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## DIGITAL LITERACY AMONG STUDENTS: A CASE STUDY AT CENTRE OF FOUNDATION STUDY IN MANAGEMENT

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### ABSTRACT

Digital literacy is the ability to navigate the digital world using reading, writing, technical skills, and critical thinking, together with the ability to discover, evaluate, utilize, share, and create content using information technologies. Access to the Internet has increased from time to time. The percentage of households accessing smartphones had grown from previous years. It showed that technology has seeped into our daily life and encouraged more processes to become data driven and virtual. This study will use descriptive statistical methods to determine the digital literacy level among Foundation Studies in Management students and to identify reasons the students engage in digital technologies. The findings show that female students tend to spend more hours on their cell phones and computers. In addition, most of the Foundation Studies in Management students responded to a moderate-high agreement on their level of digital literacy, which means that most of them understand and can apply simple and fundamental computer knowledge for personal purposes and academic matters.

## **1. Introduction**

Today technologies have been developed from time to time to satisfy human needs. Currently, there are many new methods of delivering information (Roschelle, Pea, Hoadley, Gordin & Means, 2000). Teenagers are among the generation that has become attached to and familiar with this latest technology (Akhmedov, 2022). Literacy is one of the areas that has been focused on by the government in our education system. Nowadays, literacy involves the ability to read, write, and navigate the world using digital technology (Meyers, Erickson & Small, 2013; Sailer, Murböck & Fischer, 2021).

Internet, a system designed to help communication among users, has been transformed for easy and convenient usage to ease the delivery of information. Users only need an internet connection to communicate with each other. They can do that at their convenience, time, and place. This new technology has contributed to a fast flow of data around the world (Manyika & Roxburgh, 2011; Sadowski, 2020; Shahbaz, M., Wang, Dong & Zhao, 2022).

Based on the importance of digital technology, our kids' literacy knowledge is crucial. Hence, this study will investigate digital literacy among college students. In this study, a sample survey on digital literacy has been conducted. This study was participated by students in the Management Foundation program. The objectives of this study are to determine the digital literacy level of students and to identify reasons students engage in digital technologies.

## **2. Literature Review**

Digital literacy is the ability to navigate our digital world using reading, writing, technical skills, and critical thinking (Microsoft, 2022; Takavarasha, Cilliers & Chinyamurindi, 2018; Techataweewan & Prasertsin, 2018). In addition, it is also the ability to discover, evaluate, utilize, share, and create content using information technologies (Heick, 2022).

According to the Department of Statistics Malaysia (2021), the percentage of Malaysians with access to the Internet has increased from 90.1% to 91.7% in 2020. In the same vein, the percentage of households accessing smartphones had grown to 98.6% in 2020 compared to the previous year, which is only 98.2%. It showed that technology has seeped into our daily life and encouraged users to be more processes to become data driven and virtual (Suša Vugec & Stjepić, 2022).

Digital devices have been widely used by students in their daily communication, collaboration, and access to information for solutions, to name a few (Mudra, 2020; Anthonysamy, 2020). Potyrała and Tomczyk (2021) stated that digital literacy is a lifelong learning process. As technology updates rapidly, we as the user need to be able to catch up with it occasionally. It will help us survive in this digital world. Hence, the culture of our education system needs to be able to follow the trend of this technology. The students and teachers should be equipped with suitable knowledge to enhance digital literacy success.

## **3. Methodology**

This study investigates digital literacy among Foundation Studies in Management students. It is exploratory research. Descriptive statistical methods were used to determine the digital literacy level among the students and to identify the reasons why the students engaged in digital technologies. There are tables, pie charts, and line graphs representing the feedback of the respondents. These tools will help to display the outcome from different variables investigated, such as gender, hometown, and hours of using digital technology.

The data used in this study is primary data collected by handing out Google Forms among foundation studies students. The Google Forms consist of survey questions the students must answer using the given link. A few types of questions are given to the students, such as about their personal information like their full name, matric number, and gender. In addition, the questionnaire also

asked a few 'yes' or 'no' questions. Furthermore, questions with the choice of answer 'sometimes' are also added to the list of answer choices so that the survey will be more accurate and unbiased. Plus, it gives students the freedom to choose their most suitable answers based on their preferences.

#### 4. Respondents Profile

Table 1 presents the total number of male and female students who completed the survey. As shown in the table, the number of female students who responded to this survey was higher than that of male students who responded, with a difference value of 116. The frequency of male students who responded was 25, while the frequency of female students who responded was 141.

Table 1  
Frequency Distribution Based on Gender

Variables	Frequencies
<b>Gender</b>	
Male	25
Female	141
Total	166

Figure 1 shows the analysis of the races of the students that responded to the survey. As shown in Figure 1, the race with the highest frequency is Malay which is 146 students or 88%. This is due to this survey being conducted in a public university, with the majority of the students being Malay. The second highest frequency of race is Chinese, with a frequency of 14 and a percentage of 8%. The fewest race that responded to this survey is Indians and other races such as Iban and Melanau, which consists of 3 respondents or 2% for each race.

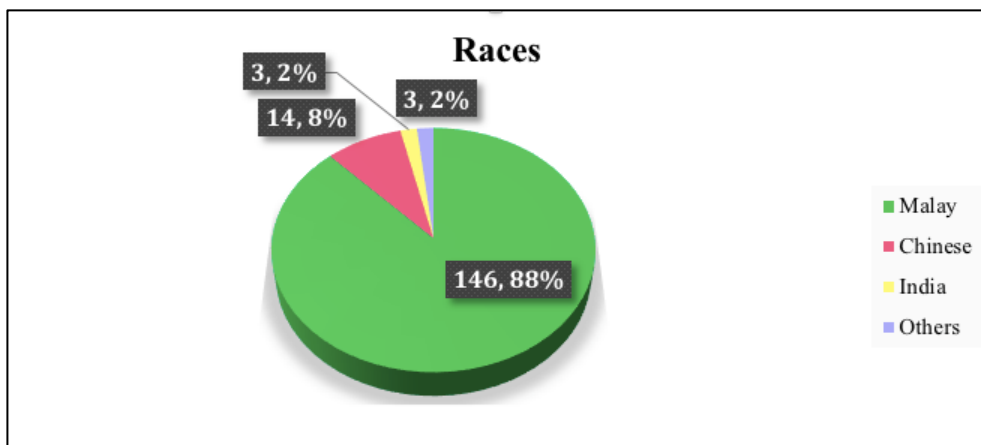


Figure 1. Respondents based on Race

Figure 2 illustrates the students' state of origin. The graph shows that most respondents originate from Kedah, which represents 25.90%, with 43 students out of 166. Penang has the second-highest number of students, with 20 students, representing 12.05% of all students. Perlis and Negeri Sembilan have 6 students, totaling 3.6% of the total students. Melaka and Wilayah Persekutuan Kuala Lumpur have the same number of students, which is 4, and represent 2.41%. Sabah has the least students, with only 1 student representing 0.60% of Foundation Studies in Management students. In sum, students from the northern region are the majority among all students in this foundation program.

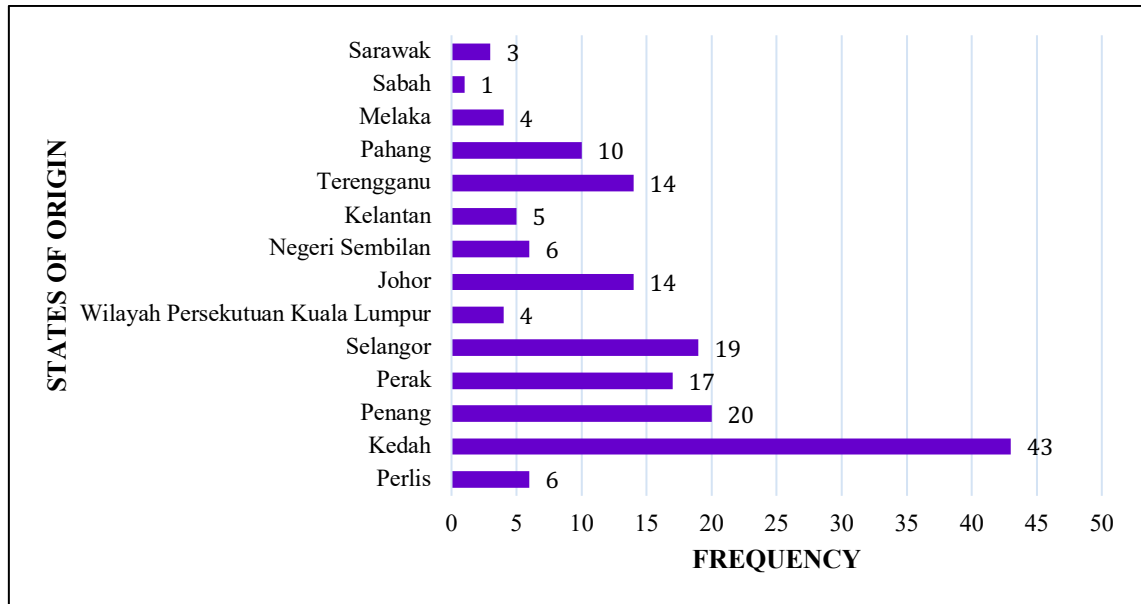


Figure 2. Number of Students based on their State of Origin

Table 2  
Student's Hometown

Hometown	Frequency	Percentage %
Urban	102	61.45
Rural	64	38.55
<b>Total</b>	<b>166</b>	<b>100.00</b>

Table 2 shows the hometown of Foundation Studies in Management students. We can see that most of the students live in the urban area. It can be seen from the highest frequency, which is 102, which represents 61.45%. Meanwhile, the frequency of students that comes from rural only shows 64 and consists of 38.55%. In this sample, we can assume that the gap between students from rural and urban hometown is not far apart, which denote that of 10 students, there are 4 from rural and closely 6 from urban.

Figure 3 shows the analysis of 166 students' family income. Figure 3 shows that most of the students' family incomes are below RM 3000, which is a total of 50 over 166 or 30.12%. On the other hand, the second-highest frequency is family income above RM 10000. There are 39 over 166 students' family incomes higher than RM 10000. In addition, the average student's family income is RM 6132.53. The standard deviation of the family income is 3705.5113. In order to find whether the data set of family income is clustered around the mean, the coefficient of variation,  $CV = \text{standard deviation} / \text{mean}$ . If the value of CV is lower than 1, it will be considered as a low standard deviation. In this case, the CV of this family income is  $(3705.5113 / 6132.53 = 0.6042)$ . In conclusion, the data set of family income is clustered around the mean.

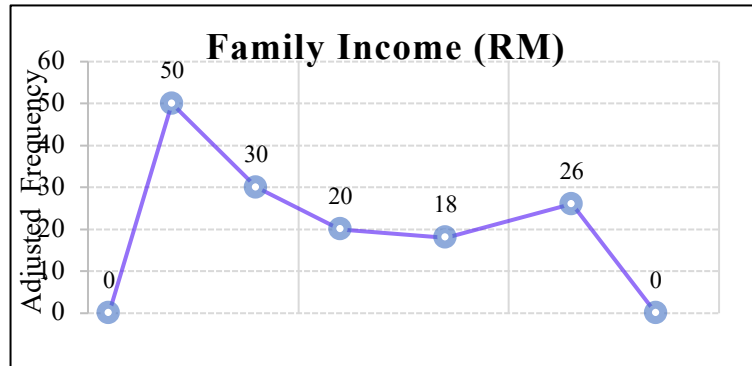


Figure 3. Students' Family Income

## 5. Analysis

### Identifying computer and ICT skills among students

#### ICT Skill Notation

- a. Identify a software
- b. Install a software
- c. Name a folder
- d. Empty the recycle bin
- e. Connect to Wi-Fi or Bluetooth
- f. Set a website as the home page
- g. Website basics
- h. Have safe and responsible online behavior
- i. Protect private data
- j. Create a password
- k. Open an attachment
- l. Know how to use social networks
- m. Create a personal profile on a social network
- n. Interact with other users on an online forum
- o. Search and collect information
- p. Compare information from several sources
- q. Save a document in a specific location
- r. Editing information (i.e., copy and paste)
- s. Present information through a video
- t. Know how to use office software

In this part, we will relate ICT skills with different family incomes of students to discover their relationships.

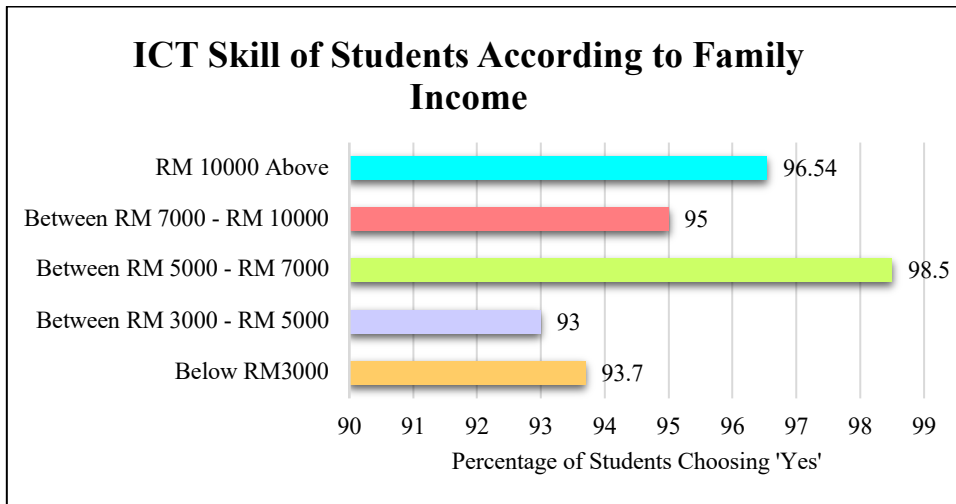


Figure 4. ICT Skills among Students According to Family Income

Based on Figure 4, ICT skills E and O connect to Wi-Fi or Bluetooth and search and collect information archived fully acquired. This situation shows that all students have the most fundamental ability to coordinate on online platforms. Moreover, 93.7% of students whose family income is below RM 3000 choose yes, while 93% of students whose family income is between RM 3000 – RM 5000 choose yes, 98.5% of students whose family income is between RM 5000 – RM 7000 choose yes, 95% of students whose family income are between RM 7000 – RM 10000 choose yes, and 96.54% of students whose family income are above RM 10000 choose yes for the self-recognition of ICT skills. It can also clearly see that those students whose family incomes are between RM 5000 – RM 7000 have higher self-recognition levels of ICT skills compared to other family income segments.

**Hours spend on computers among students**

Based on Table 3, most of them chose the assumption of '5 to 6 hours allocated on spending their time with the computer' regardless of female or male students (25 for females; 7 for males). Besides, it is clearly shown that the average number of hours female students spend on computers is 7.7872 hours per day, which is higher than the average number of hours of male students, only 6.46 hours per day.

Table 3  
Hours Spend on the Computer based on Gender

Hours Spent on the computer	Gender		
	Females	Males	Total
0	1	-	1
0 - 1	-	-	-
1 - 2	2	-	2
2 - 3	1	-	1
3 - 4	3	3	6
4 - 5	16	4	20



5 - 6	25	7	32
6 - 7	17	4	21
7 - 8	20	-	20
8 - 9	13	1	14
9 - 10	16	4	20
10 - 11	3	1	4
11 - 12	14	1	15
12 - 13	3	-	3
13 - 14	-	-	-
14 - 15	2	-	2
15 - 16	1	-	1
16 - 17	-	-	-
17 - 18	2	-	2
18+	2	-	2
Total	141	25	166
Mean	7.7872	6.4600	

### Hours spend on cell phones among students

Table 4 shows that female students also get the highest average number of hours spent on cell phones which is 8.6525 hours per day, while male students spend 8.14 hours daily. The mode of hours spent on cell phones by female students is around 6 to 7 hours per day, while the mode for male students is around 4 to 5 hours and 9 to 10 hours per day.

Table 4  
Hours Spend on Cell Phones based on Gender

Hours Spent on Cell Phone	Gender		
	Females	Males	Total
0	1	-	1
0 - 1	1	-	1
1 - 2	2	-	2
2 - 3	2	1	3
3 - 4	8	-	8
4 - 5	13	5	18
5 - 6	16	-	16
6 - 7	17	4	21
7 - 8	12	3	15
8 - 9	12	-	12
9 - 10	16	5	21
10 - 11	10	2	12
11 - 12	9	3	12
12 - 13	4	1	5
13 - 14	-	-	-
14 - 15	4	1	5
15 - 16	2	-	2
16 - 17	-	-	-
17 - 18	2	-	2
18+	10	-	10

<b>Total</b>	141	25	166
<b>Mean</b>	8.6525	8.1400	

**Identifying Apps that Are Currently Engaging by the Students**

Based on Figure 5, the majority of Foundation Studies in Management students used social media such as WhatsApp, Telegram, Games Apps, Instagram, Facebook, YouTube, etc. In addition, we can see that 160 out of 166 students use WhatsApp the most for some purposes, 105 out of 166 students got Telegram, 132 out of 166 students use Instagram widely, and 127 out of 166 students watch YouTube. In addition, 104 students frequently use WhatsApp, Instagram, and YouTube, 12 of them used only WhatsApp, 1 of them used only Instagram, and 2 of them used only YouTube.

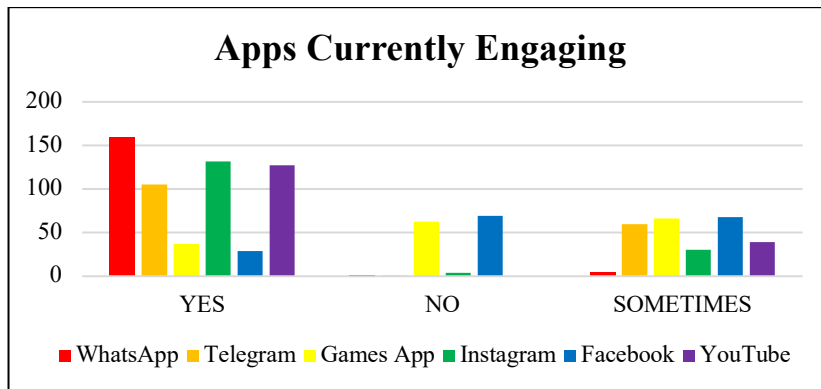


Figure 5. Current Engaging Apps among Students

**Reasons for Engaging in Social Media**

Figure 6 shows the highest range of mean score for why they chose to engage in social media is 5.3072. It brought the meaning that the number 14 is the most reason they engage in social media. It shows that they often use social media for a long duration due to some academic matters. They use social media frequently to search online resources for their studies. Moreover, the second-highest range of mean score, which is 5.2470, also indicates that most students use social media for reason number 4, as it helps them increase knowledge in various points of view. On the other hand, the lowest range of mean score, which is 2.8494, reveals that most students use social media not to become popular.

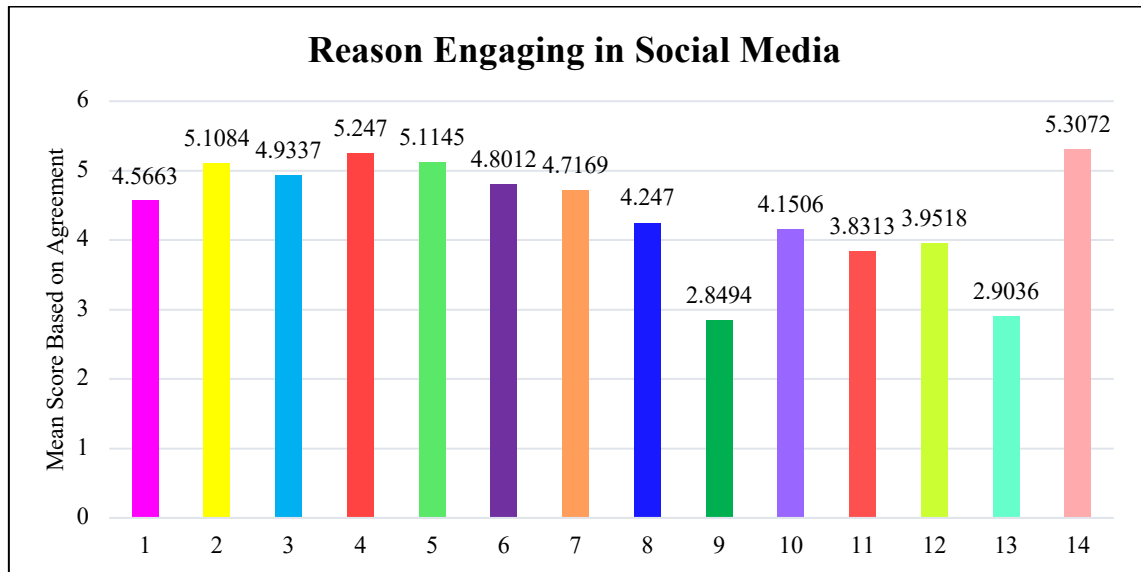


Figure 6. Reasons for Engaging on Social Media

Given by:

1. It gives me a feeling of well-being.
2. It releases stress.
3. It helps me relax.
4. It increases my knowledge.
5. My friends participate.
6. You Can meet new people there.
7. It gives me a chance to meet new friends.
8. It gives me other financial benefits.
9. I like being popular.
10. I like to challenge myself.
11. There may be personal publicity.
12. Certain games are prestigious.
13. I'm used to doing online business from school.
14. There are good online references for my study.

### **Understanding the Main Digital Skills and Literacies among Students**

Referring to Figure 7, we can relate the student's typing skills self-rating with the social media apps used in their daily life. We can conclude that most of the students who use Instagram apps reflect that they have the highest ratings on their typing skills, which is 4.8765, while the students who use Facebook reveal that they have the lowest ratings on their typing skills, which is 4.8454. Even though there are the highest and lowest ratings in their self-rate typing skills, we can determine that the overall rating score is nearly average, which means that having a typing skill is very dominant for all students in this advanced technological era.

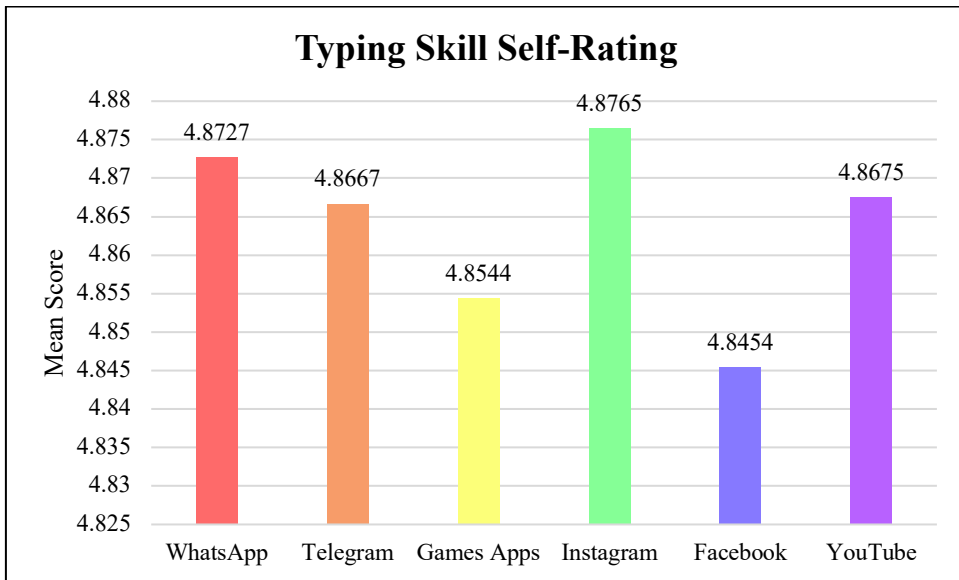


Figure 7. Mean Score Based on Typing Skill Self-Rating According to Apps Currently Engaging

Looking at Figure 8, we linked the hours spent on computers and cell phones to self-rating of web-search skills. We noticed that students who use cell phones and computers for less than 10 hours have a higher mean on their self-rating web search skills, which are 4.9124 for computers and 4.9068 for cell phones. In opposition, students who use cell phones and computers for more than 10 hours have a lower mean of 4.7708 for cell phones and 4.6552 for computers compared to those who use less than 10 hours. In this segment, the standard deviation of data obtained from students who use cell phones for 10 to 18 hours is 0.7217, which means that the data are clustered around the mean compared to others.

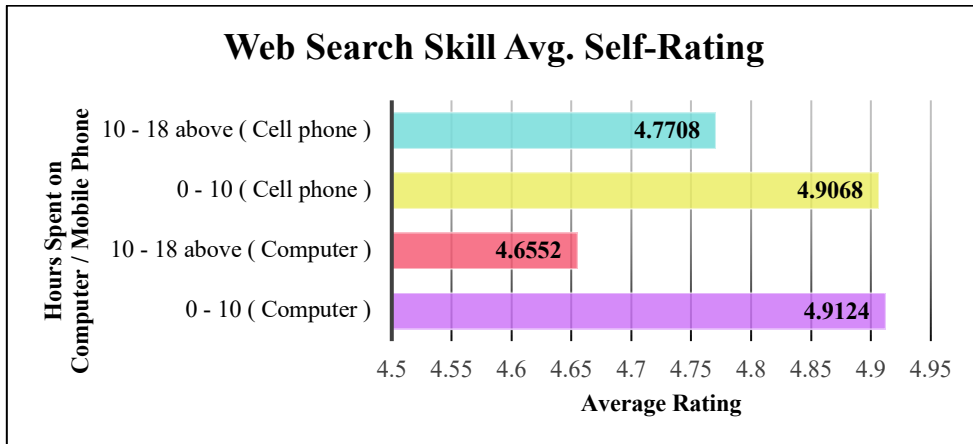


Figure 8. Mean Score Based on Web Search Skill Self-Rating According to Hours Spent on Computer / Cell Phone

Table 5  
Mean Score Based on Computer Literacy Ability Skill Self-Rating According to Hours Spent on Computer

Hours Spent on Computer	Computer Literacy Ability Self-Rating						Mean	Standard Deviation
	1	2	3	4	5	6		
0 - 3	-	-	-	1	3	-	4.7500	0.5000
3 - 6	-	-	4	23	19	12	4.6724	0.8863
6 - 9	-	-	3	21	28	3	4.5636	0.6876
9 - 12	-	-	1	17	17	4	4.6154	0.7114
12 - 15	-	-	-	4	1	-	4.2000	0.4472
15 - 18	-	-	1	3	1	-	4.0000	0.7071

Computer literacy is about understanding the basic processes of computers and technology and using those processes in their schoolwork (Jara et al., 2015). Table 5 compares hours spent on computers to self-rating on their computer literacy ability. It is proven that students who use computers below 6 hours have the highest score on their self-rate level of computer literacy compared to students who use more than 6 hours. Apart from that, students who use computers for more than 12 hours and above tend to have the lowest score on their self-rate level of computer literacy. To conclude, students who use computers for less than 9 hours do not mean that they have a low level of computer literacy. In contrast, they have the highest compared to those who use computers for more than 9 hours.

According to Table 6, we can see that the mean score of students living in rural areas is slightly higher than that of students living in urban areas. The mean value of students from rural and urban areas is 5 and 4.73533, respectively. Thus, we should not be prejudiced against rural students because they have higher internet literacy. In addition, students from rural areas have a standard deviation of 0.8545, while students from urban areas have a standard deviation of 0.7436. It means that the data for rural areas is more spread out from the mean.

Table 6  
Mean Score Based on Internet Literacy Ability Skill Self-Rating According to Hometown

Hometown	Internet Literacy Ability Self-Rating						Mean	Standard Deviation
	1	2	3	4	5	6		
Urban	-	-	3	36	48	15	4.7353	0.7436
Rural	-	1	1	14	29	19	5.0000	0.8545

## 6. Conclusion

According to the respondent profile analysis, we can assume that most of the students can afford at least one electronic device and, at the same time, know how to use the Internet. Based on the analysis associated with digital literacy level, we can observe that female students tend to spend more hours on their cell phones and computers in comparison to male students. Nonetheless, the long duration of cell phone and computer usage does not absolutely perform the saying that the level of digital literacy is higher than the others who have low usage on cell phones and computers. Apart from that, most of the students in Foundation Studies in Management responded that they have a moderate-high agreement on their level of digital literacy, which encompasses 4 to 5 rating. Therefore, this means that almost all students understand and can apply simple and fundamental computer knowledge for personal and academic purposes.

To sum up, having a certain level of digital literacy, typing skill, web search skill, and computer literacy are very critical in this digital transformation era. Based on the data analyzed, we may suggest that Foundation Studies in Management coordinator could conduct this analysis consistently for every batch to understand the digital literacy among their students. Subsequently, this can ensure that digital literacy among students is being emphasized, and they will be able to improve it to be as good as possible.

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## Authors Contributions

Zahayu Md Yusof - Editing

Anis Hanisah Sobri & Nur Athirah Mahmud – Data Collection

Lim Qing Jun & Goh Hong Quan - Analysis

## Conflict of Interest

There is no conflict of interest associated with this publication.

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