A Research Study about the Awareness of Pre-Service Teachers in Cyber Security Due to Integration of Cyber Security in Teacher Education Curriculum

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Abstract-
Teacher education Programme refers to equip our future teachers in the policies, procedures, and provision with the knowledge, attitudes, behaviours, and skills they require performing their tasks effectively in the classroom, school, and global community. There are two types of teacher course like In-Service Teacher Education and Pre-service teacher education.In both teacher education programs, teacherslearnaboutpedagogical content, activities and strategies for effective the teaching learning process or into instructional settingsto improve student learning.Technology has a positive impact on student learning which is more engaging and permanent.But Technology also has some negative impact which causes so many issues with children out of which cyber security is one. So it is necessary to know that our teachers or people teachers are aware about cyber security or not.The aim of the study is to show the effectiveness of cyber security as topic in the Teacher Education Curriculum and also analyse the awareness of cyber security in Pre-Service teachers of State Council of Educational Research and Training by focusing various content knowledge related to security threats. From last few years cyber security / cybercrime isbecoming an enormous challenge in all social areas including personal privacy / security, Public safety and national security. This study was also done with the objective School children's cyber security awareness could help to reduce children's exposures to various vulnerabilities, which may be present online or among children during internetworking because of the rapid developments in Internet, which might affect children's educational and social life through the Internet of Things. To prevent from a victim of cybercrime everyone must know about their own security and safety measures to protect themselves for which a teacher is best medium to inbuilt the cyber security related information in our students. A well-structured questionnaire was prepared to gather the Pre-service Teacher's awareness in the area of cyber security. This survey was conducted on the Pre-Service Teachers of State Council of Educational Research and Training of Delhi by focusing that they must have knowledge about Virus, online fraud &grooming, data security, privacy, social media safety. The data was collected with the help of online Google form which is online. Result of this study showed that integration of cyber security in our curriculum increase the knowledge of our people teachers which may help our children to be safe and secure in the global world of Internet.
Keywords- Knowledge, attitudes, behaviours, policies, procedures, provision, and global community, questionnaire Pre-Serviceteachers, cyber security, analyzed,curriculum,privacy, data security, grooming

Introduction
The educational system has been preparing children forcompetitive societal quality by promoting achievement among students,for preparing happy,responsible, healthy and productive global citizen. A teacher plays a very key role in the preparation of a global citizen from an innocent child. **Teacher education Programme** refers to equip our future teachers in the policies, procedures, and provision with

the knowledge, attitudes, behaviours,

and skills they require performing their tasks effectively in the classroom, school, and global community. Teacher Education is an essential part in education settings. There are two types of Teacher Education: In-Service Teacher Education& Pre-Service Teacher Education.**In-service Teacher Education** can be defined as the professional courses and relevant activities in which anIn –Service teacher participate to upgrade his professional knowledge, skills, and competence in their profession. **Pre-service Teacher Education** can be defined as the professional course or training in which a people teacher or would be teacher undergo the proper training before they have undertaken any teaching in proper education system. School Experience Programme is also an important and mandatory part of the teacher education programme which goes side by side with content knowledge about theory paper. During the Pre-service Teacher Education programme, focus is on Pedagogy along with content and latest community issues as the future of a nation will be in the hand of Teacher.Technology has a positive impact on student learning. Due to technology, students will be able to retain more information and engaged. Technology provides meaningful learning experiences. But Technology also has some negative impact which causes so many issues with children out of which cyber security is one. So it is necessary to know that our teachers or people teachers are aware about cyber security or not.It is pre assumed that Pre-Serviceteachershavethe competent knowledge about the safety when working withtechnologiesaswell. There are some Pre- teacher Education professional courses like B.Ed, D.El.Edetc. in which along with other courses ICT in Education or Computer Education is also a Subject. This subject is purely focus on the latest trends and issues related to ICT or which influences the society. Now question comes what is cyber Security. SoCyber security is basically the protection of our systems from cyber attacks. Due to the increasing usage of Internet,Cyber security is the most important component of web world.It prevents cyber hackers from stealing our private/confidentialinformation and sensitive information about people, companies and others etc. In today's world,our all work is done online like purchasing, pay bills, banking etc.If there is no security at our end then easily a cyber hacker would steal our credit card / Debit card details and use them. In addition to this ourSchool children's cybersecurity awareness could help toreduce children's exposures to various vulnerabilities, which may be present online because of the rapid developments in Internet,which might affect children's educational and social life through the Internet of Things. We all are aware about the recently dangerous games like Blue Whale and MoMo etc. those took so many children's life.So in this case if our Teachers Education curriculum (In –Service & Pre –Service) is integrating with cyber security awareness then our teachers will be equip with the cyber security knowledge and teach our children with cyber security threats and how to deal with those. Teachers have to literate about cyber security as they focus on growing and educating the next generation cyber-literate workforce through K-12 education.Although cyber security is a relatively new field of expertise, and in India many of the curriculum are still not integrated cyber security as part of any subject. And it is also felt that cyber security should not be taught as an individual topic, it should be taught with interdisciplinary approach. When each and every teacher will talks about cyber security then our nation will become cyber safe country.

Objective:
- To analyze the effectiveness of cyber security as topic in Teacher Education curriculum.
- To know the awareness of Pre- service Teachers in cyber security due to integration of cyber security in curriculum.
- To know the awareness of Pre- service Teachers about viruses,online fraud &grooming, data security, privacy, social media safety.

Methodology:
This survey based research makes an important distinction in cyber security knowledge that is essential for future teachers.This research basically focuses the knowledge of people

teachers about the cyber security or if they have some cyber related issue will they are able to identify the threat. This research was done with the people teachers of B.Ed who all were already taught about cyber security in their subject Critical Understanding of ICT in Education. This survey was done with the help of creating the questionnaire tool which comprises the questions related to cyber security threats, online fraud, personal threats etc. The data was collected with the help of online Google form. The best part of online data collection throughgoogle form is that this data is always online available.
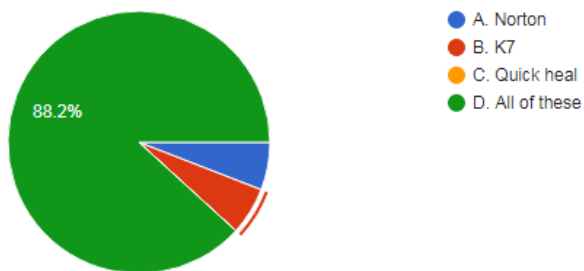
Sample and Population:

The population for this survey is 68 first year B.Ed Students of State Council of Educational Research and Training who all were already taught the subject Critical Understanding of ICT in Education in the Semester 1. But out of 68 only 50 students filled the survey. The tool used for the survey is questionnaire was developed to do the research which was circulated with the help of Google form.

Results &Findings :
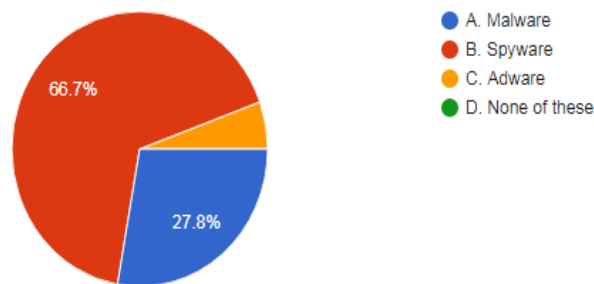
Based on the filled data by Pre- Service Teachers shows the following result:

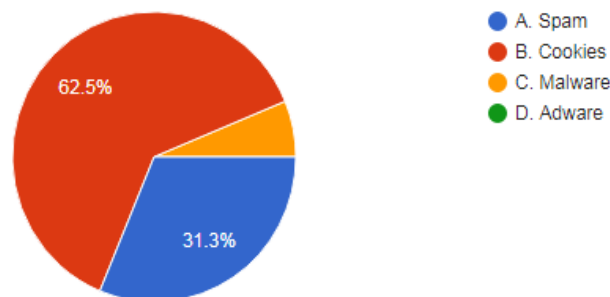1. **Which of the following is an anti-virus program?**

- 88.2% Pre –service Teachers gave correct answer of the above question.
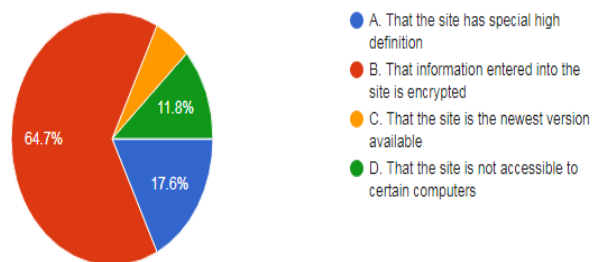- 11.8% Pre- service Teachers gave wrong answer.

2. **User activity are secretly monitors by _____ on internet and transmit that information in the background to someone else**
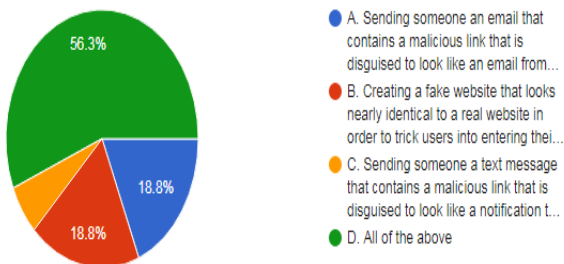

- 66.7% Pre –service Teachers gave correct answer of the above question.
- 33.4% Pre- service Teachers gave wrong answer.

3. **It allows a visited website to store its own information about a user on the user's computer**
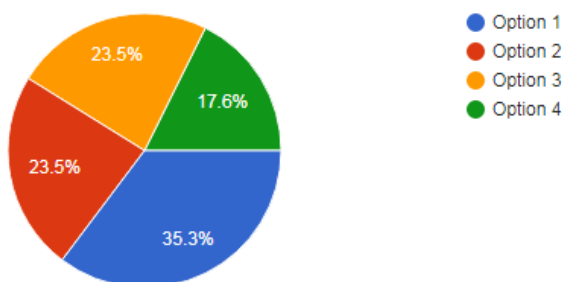

- 62.5% Pre –service Teachers gave correct answer of the above question.
- 37.6% Pre- service Teachers gave wrong answer.

4. **What does the "https://" at the beginning of a URL denote, as opposed to "http://" (without the "s")?**
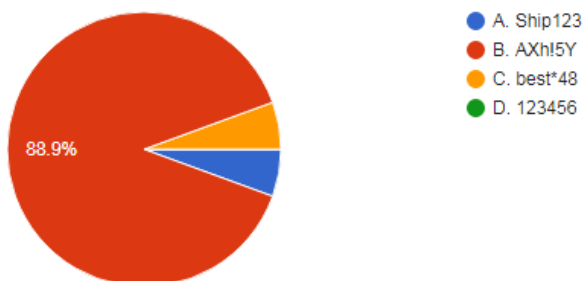

- 64.7% Pre –service Teachers gave correct answer of the above question.
- 29.4% Pre- service Teachers gave wrong answer.

5. **Which of the following is an example of a "phishing" attack?**

Legend:
- A. Sending someone an email that contains a malicious link that is disguised to look like an email from…
- B. Creating a fake website that looks nearly identical to a real website in order to trick users into entering thei…
- C. Sending someone a text message that contains a malicious link that is disguised to look like a notification t…
- D. All of the above

- 56.3% Pre –service Teachers gave correct answer of the above question.
- 37.6% Pre- service Teachers gave wrong answer.

6. Some websites and online services use a security process called two-step authentication. Which of the following images is an example of two-step authentication?
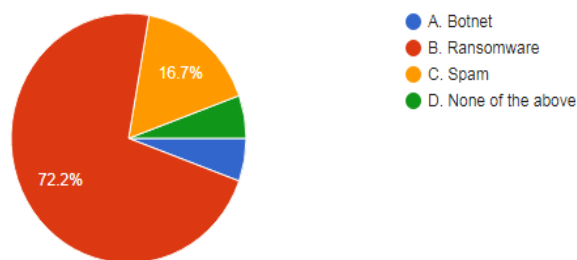

Legend:
- Option 1
- Option 2
- Option 3
- Option 4

- 35.3% Pre –service Teachers gave correct answer of the above question.
- 64.6% Pre- service Teachers gave wrong answer.

7. Which of the following four passwords is the most secure?

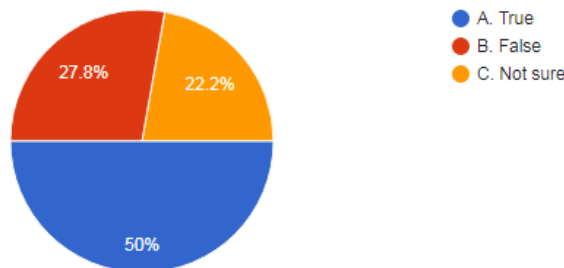
Legend:
- A. Ship123
- B. AXh!5Y
- C. best*48
- D. 123456

- 88.9% Pre –service Teachers gave correct answer of the above question.
- 11.1% Pre- service Teachers gave wrong answer.

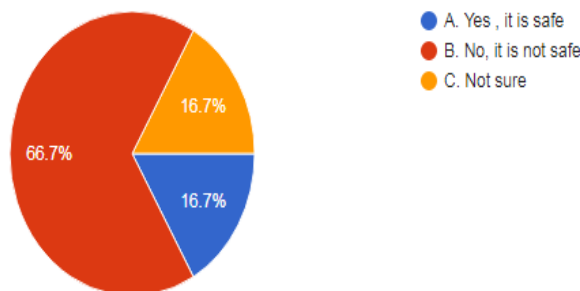8. Criminals access someone's computer and encrypt the user's personal files and

data. The user is unable to access this data unless they pay the criminals to decrypt the files. This practice is called …

Legend:
- A. Botnet
- B. Ransomware
- C. Spam
- D. None of the above

- 72.2% Pre –service Teachers gave correct answer of the above question.
- 27.8% Pre- service Teachers gave wrong answer.

9. Turning off the GPS function of your Smartphone prevents any tracking of your phone's location.

Legend:
- A. True
- B. False
- C. Not sure

- 50% Pre –service Teachers gave correct answer of the above question.
- 50% Pre- service Teachers gave wrong answer.

10. If a public Wi-Fi network (such as in an airport or café) requires a password to access, is it generally safe to use that network for sensitive activities such as online banking?

Legend:
- A. Yes , it is safe
- B. No, it is not safe
- C. Not sure

- 66.7% Pre –service Teachers gave correct answer of the above question.

- 33.4% Pre- service Teachers gave wrong answer.

Conclusion

The results of "study of awareness of Pre-Service Teachers in Cyber Securitydue to integration of Cyber security in Teacher Education Curriculum" showed that due to the integration of cyber security topic in curriculum of teacher education increase the knowledge of our people teachers. Result shows that maximum of our people teachers are well aware about the types of software,phishing, online fraud and grooming, website security, Password safety. So integration of cyber security topic in curriculum helps to be safe and secure children. In- Service and Pre-Service Teacher Education both programmes are the key elements for preparing a professional and well equipped teacher.As teachers is the key element for preparing a happy,responsible, healthy and

productive citizen. Cyber threats is the ongoing and upcoming dangerous threats which may destroy our children's future as well as present without anyone's knowledge, so it is the responsibility of a teacher as well a parent to make aware our children about these cyber threats , crime and how can we deal with those i.e. cyber security. So Integration of cyber security in the teacher's education curriculum as well in the K-12 curriculum creates awareness among the children. . Cyber security is a relatively new field of expertise, and many of the curriculums are still awaited for integration of cyber security as part of any subject.And it is also felt that cyber security should not be taught as an individual topic, it should be taught with interdisciplinary approach. When each and every teacher will talks about cyber security then our nation will become cyber safe country.

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