Attitude towards Computer Security

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Abstract:
Today computers are used for professional work as well as for personal entertainment. It is difficult to work without computer/s even for a day as it is integral part of our life. In such a scenario security of computers is the very important. The purpose of this research paper was to find out the attitude of computer users towards security in the current changing scenario. It will help companies to accordingly plan and implement policies as well as strategies for better security of systems. It will also assist companies to create effective computer user awareness programs with respect to computer security.

Keywords: Attitude, Computer Security.

I. INTRODUCTION

Computers are part of daily life. Indian Government is also promoting Digital India. After demonetisation, people are forced to use computers, mobiles and other digital devices for different purposes like online transactions and so security of the same is a major concern. The aim of research paper was to know the attitude of people towards computer security in this changing scenario and accordingly have better security measures to protect them from hackers, etc. Lomo-David and Shannon (2009) in their research paper *Information Systems Security and Safety Measures: The Dichotomy between Students' Familiarity and Practice* mentioned about the survey conducted to understand the information systems security and safety measures, as its appropriate implementation will reduce hacker problems [1]. It will help to create right kind of user awareness program to increase the computer security level.

II. LITERATURE REVIEW

Trevino, et al. (1999) in their survey paper *Managing Ethics and Legal Compliance: What works and what hurts* mentioned about the survey conducted in 6 large American organisations. The employees were told to respond on 5 point scale, with '1' as 'Strongly Disagree' and '5' as 'Strongly Agree'. One of the items is 'Employees awareness of ethical/legal issues at work'. In the survey ethical and legal issues were combined in the same statement. The main findings of the survey were higher unethical/illegal behaviour and lower awareness of ethical/legal issues among employees [2].

Post and Kagan (2006) in their research paper *The Efficacy of Emphasizing a Legal System Approach to Computer Security* mentioned about the survey conducted through online questionnaire method. The objective of the survey was to find out the awareness level about computer security legal issues among legal participants. The sample size was 89. The main findings of the survey were,

(a) Most of the legal participants felt they had low computer security knowledge.
(b) It was not necessary for potential jurors to be aware of different computer security laws.
(c) Only few respondents had any computer security case experience.
(d) As per the respondents, laws could be a deterrent for computer crime.
(e) Most of the respondents were neutral or negative on the fairness of trial in the current situation [3].

D'Arcy, et al. (2009) in their research article *User Awareness of Security Countermeasures and Its Impact on Information Systems Misuse: A Deterrence Approach* explained deterrence theory model. They tested the model with the help of survey instrument. The sample size is 269 computer users. The main findings of the study were

(a) Awareness about the presence of security policy among employees reduces the chances of misuse of information systems in an organisation.
(b) Awareness about the presence of security policy among employees was also a main deterrent to information system mistreatment plus it creates a fear of punishment.
(c) Awareness about security policy also informs the employees about information technology in general [4].

Zhang, et al. (2009) in their research paper *Impact of perceived technical protection on security behaviors* mentioned about the survey conducted to find out the effectiveness of policies through "Perceived security protection mechanism is positively related to perceived behavior control" statement. The respondents were told to rate on 7 point Likert scale. The sample size is 176. The main finding of the survey was "The existence and effectiveness of technical support enables greater policy compliance by end-users" [5].

Liang and Xue (2010) in their research paper *Understanding Security Behaviors in Personal Computer Usage: A Threat Avoidance Perspective* mentioned about the survey conducted to understand personal computer users' behaviour relating to information technology threat avoidance. The computer users comply with information technology policies. An online questionnaire method was used. The sample size was 152 business students. As per the survey, a negative interaction was found between perceived threat and safeguard effectiveness. The survey mentioned about the significant links between avoidance motivation and perceived threat as well as avoidance motivation and safeguard effectiveness. The survey also found that when safeguard was very effective, then the motivation of the user to avoid threat was lower [6].

Mensch and Wilkie (2011) in their research paper *Information Security Activities of College Students: An Exploratory Study* discussed about the descriptive research survey conducted to understand the information technology security awareness level among students. The online survey was conducted and analysis was done through SPSS Statistical Package. The sample size was 2,000 students of mid-sized colleges of Eastern University, United States.

The main findings of the above mentioned survey were:

(a) Highest security attitude score among students between 18 to 23 years old was disclosed.

(b) Lowest security attitude score was revealed among students between 24 to 30 years old [7].

III. OBJECTIVE

The main objective of the research paper is to understand the attitude of youth towards computer security.

IV. MATERIALS AND METHODS

The sample size is 227 respondents and questionnaire method was used. The Descriptive Analysis like Mean, Standard Deviation and Percentages plus T-test were computed.

One-Way ANOVAs were used to discover if there were no significant differences in the observed mean opinion and the expected mean opinion of respondents belonging to different computer user levels. The different computer user levels are novice, average, advanced and expert users.

V. HYPOTHESIS

H_o: There are no significant differences in the observed mean opinion and the expected mean opinion of respondents on the following different statements relating to attitude towards computer security:

1. I can protect my computer from harm (hackers, phishers etc.) if I take good care of computer security (change passwords on a regular basis, use firewalls, encryption etc.).
2. It does make a difference if I pay special attention to computer security, such as installing a browser that is less vulnerable (e.g. Apple's Safari, Firefox) instead of using Internet Explorer).
3. The information that I keep on my computer is not interesting enough for people to try and hack into my computer.

4. I never download software from the web for which I did not pay (free downloads), and which cannot be downloaded from a secure site.
5. It does not matter what I do; if people have bad intentions they will be able to hack into my computer and our network.
6. Attention to computer security is needed, but people should not overreact.
7. I do not like to use the Internet for financial transactions.
8. Computer security worries me.

VI. RESULTS AND DISCUSSIONS

The overall analysis are:

1. Expert users are 40% of the sample.
2. Fifty-four percent of the respondents agree to protection of computer/s from hackers.
3. Fifty-two percent of the respondents agree to special attention to computer security.
4. Thirty-seven percent of the respondents disagree to interest of hackers in respondents' data.
5. Forty-four percent of the respondents disagreed to the statement, "I never download software from the web for which I did not pay (free downloads), and which cannot be downloaded from a secure site".
6. Twenty-nine percent of the respondents disagreed to the statement, "It does not matter what I do; if people have bad intentions they will be able to hack into my computer and our network".
7. Fifty-one percent of the respondent agreed to the statement, "Attention to computer security is needed, but people should not overreact".
8. Fifty-five percent of the respondents disagree to non usage of internet for financial transactions.
9. Sixty-two percent of the respondents agree to computer security worries.

One-sample t-test was conducted and the table I shows the output of the same. One column H_o i.e. Null Hypothesis is added in the table at 5% significance level stating whether the null hypothesis is accepted or rejected for the respective computer security related statement.

Only one statement is accepted. So, there are no significant differences in the observed mean opinion and the expected mean opinion of respondents on the following statement relating to attitude towards computer security is:

It does not matter what I do; if people have bad intentions they will be able to hack into my computer and our network.

All the other statements related to attitude towards computer security are rejected.

One-way Anova was conducted on computer user levels. One column H_o i.e. Null Hypothesis at 5% significance level is added in the table II. All the statements are accepted except two. So, there are significant differences in the observed mean opinion and the expected mean opinion of respondents on the

computer user levels on the following different statements relating to attitude towards Computer Security:

1. I never download software from the web for which I did not pay (free downloads), and which cannot be downloaded from a secure site.

2. I do not like to use the Internet for financial transactions.

TABLE I: ONE-SAMPLE T-TEST

	T	DF	SIG. (2-TAILED)	MEAN DIFFERENCE	95% CONFIDENCE INTERVAL OF THE DIFFERENCE LOWER	95% CONFIDENCE INTERVAL OF THE DIFFERENCE UPPER	H_o
Protect Computer from harm	21.028	226	.000	1.145	1.04	1.25	Rejected
Pay attention to computer security	10.440	226	.000	.696	.56	.83	Rejected
Information on computer not interesting	-2.891	226	.004	-.229	-.39	-.07	Rejected
Never download SW from Web	-5.289	226	.000	-.374	-.51	-.23	Rejected
It does not matter what I do	-1.852	226	.065	-.145	-.30	.01	Accepted
Attention to computer security is needed	4.685	226	.000	.317	.18	.45	Rejected
I do not like to use Internet for financial transactions	-8.805	226	.000	-.568	-.70	-.44	Rejected
Computer security worries me	13.587	226	.000	.731	.63	.84	Rejected

The header of Table I spans "TEST VALUE = 3" over T, DF, SIG. (2-TAILED), MEAN DIFFERENCE, LOWER, UPPER.

TABLE II: ANOVA BY COMPUTER USER LEVELS

		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.	H_o
Protect Computer from harm	Between Groups	3.091	2	1.546	2.322	.100	Accepted
	Within Groups	149.111	224	.666			
	Total	152.203	226				
Pay attention to computer security	Between Groups	1.823	2	.911	.902	.407	Accepted
	Within Groups	226.204	224	1.010			
	Total	228.026	226				
Information on computer not interesting	Between Groups	.111	2	.056	.039	.962	Accepted
	Within Groups	321.977	224	1.437			
	Total	322.088	226				
Never download SW from Web	Between Groups	9.815	2	4.907	4.444	.013	Rejected
	Within Groups	247.357	224	1.104			
	Total	257.172	226				
It does not matter what I do	Between Groups	.107	2	.053	.038	.963	Accepted
	Within Groups	316.096	224	1.411			
	Total	316.203	226				
Attention to computer security is needed	Between Groups	.681	2	.340	.325	.723	Accepted
	Within Groups	234.482	224	1.047			
	Total	235.163	226				
I do not like to use Internet for financial transactions	Between Groups	6.780	2	3.390	3.670	.027	Rejected
	Within Groups	206.912	224	.924			
	Total	213.692	226				
Computer security worries me	Between Groups	.519	2	.260	.393	.676	Accepted
	Within Groups	148.089	224	.661			
	Total	148.608	226				

VII. CONCLUSIONS

Majority of the respondents are worried about computer security and would like to use internet for financial transactions. The respondents have taken risk of downloading software/s from unsecured site/s. They feel hacker/s will always find ways of hacking, if they want to. Therefore it is the intention or attitude of the people with

negative minds to attack computer systems while the users and employees working in information technology department have to take precautionary measures to protect the computer systems. The organisations can accordingly modify their policies and strategies for better security of systems. They can also change the points in computer user awareness programs for better security of systems. The planners can design different awareness programs for different computer user levels.

VIII. REFERENCES

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