Time spent on social media	Mean
Current Average GPA	3-4 hours	1.0000
	Less than 2 hours	2.25

2nd year

Statistics

Variable	Time spent on social media	Mean
Current Average GPA	2-3 hours	3.1500
	3-4 hours	2.857
	4-5 hours	3.250
	Less than 2 hours	2.2500

We take the mid value of ranges of GPA values to get the mean GPA according to time spent on social media:

3.7-4.0 → 3.85

3.3-3.7 → 3.50

3.0-3.3 → 3.15

2.5-3.0 → 2.75

2.0-2.5 → 2.25

0.0–2.0 →1.00

3rd year

Statistics

Variable	Time spent on social media	Mean
Current Average GPA	2-3 hours	2.950
	3-4 hours	3.5875
	4-5 hours	3.5000
	Less than 2 hours	2.7500

4th year

Statistics

Variable	Time spent on social media	Mean
Current Average GPA	3-4 hours	3.8500
	More than 5 hours	3.8500

Mean GPA	Less than 2 hours	2-3 hours	3-4 hours	4-5 hours	More than 5
First Year	2.250	-	1.00	-	-
Second Year	2.250	3.150	2.8570	3.250	-
Third Year	2.750	2.950	3.5875	3.250	-
Fourth Year	-	-	3.8500	-	3.8500

From the Pilot Survey, we were understandable that for first year students, there were no option for the question to give the current GPA as the results for them not released for then. So, we decided to add an option as "The results have not yet been released (for 1st years)" to overcome that issue.

Main Survey

Sample size calculations from the population

Used equation

We assumed that no prior information is not provided and bound on the error should be equals to 0.05. In this case, sampling costs are nearly equal from stratum to stratum.

$$n = \frac{\sum_{i=1}^{l} N_i p_i q_i}{ND + \frac{1}{N}\sum_{i=1}^{l} N_i p_i q_i} \quad ; \; D = \frac{B^2}{4} = \frac{0.05^2}{4} = 0.000625; \quad B=0.05$$

$$N=3151,\ p=q=0.5 \rightarrow n=355 \qquad n_i = n\left[\frac{N_i}{\sum_{i=1}^{l} N_i}\right]$$

Finding the sample size

$$n = \frac{1012 * 0.5 * 0.5 + 1062 * 0.5 * 0.5 + 802 * 0.5 * 0.5 + 275 * 0.5 * 0.5}{3151 * 0.000625 + (1/3151 * (1012 * 0.5 * 0.5 + 1062 * 0.5 * 0.5 + 802 * 0.5 * 0.5 + 275 * 05 * 0.5)}$$

$n=354.92 \approx 355$

Findings about each stratum

$$n1 = 354.92 * [\frac{1012}{1012+1062+802+275}]$$

$=113.99 \approx 114$

$$n2 = 354.92 * [\frac{1062}{1012+1062+802+275}]$$

$=119.62 \approx 120$

$$n3 = 354.92 * [\frac{802}{1012+1062+802+275}]$$

$$= 90.34 \approx 91$$

$$n4 = 354.92 * [\frac{275}{1012+1062+802+275}]$$

$$= 30.97 \approx 31$$

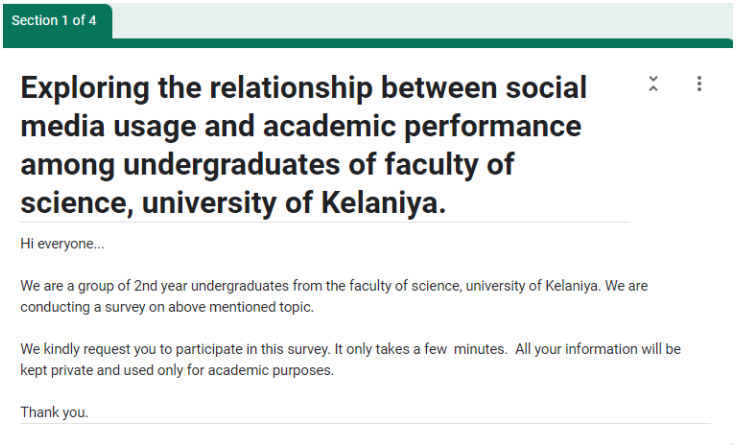
Here n1 is the sample size of the stratum 1(1^{st} years), n2 is the sample size of the stratum 2 (2^{nd} years), n3 is the sample size of the stratum 3(3^{rd} years), n4 is the sample size of the stratum (4^{th} years).

Strata	Population size	Sample size
1	1012	114
2	1062	120
3	802	91
4	275	31

Questionnaire

We used a questionnaire method for our primary data gathering tool. It is a standardized questionnaire used on determining the effect of social media platforms on students' academic performance. The questionnaire is divided into three sections as Personal Information. Social Media Usage and Academic Performance. First Section which is about personal information consists of 4 questions and in second Section consists of 5 questions and at the end of the questionnaire, there are 6 questions and an open-ended question asked them whether they have any further comments on our Survey.

Link for the Questionnaire → https://forms.gle/ZseFWU4hxZnJhgE36



Personal Information

01) Academic Year : *

- ○ 1st year
- ○ 2nd year
- ○ 3rd year
- ○ 4th year

02) Gender *

- ○ Male
- ○ Female

03) Department *

- ○ Physical Science (PS)
- ○ Biological Science (BS)
- ○ Sports Science (SS)
- ○ Electronics & Computer Science (ECS)
- ○ Applied Chemistry (APCH)
- ○ Physics & Electronics (PE)
- ○ Software Engineering (SE)
- ○ Industrial Management (MIT)
- ○ Environmental Conservation & Management (ENCM)

04) Devices you have *

- ○ Smartphone
- ○ Laptop
- ○ Both
- ○ Other...

Social Media Usage

01) Which social media platforms do you use most? (Select all platforms you used most) *

- ☐ Whatsapp
- ☐ Facebook
- ☐ Youtube
- ☐ Instagram
- ☐ Viber
- ☐ Imo
- ☐ TikTok
- ☐ Snapchat
- ☐ Linkedin
- ☐ Other: _____

02) Which of following academic networking platforms do you use often? (Select all you use) *

- ☐ Pinterest
- ☐ Coursera
- ☐ Research Gate
- ☐ Google Scholar
- ☐ Not aware about these
- ☐ Other: _____

03) On average, how many hours per day do you spent on social media? *

- ○ Less than 2 hours
- ○ 2-3 hours
- ○ 3-4 hours
- ○ 4-5 hours
- ○ More than 5 hours

04) Reasons for using social media platforms (select all reasons you have) *

- ☐ Entertainment & Leisure
- ☐ For educational purposes
- ☐ Stay connected with friends and relatives
- ☐ To avoid stress and boring
- ☐ Update on news and events
- ☐ Other:

05) What type of issues have you ever experienced with the excessive use of social media? (Select all you have) *

- ☐ Unnecessary expenses
- ☐ Missed work opportunities
- ☐ Wastage of time
- ☐ Disturb sleep patterns
- ☐ Stress and anxiety
- ☐ Addiction and depandency
- ☐ Loneliness and isolation
- ☐ Cyberbulling and harrassment
- ☐ Never experienced above any issue
- ☐ Other:

Back Next Clear form

Academic Performance

01) Do you ever use social media platforms for academic purposes? *

- ○ Yes
- ○ No

02) If the answer is yes, select the all purposes you have.

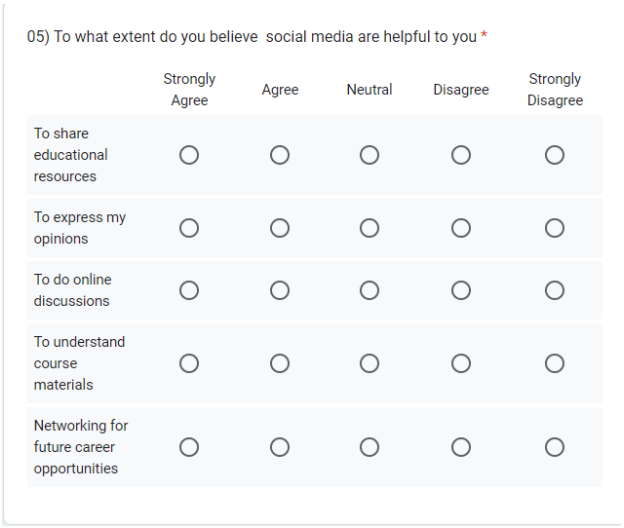
- ☐ Work on projects
- ☐ Sharing study materials
- ☐ To access online lectures
- ☐ To have group discussions, assignment
- ☐ To receive announcements from lectures
- ☐ To improve interaction with subject experts
- ☐ Other:

03) How often do you check your social media during a lecture? *

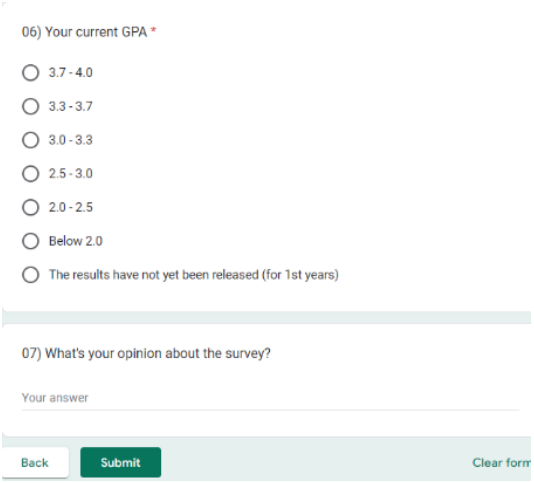
- ○ Not at all
- ○ Once
- ○ Two times
- ○ Three times
- ○ Four times
- ○ More than four times

04) Have you ever experienced those negative impacts on academic activities due to excessive use of social media. (Select all you have) *

- ☐ Missed deadlines
- ☐ Lower grades
- ☐ Missed mid exams
- ☐ Hard to concentrate on studies


05) To what extent do you believe social media are helpful to you *

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
To share educational resources	○	○	○	○	○
To express my opinions	○	○	○	○	○
To do online discussions	○	○	○	○	○
To understand course materials	○	○	○	○	○
Networking for future career opportunities	○	○	○	○	○


06) Your current GPA *

- ○ 3.7 - 4.0
- ○ 3.3 - 3.7
- ○ 3.0 - 3.3
- ○ 2.5 - 3.0
- ○ 2.0 - 2.5
- ○ Below 2.0
- ○ The results have not yet been released (for 1st years)

07) What's your opinion about the survey?

Your answer

Back Submit Clear form

Analysis and Interpretation

1. Years of the Respondents

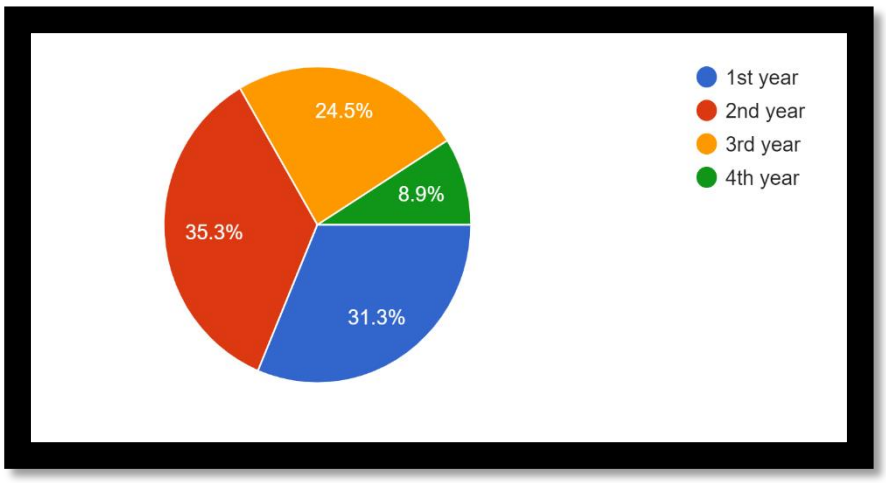


Figure2-Years of Respondents

The Pie chart illustrates the Years of Respondents of Faculty of Science, University of Kelaniya. Our survey, we gathered responses from a total of 381 participants. As visualized in the pie chart, 35.3% belong to the 2nd years, making them most represented demographic. The 1st years follows closely at 31%, indicating significant participation as well as nearly 25% from 3rd years among all respondents. Interestingly, only 8.9% within 4th years, suggesting lower participation of undergraduates of faculty of science.

2. **Gender of participants**

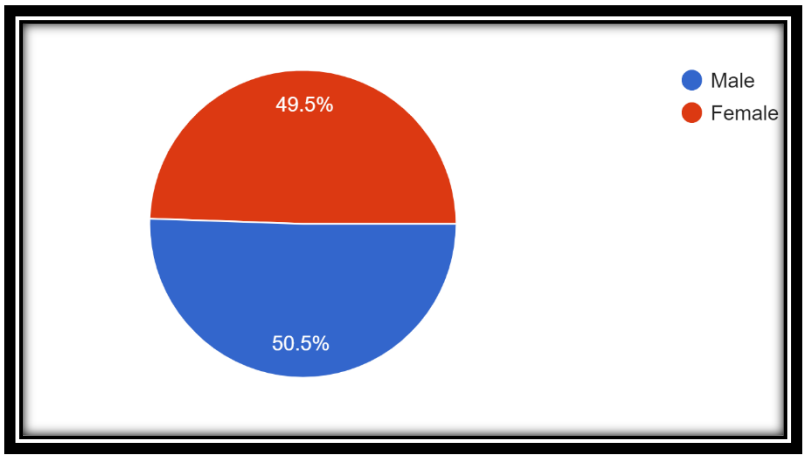


Figure3-Gender of participants

This illustrates the distribution of respondents according to gender. Among total participants, 50.5% are identified as males which is about 192 of total respondents and 49.5 % which is total of 189 of 381 participants are females. This nearly equal percentages suggest that there is a balanced representation of genders within the surveyed population.

3. Departments Of Respondents

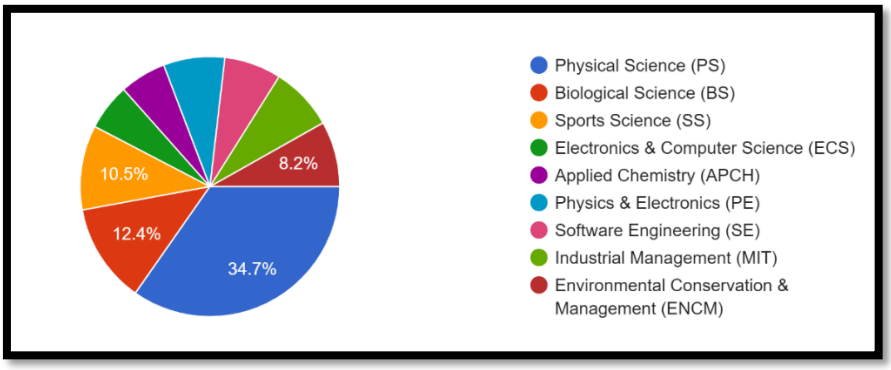


Figure4-Departments of Respondents

This pie chart shows the respondents from each degree program in the Faculty of Science at the University of Kelaniya. The largest slice of the pie, at 34.7%, is Physical Science. The second largest slice is biological science, at 12.4%. The third largest slice is Sports Science (SS), at 10.5%. Environmental Conservation & Management (ENCM), Applied Chemistry (APCH), Physics & Electronics (PE), Electronics and Computer Science, Software Engineering and Industrial Management are all less popular majors, with each having 8.2% of students or less. It is important to note that this pie chart only shows the distribution of students who responded to the survey. It is possible that the distribution of all students in the Faculty of Science is different.

4. Devices Used by Undergraduates

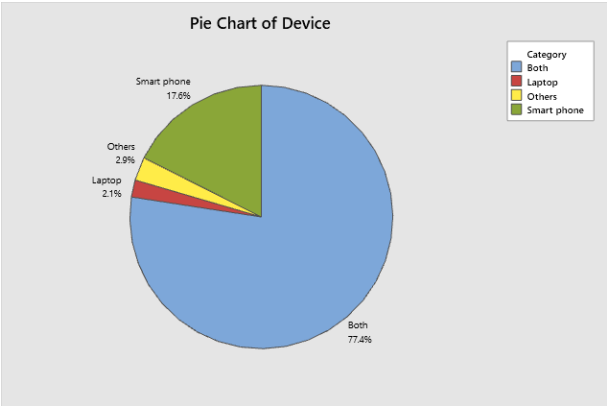


Figure5-Pie chart of device

This represents the distribution of devices used by respondents. Among the surveyed population, the majority, comprising 77.4%, reported using both smartphones and laptops for various purposes. Following this, 17.6% of respondents exclusively use smartphones, suggesting a significant portion of the population relies primarily on mobile devices for digital needs. In contrast, a smaller fraction of 2.1% reported using laptops exclusively.

Lastly, 2.9% of respondents indicates using other devices, such as tablets. Overall, the pie chart provides a comprehensive overview of device usage patterns among respondents.

5. **Social Media Platforms Used by Respondents**

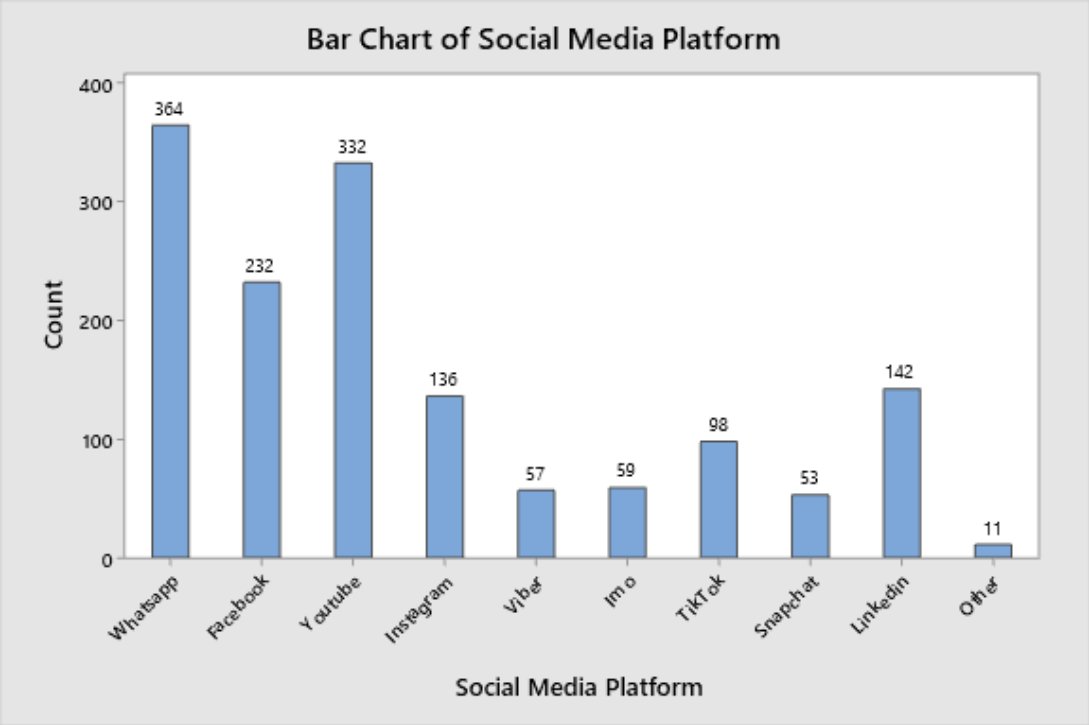


Figure6-Barchart Of social media platform

The Bar chart illustrates the distribution of social media usage among respondents, with each bar representing the frequency of usage of different platforms among the surveyed sample of 381 respondents.

WhatsApp is the most frequently used social media platform, with 364 respondents indicating its usage. Following WhatsApp, YouTube and Facebook are the next most commonly used platforms, with 332 and 232 respondents, respectively. This indicates significant engagement with video-sharing and social networking platforms for both entertainment and informational purposes. Instagram and LinkedIn are also notable platforms, with 136 and 142 respondents, respectively. These platforms are likely used for visual content sharing, professional networking, and career development purposes. Other platforms like TikTok, Viber, Imo, Snapchat and others such as Twitter, Reddit, 4chan, Threads have comparatively lower usage frequencies, with varying degrees of engagement among the surveyed population.

It is important to note that many respondents use multiple social media platforms. This suggests that respondents are active across various social media channels, reflecting the diverse digital habits and preferences within the surveyed sample.

6. **Academic Networking platforms Used by Faculty of Science Undergraduates**

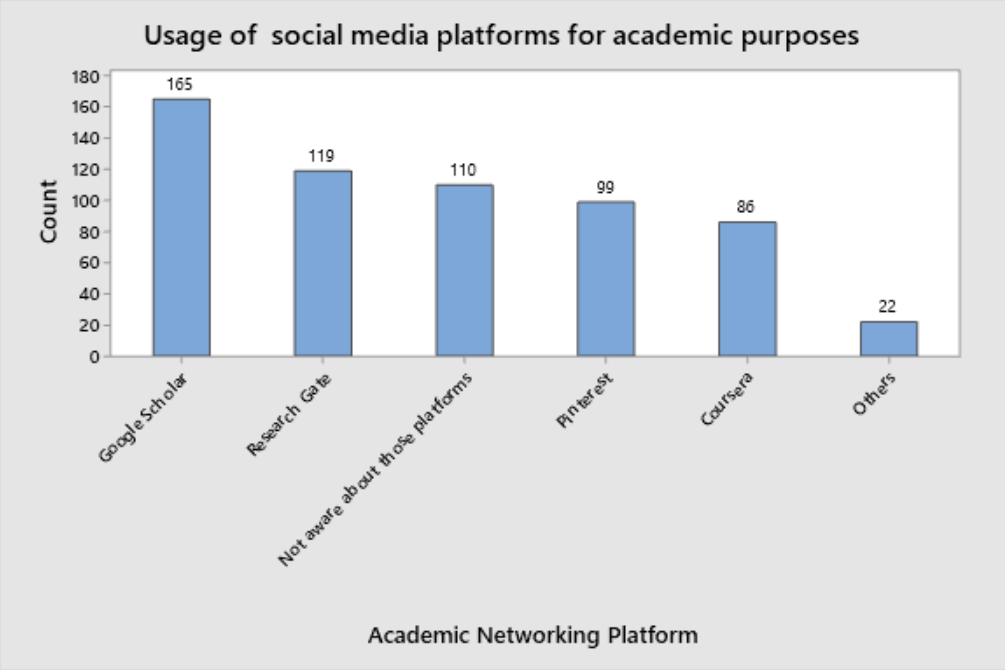


Figure7-Usage of social media platforms for academic purposes

The bar chart represents the utilization of various social media platforms for academic purposes among a sample of 381 respondents. Each bar corresponds to a specific platform, with its height reflecting the number of respondents who reported using that platform. Google Scholar stands out as the most widely used academic platform among the respondents, with 165 individuals. Research Gate follows closely behind Google Scholar, with 119 respondents indicating its usage for academic networking and research purposes. Surprisingly, a significant portion of respondents, 110 in total, admitted to being unaware of academic networking platforms. That respondents comprises first-year students who may not have been introduced to these platforms yet. Pinterest and Coursera also exhibit notable usage among the respondents, with 99 and 86 individuals respectively utilizing them for academic purposes. Additionally, a smaller portion of respondents, 22 in total, reported using other platforms like Moodle, GitHub, and Cisco for academic activities.

Overall, the bar chart offers insights into the diverse landscape of social media platform usage for academic purposes, highlighting the dominance of established platforms like Google Scholar and ResearchGate, as well as the presence of alternative platforms and a subset of respondents who are yet to explore academic networking resources.

7. Hours Per day Respondents Spent on social media

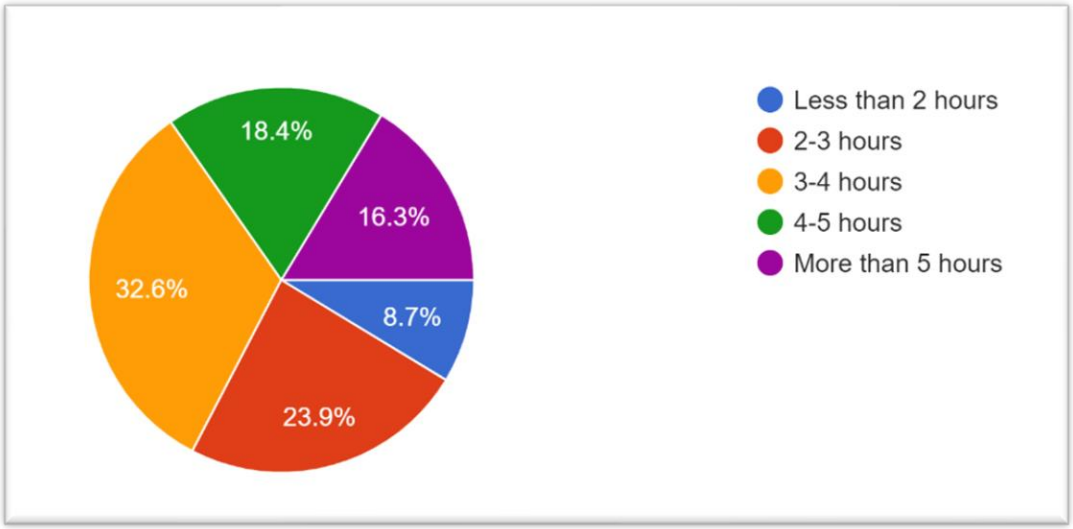


Figure8-Hours per day spent on social media

The pie chart of hours per day spent on social media illustrates the distribution of daily social media usage among the Faculty of Science.

Only a small fraction, 8.7% of the respondents, reported spending less than 2 hours per day on social media. This group demonstrates a minimal engagement with social platforms, prioritizing other activities over online interaction. The next segment, comprising 23.9% of respondents, falls into the category of spending 2 to 3 hours daily on social media. This suggests a moderate level of engagement, with individuals likely balancing their social media usage with academic and personal responsibilities. The largest proportion, encompassing 32.6% of respondents, indicates spending 3 to 4 hours per day on social media. This group represents a substantial portion of the Faculty of Science, suggesting a considerable amount of time allocated to online engagement. Following closely behind, 18.4% of respondents reported spending 4 to 5 hours daily on social media.

While smaller in comparison to the previous category, this segment still represents a noteworthy portion of the faculty, indicating a significant investment of time in online activities. Finally, a proportion of respondents, though not specified in percentage, reported spending more than 5 hours per day on social media. While this category represents a smaller portion compared to others, it highlights the presence of individuals within the faculty who dedicate a considerable amount of time to online platforms, potentially impacting their academic and personal pursuits.

Overall, the pie chart provides a comprehensive overview of the distribution of daily social media usage among the Faculty of Science, showcasing varying levels of engagement and highlighting potential trends in online behavior within the academic community.

8. Reasons for The Use of Social Media by Respondents

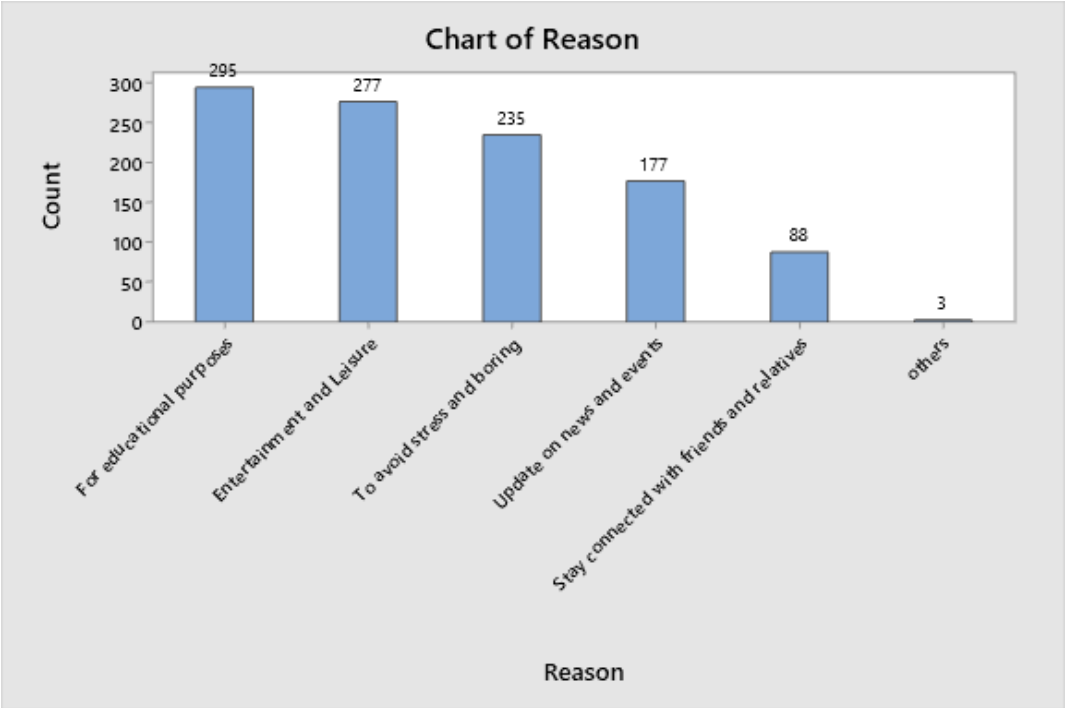


Figure9 -Reasons for social media usage

The bar chart represents the reasons for social media usage among respondents in the Faculty of Science at the University of Kelaniya. The chart shows the number of individuals who cited each reason for their social media usage. The most common reason for using social media among the respondents was for educational purposes, with 295 individuals using these platforms to enhance their learning and academic activities. Following closely behind, 277 respondents reported using social media for entertainment and leisure activities.

Additionally, 235 respondents mentioned using social media to alleviate stress and boredom, while 177 respondents used social media to stay updated on news and events. 88 respondents cited staying connected with friends and relatives as a reason for their social media usage. Only 3 individuals mentioned other reasons not covered in the main categories. Overall, the bar chart highlights the various purposes for which individuals in the Faculty of Science at the University of Kelaniya utilize social media platforms.

9. Issues that Respondents experienced with the excessive use of social media

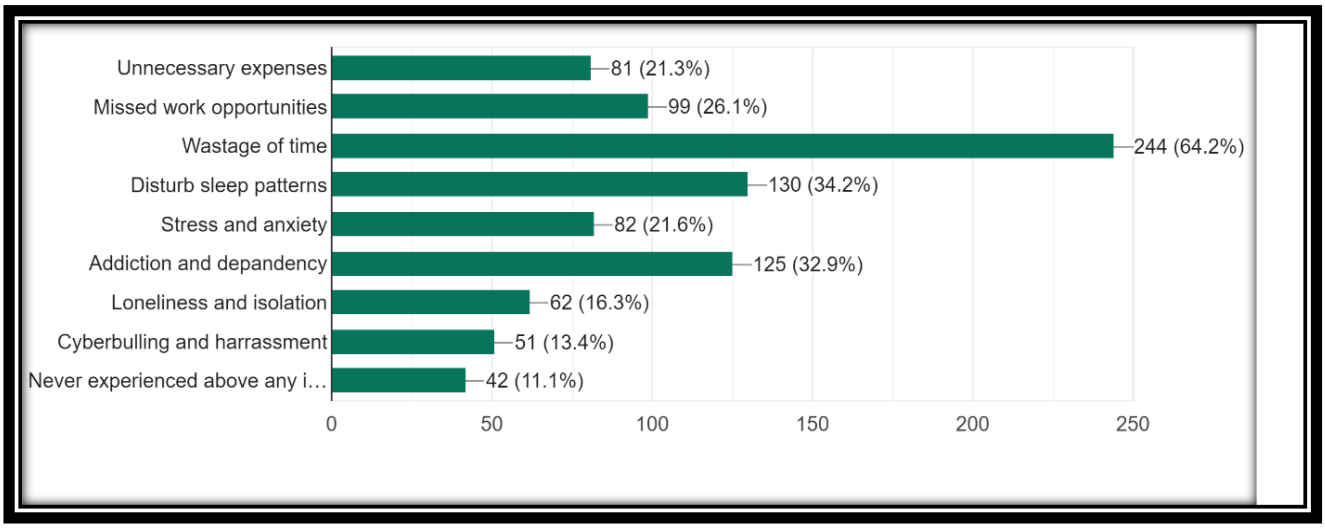


Figure10-Isuues experienced with the excessive use of social media

With a sample size of 381 students from the science faculty of the University of Kelaniya, the bar chart illustrates various issues experienced due to excessive use of social media. Unnecessary expenses have 81 respondents experienced this issue. This could indicate that a significant number of students are spending money on social media-related activities, such as buying apps, games, or online subscriptions.

Missed work opportunities has 99 respondents reported this issue. It suggests that many students might have missed academic or professional opportunities because they were spending too much time on social media instead of focusing on their studies or career advancement.

Wastage of time, this was the most common issue, with 244 respondents reporting it. It indicates that a substantial portion of students feel that excessive use of social media is consuming their time without yielding significant benefits.

Disturbed sleep patterns have 130 respondents experienced this issue, suggesting that social media usage may be interfering with their ability to maintain healthy sleep habits, possibly due to late-night scrolling or exposure to stimulating content before bedtime.

Stress and anxiety have 82 respondents reported experiencing stress and anxiety related to their social media usage. This indicates that social media may be contributing to feelings of pressure or worry among a significant portion of students.

Addiction and dependency have 125 respondents acknowledged experiencing addiction and dependency issues with social media. This suggests that a considerable number of students may struggle to control their social media usage and feel compelled to constantly engage with it.

Loneliness and isolation have 62 respondents reported feelings of loneliness and isolation associated with their social media usage. This suggests that, for some students, social media may not effectively fulfill their need for genuine social connection and may even exacerbate feelings of loneliness.

Cyberbullying and harassment have 51 respondents indicated experiencing cyberbullying and harassment on social media platforms. This highlights the prevalence of online abuse and the negative impact it can have on students' well-being.

Never experienced above issues has 42 respondents reported never experiencing any of the mentioned issues. This suggests that while these issues are prevalent among the surveyed population, a portion of students may have a more positive or controlled relationship with social media.

10. Use Of Social Media Platforms for Academic Purposes

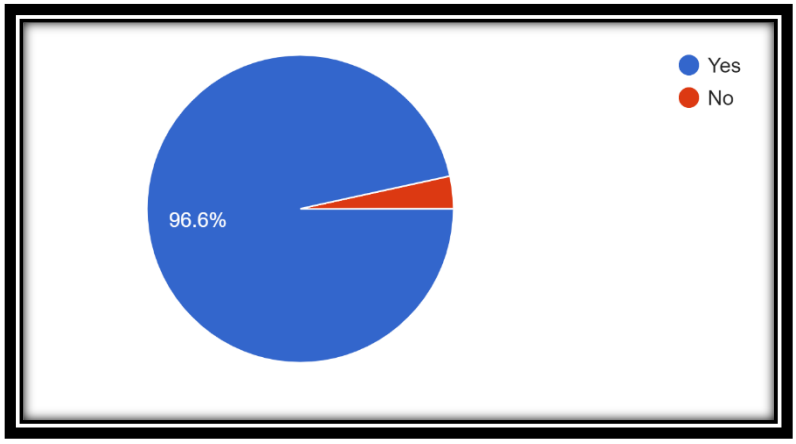


Figure11-Usage of social media for academic purposes

This pie chart illustrates the breakdown of how these respondents use social media platforms for academic purposes. Specifically, it shows that 96.6% of the respondents reported using social media for academic purposes.

With this information, we can conclude that an overwhelming majority of the surveyed students utilize social media platforms as a tool for academic enrichment and learning. This high percentage suggests that social media plays a significant role in supporting their academic activities, whether through accessing educational content, collaborating with peers, or engaging with academic communities online.

Overall, the data reflects a strong inclination among the sampled students towards leveraging social media platforms as educational resources, highlighting the increasing integration of technology and digital platforms in academic pursuits.

11. Usage of Social Media Platforms for Academic Purposes

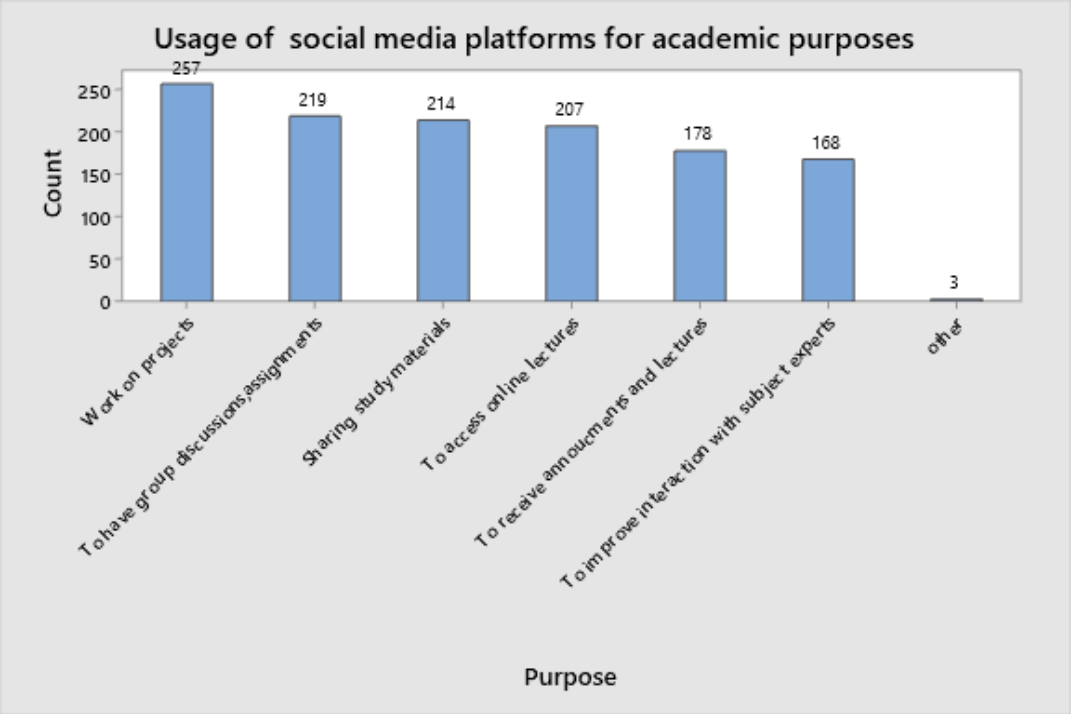


Figure12-usage of social media platforms for academic purposes

The above bar chart illustrates the various ways in which social media platforms are used for academic purposes among the surveyed respondents. Here are the specific usages depicted in the chart, along with their corresponding respondent counts.

Work on projects, this usage involves using social media platforms as a collaborative tool for working on academic projects. It garnered the highest response count, with 257 respondents indicating its usage. This suggests that a significant number of students utilize social media platforms to collaborate with peers on group projects, share ideas, and coordinate tasks.

To have group discussions/assignments indicates using social media platforms to facilitate group discussions or assignments related to academic topics. It received a substantial response count of 219, suggesting that many students engage in academic discussions, debates, and group assignments using social media platforms.

Sharing study materials involves using social media platforms to share educational resources and study materials with peers. It received a response count of 214, indicating that a considerable number of students utilize social media platforms to exchange notes, articles, presentations, and other study materials to support their learning.

To access online lectures refers to using social media platforms as a means to access online lectures or educational content. It received a response count of 207, indicating that many students rely on social media platforms to access recorded lectures, tutorials, and other educational resources provided by their instructors or educational institutions.

To receive announcements and online lectures involves using social media platforms to receive announcements and updates about online lectures or other academic events. It received a response count of 178, suggesting that many students use social media platforms to stay informed about academic deadlines, events, and important announcements from their instructors or academic institutions.

To improve interaction with subject experts and others involves using social media platforms to interact with subject experts and other individuals to enhance academic understanding and knowledge. It received a response count of 168, indicating that some students utilize social media platforms to connect with subject experts, ask questions, seek advice, and engage in discussions to deepen their understanding of academic topics.

Overall, the bar chart demonstrates the diverse ways in which social media platforms are integrated into academic practices, ranging from collaborative work on projects to accessing educational resources and interacting with peers and subject experts. These findings highlight the importance of social media platforms as tools for enhancing collaboration, communication, and access to educational resources in academic settings.

12. Social media Usage during academic lectures

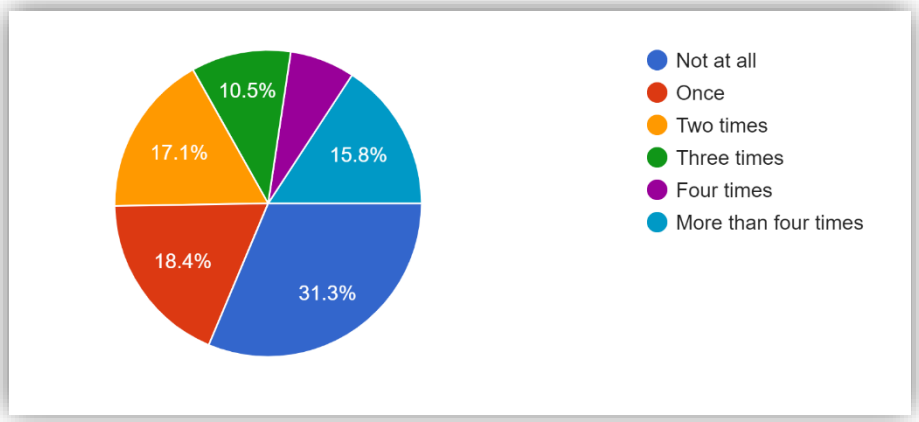


Figure13-social media usage during lectures

The pie chart illustrates the frequency of social media usage during lectures among respondents. The majority of participants, comprising 31.3%, reported not using social media at all during lectures. The distribution shows that 18.4% of respondents used social media once, while 17.1% used it twice. Additionally, 10.5% reported using social media three times, and 15.8% admitted to using it more than four times. Only 6.9% reported using social media exactly four times during lectures. Overall, the data suggests a varied level of engagement with social media during lecture sessions, with a significant portion abstaining from its use altogether.

13. Negative impacts on academic activities due to excessive use of social media by respondents

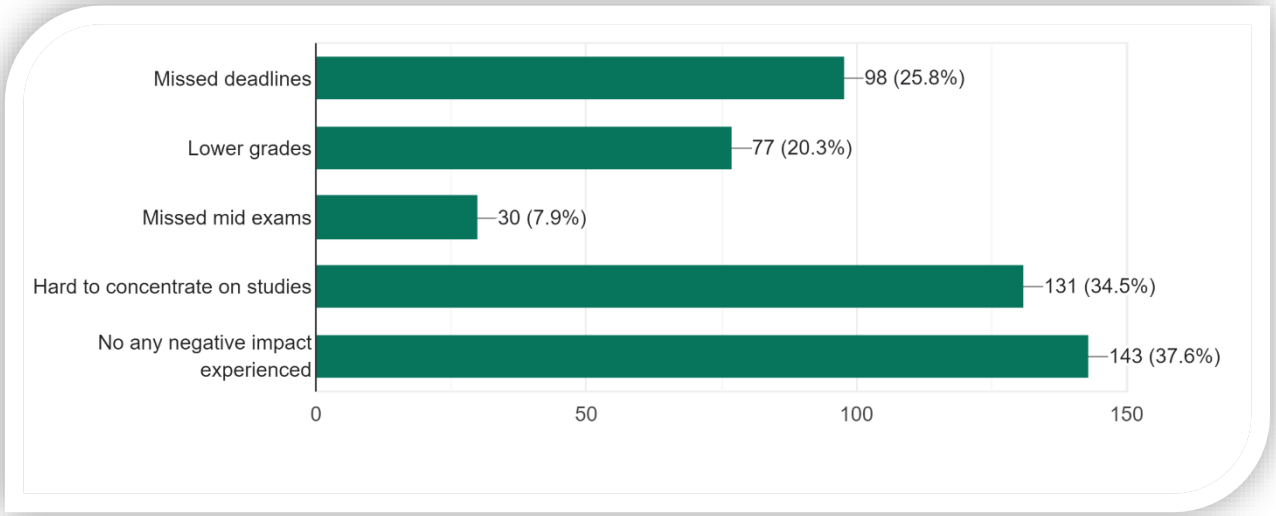


Figure14- negative impacts on academic activities with the use of social media

The bar graph illustrates the negative impacts of excessive social media usage on academic activities reported by respondents. Missed Deadlines negative impact was reported by 98 respondents.77 respondents indicated experiencing lower grades due to excessive social media use.30 respondents reported missing mid-exams because of excessive social media usage. The most commonly reported negative impact, with 131 respondents stating that excessive social media use made it difficult for them to concentrate on their studies. Interestingly, 143 respondents reported not experiencing any negative impact on their academic activities despite their excessive social media usage.

From this data, it's clear that while a significant portion of respondents experienced negative impacts such as difficulty concentrating on studies and missed deadlines, there are also a notable number who did not perceive any negative effects on their academic performance.

14. How helpful to social media to respondents

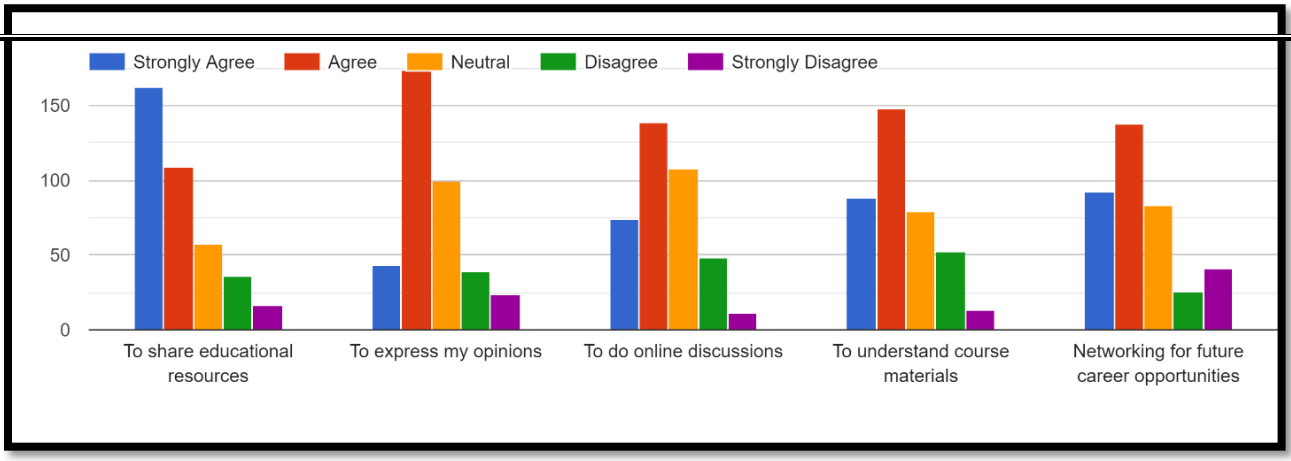


Figure15-How helpful social media to respondents

The bar graph presents data on the perceived helpfulness of social media among respondents across five categories: sharing educational resources, expressing opinions, attending online lectures, understanding course materials, and networking for future career activities

According to the graph, the majority of respondents find social media most helpful for networking for future career activities, with a significantly high bar indicating a strong preference for this aspect. This suggests that individuals see social media as a valuable tool for building professional connections and exploring career opportunities. Following networking, the next most cited helpful aspect of social media is sharing educational resources.

Expressing opinions on social media also garners a notable level of perceived helpfulness among respondents, although slightly less than sharing educational resources. This suggests that individuals view social media as a platform for voicing their thoughts and engaging in discussions on various topics. Understanding course materials through social media is rated slightly lower in perceived helpfulness compared to expressing opinions, indicating that while some find it beneficial, it may not be as universally valued as other aspects. Lastly, attending online lectures through social media is the least cited category in terms of perceived helpfulness among respondents. This suggests that while social media platforms may offer opportunities for online learning, they may not be the preferred or most effective method for accessing educational content for all respondents.

Overall, the graph highlights the multifaceted role of social media in respondents' lives, with networking for future career activities and sharing educational resources emerging as the most prominent areas of perceived usefulness.

15. Current GPA of Respondents

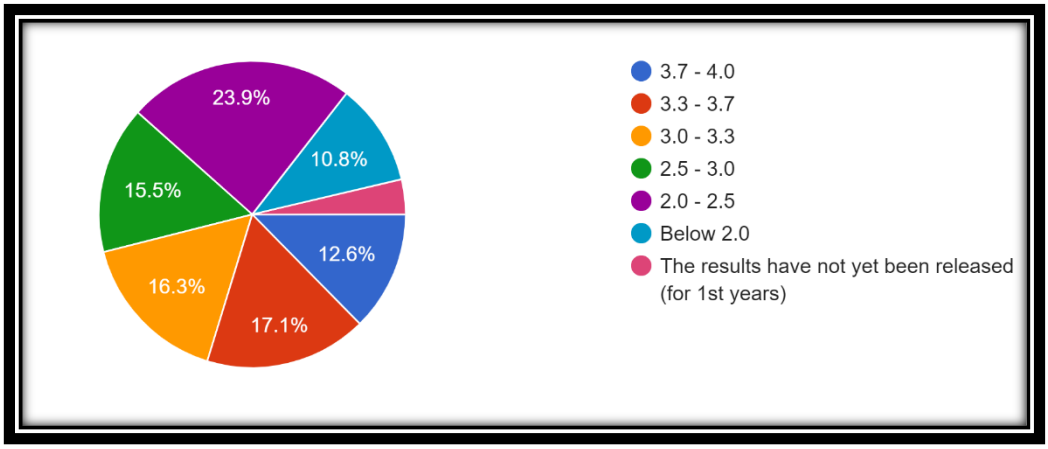


Figure16-Current GPA of Respondents

The pie chart represents the distribution of GPA values among 381 sample respondents, categorized into different GPA ranges.

This category represents 12.6% of the respondents, indicating that 12.6% of the sample achieved a GPA between 3.7 and 4.0. Approximately 17.1% of the respondents fall into this category, suggesting that 17.1% of the sample achieved a GPA between 3.3 and 3.7.

The respondents 16.3% of the sample attained a GPA between 3.0 and 3.3. About 15.5% of the respondents fall into this category, indicating that 15.5% of the sample achieved a GPA between 2.5 and 3.0.GPA 2.0-2.5, this category represents the largest proportion, with 23.9% of the respondents falling into this range. It suggests that 23.9% of the sample achieved a GPA between 2.0 and 2.5.

Approximately 12.6% of the respondents achieved a GPA below 2.0.2.0% of the respondents, indicating that 2.0% of the sample's GPA results have not yet been released or are categorized differently.

16. Year Wise counts of time spent on social media

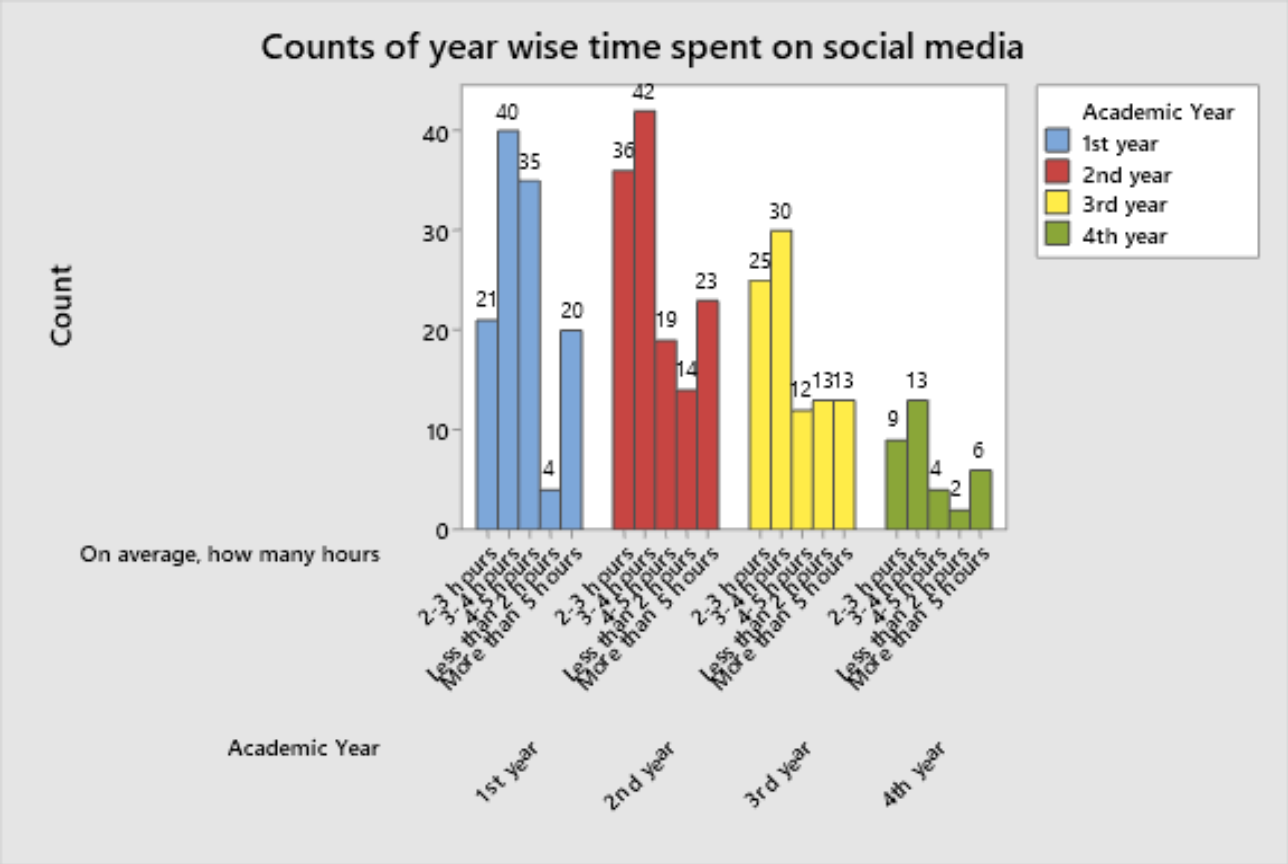


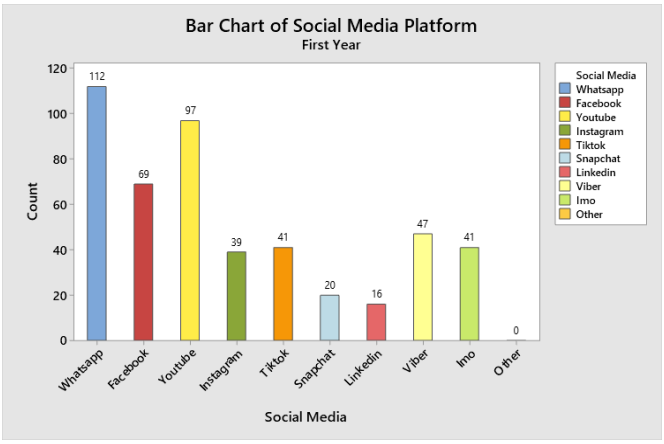
Figure17-Year wise counts of time spent on social media

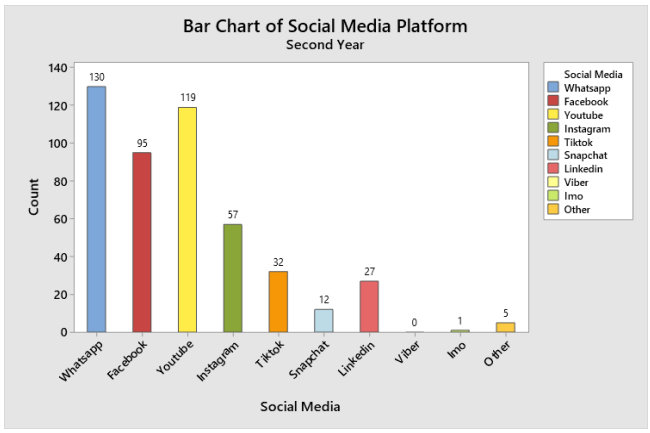
The above bar chart describes about the time students at the Faculty of Science, University of Kelaniya spend on social media per day. The chart shows that overall, students spend less time on social media as they progress through their years at the university.

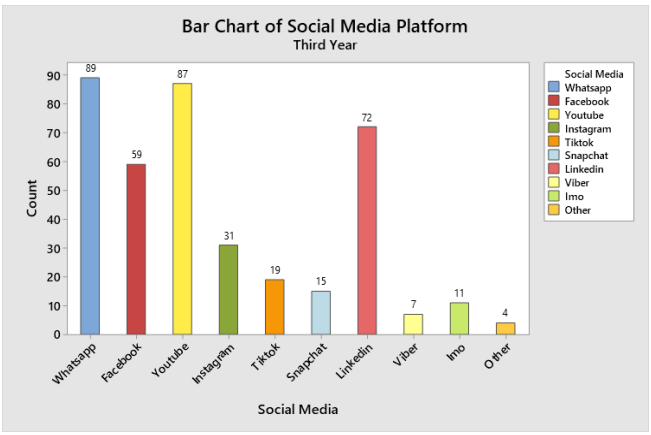
1st year students spend an average of 4 hours per day on social media. This is the highest average among all year groups.2nd year students spend an average of 3 hours per day on social media.3rd year students spend an average of 2.5 hours per day on social media.4th year students spend an average of 2 hours per day on social media. This is the lowest average among all year groups. The chart also shows that there is a significant variation in the amount of time students spend on social media within each year group.

Overall, the chart provides a general overview of how the time students at the Faculty of Science, University of Kelaniya spend on social media per day varies by year.

17. Year wise usage of social media platforms







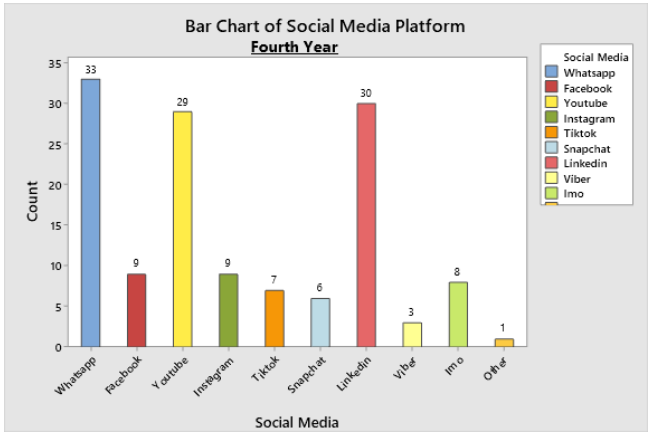
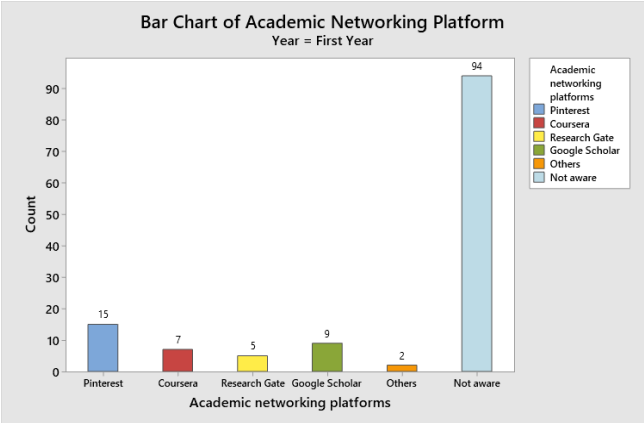
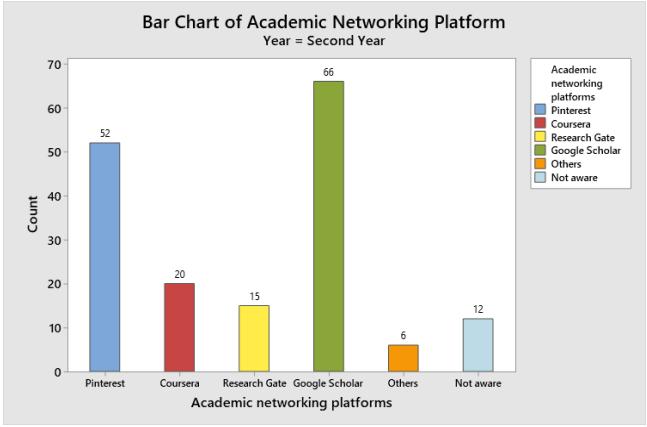


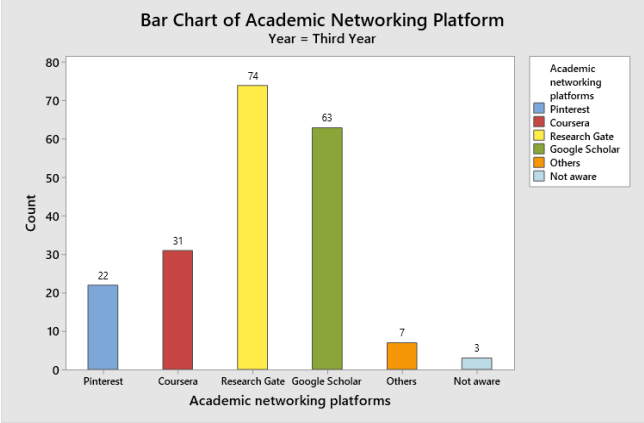
Figure18- year wise use of social media

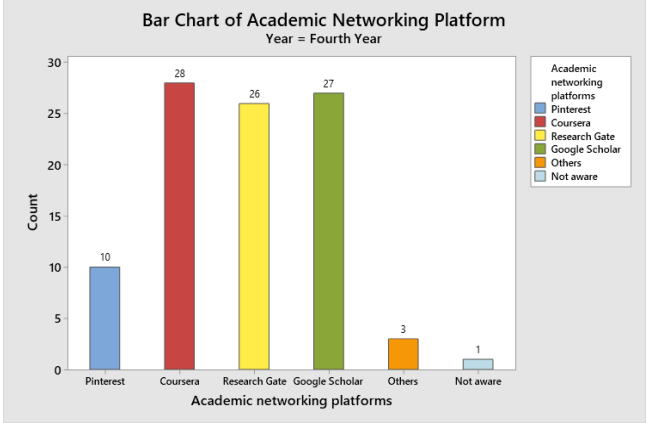
WhatsApp is the most popular social media in all four years.

18. Year wise usage of academic networking platforms

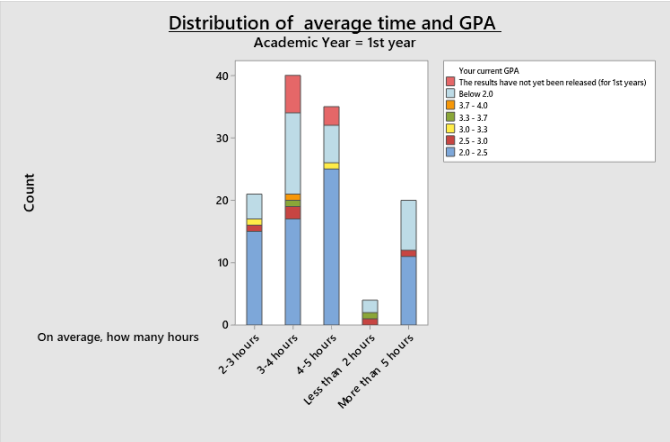


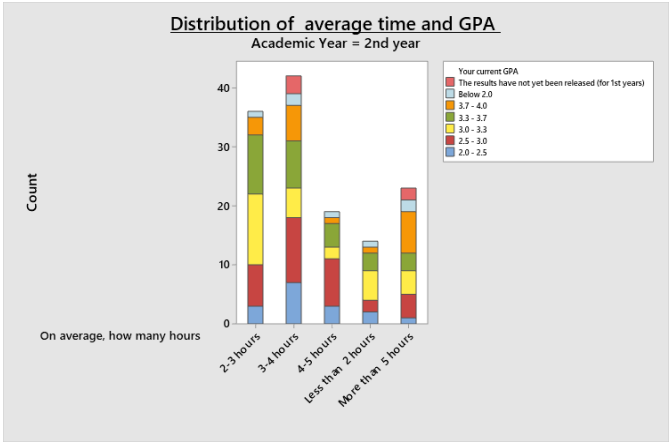


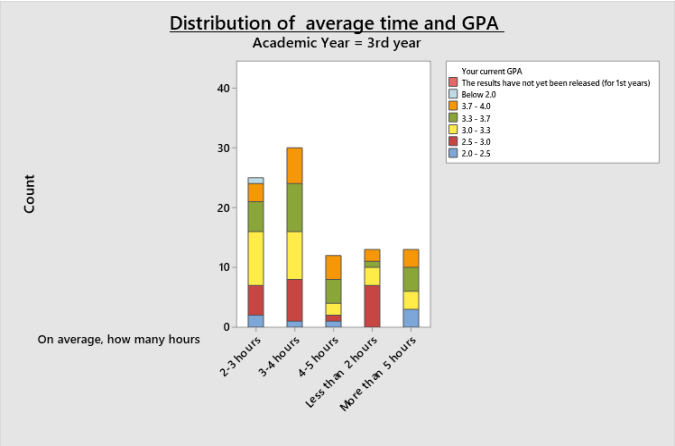


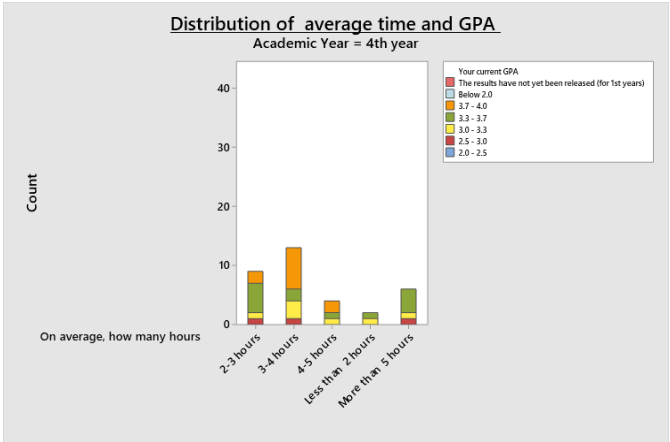


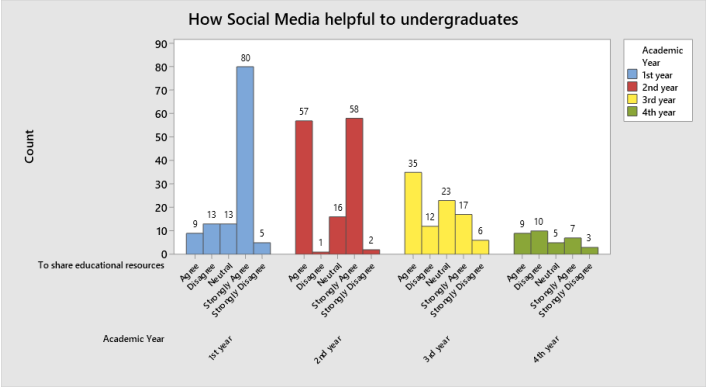
19. Distribution of average time and GPA values

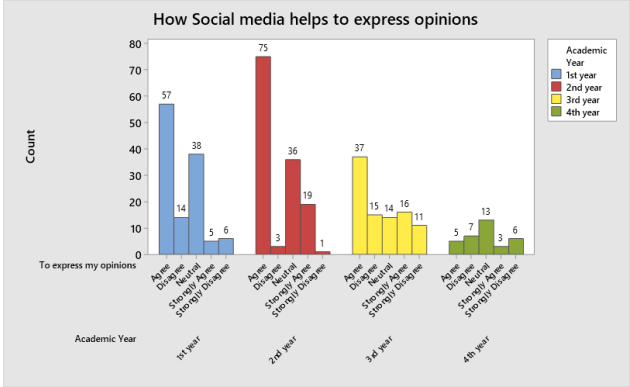


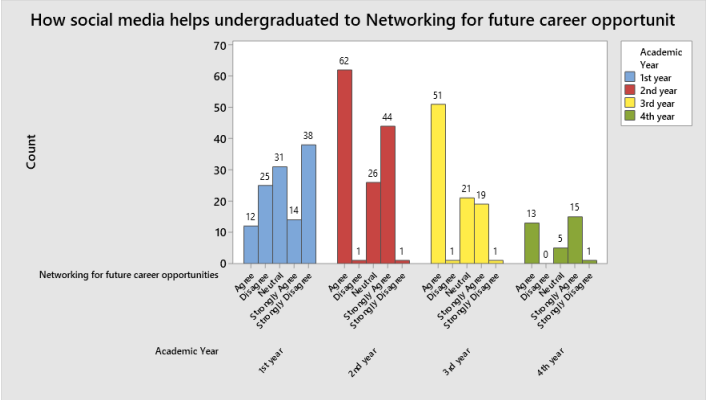







How Social Media helpful to undergraduates
Count
Academic Year
1st year
2nd year
3rd year
4th year
To share educational resources
Agree
Disagree
Neutral
Strongly Agree
Strongly Disagree


How Social media helps to express opinions
Count
Academic Year
1st year
2nd year
3rd year
4th year
To express my opinions
Agree
Disagree
Neutral
Strongly Agree
Strongly Disagree


How social media helps undergraduated to Networking for future career opportunit
Count
Academic Year
1st year
2nd year
3rd year
4th year
Networking for future career opportunities
Agree
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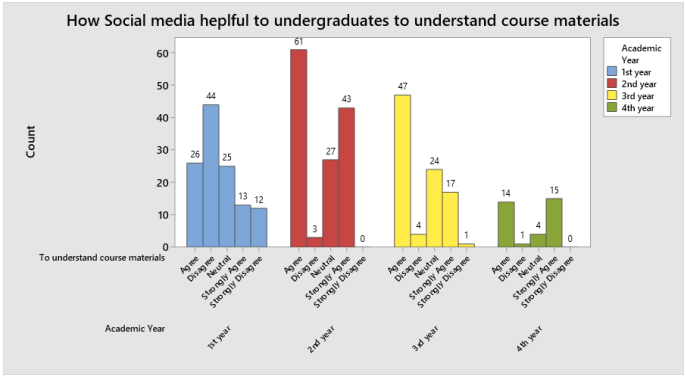
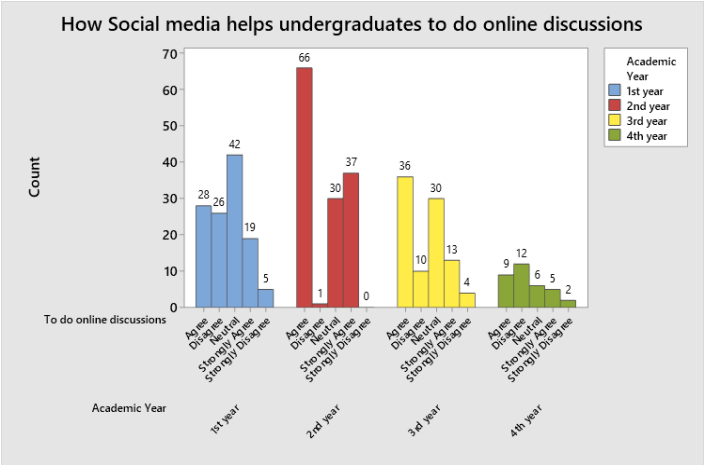
Strongly Agree
Strongly Disagree


How Social media heplful to undergraduates to understand course materials
Count
Academic Year
1st year
2nd year
3rd year
4th year
To understand course materials
Agree
Disagree
Neutral
Strongly Agree
Strongly Disagree


How Social media helps undergraduates to do online discussions
Count
Academic Year
1st year
2nd year
3rd year
4th year
To do online discussions
Agree
Disagree
Neutral
Strongly Agree
Strongly Disagree

Let's Check how GPAs varies according to Time Spent on social media

Below Results are taken using the Minitab statistical software

Descriptive Statistics for mean GPA values according to the time spent on social media for a day:

1st year

Variable	On average, how many hours spent on social media	Mean	StDev
Current GPA	2-3 hours	2.079	0.578
	3-4 hours	1.602	0.994
	4-5 hours	1.869	0.772
	Less than 2 hours	2.063	1.264
	More than 5 hours	1.775	0.658

2nd year

Variable	On average, how many hours spent on social media	Mean	StDev
Current GPA	2-3 hours	3.0931	0.5542
	3-4 hours	2.735	1.025
	4-5 hours	2.837	0.643
	Less than 2 hours	2.936	0.722
	More than 5 hours	2.839	1.208

3rd year

Variable	On average, how many hours spent on social media	Mean	StDev
Current GPA	2-3 hours	3.066	0.611
	3-4 hours	3.2600	0.4350
	4-5 hours	3.392	0.497
	Less than 2 hours	3.069	0.422
	More than 5 hours	3.212	0.601

4th year

Variable	On average, how many hours spent on social media	Mean	StDev
Current GPA	2-3 hours	3.456	0.338
	3-4 hours	3.550	0.382
	4-5 hours	3.587	0.335
	Less than 2 hours	3.325	0.247
	More than 5 hours	3.317	0.311

When summarize above Results

Table 1- Mean GPA according to time spent on social media per day

Mean GPA	Less than 2 hours	2-3 hours	3-4 hours	4-5 hours	More than 5 hours
1st Year	2.063	2.079	1.602	1.869	1.775
2nd Year	2.936	3.0931	2.735	2.837	2.839
3rd Year	3.069	3.066	3.2600	3.392	3.212
4th Year	3.325	3.456	3.550	3.587	3.317

The above table shows the mean GPA of Faculty of Science students at the University of Kelaniya according to the time they spend on social media per day. It shows about how mean GPA varies according to time spent on social media:

In all years except the 1st year, students who spent less than 2 hours on social media had the low mean GPA. In all years except 1st years, students who spent 4-5 hours on social media had the comparatively high mean GPA. The mean GPA generally increases as the time spent on social media decreases, but there are some exceptions. For example, in the 3rd year and 4th year, students who spent 3-4 hours on social media had a slightly higher mean GPA than those who spent 2-3 hours.

The difference in mean GPA between the highest and lowest social media usage groups is largest in the 3rd year (0.79) and smallest in the 1st year (0.16). For 2nd years and 1st years their GPA is high when they spent less time on social media. But when goes to 3rd years and 4th years they have higher GPAs when they spent much time in social networks.

That means they are use those platforms to educational purposes. As an example, most of 4th years and 3rd years are busy with their research works on social media and they also use them to interact with subject matters and networking for future career opportunities.

It is important to note that this table only shows a correlation between time spent on social media and mean GPA. It does not prove that spending less time on social media causes students to have higher GPAs. There could be other factors that explain the relationship, such as students who are more academically motivated may also be more likely to spend less time on social media and students who spend more time on social media may also have other commitments that take away from their study time.

The amount of time a student spends on social media may not be as important as how they use it. For example, a student who spends an hour a day with doing a project on social media such as research gate, google scholar may be more productive than a student who spends the same amount of time playing games or watching videos.

Descriptive Statistics for mean GPA value according to the number of times students check social media during lectures

1st year

Variable	Time that check social media during lectures	Mean	StDev
GPA	Four times	2.050	0.575
	More than four times	1.226	0.833
	Not at all	1.679	1.119
	Once	1.855	0.597
	Three times	1.917	0.926
	Two times	2.1083	0.5321

2nd year

Variable	Time that check social media during lectures	Mean	StDev
GPA	Four times	1.625	1.362
	More than four times	2.886	0.759
	Not at all	2.820	1.022
	Once	3.005	0.874
	Three times	2.919	0.548
	Two times	3.057	0.766

3rd year

Variable	Time that check social media during lectures	Mean	StDev
GPA	Four times	3.539	0.325
	More than four times	3.070	0.801
	Not at all	3.2311	0.4972
	Once	3.083	0.574
	Three times	2.810	0.371
	Two times	3.175	0.416

4th year

Variable	Time that check social media during lectures	Mean	StDev
GPA	Four times	3.5000	0.000000
	More than four times	3.5000	*
	Not at all	3.4971	0.3564
	Once	3.364	0.376
	Three times	3.8500	*
	Two times	3.8500	*

When summarize above Results,

Table2- Mean GPA and count on time spent on social media during lectures

Mean GPA	Not at all (No of Students)	Once (No of Students)	Two times (No of Students)	Three times (No of Students)	Four Times (No of Students)	More than Four Times (No of Students)
1st Year	1.679(19)	1.885(19)	2.1083(30)	1.917(21)	2.050(10)	1.226(21)
2nd Year	2.820(38)	3.005(19)	3.057(27)	2.919(13)	1.625(4)	2.886(33)
3rd Year	3.2311(45)	3.083(21)	3.175(8)	2.810(5)	3.539(9)	3.070(5)
4th Year	3.4971(17)	3.364(11)	3.8500(1)	3.8500(1)	3.500(3)	3.500(1)

This shows how mean GPAs change according to the time spent on social media during lectures.

The mean GPA generally decreases as the time spent on social media during lectures increases. In the 2nd year, students who spent two times on social media had a slightly higher mean GPA than those who never used it.

It is important to note that this table only shows a correlation between the time spent on social media during lectures and mean GPA. It does not prove that spending time on social media during lectures causes students to have lower GPAs.

The number of students in each group varies considerably. For example, in the 1st year, there were 19 students who never used social media during lectures, but only 10 students who used it more than four times. This makes it difficult to draw definitive conclusions from the data. As well as in fourth years the most students never use social networks and some significant students use once. But only few students use more than twice. There is only one student for both four times and more than four times use social media networks. Then we cannot make a conclusion from that. Those who use more than twice have higher GPAs so we cannot make a decision about whole population with those facts. That scenario also affects for the third years also.

The table does not show the range of GPAs within each group. It is possible that there is a lot of variation in GPAs within each group, even though the mean GPA is different.

Descriptive Statistics for mean GPA with how social media are helpful to undergraduates (To share educational resources):

1st year

Variable	To share educational resources	Mean	StDev
GPA	Agree	1.083	0.707
	Disagree	1.981	0.710
	Neutral	1.692	1.429
	Strongly Agree	1.9238	0.6528
	Strongly Disagree	1.100	1.126

2nd year

Variable	To share educational resources	Mean	StDev
GPA	Agree	2.820	0.931
	Disagree	1.0000	*
	Neutral	2.891	0.763
	Strongly Agree	2.976	0.850
	Strongly Disagree	2.950	0.283

3rd year

Variable	To share educational resources	Mean	StDev
GPA	Agree	3.1771	0.4264
	Disagree	3.013	0.534
	Neutral	3.180	0.626
	Strongly Agree	3.244	0.484
	Strongly Disagree	3.525	0.640

4th year

Variable	To share educational resources	Mean	StDev
GPA	Agree	3.3833	0.2475
	Disagree	3.6400	0.2951
	Neutral	3.200	0.411
	Strongly Agree	3.7000	0.1871
	Strongly Disagree	3.133	0.375

Descriptive Statistics for mean GPA with how social media are helpful to undergraduates (To express my opinions):

1st year

Variable	To express my opinions	Mean	StDev
GPA	Agree	1.8623	0.6562
	Disagree	1.661	0.875
	Neutral	1.904	0.898
	Strongly Agree	2.180	1.170
	Strongly Disagree	0.708	0.900

2nd year

Variable	To express my opinions	Mean	StDev
GPA	Agree	2.770	1.018
	Disagree	3.017	0.231
	Neutral	3.014	0.643
	Strongly Agree	3.037	0.714
	Strongly Disagree	3.5000	*

3rd year

Variable	To express my opinions	Mean	StDev
GPA	Agree	3.1662	0.5626
	Disagree	3.303	0.553
	Neutral	3.093	0.463
	Strongly Agree	3.091	0.487
	Strongly Disagree	3.395	0.432

4th year

Variable	To express my opinions	Mean	StDev
GPA	Agree	3.420	0.474
	Disagree	3.443	0.389
	Neutral	3.5000	0.2475
	Strongly Agree	3.8500	0.000000
	Strongly Disagree	3.317	0.382

Descriptive Statistics for mean GPA with how social media are helpful to undergraduates (To do online discussions)

1st year

Variable	To do online discussions	Mean	StDev
GPA	Agree	1.852	0.932
	Disagree	2.077	0.595
	Neutral	1.807	0.723
	Strongly Agree	1.508	1.050
	Strongly Disagree	1.300	0.959

2nd year

Variable	To do online discussions	Mean	StDev
GPA	Agree	2.766	0.905
	Disagree	0.000000	*
	Neutral	2.967	0.736
	Strongly Agree	3.107	0.794

3rd year

Variable	To do online discussions	Mean	StDev
GPA	Agree	3.1000	0.5904
	Disagree	3.335	0.523
	Neutral	3.2717	0.4462
	Strongly Agree	3.138	0.503
	Strongly Disagree	3.225	0.457

4th year

Variable	To do online discussions	Mean	StDev
GPA	Agree	3.500	0.303
	Disagree	3.342	0.426
	Neutral	3.558	0.263
	Strongly Agree	3.7100	0.1917
	Strongly Disagree	3.325	0.247

Descriptive Statistics for mean GPA with how social media are helpful to undergraduates (To understand course materials)

1st year

Variable	To understand course materials	Mean	StDev
GPA	Agree	1.663	0.787
	Disagree	1.7727	0.6555
	Neutral	2.170	0.838
	Strongly Agree	1.300	1.319
	Strongly Disagree	2.042	0.487

2nd year

Variable	To understand course materials	Mean	StDev
GPA	Agree	2.770	0.941
	Disagree	3.000	0.433
	Neutral	2.894	0.879
	Strongly Agree	3.033	0.809

3rd year

Variable	To understand course materials	Mean	StDev
GPA	Agree	3.1862	0.5554
	Disagree	3.125	0.519
	Neutral	3.0667	0.4708
	Strongly Agree	3.359	0.464
	Strongly Disagree	3.8500	*

4th year

Variable	To understand course materials	Mean	StDev
GPA	Agree	3.3179	0.3417
	Disagree	3.5000	*
	Neutral	3.675	0.202
	Strongly Agree	3.5667	0.3379

Descriptive Statistics for mean GPA with how social media are helpful to undergraduates (Networking for future career opportunities)

1st year

Variable	Networking for future career opportunities	Mean	StDev
GPA	Agree	1.867	0.907
	Disagree	1.590	0.793
	Neutral	2.040	0.713
	Strongly Agree	2.054	1.173
	Strongly Disagree	1.651	0.739

2nd year

Variable	Networking for future career opportunities	Mean	StDev
GPA	Agree	2.702	1.024
	Disagree	3.1500	*
	Neutral	3.002	0.704
	Strongly Agree	3.052	0.722
	Strongly Disagree	3.5000	*

3rd year

Variable	Networking for future career opportunities	Mean	StDev
GPA	Agree	3.3098	0.4535
	Disagree	3.1500	*
	Neutral	2.855	0.583
	Strongly Agree	3.213	0.485
	Strongly Disagree	3.8500	*

4th year

Variable	Networking for future career opportunities	Mean	StDev
GPA	Agree	3.4423	0.2900
	Neutral	3.210	0.311
	Strongly Agree	3.5900	0.3695
	Strongly Disagree	3.5000	*

Let's take above statistics to one table

Table3- how social media helps for undergraduates

Mean GPA	Mean GPA (Count)	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1st Year	To share educational resources	1.9238 (80)	1.083 (9)	1.692 (13)	1.981 (13)	1.100 (5)
	To express my opinions	2.180 (5)	1.8623 (57)	1.904 (38)	1.661 (14)	0.708 (6)
	To do online discussions	1.508 (19)	1.852 (28)	1.807 (42)	2.077 (26)	1.300 (5)
	To understand course materials	1.300 (13)	1.663 (26)	2.170 (25)	1.7727 (44)	2.042 (12)
	Networking for future career opportunities	2.054 (14)	1.867 (12)	2.040 (31)	1.590 (25)	1.651 (38)
2nd Year	To share educational resources	2.976 (58)	2.820 (57)	2.891 (16)	1.000 (1)	2.950 (2)
	To express my opinions	3.037 (19)	2.770 (75)	3.014 (36)	3.017 (3)	3.500 (1)
	To do online discussions	3.107 (37)	2.766 (66)	2.967 (30)	0.00 (1)	0.00 (0)
	To understand course materials	3.033 (43)	2.770 (61)	2.894 (27)	3.000 (3)	0.00 (0)
	Networking for future career opportunities	3.052 (44)	2.702 (62)	3.002 (26)	3.1500 (1)	3.500 (1)
3rd Year	To share educational resources	3.244 (17)	3.1771 (35)	3.180 (23)	3.013 (12)	3.525 (6)
	To express my opinions	3.091 (16)	3.1662 (37)	3.093 (14)	3.303 (15)	3.395 (11)
	To do online discussions	3.138 (13)	3.100 (36)	3.2717 (30)	3.335 (10)	3.225 (4)
	To understand course materials	3.359 (17)	3.1862 (47)	3.0667 (24)	3.125 (4)	3.850 (1)
	Networking for future career opportunities	3.213 (19)	3.3098 (51)	2.855 (21)	3.1500 (1)	3.850 (1)

4th Year	To share educational resources	3.700 (7)	3.3833 (9)	3.200 (5)	3.6400 (10)	3.133 (3)
	To express my opinions	3.8500 (3)	3.420 (5)	3.500 (13)	3.443 (7)	3.317 (3)
	To do online discussions	3.7100 (5)	3.500 (9)	3.558 (6)	3.342 (12)	3.325 (2)
	To understand course materials	3.5667 (15)	3.3179 (14)	3.675 (4)	3.500 (1)	0.000 (0)
	Networking for future career opportunities	3.5900 (15)	3.4423 (13)	3.210 (5)	0.000 (0)	3.500 (1)

The table shows that social media can be helpful for students in different ways.

Most of 1st year students who responded to the survey said that they agree or strongly agree that social media is helpful for sharing educational resources. This could include things like notes, study guides, and practice problems. And also, most of 1st year students said that they agree that social media is helpful for expressing their opinions. This could be helpful for students who are trying to understand new concepts or who want to get feedback on their work. A significant number of 1st year students said that they agree or strongly agree that social media is helpful for doing online discussions. This could be a good way for students to connect with other students who are taking the same classes, and to get help from more experienced students.

Most of the 1st year students said that they agree or strongly agree that social media is helpful for understanding course materials. This could be because social media can provide a more informal and interactive way of learning than traditional methods, such as lectures and textbooks. A high percentage of 1st year students said that they agree or strongly agree that social media is helpful for networking for future career opportunities. This could be because social media can help students connect with potential employers and mentors.

When we describe how social media helps 2nd year undergraduates, most of 2nd year students find social media helpful for sharing educational resources. This suggests that a majority of students find social media platforms useful for exchanging learning materials like class notes, study guides, or practice problems with their friends. A considerable number of students agreeing on its usefulness, social media appears to be a valuable tool for expressing opinions among 2nd year students. This could be helpful for exchanging ideas on course topics, getting feedback on assignments, or discuss social problems and their opinions via social networking platforms. Engaging in online discussions on social media seems to be a moderately popular activity among 2nd year students, with an average

number of students finding it helpful. This could be a way for students to connect with collagenous, ask questions, or clarify doubts outside of formal classroom settings.

The table suggests that understanding course materials through social media is also common among 2nd year students. This could be due to a preference for traditional learning methods or a lack of reliable course-related content on social media. Social media appears to be a valuable tool for networking for future career opportunities, with an average number of students agreeing on its usefulness. This could be because students can connect with professionals in their field of interest, learn about career paths, or even discover internship or job opportunities.

When considering about the 3rd year students, some students use social media to share things like class notes, study guides, and practice problems with others. A significant number of 3rd year students find social media helpful for expressing their opinions. A considerable number of 3rd year students find social media helpful for doing online discussions. This suggests that many 3rd year students use social media to connect with classmates, ask questions, and get help from others outside of class. Most of 3rd year students find social media helpful for understanding course materials. This is less common than the other ways 3rd year students use social media for help, but it suggests that some students find social media to be a useful tool for learning. More than half of 3rd year students find social media helpful for networking for future career opportunities. This is the least common way that 3rd year students use social media for help.

4th year students use social media for share educational resources, but it is less common than for 3rd year students. Networking for future opportunities is the second most common way 4th year students use social media for help, and it is same as 3rd year students. This suggests that many 4th year students use social media to connect with potential employers, mentors, or other professionals in their field. Average number of 4th year students find social media helpful for expressing their opinions. 4th year students have not much interest of doing online discussions via social media. But they tend to use it to understanding course materials.

Overall, the table shows that social media is a helpful resource for all students, but they use it in different ways. 3rd year students and 4th year students are more likely to use it for academic purposes, such as sharing resources and understanding course materials, while both of them are more likely to use it for professional purposes, such as networking for future careers.

Discussion

With the improvement of technology, students' study with the use of a medium that they also use for browsing social media platforms. In our study, results showed that sometimes the undergraduates' results necessarily affect the use of social media. But sometimes it is not. Most of the students find social media platforms helpful as it improved their different skills such as communication skills, while some other find it a distraction from their studies.

In the table 1, all years except 1st years, students who spent 4-5 hours on social media had the comparatively high mean GPA. When we got the responses the results for first years had not been released. Sometimes, only one or two results had been released. so, their GPA values are much lower compared to other years. While some 1st year respondents tend to get their current GPA by dividing their scores with the credits of the subjects which results had. Then they may have high GPA compared to actual one. So, we have to neglect first years when comparing average values on academic performance.

The table 2 shows a correlation between the time spent on social media during lectures and mean GPA. It does not prove that spending time on social media during lectures causes students to have lower GPAs.

In Table3, we can see how social media helpful to undergraduates. Overall, the table shows that social media is a helpful resource for all students, but they use it in different ways. 3rd year students and 4th year students are more likely to use it for academic purposes, such as sharing resources and understanding course materials, while both of them are more likely to use it for professional purposes, such as networking for future careers.

Conclusion

We can conclude that, student handle their social media platforms in different ways.

When an undergraduate spent average time for a day, the results are higher than using lower time or longer time on social networks.

When undergraduates pass year by year, when some to final years (3rd year and 4th year) they tend to use social media for academic purposes. So, social networks are more helpful to those final year students as they use them for share educational resources, to do online discussions and specially to interact with subject experts and to network for future opportunities.

WhatsApp is the most frequently used social media platform among faculty. Following WhatsApp, YouTube and Facebook are the next most commonly used platforms. When consider about academic networking platforms, Google Scholar stands out as the most widely used academic platform among the respondents. Research Gate follows closely behind Google Scholar, indicating its usage for academic networking and research purposes. A significant portion of respondents, admitted to being unaware of academic networking platforms.

Individual Contribution

Student Number	Name
PS/2020/166	Methodology- Main Survey
PS/2020/209	Introduction
PS/2020/245	Methodology- Pilot Survey
PS/2020/249	Analysis and Interpretation
PS/2020/254	Conclusion
PS/2020/260	Discussion
PS/2020/269	Analysis and Interpretation
PS/2020/280	Methodology
PS/2020/310	Questionnaire