

Cyber Security and its Relation with Motives of Using Internet among College Students in Chennai, India

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Abstract

The cyber world has become an integral part of human life. Being secured in the cyber space has become a major issue. In today's dynamic environment, cyber security has become vital for young children and adolescents. Motives of using the internet has also becomes very important as it helps the students identify what sort of information can be shared and with whom. The present study intends to find out the relationship between Cyber security and Motives of Using the Internet among college students in Chennai with respect to gender, course of study and stream of study. It is to be noted that there are no studies that analyse the relationship between cyber security and motives of using internet. It is found that cyber security and motives of using internet are significantly and positively correlated; with a significant difference shown in gender where, male students have an upper hand in cyber security than female students and female students have high motives of using internet than their male counterparts. The students who belong to the arts stream have more cyber security than students who belong to science and professional streams while there is no difference in the motives of using internet among students with respect to stream of study. It is important to note that the female students have less cyber security but have high motives of using the internet than the male students. Women are more vulnerable to cyber threats these days and hence it is essential to inculcate proper awareness and orientation on cyber security and imbibe necessary security behaviour and practices so that they can safeguard themselves on the cyber space.

Keywords: Cyber Safety, Cyber Security, Online Safety, Internet Usage Motives.

1. INTRODUCTION

The internet has taken over the life of the people of today's generation. Starting from communicating through instant messages, emails for personal and professional use, travelling, studying and shopping, internet has touched every aspect of human life. The dependency to this technology has become so intense that it is impossible to imagine a day without the cyber space. With the growing dependency of the cyber space, protecting the data and information has become a necessity. This becomes even more important when the maximum number of users of the cyber space is children and adolescent students. A computer that lacks in any of the appropriate security controls can be attacked by malicious logic and it might lead to any type of information to be easily accessible in moments of time. It is a fact that number of malicious websites and infected web pages can be seen every day around us and these web pages in turn attacks the computer by infecting the computer system and thus allows the hackers to gain illegal access to these computer systems. Hacking of important data, network outages, computer viruses and other cyber related threats affect the lives of these children. The main reason behind cyber threats can be due to negligence and vulnerabilities, or any kind of unintentional accidents. However, they can also be planned or intentional attacks such as hacking or

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gaining illegal access by unauthorized users. As the number of internet usages, data networks, digital applications, and most importantly mobile users are increasing, so does the chances of cyber exploitation and eventually cyber crimes. It becomes highly important to create awareness among the students on the various types of threats and issues on the cyber space and orient them with proper security practices and behaviours. Inculcating the right attitude and perspective on the motives of using the internet will also make them understand the issues on the cyber space and act mindfully thus ensuring a safe and secured exposure to the cyber space.

1.1 Cyber Security

Cyber-space is nothing but a figurative and symbolic space that exists within the scope of Internet. The term cyberspace came into being with regard to managing the physical spaces. However, with the onset of the Internet, the term has been applied to the virtual space that is created within the Internet. It can be said that anything that is done via the use of Internet, occurs within the confines of the cyber-space, whether that is sending an e-mail, browsing a website or a webpage, playing game online, all of these things are included in area called the cyber-space. The most important aspect in the cyber space is the amount of security with which the data or information is being transmitted from one place to another. Cyber security is a concept that is being spoken about in recent days. Thus, cyber security can be defined as “The art of ensuring the existence and continuity of the information society of a nation, guaranteeing and protecting, in Cyberspace, its information, assets and critical infrastructure.” (Canongia & Mandarino, 2014)^[1]. Fredrick Chang (2012)^[2], former Director of Research at the National Security Agency in the United States discusses the interdisciplinary nature of cyber security: “A science of cyber security offers many opportunities for advances based on a multidisciplinary approach, because, after all, cyber security is fundamentally about an adversarial engagement. Humans must defend machines that are attacked by other humans using machines. So, in addition to the critical traditional fields of computer science, electrical engineering, and mathematics, perspectives from other fields are needed”. Cyber security has also got its definition from CNSS (2010)^[3] as “the ability to protect or defend the use of cyberspace from cyber-attacks”. The individual’s motivation of using the internet, to some extent, might throw light on the security aspects of the cyber space and it will give the direction in ensuring a safe and secured online experience.

1.2 Motives of Using Internet

Motives are generally the dispositions that influence a person’s action taken towards fulfilling a want or need. Motives are also key components for the study of the Internet usage in the digital era. Research has found that the primary motives for using the Internet include information seeking and fulfilling interpersonal needs. More recent studies have discovered that many of the same reasons for using television also apply to the Internet, such as using it to fulfill the need for entertainment or for social interaction. Students use the internet for varied purposes. Based upon the usage of the students, the motives of using the internet can be clubbed under three factors namely Information Motive - The main motive of an adolescent student here is to gather information and make use of them in a productive way, Interpersonal Communication Motive - The main motive here is to help the user to communicate with the outside world. The user tends to find new friends and acquaintances, the interaction with an unknown friend, virtual friendship and relationships. and Entertainment Motive - Internet is another form of media which is filled with lot of entertainment elements. The main motive here is to while away some free time and to relax. Care must be taken in using the internet irrespective of the motives to ensure a secured online experience.

2. BACKGROUND STUDY

McGill and Thompson (2018)^[4] conducted a study to analyse the gender difference in information security perception and behaviour in a home computing environment. The findings reveal significant differences between males and females for three of the six individual security behaviours, and that overall levels of security behaviour were significantly lower for females than for males. In terms of security perceptions, they found that females were also more likely to perceive a higher level of severity of security threats than males, but perceived their vulnerability to be lower – possibly contributing to the lower overall security behaviour observed. Further, gender differences were found in social norms with females being more likely to believe that other people implement security measures, although they did not differ in perceptions of whether other people may want them to undertake security measures. These findings contributed to the behavioural information security field by considering a key individual difference – gender – in the context of security behaviours and perceptions.

Yalin and Basfirinci (2017)^[5] in their investigation on Cyber Security perceptions of university students in turkey has attempted to investigate how the cyber security is perceived among Turkish university students keeping in mind that Cyber security has been an important topic on not only almost all science fields, but also for everyone in a contemporary everyday life. However, a methodological review of the literature demonstrates that there are limited studies on exploring cyber security perceptions of people. The study was aimed to understand the cyber security associations and behaviors of Turkish university students. The results indicate that students' awareness level is quite high but they feel insecure with regard to cybercrimes and most of them use multiple cautions in the cyberspace.

In the study of Peker et. al. (2016)^[6] on raising cyber security awareness among college students the investigator has emphasized that cyber security is of increasing importance due to the rise in reliance on digital equipment and programs to manage daily lives, including the transmission and storage of personal information. The investigator has attempted to understand the current level of security awareness among college students and develop a module that will help raise their awareness. The main features of the module are interactivity and the presentation of shocking consequences of careless cyber habits of common Internet / technology users. The study has designed a survey that includes pre and post-tests to fulfill the goals of our project and administered it to students on our campus. The survey results indicate that the module has been effective particularly among non-Computer Science majors. It has raised their level of awareness not only for the specific topics that the module addresses but overall in cyber security.

Xi and Jiar (2016)^[7] investigated on motivation of internet use and its relation with pathological internet use, gender and internet activities. The study focused on examining the motivation of Internet use among university students in Malaysia. The predominant motivation of Internet use was information seeking and entertainment/escape. Correlation test was used to examine the relationship between motivation of Internet use and Internet activities found that social recognition was significantly related to four Internet activities including social networking site (SNS), online game, shopping and browsing. Entertainment/escape was only related to SNS usage. Male students had stronger social media and entertainment related Internet use than female students, while females had stronger work and information related Internet use. However, this study did not find the gender difference on entertainment/escape and information seeking. The significant gender difference was only found on social recognition motivation of Internet use, which meant that male students tended to have stronger social recognition motivation of Internet use than females and females used Internet more for social recognition.

In the study of Colas, Gonzalez and Pablos (2013)^[8] on young people and social networks motivations and preferred uses, the investigators have analyzed the uses of social networks, their frequency and the motives behind the usage among adolescent

students. The results indicate that young people consistently use social networks. The study identified two motivational aspects in this use: one social and the other psychological. There is no significant difference in terms of gender in frequency of use, while there is difference in the motivations for access. Boys tend to be the more emotional motivation and girls were dominated by relational motivation. This study further identifies the implications of social network for active citizenship and participatory training and social integration.

3. NEED FOR THE STUDY

The virtual world or the cyber space has become an indispensable part of the day to day life of every individual. The most important issues faced with the cyber space in recent days are the security of the data and information being transmitted on the internet. The major participants of the cyber space are children and adolescent students and they are completely dependent on the internet. The increasing use of the internet and social media has made cyber security even more important than it was before. Growing cyber threats such as data theft, phishing scams and other cyber vulnerabilities demand that students should remain vigilant about protecting their data. It is crucial to realize the varied types of risks and vulnerabilities that are present in the world of Internet. It is very important for every individual to think before getting connected to someone on the virtual space and care must be taken prior to sharing of any kind of personal information with other users on the cyber space. Proper awareness on the threats and issues on the cyber issues is the need of the hour. Analyzing the motives of internet usage among the students and orienting them on the best security practices is very important.

There are no studies that investigate the relationship between Cyber Security and Motives of Using the Internet. Though there could be a relationship on how motives behind using internet could provide significant input to cyber security, it is noted that there are no studies explore in this direction. Thus, there exists a research gap and the investigator has chosen to study the relationship between these two variables. Thus, this research is intended to find out the Cyber Security and Motives of Using the Internet among college students on the grounds of gender (male / female), Course of Study (under graduation / post graduation) and Stream of Study (art / science / professional).

4. OBJECTIVES OF THE STUDY

1. To find out whether there is any significant relationship between Cyber Security and Motives of Using Internet among college students.
2. To find out whether there is any significant difference in Cyber Security and Motives of Using Internet among college students with respect to gender, course of study and stream of study.

5. METHOD OF STUDY

Normative survey method is employed in the present study. The present study focused on survey collected through questionnaires. The study is based on the cross sectional survey, intended to gather information on a population at a single point of time. Two tools were used in the present study and they are: Cyber Security Scale, which was constructed by the investigator and The Internet Motivation Scale, which was adopted from the study conducted by Uwe Wolfradt and Jorg Doll (2001). The Cyber Security Scale consists of 25 statement classified under four dimensions namely: Protection Motivation, Planned Behaviour, Reasoned Action and Threat Unawareness. The participants were requested to indicate their agreement or disagreement with the statements based on a five-point Likert-type scale, from 'Strongly Disagree' (1) to

'Strongly Agree' (5). The negative statements were given reverse scoring. The Internet Motivation Scale consists of 20 statements classified under three dimensions namely: Information Motives, Interpersonal and Communication Motives and Entertainment Motives. The participants were requested to indicate their agreement or disagreement with the statements based on a five-point Likert-type scale, from 'Strongly Disagree' (1) to 'Strongly Agree' (5).

Population of the present study was the college students in Chennai. The main study was conducted on undergraduate and postgraduate students. The data were collected from 300 samples of undergraduate and postgraduate students belonging to the arts, science and professional courses drawn from five colleges selected at random. This 300 sample include the male and female undergraduate and postgraduate students belonging to arts, science and professional courses in Chennai, India.

6. RESULTS

Table 1: Showing the correlation between Cyber Security and Motives of Using Internet

Variable	Cyber Security	Motives of Using Internet
Cyber Security	1.000	0.253**
Motives of Using Internet	X	1.000

** - 0.01 level significance

The above table shows that there is significant positive relationship between Cyber Security and Motives of Using Internet among College Students. Cyber Security is related to Motives of Using Internet at 0.01 level. It is inferred that Cyber Security is positively and significantly related to Motives of Using Internet.

Table 2: Showing the analysis of Cyber Security and Motives of Using Internet among College students with respect to Gender, Course and Stream of Study.

Variables	Type	Cyber Security				Motives of Using Internet			
		Mean	SD	CR - Value / F-Ratio	Groups differing	Mean	SD	CR - Value / F-Ratio	Groups differing
Gender	Male (N = 150)	85.48	12.95	3.00*	-	61.35	10.52	4.06*	-
	Female (N = 150)	81.89	6.83			65.46	6.54		
Course of Study	Under Graduation (N = 150)	84.51	10.82	1.37	-	64.83	8.97	2.77*	-

	Post Graduat ion (N = 150)	82.85	10.12			61.99	8.79		
Stream of Study	Arts (N = 50)	87.43	10.73	12.72 **	1 & 2 1 & 3	63.58	7.88	0.15	-
	Science (N = 50)	83.38	10.92			63.00	8.28		
	Professi onal (N = 50)	80.24	8.49			63.64	10.62		

** - 0.01 Level Of Significance

* - 0.05 Level Of Significance

7. MAJOR FINDINGS

- Male students have more Cyber Security than the students. The male students interact with fellow students. Their circle of communication of male students is large compared to the female students and thus they get to know about the cyber threats and they discuss the possible cyber attacks and ways to tackle them with their peers and they become aware of the security issues in the cyber space. The female students have close knit group of friends. They do not interact with many and thus they lack in the awareness of the various security issues and cyber attacks in the cyber space.
- Female students have higher motives of using the internet than their male counterparts. Female students mainly use internet for communication, entertainment and online shopping purposes. They tend to check out the cyber space for anything they want, be it from a small recipe to a review on a movie. They tend to check out online shopping sites as they get lot of options sitting at home, while male would like to go out and visit the store for any purchase. This makes the female students to have a higher motives of using the internet than their male counterparts
- Undergraduate students have higher motives of using the internet that the postgraduate students. Post graduate students have higher maturity level than the under graduate students. They tend to become more responsible towards studies and become career oriented and have very less time to spend on the internet. Thus, they tend to show lesser motives of using the internet than the undergraduate students but no significant difference was found between undergraduate and postgraduate students in their cyber security.
- Students belonging to art stream have more cyber security than the students belonging to science and professional. The arts stream students get lot of time to spend on the internet compared to the science and professional stream students. They get time to explore the cyber space and get to know the threats and issues associated with it where as the science and professional students do not get time to explore much as they get time to browse the internet only for some intended purpose. There is not

- much difference between students belonging to science and professional stream of study in their cyber security.
- The students belonging to arts, science and professional stream of study did not differ in their motives of using the internet.

8. DISCUSSION

From the research conducted, it is inferred that the Cyber Security and Motives of Using Internet are positively and significantly correlated to one another. The major findings and the possible reasons are as listed above. The findings are supported by the studies conducted earlier. The inference that male students have more Cyber Security is supported by the study conducted by McGill and Thompson (2018) and the inference that there is significant difference between male and female students in their motives of using internet is supported by the study of Colas, Gonzalez and Pablos (2013) who found that boys tend to be the more emotional motivation and girls were dominated by relational motivation. This result was also supported by the study of Xi and Jiar (2016) who found that male students had stronger social media and entertainment related Internet use than female students, while females had stronger work and information related Internet use. With proper awareness on cyber security and right attitude and perception on the motives of using the internet and by imbibing the necessary security practices and behaviour it can be ensured that the students' information would be safe on the cyber space and they will have a safe and secured online experience.

9. Conclusion

It is found that the female students have less cyber security and have high motive of using internet. In the present world with a rise in crime rates against women, it becomes highly important to channelize the motives of female students in their internet usage and it becomes utmost important to orient them with the various threats on the cyber space. With proper awareness and orientation on the cyber related issues and with necessary cyber security behaviours and practices the female students can be prepared to face the challenges and act mindfully when encountered with threats on the cyber space. This would prepare them to be more alert to the possible cyber crime traps around them. Periodic check by the parents and teacher on the cyber activity carried out by the students will also ensure that they are safe online. With proper guidance and awareness the safety and security of the cyber space can be ensured.

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