A DESCRIPTIVE ANALYTIC MODEL OF INTERNET USAGE AND STUDENT PERFORMANCE

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Abstract: The rapid growth of the Internet in this era can be attributed to its increased ease of use, especially among university students. The Internet has become the backbone for students to interact and get information or resources for academic purposes. Students Internet usage data is important and can be used for Universities, Faculties, and Departments. These data can provide useful information if utilized optimally. Therefore, the descriptive study of Internet usage among university students was developed. This research applied descriptive quantitative research where the sample set from 220 respondents. The results indicated that there is a difference between Internet usage in terms of students' gender, citizen, level of education, current semester and their CGPA. This study also identifies the percentage of users visited websites categories based on 11 categories underline by the university. Researcher successfully identifying a lot of students who are surfing the internet is composed of students who have a high CGPA. This suggests that future research need to work on the impact and implications of internet usage for students based on the category.

Keywords: Internet Usage, Student Performance, Descriptive Analytic
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Introduction

Internet as the engine of growth (Ramlan & Ahmed, 2010) is a modern technology that has a very important role in the era of globalization especially in the education world. The growth in the use of the Internet has been dramatic where currently there are 4 billion users worldwide and 25 million in Malaysian (InternetWorldStarts, 2017) that serves as a base for education development that affects billions of learners all over the world (Basha, Umar & Abbas, 2013). This gives large impact on quality education (Keizo, Saeka & Sachihiko, 2015) through elimination of technical barriers and development of new technology in providing smart transmission of knowledge for learning purposes (Rahman.M, Himanshi, Deep & Rahman.S,

2016). It is like a world library which provides a data access that can facilitate teaching and learning process.

Today, the Internet has become essential part of student life that gives an advantage to get flexible access to learning, better communication between students and teachers and more importantly computer-based support learning (Wang, Wu, Kinshuk, Chen, & Spector, 2013). There have been many surveys on the Internet use and most of them find that Internet usage is most prevalent among younger and more educated people (Teong & Ang, 2016; Bashir, Mahmood & Shafique, 2008). Students use the Internet as a powerful tool to obtain information and it has been shown to influence the academic performance particularly among higher learning students. Studies made in Malaysian Public University discovered that students used the Internet as a learning supplement to improve their academic performance (Siraj, Salam, Ashiqin, & Jin, 2016) as well as for social and other non-academic matters (Ayub, Hamid, & Nawawi, 2014).

Whilst the internet proven can give benefit for students for their learning experiences, but at the same time it offers other possibilities that may give negative impact to their academic performance (Leung & Lee, 2012; Zainuddin, Din & Othman, 2013). Previous studies found that student use the internet not for learning purposes only, but rather for social networking, social activities and entertainment purposes (Wang et al., 2011; Koc & Gulyagci, 2013). Based on the scenario above, we need to put more concerns on what kind of internet category that always been browse by the students and how many percentages on that.

Hence, the purpose of this study is to focus on the descriptive analysis of internet usage in term of students' gender, students' citizen, level of students' education and students' current semester. This study also tries to examine the percentage of Internet user based on Internet category and students CGPA category. This study can be useful to provide basic information about variables in a dataset and to highlight potential relationships between variables.

Methodology
The primary goal of this study was to statistically analyze internet usage based on demographic statistic and to identify patterns of internet usage among university students. In the current research, the statistical tool named SPSS has been mainly used for the analysis of research data. This study used data from two types of resources which derived from secondary data. The population for this study consisted of the students coming from diverse disciplines at University Utara Malaysia Kedah. Data were obtained from Universiti Utara Malaysia Information Technology Center (UUMIT) that contains Wi-Fi data usage, students log file data via UUMWifi and UUM-Guest Wi-Fi. Among the Wi-Fi usage patterns that were to be diagnosed are the type of website that has being browsed by students and its frequencies. Based on the highest internet user, the second data is obtained from the Academic Affairs Unit (HEA). The second data is about students CGPA of the current semester. From there, it comes up with research questions. The aim of the study is to address the following research questions.
    R1 – Which gender uses Internet most among students?
    R2 – Which citizen uses Internet most among students?
    R3 – Which level of education uses Internet most?
    R4 – Students from which semester uses Internet most?
    R5 – Which type of internet frequently use by students?
    R6 – Students from which CGPA uses Internet most?

These details were only collected for statistical purposes and kept confidential. This paper mainly focuses on descriptive statistic and the data obtained will be analyzed using the SPSS version 24. Descriptive statistics are used to describe the basic features of the data in a study and provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data.

Result and Discussion
After going through a data pre-processing, 220 students or 63% from 350 students data obtained were valid data to be analyzed. This is because 37% is repetitive data. Table 1 demonstrates the number of data can be analyzed.

Table 1: Total of Students' Data

Information	Frequency	Percentage
Complete Data	220	63%
Repetition Data	130	37%
Total	350	100%

Demographic Analysis
The demographic characteristics of respondents are presented in Table 2. Demographic characteristics categorized by students' gender, citizens, level of students' education, students' current semester and students' college. Of the records analyzed, 140 respondents (64%) were males and 80 respondents (36%) were females. Majority of the respondents are national students which are from Malaysia with 134 respondents (62.62%), while International students coming from different country with 86 respondents (37.38%). Based on students educational level of study, data shows that undergraduate students who uses the internet most with 151 respondents (68.64%), followed by postgraduate students consists of Master and PhD students with 65 respondents (29.54%) and the lowest is Pre-degree students with 4 respondents (1.82%). Apart from that, data from students' backgrounds based on their current semester were also analyzed. Out of all students, only 180 (81.82%) of respondents were able to identify their latest semester and the remaining 40 (18.69%) were not available in student data. Statistical results showed that the students in the semester 7 were the highest users of Internet with 36 respondents (16.82%) and followed by the third semester students with 32 respondents (14.02%) and followed by 5th semester with 25 respondents (11.68%).

Table 2: Information of Students Background

Description	Frequency	Percentage
Gender		
Male	140	64.00
Female	80	36.00
Citizen		
Malaysia	134	62.62
International	86	37.38

Educational Level		
Pre-Degree	4	01.81
Undergraduate [Bachelor]	151	68.64
Postgraduate [Master & PhD]	65	29.55
Current Semester		
SEM 1	2	0.91
SEM 2	16	7.27
SEM 3	42	19.09
SEM 4	31	14.09
SEM 5	35	15.91
SEM 6	12	5.45
SEM 7	46	20.91
SEM 8	18	8.18
SEM 9	13	5.91
SEM 10	3	1.36
SEM 12	1	0.45
SEM 14	1	0.45

Which Gender Uses Internet Most Among Students?

The issue of gender disparity in Internet usage has received great interest among researchers since the rise of internet. Several studies argue that Internet access and usage have generally been dominated by males (Lin & Yu ,2008; Jones et al., 2009). The analysis of Internet usage based on students gender support the statement. Based on the results shows that male are the most frequently use the Internet compared to female. As presented below, 64% of internet users are from male while female only 34 % (Figure 1).
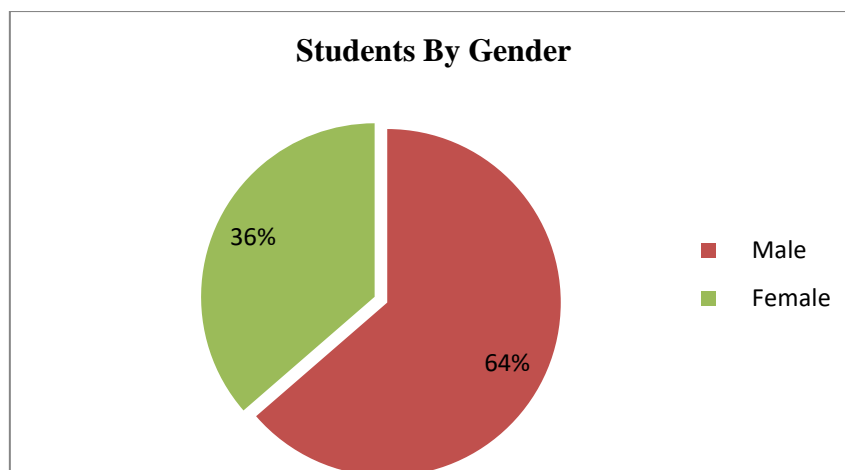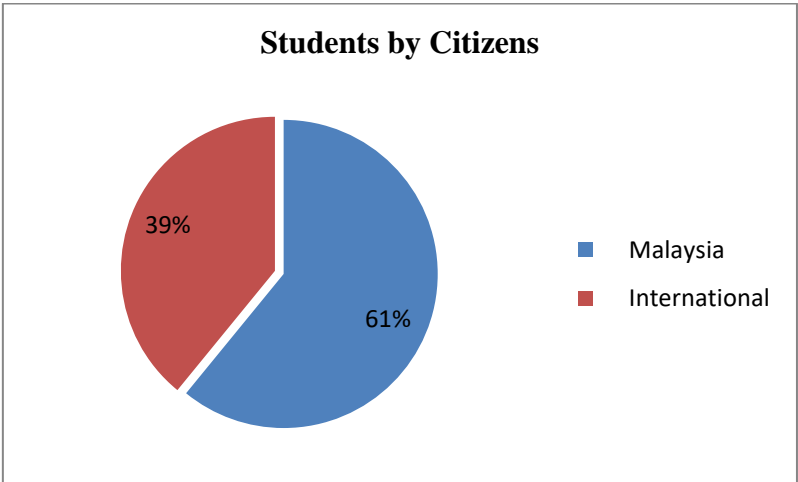

Figure 1: Students Internet Usage by Gender

Which Citizen Uses Internet Most Among Students?

This study also identifies percentage of Internet users based on their citizens. Based on the results it turns out students from Malaysia are more using internet than international students.

Figure 2 shows the results which is more than 2/3 are students from Malaysia. This outcome is contrary to that of Usman et al. (2014) who found that international students were the highest internet users compared to Malaysian students.

Students by Citizens

39%

61%

■ Malaysia

■ International

Figure 2: Students Internet Usage by Citizens

Which Level Of Education Uses Internet Most?

This study also focuses on the Internet usage based on the level of education. From the graph below, we can see that undergraduate students who used internet most compared to postgraduate and pre-degree students. The findings of the study support previous study conducted by ani (2010).

Students Level of Education
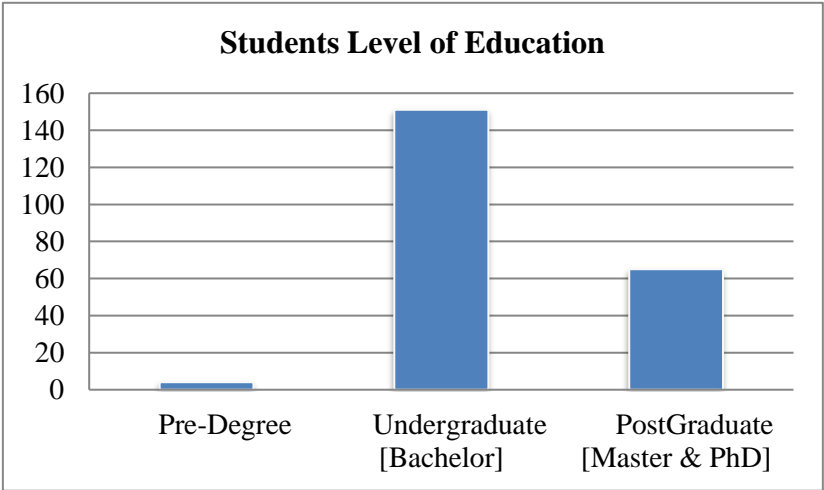
Figure 3: Students Internet Usage by Level of education

Students From Which Semester Uses Internet Most?

This study also identifies students from which semester use Internet most. Based on the graph, students from semester 7 are the highest Internet user, followed by semester 3 and semester 5. We can see the graph moving upwards from semester 1 until semester 3. Then it is mowing downwards when the semesters are increasing.
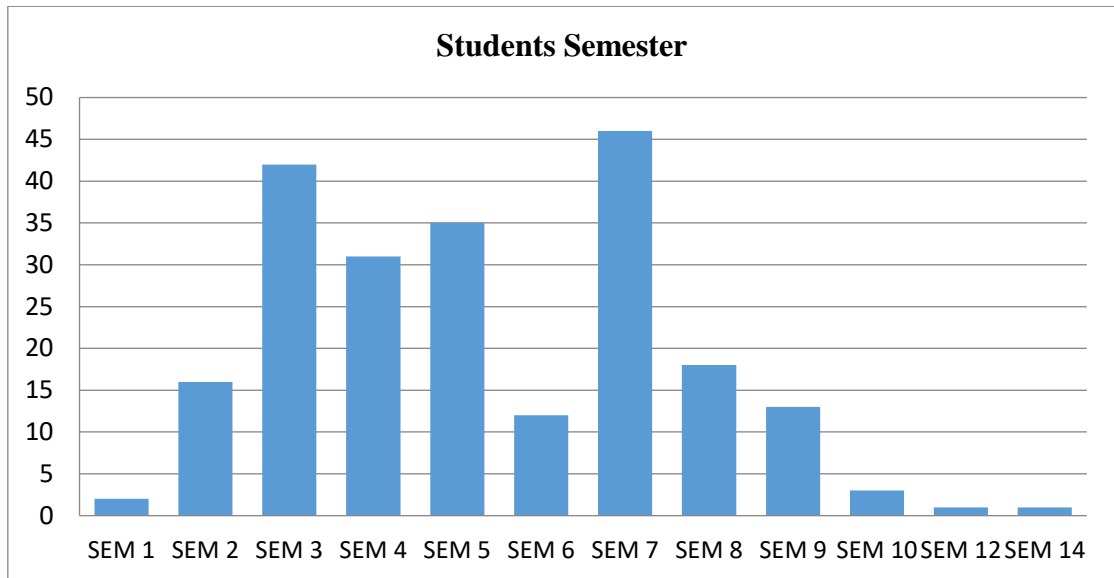
Figure 4: Students Internet Usage by Semesters

Purpose of Internet Usage

In this study, the researcher examined the purpose of using Internet and distributing their percentage either for academic purposes, entertainment purpose or social communication purposes. The researcher categorizes Internet usage purposes into 11 categories based on UUMIT data.

Table 3: Internet Usage by Category

No.	Category	Internet Usage (GB)	Percentage (%)	Frequency	Percentage (%)
1	File System	19040.54	51.44	147	100.00
2	Download	5233	14.14	147	100.00
3	File Transfer	4372	11.81	147	100.00
4	Entertainment	4093.63	11.06	147	100.00
5	Web Browsing	2012.08	5.44	147	100.00
6	P2P	1007	2.72	125	85.03
7	Social Media	646.72	1.75	145	98.64
8	Learning	480.1	1.30	6	4.08
9	Online Game	101.6	0.27	70	47.62
10	Online Shopping	23.28	0.06	26	17.69
11	Email	4.66	0.01	88	59.86
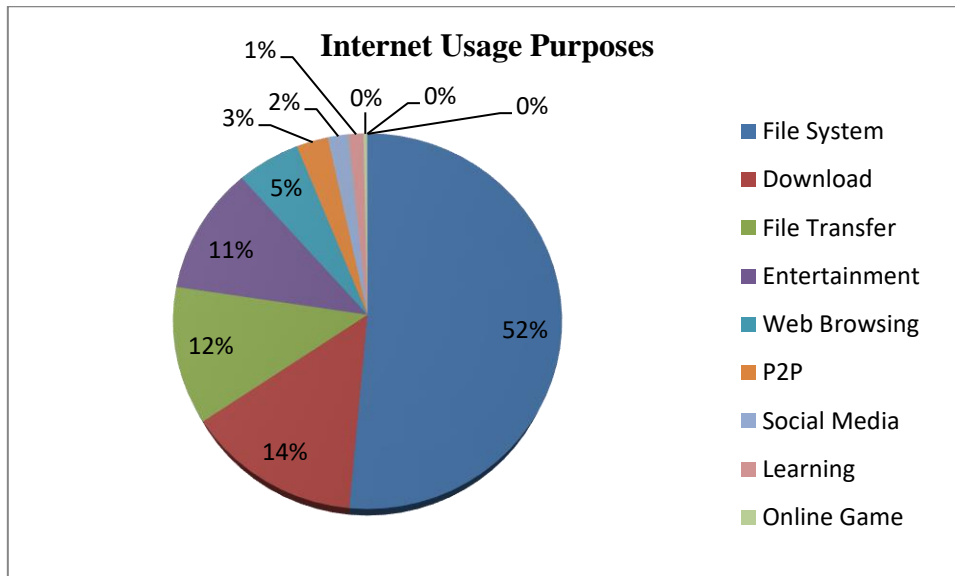
Figure 6: Internet Usage by Category

Table 3 and Figure 6 show the frequency of Internet usage Category among students. The highest rate of Internet purpose is a file system with a frequency 51.44%. The file system consists of HTTPS, google content and data update. HTTPS is a secure HTTP version, which is the protocol for which data is sent between your browser and the website you are connecting to. The 'S' at the end of HTTPS means 'Safe'. This means that all communication between your browser and the website is encrypted. Then followed by a download category with 14.14% of usage. However, there is a limitation where the system cannot trace student's download type whether it is a download or learning link. The total amount of volume usage is 5233GB.

Subsequently the third highest volume for all searches is file transfers with a total of 4372GB (11.81%) of data. Then it is followed by entertainment with a frequency of 100 percent of the total student and has a total data of 4093.63GB. The intended entertainment is composed of browsing videos, blogging and audio listening online. The fifth highest volume is browsing the website with 2012.08GB for 147 students. All students browse the website and make the search engine and the highest search engine rate is google with a 100 percent rate of frequency. However, the constraints cannot be categorized in detail as to whether the website is being visited by students. Followed by P2P or peer-to-peer with 1007GB with a frequency of 125 ie 85.03%. P2P is a distributed network of applications for the purpose of sharing data or information among peers. Companion friends are special participants in this app. They are said to form peer-to-peer node networks.

Next is the social media category. Usage volume is 646.72GB, with a frequency of 145 students and 98.64 percent. Social media categories consist of chat applications such as WhatsApp, WeChat and telegram, virtual chat app, Skype and other social site apps like Facebook, Twitter, Instagram and LinkedIn. Next is followed by learning such as e-learning and learning management system. is a software application or web-based technology used to design, implement, and evaluate certain learning processes? Typically, a learning management system provides educators with ways to create and deliver content, monitor student participation, and evaluate student performance. But only 6 of the total students who only use this application with a 4.08 percentage with a total of 480.10GB.

The next analysis is related to online computer game category with a volume of 101.60GB. However, the frequency was not too high among students i.e. 70 students enrolling 47.62 percent. Among the subsequent categories are online purchases with a frequency of 26 students with 17.69 percent. The latter is the use of e-mails with a total volume of 4.662GB and the number of frequencies is 88 students with 59.86 percent.

Student Performance Analysis

Students performances analyse based on their CGPA (Cumulative Grade Point Average). The distribution of frequency and percentage of respondents according to CGPA of each student is collected for analysis purposes to evaluate student performance for each semester. Of the total of 220 respondents comprising of Pre-Degree, Undergraduate [Bachelors] and Postgraduate [Masters and Doctorate] students, 151 or 68.64% of students are from undergraduate students for the 2016/2017 session is identified their CGPA.

Students CGPA are categorized into 3 categories which are Low CGPA range from 0 to 1.99. While the medium category range from 2.00 to 2.99 and high category range CGPA from 3.00 to 4.00. Table 4 shows the frequency and percentage of respondents according to CGPA. Based on the results, student with high CGPA is the highest respondent with 81 (53.64%). Followed by students has medium CGPA with 64 respondents (42.38%). While low CGPA only has 6 respondents (3.97%).

Table 4: Frequency and Percentage of Students CGPA

CGPA	Range	Frequency	Percentage
Low	0.00 - 1.99	6	3.97
Medium	2.00 - 2.99	64	42.38
High	3.00 - 4.00	81	53.64
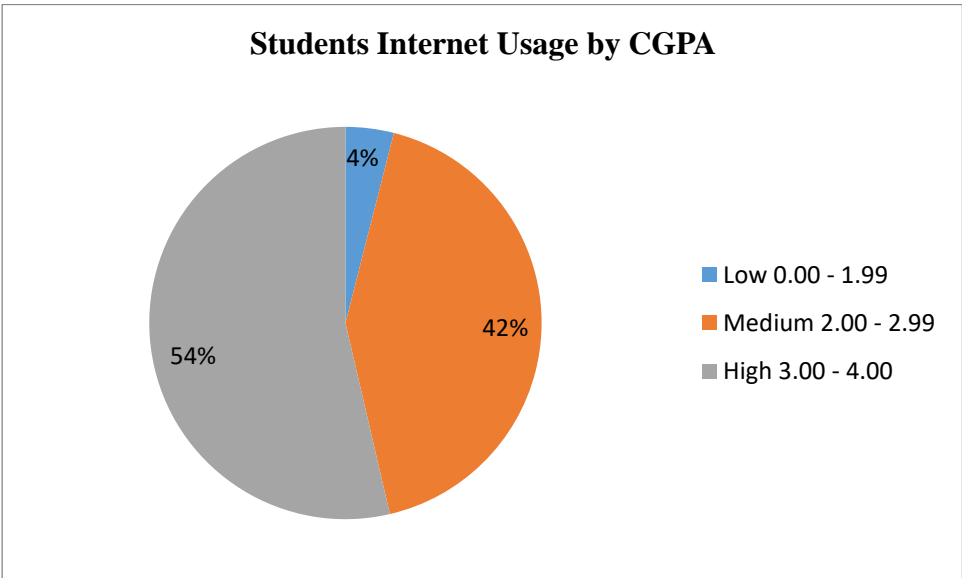
Figure 7: Students Internet Usage By Their CGPA

Conclusions

This study aimed at identifying the percentage of Internet usage among university students coming from Universiti Utara Malaysia and the descriptive statistics has been done to examine the percentage of Internet user based on demographic category, internet category and students CGPA category. The researcher analyzing data using SPSS and visualize data using graphical tools to get clear picture. Findings of the study show that there is a difference disparity in the result of Internet usage by gender, citizens, level of education and current semester. Of the results also found that students tend to use the internet for entertainment purposes rather than for learning purposes. In addition, based on the statistics show that, students who use the highest internet are from students who have high CGPA.

Limitation and Future Research

There are some limitations for this study which should be emphasized by the next researcher. This study only focuses on respondents among UUM undergraduate students. The scope and sample of the study have been narrowed to meet the specified period. Therefore, the next study should be more comprehensive for all UUM students including postgraduate students to see their trends and patterns of Internet usage.

In addition, the data obtained from UUMIT is very limited that it cannot include the entire student at UUM. The next study needs to get more data and more time needed to get such a large sample to produce stronger results. The results of this research cannot be generalized to all university students as well. As this is only a preliminary study on academic use of the Internet, more research is suggested to find out the academic information searching behaviors of students across the board from primary to tertiary education. For further research it should be evaluated deeply.

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