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Psychology Behind Cyber Ethical behavior among Digital Natives: The Case of Higher Education Students in a State University in the Philippines

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Abstract

As technology progresses, the outlook of students toward its utilization also changes. The digital natives' ethical considerations on the use of computers are threatening. In this case, this study measured the perspective of the students in decision making in computing. The 450 respondents from the nine (9) colleges were randomly selected. The rationale behind the selection of these colleges from a state university is that each university provides different higher educational degrees and has suitable computer laboratories and set-ups are used by students for various purposes. A questionnaire adapted from the "Ten Commandments of Computer Ethics" and "Unethical Computer Using Behavior Scale (UECUBS)" in order to determine if there is a significant difference among the students of different colleges' perspective of ethical decision making. Based from T-Test and one-way analysis of variance (ANOVA), there is a significant difference among the responses of respondents with respect to institution where they belong. Furthermore, there is also a significant difference on ethical decision making of the respondents who are using the social networking sites, and those who do not. In addition, a difference in ethical decision making was also marked on students who are using the computer for gaming purposes and those who do not. Thus, the university needs to offer computer ethics as part of the curriculum and a proper orientation on the ethical use of computer in social networking sites and games.

Keywords: cyber-ethical behavior, digital natives, computer ethics, ethical decision making

Introduction

The advancement of technology comes with the inevitability of change making students in this generation use computers in a variety of ways. According to Cunningham (2007), student behaviors have evidently changed in the past decade. Historically, each generation develops unique characteristics, such as slang, fashion, music, etc., but the uniqueness in the behavior of the students today is deeper. The younger generation has developed skills that allows them to navigate their world using new technologies made available for them. Digital natives have imbued the facets of technology in connecting with other people in their generation. They easily adapt in their surroundings and find for innovative means in integrating updated technologies in their fast-moving lines.

Internet enabled computers provides ease of access, storage, modification and transmission of information which also paves to commission of various illegal and unethical behaviors, where academic audience is not exempt (Karim et al., 2009). According to Cohen and Cornwell (2004), university students coming from different walks of life have little knowledge about computing and internet ethical issues. This is evident in the study of Calluzzo and Cante conducted in 2004 where they found that students view on the ethical or unethical behavior towards the use of technologies were confounded. Further, ethical decision making among digital natives is vital in the field of computer education.

The following hypothesis is considered primarily for the paper:

H1: specific demographic characteristics of students has significant correlation with the ethical decision-making in computing

H0: specific demographic characteristics of students has no significant correlation with the ethical decision-making in computing

Literature Review

Introduction

This section is going to specify the facts that are required to understand the motive of conducting this specific research. The research is going to generalize the concept of Cyber Ethics and its importance in the life of students. In addition to that, the impact of learning Cyber Ethics will be discussed.

Cyber Ethical behaviour among computer users

Computer users or digital natives should be aware of the ethical behaviours, ensuring that the browsing experience of themselves and others remain safe and protected. Respecting the value of cyber ethics helps to maintain the fundamental ethical standards that minimises issues. The use of computers in recent years has grown exponentially,

especially considering the global internet penetration rate. Therefore, ethical behaviour for cyber spaces has to guide the users towards maintaining confidentiality, ethics and respectfulness.

Cyber ethical behaviour further ensures that cyber security issues are mitigated. The use of computers for serving unethical purposes makes the user a cybercriminal which is punishable by law. As per the words of Zarina et al. (2019), introduction of artificial intelligence has contributed to the resolution of various legal and ethical issues associated with cyber security. According to Wang, & Wan (2020), inexperienced users may face threats of cyber security due to the lack of proper knowledge. Inexperienced users are prone to giving out personal information to strangers in various social media sites.

The growing threats of cyber security and threats faced by inexperienced users are aided by the concrete knowledge. Acknowledgment of ethical and legal understanding of proper cyber behaviour and security is required. As mentioned by Timmers (2019), enhanced accessibility and lack of proper guidance may cause users to make unethical decisions. Therefore, it is imperative that the users are provided with the necessary guidance for cyber ethical behaviour to avoid exploitations and being exploited.

Competency and Interest in Making Decisions Ethically for Computers by Students

There is a requirement for students to be more competent in making decisions that are ethical in nature while using computers. This is because the students should have to be upgraded in the current scenario with the advancement in technology. Any student can only be competent if there has been an interest in them in learning cyber ethics. As opined by Wang, (2021), it is important to be competent in making ethical decisions to be safe from cyber-attacks and can be devoid of misuse of computers. In addition to that, this capability will help the students to gain mastery of using computers.

Influencing Factors that Impact Cyber Ethical Behaviors Positively

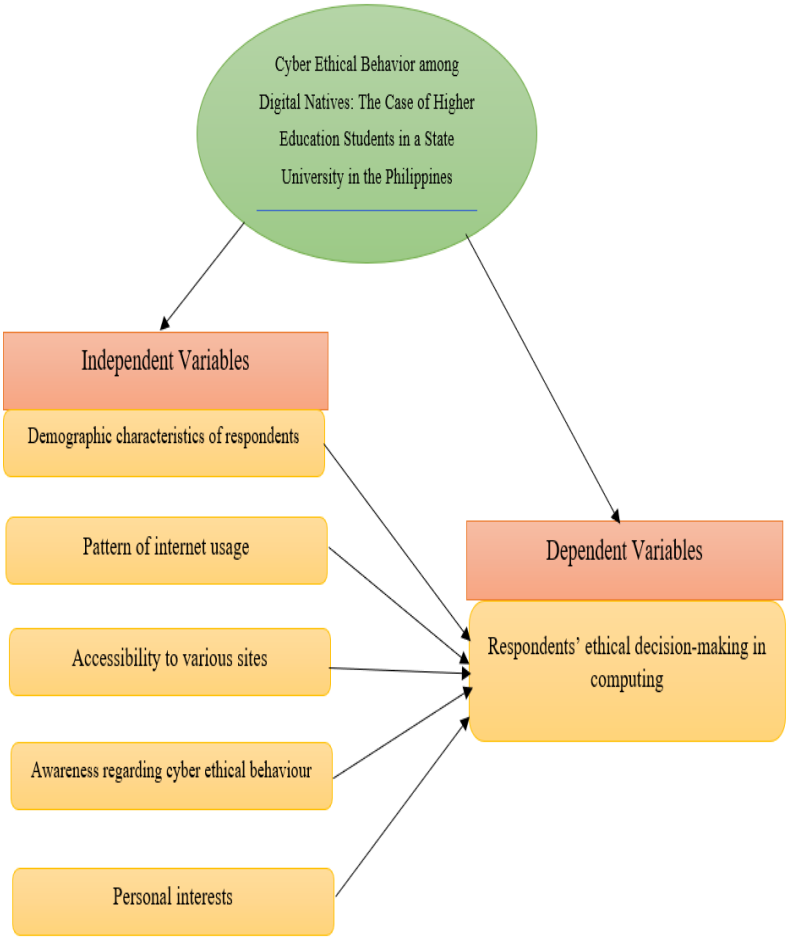
The factors that influence cyber ethical behaviors positively refer to the encouragement of knowledge about computer utilization greatly. They can be capable of acknowledging the enhancement of the protection of data. In addition to that, the process by which false information cannot be distributed across the globe. Controlling the use of ***Artificial Intelligence*** can be understood by the students in this context. After going through the research of Aderibigbe, (2020), it is understood that Property rights can be followed by the students through the knowledge of Cyber Ethics. Apart from these, students will have enormous benefits by knowing cyber ethics.

Analysis of Co-Relation between Demographics of Students and their Ethical Decision-Making while Utilizing Computers

There is a relation in the middle of the demographics of students and the ethical decision-making at the time of their utilization of computers. This is because, with the help of the acknowledgement of the percentage of the students, it can be understood whether they are competent enough in understanding cyber ethics or not. By knowing the percentage, it can be understood how much interest the students have in exploring the knowledge of computers. In Philippines, there is a requirement for knowledge of cybercrime (Quisumbing, 2019). This has become a growing concern because of the involvement of the protection of ***online data*** as web collaborations are present.

Conceptual Framework

Figure 2.6.1: Conceptual Framework



(Source: Created by Author)

Literature Gap

In spite of conducting the research more deeply, there is a scarcity in addressing the challenges by the researcher of students having less or no knowledge of Cyber Ethics. In addition to that, the researcher has to depict the issues that College students in the Philippines while using computers.

Summary

It can be summarized from the above sections that there has been a requirement for knowledge along with the knowledge of cyber ethics. The students of the Philippines are not much aware of this specific ethics and have faced issues. Apart from this, the positive influential factors in the case of cyber ethics are analyzed. The importance of basic principles of cyber ethics along with the development of competency of students has been acknowledged.

Methodology

Research philosophy

The research philosopher adopted for the study is a positivist philosophy which helped the researcher to gather sufficient information and conduct an objective analysis on the collected data. Positivism as a philosophy helps to understand social phenomena and establish objective observations based on which new knowledge and ideas can be acquired. Positivist philosophy further helps the researcher to differentiate between the responses collected from primary resources and define the parameters of ethical and legal practices for cyber activities among the university students of the Philippines. Therefore, the research philosophy adopted for the study supported and guided the people towards the establishment of objective and scientific ideas.

Research approach

A deductive research approach is adopted for the study as it has supported the analysis of both dependent and independent variables related to the topic. According to Pearse (2019), deductive approach to research essentially helps in understanding the particular shifts among the variables, through comprehensive analysis. Therefore, the research approach further supported by the quantitative framework of the study was able to fulfil the aim and objectives of the study.

Research Design

A descriptive research design was adopted for the study as it helped the researcher to develop a structured framework for primary data collection and analysis. According to Siedlecki (2020), the descriptive study design helps in analysing the collected data to indicate the prevalent patterns within the data as it helps in the objective observation of different variables. Thus, the adoption of this particular

study design has helped the paper explore the multidimensional data and establish logical conclusions.

The respondents are randomly selected and responded to the questionnaire given to them. The evaluation areas included the respondents' demographic profile and ethical decision-making level in computing. The respondents' codes and data remained confidential in considering the ethical aspect of the study.

Sample

The sample was taken from all the colleges of a state university in the Philippines during the second semester of Academic Year 2015 – 2016. The Philippines was selected for the study as the current growth of internet usage is witnessed in recent years due to the infrastructural transformation of the country. Philippines is identified as the highest region for internet usage in the Asia Pacific region with an average of over 10 hours usage daily (Statista.com, 2022). The growth of internet usage among the Filipino students is therefore analysed as diversity in user knowledge can be identified.

With the aid of G Power version 3.0.10 software and a medium effect size of 0.25, the computed sample size is 378. The proponents decided to elevate the number of sample size to 450. Using the stratified random sampling, 50 digital natives were randomly selected from the nine (9) colleges. Stratified sampling is adopted for the study as it helps in defining different groups of students from the nine universities along with sub-groups belonging from different educational disciplines. The nine colleges were selected specifically for the study as inclusion of more universities would have been difficult for the researcher to collect data. These nine universities were further selected based on the requirements of departments for computer labs which are used by students for the purposes of academics without direct supervision from teachers.

Data Collection Instrument

The survey instrument used in this study is composed of two (2) parts: (a) questions to collect demographic information; and (b) questions to measure computer ethical decision making. Questions in the first part gathered the demographic data of participants such as gender, program of study, academic year level, and computer usage (4 questions). The four domains of demographics are introduced in the paper to outline the general demographic segmentation among the selected respondents. Gender-based questions help to indicate the male and female distribution among the participants. The program of the study is included to identify the students' curriculum and whether it includes computer knowledge as a discipline. Academic year level is included in the questionnaire to inform the maturity level of students while their computer usage helps to indicate their experiences in computing.

The second part presented questions which measured the respondents' level of unethical behavior on the use of computer that was adapted from the "Ten Commandments of Computer Ethics" of the well-known organization in computer ethics, the Computer Ethics Institute and the "Unethical Computer Using Behavior Scale (UECUBS)". The said questionnaire is developed and tested to Turkish students and validated by Namlu and Odabasi in 2009. The instrument consisted of five (5) subscales as intellectual property (r = 0.93), social impact (r = 0.92), safety and quality (r = 0.91), net integrity (r = 0.85) and information integrity (r = 0.85). This particular scale is used for the study to assess the different factors mentioned in the scale to essentially identify the predominant behaviour among the participants. The scale uses different sub-categories such as intellectual property which helps to define adherence to plagiarism and copyright contents. The social impact is related to the user's capacity to understand the social impact his cyber activities hold that may be negative. Safety and quality are significant predictors for cyber ethical behaviour, indicating that confidential and sensitive information is not wrongfully accessed and shared

Analyzing of Data

To examine the stated objectives, frequency, percentage, and weighted mean were used. Data acquired from the likert-type questionnaire were analyzed quantitatively. Also, analysis of variance (ANOVA) was used to differentiate between the ethical decision making of students from every college relative to computing. Post-Hoc Tukey test was used to determine the difference between and among the demographic profiles.

Results

Table 1 showed the profile of respondents and their computer usage, from (n = 450 respondents with 50 students per department) , there are (200 or 44.4 % males, 242 (53.8%) of respondents are sophomores, 217 or 48.2% are using internet for 7 to 9 years, the 344 or 76.4% are using internet for email purposes, 236 (52.3 %) of the respondents are using the email in less than an hour, the digital natives nowadays are inclined to social networking sites with 399 (88.7%) of the respondents are using the internet for the purpose of social networking sites and 159 or 35.3% are using it for 1 to 3 hours/week. On the other hand, 176 (39.2 %) of the respondents use the internet for online shopping and 108 (23. 9 %) are using it in that purpose in less than an hour, the 430 (95.6%) of the respondents are internet users for the purpose of research. There are 206 (45.7 %) who are using the internet for 1 to 3 hours. The 302 (67.3%) of the respondents are using the internet for game purpose while 105 (23.3%) of the respondents are using it for 1 to 3 hours.

Table 1. The Profile of the Respondents

	Frequency	***Percent***
Sex (N =450)		
Male	200	44.4
Female	250	55.6
College (N = 450)		
COLLEGE 1	50	11.1
COLLEGE 2	50	11.1
COLLEGE 3	50	11.1
COLLEGE 4	50	11.1
COLLEGE 5	50	11.1
COLLEGE 6	50	11.1
COLLEGE 7	50	11.1
COLLEGE 8	50	11.1
COLLEGE 9	50	11.1
Email Usage (N = 450)		
Email User	344	76.4
Not Email User	106	23.6
Academic Level (N = 450)		
Freshman	90	20
Sophomore	242	53.8
Junior	80	17.8
Senior	38	8.4
Internet Experience (N = 448)		
1 – 3 years	19	4.2
4 – 6 years	131	29.1
7 – 9 years	217	48.2
10 – 12 years	65	14.4
13 – 15 years	16	3.6
Duration of Using Email in a week (N = 344)		
Less than 1 hour	236	52.3
1 to 3 hours	80	17.7
4 to 7 hours	17	3.8
Above 7 hours	11	2.4

	Frequency	***Percent***
Duration of Using Social Networking Sites (N = 399)		
Less than 1 hour	98	21.7 %
1 to 3 hours	159	35.3 %
4 to 7 hours	76	16.9 %
Above 7 hours	66	14. 6 %
Usage of Social Networking Site (N = 450)		
User	399	88.7
Not User	51	11.3
Usage of Online Shopping (N = 448)		
Online Shopping User	178	39.6
Not an Online Shopping User	272	60.4
Usage of Internet for Research (N = 448)		
Yes	431	95.8
No	18	4
Usage of Internet for Games (N = 449)		
Yes	302	67.3 %
No	147	32.5 %
Duration of Using Online Shopping (N = 178)		
Less than 1 hour	108	23.9
1 to 3 hours	55	12. 2
4 to 7 hours	9	2.0
Above 7 hours	6	1.3
Duration of Using Internet for Research (N = 431)		
Less than 1 hour	106	23.5
1 to 3 hours	206	45.7
4 to 7 hours	85	18.8
Above 7 hours	34	7.5
Duration of Using Internet for Games (N = 302)		
Less than 1 hour	100	22.2 %
1 to 3 hours	105	23.3 %
4 to 7 hours	53	11. 8 %
Above 7 hours	44	9. 7 %

Respondents are using computer for interfering other people's computer work. It is also distressing that digital natives are using crack programs and copying licensed CDs and DVDs, as marked on item 9 and 10, respectively.

Discussion

From the above findings, it has been understood that ethical behavior has been observed in the case of those respondents who have not been involved in games within computers. The computer should be utilized by the users in such a way by which consideration along with respect can be depicted (Gordon et al., 2022). Cyber ethics should be introduced in the curriculum of the university as knowledge and acknowledgement of computers have been fostered by the students to a great.

Conclusion

Conclusion

It can be concluded in the case of this specific research about Cyber Ethics that it is very important to have this knowledge. The factors that are required in the case of influencing the decision-making behavior about computers of students of the Philippines ethically are understood. By knowing the process of the utilization of ***Social Networking Sites (SNS),*** the students of the Philippines can be capable of knowing Cyber Ethics. The use of ***Artificial Intelligence*** is another factor which influences the students positively in using computers. It is understood that in Philippines, it is mandatory to possess knowledge about Cyber Ethics. The students of the College of Philippines have to know the process of protecting personal data.

Suggestions / Recommendations

The findings suggest that the university needs to work on offering computer ethics as part of the computer subject in the curriculum. The university should also have the programs as seminars and trainings with regard to ethical decision making in computing, specifically the students who use computers for gaming purposes. The Colleges in the Philippines should guide the students to do home assignments on the computer. By doing this, they can be capable of using computers smartly. Some assignments must be provided to them on learning the process by which they can protect their data in computers.

Limitations

One of the greatest limitations of this specific research refers to the inadequate percentage of students in the colleges from a state university in the Philippines who do not know Cyber Ethics. Current data with regard to this matter has to be included by the researcher. It will be difficult for readers to know the exact percentage of students who still have to gain knowledge about Cyber Ethics. Another limitation refers to

the fact with the help of which the students can be able to gain more information about Cyber Ethics.

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Bibliography

1. Aderibigbe, N. A. (2020). Cyber ethical behaviour of university students: An overview of university of Zululand, South Africa and Federal university of agriculture, Abeokuta, Ogun state, Nigeria. *Journal of Applied Informafion Science and Technology*, *13*(1), 86-106.https://www.academia.edu/download/67557298/Aderibigbe_and_Owolabi_2020.pdf
2. Cohen, E., & Cornwell, L. (1989). A question of ethics: Developing information system ethics. *Journal of Business Ethics*, *8*, 431-437. https://www.academia.edu/download/49114566/bf0038180920160925-27007-xqavql.pdf
3. Gordon, D., Stavrakakis, I., Gibson, J. P., Tierney, B., Becevel, A., Curley, A., & O'sullivan, D. (2022). Perspectives on computing ethics: a multi-stakeholder analysis. *Journal of Information, Communication and Ethics in Society*, *20*(1), 72-90.https://www.emerald.com/insight/content/doi/10.1108/JICES-12-2020-0127/full/html
4. Karim, N. S. A., Zamzuri, N. H. A., & Nor, Y. M. (2009). Exploring the relationship between Internet ethics in university students and the big five model of personality. *Computers & Education*, *53*(1), 86-93. https://www.academia.edu/download/68686321/j.compedu.2009.01.00120210810-16574-5urtke.pdf
5. Pearse, N. (2019). An illustration of a deductive pattern matching procedure in qualitative leadership research. *Electronic Journal of Business Research Methods*, *17*(3), pp143-154.https://doi.org/10.34190/JBRM.17.3.004
6. Quisumbing, L. A. (2019). Preemptive Evaluation through information security awareness: Perception of information technology students in a Philippine State University. *International Journal of Applied Engineering Research*, *14*(4), 900-907.https://www.ripublication.com/ijaer19/ijaerv14n4_09.pdf
7. Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, *34*(1), 8-12. *DOI:* 10.1097/NUR.0000000000000493
8. Statista.com, 2022. *Internet usage in the Philippines - statistics & facts.*https://www.statista.com/topics/5660/internet-economy-in-the-philippines/#topicOverview
9. Timmers, P. (2019). Ethics of AI and cybersecurity when sovereignty is at stake. *Minds and machines*, *29*, 635-645.https://doi.org/10.1007/s11023-019-09508-4

10. Wang, L., Yang, J., & Wan, P. J. (2020). Educational modules and research surveys on critical cybersecurity topics. *International Journal of Distributed Sensor Networks*, *16*(9), 1550147720954678.https://journals.sagepub.com/doi/pdf/10.1177/1550147720954678
11. Wang, Y. (2021). When artificial intelligence meets educational leaders' data-informed decision-making: A cautionary tale. *Studies in Educational Evaluation*, *69*, 100872.https://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1058&context=eps_facpub
12. Zarina I, K., Ildar R, B., & Elina L, S. (2019). Artificial Intelligence and Problems of Ensuring Cyber Security. *International Journal of Cyber Criminology*, *13*(2). https://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=09742891&AN=142286931&h=G6WD7%2BIZNXeHvVgus%2FB%2FddTUYvwn8SouiFo8c2fDwtG0thMuAA8zrtlugbG%2FGGuBR8EdgN8E1DTo2YEcer%2FPcg%3D%3D&crl=c