

Students' Perceptions about Computer Virus and Antivirus Software for Computer University

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Abstract

Nowadays, internet and mobile devices are changing our society. It is difficult to imagine almost activity without their ever presence. Thus, Information security becomes an important issue in this day. Computer virus are one of the threats that attack the user's confidentiality and privacy. The user's electronic devices can be attacked by the different types of virus via internet or downloaded malicious software while they are connecting with their devices. Antivirus software is a type of program designed and developed to protect computers and other devices. Using antivirus software is a good way to detect and protect virus to access the internet. Computer university students must understand about information security and their relative threats. This paper is presented a survey on computer university students to know about virus and how to protect their IT devices from virus infections. Survey questionnaire results show that respondents successfully recognized most of the common computer virus and antivirus software.

1. Introduction

The common access to internet and invention of electronic devices are not only transformed human lives but also become the driving force for education development and globalization. So, the number of computer virus has increased dramatically and the antivirus software needs to be continually updated with newer types of virus. In fact, computer virus, computer worm, trojan horse, malware that they have not been agreed on even among computer antivirus researchers. Types of computer virus are file infectors, system or boot-record infectors, multi-partite virus, macro virus, stealth virus, encrypted virus.

The internet users, both experience and inexperienced, should be aware about the most common risk and threats that can influence their activities on the internet and how to apply countermeasures to make their use of the internet much safer. All users understand the risks of using internet, the importance of securing their personal information and their privacy. University students are most often users of the internet and they encounter different threats during their daily use of this global network. Some of the security threats are enforced to students by other users of the internet, while some of them are provoked by students themselves because of insufficient knowledge, skills and experienced about safe use of most popular internet services.

This paper is examined the perception about computer virus among the second year computer science students at the University of Computer Studies (Taunggyi). The selected students that constitute the sample for this study were collected on the basis of age, gender and their habits of using internet. This paper is aimed to educate student about the importance of information security and to study the perception of student about computer virus that can attack user important assets and how to protect them. In this paper abstract, introduction, related works, design and procedures, finding and discussion, conclusion, and references are included.

2. Related work

All internet user meet security threats. With each new internet service and each new electronic device capable of connecting to the internet, the number of security threats on the internet will increase.

Radovan Vrana proposed the most common security threats, the respondents do not employ all the necessary basic protective measures and are not fully capable of protecting their computers on the internet. The author finds out the current state of awareness of student at the Faculty of Humanities and Social Sciences in Zagreb about computer related security threats and safe use of the internet [9].

Mansur Aliyu, Nahel A. O. Abdallah, Nojeem A. Lasisi, Dahirdiyar, and Ahmed M. Zeki intend to examine the level of ethical and security awareness among IT and education students. The finding result of this research paper is that satisfactory levels of awareness among all of the students studied with slightly higher awareness level among students form KICT[1].

Computer virus are infected personal computers and server. Most of the virus may be difficult to detect. S.S Oyelere and L.S.Oyelere recommended the computer user who is encouraged to report every virus attack to computer and if the computer is attacked, an antivirus software make to upgrade available materials available [7].

Aboobucker Ilmudeen purposed the impact of computer virus attack and provide guideline on how individuals can protect their personal computer against virus attacks. The easiest and least expensive ways for the virus attack are to keep the virus program up to date, patching the operating system, application software and bowser frequently [3].

Antivirus software is the entry level version of virus protection for our electronic devices. K. Durga Devi and

Dr.K.Mohan Kumar analyzed the various types of antivirus software tools that is based on different effective parameters. Most of the antivirus software tools include similar features that is scan, email security, USB drive scans [4].

3. Design and Procedures

The quantitative approach and requirement elicitation method of survey questionnaires is used and collected data from 100 students of UCS (Taunggyi). All question forms are multiple choices and students are currently enrolled as computer science. The survey question form is shown in appendix.

4. Finding and Discussion

The survey questions are generally divided in to two groups. They are perception on computer virus and perception on antivirus software. The detailed finding and discussion about the perception of the students are explained in the following subsections.

4.1. Demographic Data

The very first two questions are aimed to collect data about different genders of the respondents and age groups of the study at University of Computer Studies (Taunggyi). The distribution of the respondents by gender is assistive of males with 38% to 62% for female. In Myanmar, most of the computer university students are female and it is very interesting topic to study why. Gender demographic profile of respondents are shown in figure1.

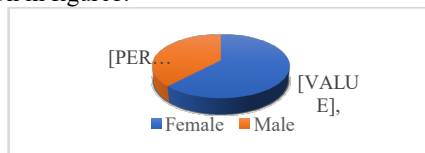


Figure 1. Gender demographic profile of respondents(N=100)

The distribution of the respondents by age group is shown in the following table. 76% of age group is under 19 and 23% of age group is between 19 and 22 year old. Most of the respondents' age is under 19 years old because all the respondents are currently enrolled as a second year student. The survey questions are taken from the second year students, so that we can analyze the teenager perception about computer virus and how to prevent them from attacking. Age demographic profile of respondents are shown in figure2.

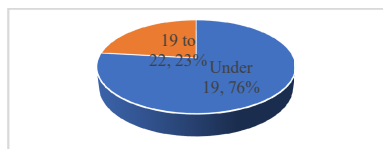


Figure 2. Age demographic profile (N=100)
4.1.1. Students' Perception on Computer Virus

In student's lives, personal mobile devices are very popular and ever-present. Students eagerly use mobile devices in their learning and communication. The portability of mobile phones provide the flexibility in planning ahead for suitable learning strategies or activities [5]. The integration of mobile devices in teaching and learning will create opportunities for students to be in contact with outside world such as their families [6]. The survey about electronic devices use to access the internet are shown in figure3.

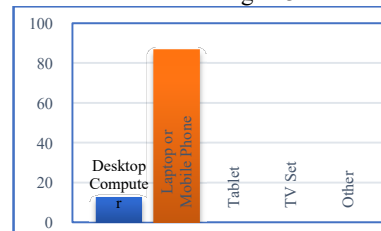


Figure 3. Electronic devices used to access the internet(N=100)

In this survey, 87% of the respondents are accessing internet by using mobile phone or laptop. The benefits of mobile devices are storage of information, access to information, mobility of the device, use of social media. It is also important to know how students have been using the mobile devices for learning among: to access course materials, doing class working, send and receive e-mail, taking and sharing of notes, virtual classroom [2]. According to the survey of Myanmar Online Advertising (MOA), 85% of devices used to access the Internet in Myanmar are smartphones [11]. There are over 80% of the respondents are using internet from smart phones also in this finding.

Only 13% of students use desktop computer. Because desktop computers are large in size and have a separate monitor. Students can be used in single location and not moved around much. Tablet, TV set and other are not used.

4.1.2. Survey of Student Knowledge on Computer Virus

User privacy and confidentiality are needed to maintain and also their important data and information are needed to access in timely manner. The availability of user information or data are also important to maintain. User cannot be accessed their data when the virus is entered into their computer system. This can affect the availability of user information.

So that, the survey questions about computer virus are taken to the student and their responds are shown in the table 1.

Table 1. Respondents knew computer virus (N=100)

No	Question	Yes		No	
Q7	Do you know computer virus?	100	100%	0	0%
Q8	Do you think your computer infected with virus?	59	59%	41	41%

Q9	Do you think virus can infected in your computer when using the internet?	52	52 %	4	48 %
Q17	Do you know how many types of virus are there? If you know, answer yes.	57	57 %	43	43 %

According to results in this part of the survey, all of the students knew about computer virus. 59% of respondents thought that their computer is infected with virus and 41% of respondents did not think that it is infected. 52% of respondents also thought that virus can be infected in their computer when using the internet. 48% of respondents did not think about computer virus cannot be infected their computer when using the internet. 57% of respondents knew different types of virus that means they have knowledge about computer security and their threats. But they do not exactly know the name of computer virus. 43% of respondents do not know types of computer virus.

The survey is shown that over 50 % of the student know their computer can be a victim of the virus. They know about the risk of using internet and using free download software. On the other hand, 41 % of the student did not know about the computer virus and they did not care about virus can make their electronic devices harm.

There are many ways to attack electronic devices by virus. Free downloaded file and applications can become malicious software and they can be infected the devices. Key loggers can be installed to the computer or laptop from the free downloaded files and also spyware can install along with downloaded applications.

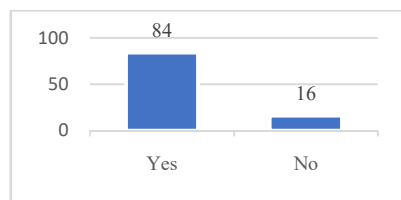


Figure 4. Use of computer downloaded files and application by using internet access(N=100)

The respondents are usually downloaded file and application are shown in figure4. Most of the respondents (answer “Yes”, 84%) download files and applications from internet and 16 % of the respondents (answer “No”) did not download files and applications. There may be an interesting topic to survey why the respondents did not use downloaded files and applications from internet. They are really aware of the computer virus or they do not know how to download and use files and applications. Also the large percentage of the respondents who used downloaded files and applications are really aware of the risk of the computer virus that can make their devices harmful.

The attacker can penetrate the computer from insecure wireless access point. Attacker can hack

personal computer or portable devices that access free wireless and stole bank account or credit card number when user connected to wireless access. Computer can be attacked virus from free wireless or internet café are shown in figure5.

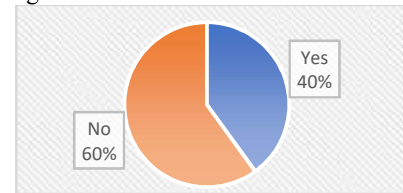


Figure 5. Computer can be attacked virus from free wireless or internet café(N=100)

60% of respondents did not know the attacker can attack to their device by using free wireless access. That is very important to share student about awareness of the information security. 40% of the respondents know about the insecure wireless access can penetrate their electronic devices.

4.1.3. Survey of Student Knowledge on Defensing Computer Virus

If the user notice the following issues, their computer may be infected with a virus: slow computer performance, problems shutting down or restarting, missing files, frequent system crasher and/or error messages, unexpected pop-up windows, new applications that appear without downloading them, overworked hard drive, email that send autonomous form their accounts. Knowledge of defensing virus from respondents are shown in table 2.

Table 2. Knowledge of defensing virus from respondents (N=100)

No	Question	Yes		No	
Q 10	Do you know when the virus can access in your computer?	63	63 %	37	37 %
Q 13	Do you know how you respond when virus access to your device?	54	54 %	46	46 %
Q 14	Do you know signs of virus when they attack your device?	63	63 %	37	37 %
Q 18	Do you know how to defend form the virus?	56	56 %	44	44 %

In this survey, 63% of the respondents notice that virus accessing their computer. 37% of respondents did not know when the virus access their computer. And 63% of respondents knew the signs of virus that would attack their computer or other devices. But 37% of respondents did not know about it. In this concerns, the same 63 % of the respondents who notice when the virus access their computer also know how virus will attack them.

The most important finding of the study is when the virus accesses the respondents’ computer, 46% of the respondents do not know what they should do. Over

50% know that how to respond virus when they attack them.

Prevention is the most important role in computers and other devices. 56% of respondents know how to defend their device from the virus and 44% of respondents did not know how to defend from virus. According to the survey, over 50% of the students do security protection that is to defend the virus but 44% of the students did not work these steps.

There are many security tools to evaluate the user device and can find out how vulnerable it might be. When the users are using the internet, they should not click questionable links or pop-ups and should not open an email or attachment unless they know and trust the sender [10]. Moreover, they should be careful when downloading free software.

Another prevention of computer virus is the protect paths of the virus that access to their phone or laptop or other devices. The perception of respondents who knew paths of the virus that access to their devices are shown in figure 6.

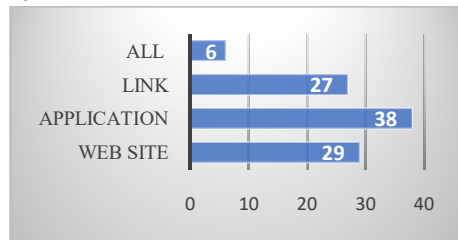


Figure 6. Virus access paths(N=100)

Most of the students thought virus can access application software is 38%, 29% of website and 27% of link are accessing their computer. And 6% of students know all the paths that can access virus. Computer virus spread from machine to machine via sharing links and uploading and downloading files. If students share link carelessly and donot use the right antivirus protection, virus can easily access to their computer, phone or other devices.

4.2. Students’ Perception on Antivirus Software

An antivirus is a program that works against a virus and detects or recognizes the virus. After detecting the present of the virus, an antivirus software works on removing virus from the computer system. Antivirus software not only eliminates a virus but also prevents any potential virus from infecting the computer in the future. The perception of students who know about antivirus software are shown in table 3.

Table 3. Perception of students who know about antivirus software (N=100)

No	Question	Yes		No	
Q19	Do you know you should install antivirus program in your computer or phone?	56	56 %	44	44 %
Q20	Have you installed antivirus software?	50	50 %	50	50 %

According to the survey, 56% of students have knowledge of antivirus software and they know what kinds of antivirus program to install in their computer or mobile phone. 44% of students do not have knowledge. 50% of respondents install antivirus software to their electronic device. 56 % of the students know they should install antivirus software but the only 50% of students install antivirus software to their device. The student should be aware of the information security and they should prevent their information in secure ways.

5. Conclusion

Security system can be divided into two ways: prevention and treatment. Prevention efforts are performed before infection [8]. A virus can compromise personal information and destroy a computer completely. A reliable antivirus program should be installed. Most of the students are careless to install antivirus software and this can lead to cyber-attack and can harm to them. This survey is to find out more about the current state of awareness of students and care about the electronic devices related security threats and safe use of the internet. This paper is also intended to the students to have knowledge about difference types of virus and how to protect their devices from virus attack and to save important data and information. The survey only emphasizes on Computer University students and survey questions are also limited. There must be more detail questions about their view of virus and antivirus software. According to the survey result, although the students frequently use the internet, about 50 % of the students still lack knowledge and skills to use of the internet safely and securely. Finally, the results would be analyzed other university and to give more detail of knowledge about virus and antivirus software.

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[10] <https://us.norton.com/internetsecurity-how-to-computer-virus-warning-signs.html/>

[11] https://medium.com/@moa_mm/internet-in-myanmar-in-2017/

Appendix

1	Male/Female		
2	Age		
3	Academic Year		
4	When you are using internet which device do you usually use?	A. Desktop computer B. Laptop or phone C. Tablet D. TV sets E. Other	
5	Do your laptop or mobile phone connect with the internet?	Yes	No
6	Do you connect with your phone or computer with other computer?	Yes	No
7	Do you know computer virus?	Yes	No
8	Do you think your computer infected with virus?	Yes	No
9	Do you think virus can infected in your computer when using the internet?		
10	Do you know when the virus can access in your computer?	Yes	No
11	Do you usually download file and application from the internet?	Yes	No
12	Do you know the paths where virus can access to your computer?	Yes	No
13	Do you know how you respond when virus access to your device?	Yes	No
14	Do you know signs of virus when they attack your device?	Yes	No
15	Do you know the paths where virus can access to your computer?	A. Web site B. Application C. Link	
16	Do you know virus can enter from free wireless network or internet café to your laptop or phone?	Yes	No
17	Do you know how many types of virus are there? If you know, answer yes.	Yes	No
18	Do you know how to defend form the virus?	Yes	No
19	Do you know you should install antivirus program in your computer or phone?	Yes	No
20	Have you installed antivirus software?	Yes	No
21	Do you know types of antivirus software?	Yes	No
22	If yes, how many types do you know?	A. One B. Two or more	