Journal of Research Administration
Society of Research Administrators International

ASSESSMENT OF CYBER SECURITY AWARENESS AMONG PROSPECTIVE TEACHERS

Dr.P.Pachaiyappan
Professor, GRT College of Education, Tiruttani-631209, Tiruvallur District, Tamilnadu, India.

ABSTRACT

The purpose of the study is to assess the cyber security awareness amongof B.Ed. student-teachers. Survey method of research has been used in the present study. To assess the cyber security awareness of B.Ed. student-teachers, Cyber Security Awareness Scalewas constructed and standardized by the Researcher. The investigator randomly selected three hundred B.Ed. student teachers in and around Chennai and Tiruvallur Districts of Tamilnadu. The data was analyzed using mean, standard deviation, 't'- test and F-test. The result of the study reveals that most of the B.Ed. student teachers have moderate level of cyber security awareness. The study reveals that there is a significant difference in cyber security awareness among B.Ed. student-teachers with respect to gender, locality, year of study and type of management.The finding of the study reveals that there is no significant difference in cyber security awareness among B.Ed. student teachers with respect to medium of instruction.

Keywords: Cyber Security Awareness, B.Ed. Student Teachers, Prospective Teachers, Pre-Service Teachers, Teacher Trainees, Cyber Safety, Cybercrime, Online Threats, Internet Security.

INTRODUCTION

Cyber security is the protection of internet connected systems such as hardware, software and data from cyber threats. The practice is used by individuals and enterprises to protect against unauthorized access to data centers and other computerized systems.The revolution of ICT has significantly changed people's everyday lives and in the recent days Internet safety and awareness is a growing priority across the nation. To emphasize the severity of malware attacks, recent research has shown that globally, more than 200,000 malware incidents occur daily, including ransomware, phishing attacks and malicious scans.Cyber security related problems and cybercrime are the major threats and challenges all over the world and digital India will not be any exception.Cyber security awareness is to educate and increase alertness about online threats and vulnerabilities with regard to IT usage. The purpose of the study is to know the current status of cyber security awareness among B.Ed. teacher trainees and to increase the level of understanding about self-responsibility and the necessary action required while engaging in digital activities for this reason enhancingcyber security awareness among B.Ed. teacher traineesis very much needed in the cyber world. Various methods can be used to promote cyber security awareness regardless of the age of the individual, for example, online awareness campaign, celebration of safer internet day, educational videos, ETV programmes, classroom based trainings, conferences, workshops, pamphlet distribution, online advertisementetc.

NEED AND SIGNIFICANCE OF THE STUDY

In the technological and digital era students and teachers are accessing many learning resources through internet and the recent technological advancement, many online tools and mobile applications (Apss) used in our day today activities.However, it has also introduced severe security risks; valuable information such as passwords, financial accounts and other confidential data are considered attractive targets for attackers. The teachers and students find themselves in a potentially harmful experience in the online. To secure themselves from online threats safe use of various online tools and applications is very much needed in the digital era. B.Ed. teacher trainees are the future teachers they will create awareness on cyber securityamong their students in future for that purpose prospective teachers have more knowledge and awareness towards cyber threats and cyber security risks. Therefore, the awareness on cyber security is very much needed for B.Ed. teacher trainees (prospective teachers); so that they can prevent to face the unexpected issues or cybercrimes such as spam, hacking, phishing, viruses,identity theft, internet fraud etc. B.Ed. teacher trainees having adequate awareness about cyber securitywill also help in decreasing the involvement of the students or our coming generations in cyber threats and cybercrimes. The present study isaimed to find out the cyber security awareness level among B.Ed. teacher trainees in and around Chennai and Tiruvallur Districts of Tamilnadu.Hence, the present study is need of the hour.

REVIEW OF RELATED LITERATURE

Moanes H. Tibi et al. (2019) studied Cybercrime Awareness among Students at a Teacher Training College. The finding of the study revealed that the level of cybercrime awareness among the participants was inadequate and that the independent variables such as year of study, major subject, and prior computer knowledge did not yield any statistically significant differences. The result reveals that no correlation was found between the students' prior computer knowledge and theirsusceptibility to being victims of cybercrimes.Alarifi et al. (2016)examined the level of information security awareness of the Saudi general public using an online survey with 633 participants. The survey covered the password (usage, changing, sharing) security awareness, threats, updating software, data backups and incident reporting. Alzahrani and Alomar (2012) assessed the level of information security awareness with 2325 subjects. The researchers reported that the awareness level on general information security was 35%, password security 37%, wireless network security 38%, social networking security 40% and cloud storage security 44%.UrmilaGoel (2014) studied awareness among B.Ed. teacher trainees towards Cybercrime. The study reveals that there is no significant difference towards cybercrime awareness among boys and girls and rural boys and girls. Finding of the study reveals that there is significant difference towards cybercrime awareness among urban boys and girls, science and art boys and science and art girls and also the awareness towards cybercrime is not significantly affected by Gender. Mohammed, A. Alqahtani (2022) examined Cyber security Awareness based on Software and E-mail Security. The studyresult reveals that understanding of email security can raise cyber security awareness up to 31.3%. Software security and e-mail security variables simultaneously have a significant effect on cyber security awareness with a correlation coefficient of 12.1%. Research results reveal that students are aware of software or application updates and the students'

awareness of email security is also adequate and good. Zulkifli et al. (2020) study finding reveals that most of the respondents are aware of the cyber threats and risks of being in cyber space but very few of them take actions on security measures of being online. Chiuaand Hob (2019) reported that teachers were not familiar with many cyber security activities. The study also investigated the difference on cyber security awareness among teachers with different age, teaching seniority and school location.

OBJECTIVES OF THE STUDY

1. To assess the cyber security awareness among Prospective Teachers.
2. To find out the difference in cyber security awareness among Prospective Teachers with respect to
    (a) Gender
    (b) Locality
    (c) Medium of Instruction
    (d) Year of Study
    (e) Type of Management

HYPOTHESES OF THE STUDY

1. There is no significant difference in cyber security awareness among Prospective Teachers with respect to Gender.
2. There is no significant difference in cyber security awareness among Prospective Teachers with respect to Locality.
3. There is no significant difference in cyber security awareness among Prospective Teachers with respect to Medium of Instruction.
4. There is no significant difference in cyber security awareness among Prospective Teachers with respect to Year of Study.
5. There is no significant difference in cyber security awareness among Prospective Teachers with respect to Type of Management.

METHODOLOGY OF THE STUDY

Method of the Study: The researcher adopted the survey method to collect the relevant data from desired areas.

Population: A population is any group of individuals that have one or more characteristics in common. The population for the study includes the all B.Ed. Teacher Trainees of Chennai and Tiruvallur Districts of Tamilnadu.

Sample: The sample for the present study includes the B.Ed. students those who are studying 2021-2022 academic year in Government, Government-aided and Private Colleges of Education in and around Chennai and Tiruvallur Districts of Tamilnadu.

Sample size: In the present study three hundred B.Ed. student teachers were randomly selected on the basis of the random criteria.

Sampling Technique: The researcher adopted random sampling technique for selecting the sample.

Statistical Techniques Used:

The following statistical techniques used for analyze the data:

- Percentile, Mean and Standard Deviation.
- t- Test and ANOVA: to know the difference between the means of variables.

Research Tools Used

The following research tools used for collection of the data.

1. Personal Data sheet developed by the Researcher.
2. Cyber Security AwarenessScale developed and standardized by the Researcher.

The Reliability of Cyber Security Awareness Scale has been established by calculating Cronbach's alpha 0.960 and the intrinsic validity was established by taking the square root of the reliability coefficient i.e. 0.979. Thus from the two co-efficient, it was inferred that this tool is highly reliable and valid. The developed tool was given to the experts in the field of Education, Computer Science and Educational Research. Suggestions given by them were incorporated and some of the items were restricted and rewarded. The finalized questionnaire was subjected to another review by the same experts. Thus face validity and content validity of questionnaire also was established.

FINDINGS

Table 1. Level of cyber security awareness among prospective teachers

Cyber security awareness	Frequency	Percent
Low	97	32.14
Moderate	151	50.31
High	52	17.55

From the above table 1 shows the 50.31 percent of the student teachers have moderate level of cyber security awareness. 32.14 percent of student teachers have low level of cyber security awareness and 17.55 percent of student teachers have high level of cyber security awareness. Hence, it is concluded that most of the student teachers have moderate level of cyber security awareness.

Table 2. Cyber security awareness among prospective teachers with respect to Gender

Gender	N	Mean	SD	't'value	P-value
Female	144	67.89	8.369	2.244	0.026
Male	156	70.39	9.258		

From the above table the 'p' value is 0.026, which is less than 0.05. Therefore, thenull hypothesis is rejected. Hence there is a significant differencein cyber security awarenesswith respect to Gender.

Table 3. Cyber security awareness among prospective teachers with respect to locale

Locale	N	Mean	SD	't'value	P-value
Urban	113	71.05	9.680	2.193	0.029
Rural	187	68.70	8.544		

From the above table the 'p' value is 0.029, which is less than 0.05. Therefore the null hypothesis is rejected. Hence there is a significant differencein cyber security awarenesswith respect to locale.

Table 4. Cyber security awareness among prospective teachers with respect to Medium of Instruction

Medium	N	Mean	SD	't'value	P-value
Tamil	112	68.66	3.112	1.240	0.216
English	188	70.04	3.037		

From the above table the 'p' value is 0.216, which is higher than 0.05. Therefore, the null hypothesis is accepted. Hence there is no significant difference in cyber security awareness with respect to Medium of Instruction.

Table 5. Cyber security awareness among prospective teachers with respect to Year of study

Year of Study	N	Mean	SD	't'value	P-value
Second year	161	71.74	9.718	4.584	0.000
First year	139	67.09	7.489		

From the above table the 'p' value is 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected. Hence there is a significant difference in cyber security awareness with respect to year of study.

Table 6. Cyber security awareness among prospective teachers with respect to type of management

Source of variance	df	Sum of squares	Mean of squares	F -value	P-value
Between groups	2	1370.964	685.482	8.817	0.000
Within groups	297	23089.537	77.743		

Total	299	24460.501

From the above table the 'p' value is 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected. Hence there is a significant difference in cyber security awareness with respect to type of management. Therefore, the following post-hoc tests were done for further analysis.

Table 6 (a). Post-hoc test for Cyber security awareness among prospective teachers with respect to type of management

Type of Management	N	Subset for alpha = 0.05	
		1	2
Private	140	67.36	
Government	99		71.04
Govt.Aided	61		72.35
Sig.		1.000	.320

From the above table result reveals that the Government aided B.Ed. college teacher trainees have more cyber security awareness compared to Government and Private B.Ed. college teacher trainees.

DISCUSSIONS AND CONCLUSION

The purpose of the study was to assess the cyber security awareness amongof B.Ed. student-teachers. For this purpose, the cyber security awareness questionnaire was used to collect data from three hundred B.Ed. student teachers in and around Chennai and Tiruvallur Districts of Tamilnadu.The result of the study reveals that most of the B.Ed. student teachers have moderate level of cyber security awareness. This findings supports the study conducted byMaruthavanan; M (2020) and Sezer, Yilmaz, and Yilmaz (2015) and in contrary, Moanes H. Tibi, P et al. (2019) study revealed that the level of cybercrime awareness among the participants was inadequate. The study reveals the male B.Ed. student-teachers have higher cyber security awareness compared to female student-teachers. This finding supports the similar findings of Maruthavanan; M (2020) investigated the Awareness on Cyber Security among Student Teachers in Madurai District.The finding of the study reveals that there is a significant difference in cyber security awareness among B.Ed. student-teachers with respect to year of study and type of management. The research reveals that there is no significant difference in cyber security awareness among B.Ed. student teachers with respect to medium of instruction. The study results reveal that there is a significant difference in cyber security awareness among B.Ed. student-teachers with respect to locality. The cyber security awareness was high among urban B.Ed., student teachers than the rural counterparts. In support with this study, Maruthavanan, M (2020) and Jayeeta Majumder., Sourav Gangopadhyay., Susmi Biswas (2020) studies also found similar results.

This study provided current status of cyber security awareness among the prospective teachers in and around Chennai and Tiruvallur Districts of Tamilnadu. The study reveals that most of the B.Ed. student teachers have moderate level of cyber security awareness. With the introduction of new technologies and devices including smart phones/tablets and innovative applications on such devices, the usage of internet has increased dramatically. However, with increasing penetration and use of the internet, cyber-crime and cyberthrets is emerging as a major challenge. In order to minimize the cyber threats; creating cyber security awareness among the prospective teachers is need of the hour and the study provides an interesting results. The results of this study will be useful for administrators and policy makers in the concern field.

EDUCATIONAL IMPLICATIONS

- The Higher Education Institution's (HEI's) should provide training courses on cyberspace security to all students in order to enable them to avoid becoming victims of cybercrimes.
- Proper education and increasing cyber security awarenessamong the prospective teachers are very important in order to minimize the cyber threats.
- Cyber security awareness, cyber threats, cybercrime related components must include in teacher education curriculum.
- Cyber security cell should be established in all Higher Education Institutions (HEI's).
- Provide necessary hands on training/workshopsto teacher trainees on how to use smart board, mobile device, Wi-Fi facilities, social networking sites, protecting cyber threats, internet securityand web searching in a safe and secure way.
- Creating awareness on cyber security issues '*Cyber security Awareness* Month', 'Safer Internet Day' etc. will be observing in all Higher Education Institutions.

REFERENCES

Alarifi, H. Tootell, P. Hyland, (2012). A study of information security awareness and practices in Saudi Arabia. *International Conference on Communications and Information Technology (ICCIT-2012)*, IEEE, pp.6–12.

Alzahrani, A and Alomar, K., (2016). Information security issues and threats in Saudi Arabia: a research survey, *International Journal of Computer Science,* 13 (6), p.129.

Bentley, H., O'Hagan, O., Raff, A., & Bhatti, I. (2016). How safe are our children? The most comprehensive overview of child protection in the UK 2016. London: NSPCC. Retrieved from https://nspcc.org.uk/globalassets/documents/research-reports/how-safe-children2015-report.pdf.

Chiua, W. Y., & Hob, H. F. (2019). Time to Educate the Educators: An Evaluation of Cyber Security Knowledge Awareness and Implementation for School Teachers in Taiwan. Proceedings of International Conference on Technology and Social Science (ICTSS).

Jayeeta Majumder., Sourav Gangopadhyay., SusmiBiswas (2020). A Cross Sectional Study On Knowledge of Cyber Security among Urban and Semi Urban College Goers of East Midnapore District. *International Journal of Scientific & Technology Research*. 9(02), 4601- 4605.

Maruthavanan, M (2020). Awareness on Cyber Security among Student Teachers in Madurai District. https://www.researchgate.net/publication/34262197.

Moanes H. Tibi., Kholod Hadeje., &, BashierWatted (2019). Cybercrime Awareness among Students at a Teacher Training College. *International Journal of Computer Trends and Technology*, 67(6), 11-17.

Mohammed, A. Alqahtani (2022). Cyber security Awareness Based on Software and E-mail Security with Statistical Analysis. *Computational Intelligence and Neuroscience,* 2022, 1-12. https://doi.org/10.1155/2022/6775980.

Osman Sirajeldeen Ahmed., Saeed Ameen Nasef., AlaaZuhir Al Rawashdeh., Mohd. ElmagzoubEltahir (2021). Investigate the awareness level among school teachers of their students' cyber security. *Turkish Journal of Computer and Mathematics Education*, 12 (10), 5148-5156.

Sezer, B., Yilmaz, R., & Yilmaz, F. G. K. (2015). Cyber bullying and teachers' awareness. *Internet Research.* 25(4), 674-687. https://doi.org/10.1108/IntR-01-2014-0023.

State of Malware, Online, https://resources.malwarebytes.com/files/2019/01/Malwarebytes -Labs -2019 -State -of -Malware -Report -2.pdf, 2019.

Urmila Goel (2014).Awareness among B.Ed. teacher training towards Cyber-crime-A Study.*Learning Community*, 5(2 and 3): 107-117.

Zulkifli et al. (2020). Cyber Security Awareness among Secondary School Students in Malaysia *Journal of Information Systems and Digital Technologies*, 2(2), 28-41.