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NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

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CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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A STUDY ON SECURITY THREAT AWARENESS AMONG STUDENTS USING SOCIAL NETWORKING SITES, BY APPLYING DATA MINING TECHNIQUES

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ABSTRACT

In an era of technology with increasing number of smart gadgets and decreasing cost of internet service has led people to interact in virtual worlds, universally known as social networking sites. Sites like Facebook, Twitter, LinkedIn, Hi5, Myspace, etc., have made use of internet as a communication point which surpassed the traditional communication platform of the real world. The ease of sharing information in the field of education, social and professional had made it still more popular. Seventy five per cent of internet users in India are in the age group of 15-34. Adding to it the young population all over the world see it as a newest online trend to express all their feelings, emotions, humiliation, sadness and joy in the form of post, tweet, status, videos, pictures, etc without considering the aftermath of their actions. The objective of this paper is to throw lime light on user's perception of security and privacy when interacting in Social Networking Sites [SNS] with respect to students in Tiruchirappalli, Tamil Nadu, India. This paper concludes with the set of guidelines for social networking users to recognize the threats and methods to devoid the same.

KEYWORDS

security threat awareness, social networking sites.

INTRODUCTION

In an era of technology with increasing number of smart gadgets and decreasing cost of internet service has led people to interact in virtual worlds, universally known as social networking sites. Sites like Facebook, Twitter, LinkedIn, Hi5, Myspace, etc., has made use of internet as a communication point which surpassed the traditional communication platform of real world. The ease of sharing information in various fields like education, social issues, job related issues and entertainment had made it still more popular. Seventy five per cent of internet users in India are in the age group of 15-34. Adding to it the young population all over the world see it as a newest online trend to express all their feelings, emotions, humiliations, sadness, and joy in the form of posts, tweets, status, videos, pictures etc., without considering the aftermath of their actions. The objective of this paper is to throw lime light on user's perception of security and privacy when interacting in social networking sites [SNS] with respect to students in Tiruchitappalli. This paper concludes with the set of guidelines for social networking users to recognize the threats and methods to devoid the same.

Facebook launched its app centre thus expanding their operations worldwide with the ultimate aim to reach a large number of Facebook users. When they grow their business they also cause havoc to users by bypassing the privacy settings of millions of users, recent example shows how Google breached the privacy of apple users by denying the users request to reject cookies. As a result of which Google paid \$22.5 million as a settlement charge. In spite of these issues, online social networks drive the youths crazy.

Famous twitter "onmouseover" attack on September 2011 would have not been forgotten by many of us. Though the vulnerabilities were patched, sensible security has been lost. but records show that twitter has surpassed half billion users in the month of July 2013.

REVIEW OF STUDIES

A social networking service is an online service that focuses on facilitating the building of social networks or social relations among people who share their interests, activities, backgrounds, or real-life connections. A social network service consists of a representation of each user (often a profile), his/her social links, and a variety of additional services. Most social network services are web-based and provide means for users to interact over the internet, such as e-mail and instant messaging. Social networking sites allow users to share ideas, activities, events, and interests within their individual networks. The top 15 most popular social networking sites as derived from ebizmba rank which is a constantly updated average of each website's alexa global traffic rank. [8]

Virpi Kristiina Tuunainen et al [2009] has done his research work with special reference to Facebook. It claims that Facebook privacy policy terms and policy regarding third party applications are not lucid to be understood by the users. Further users are not aware of who can really see their profile and their information. Empirical study on 210 users was made with two perspectives. One is privacy protection and other is information disclosing. [1]

Latisha Asmaak et al [2011] has conducted survey on 164 users who use online social networks like Facebook, MySpace, LinkedIn, Friendster, YouTube, twitter, etc. This study claims that Social networking sites are no longer a niche phenomenon but a mass adoption by teenagers. Though the users are concerned about privacy they are willing to trade their privacy for something beneficial like getting themselves connected to online social network. Creation of multiple fake accounts, using aliases, deleting wall posts and photo tags, violating the privacy of others is done by students so as to protect their privacy. Thus they misuse the objectives of their social network sites, which are meant to promote transparency and improve communication. [2]

Maria Patricia M. Revilla [2011] also contributed her research on privacy issues of the world's largest networking site Facebook. The paper deals in elaborately on how attackers use their social intelligence in alluring Facebook users. It starts with inviting for a fake event, click jacking, money mule, credit card spam's, etc. Melissa de Zwart et al (2011) deals about the potential legal risk faced by Australian children and young people while interacting in online social networking services (SNS). It states that privacy, disclosure and breach of confidence, intellectual property rights, defamation and criminal laws [including harassment and offensive material] are the main areas of the law that give rise to possible legal liability for young people using online social networking services (SNS). Respondents convey that online social networking service is the less expensive way to keep in touch with their friends. [3]

Ho Keung Tsoi et al [2011] research reveals the effect of culture variables on users' privacy concern, user's motivation, actual usage, overall attitudes and future behavior intentions and trust in SNS with special reference to Hong Kong and French SNS users. It found that French users have higher privacy concern.

With propagation of web 2.0 novel technologies, the threats also proliferate in proportion with it. It is not arduous to understand this pertaining scenario. The paper on ICICTE 2012 proceedings by Riaan Rudman et al [2012] has humongous facts. It is specific to South African university students. They use either of the ways to interact with web 2.0 services namely Information sharing sites, video sharing sites, podcast sharing sites, photo sharing sites, general sharing sites, software applications, online communication and social networking sites. [4]

Despo Ktoridou et al [2012] research paper is all about users perception of the security and privacy risks while using social networking sites targeting the Cypriot youth population. The paper also warns how these social networking providers become digital big brothers. Knowingly or unknowingly users are mislead and their profile information are stored by third party. These data are then used for tailor made advertisements, social engineering attacks, sometimes which create havoc in personal life. The paper concludes that the users are ignorant of how their personal information are utilized by money minded software giants. [5]

Husein Osman Abdullahi et al [2012] of Malaysia has conducted research on social networking sites privacy and security among IIUM students. Online social networks like Google+, Facebook, and Twitter are considered. The astonishing finding of the research is 91.9% students [160 samples] use face book. This shows how students are attracted towards it. 88.1% students use it as a mode to communicate with their friends. Among the 160 samples 60.6% students have their

photographs in their social network profile. The research shows that active online social network users are not aware of their privacy and security in online environment.[6][7]

DATA MINING

Data mining refers to extracting or “mining” knowledge from large amounts of data. Data mining is the process of extracting information from a data set and transform it into an understandable structure for further use. Data mining is a step in the process of knowledge discovery. [11]

These are the major steps in data mining Process:

1. Data cleaning
2. Data integration
3. Data selection
4. Data transformation
5. Data mining
6. Pattern evaluation
7. Knowledge presentation.

OBJECTIVE

- To examine student’s perceptions on privacy and security risk when connecting with online social networking sites
- To check the present level of security awareness prevailing among students
- To identify time spent by students on social networking sites

NEED FOR THE STUDY

- The Research project brings out the level of security awareness existing among students who use social networking sites.
- It throws light on users perceptions regarding social networking sites.
- The study has led a different insight towards online social networking sites for students.
- The study is devised to give vital guidelines for safe and threat free online social networking.

SCOPE OF THE STUDY

The scope of the study is restricted to Students from Tiruchirappalli district, Tamil Nadu, India. So the results will fit for two Tier cities and can’t be used for other tier three cities. With given constraints only 130 respondents were been covered.

SAMPLE SIZE

A quantitative approach was employed for the purposes of this study, using questionnaires as the main method of data collection. Purposive Non Probability sampling method is used. Because the study only targets the college students, samples were taken from colleges in Tiruchirappalli . Students of various discipline like B.E, M.E, M.B.A, B.B.A, B.COM etc was given questionnaire and the data was collected. A total of 130 questionnaires were given to respondents out of which 125 was returned. Among 125 only 114 used social networking sites and the upcoming entire analysis is done on these 114 respondents.

DATA ANALYSIS AND FINDINGS

TOOL USED

SPSS is a software package used for statistical analysis.^[20] SPSS is a comprehensive and flexible statistical analysis and data management solution. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts, plots of distributions and trends, descriptive statistics, and conduct complex statistical analyses.

Weka is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes. [12]

DISCUSSION

TABLE 1.0: GENDER AND SNS INTERACTION THROUGH MOBILE-CROSSTAB

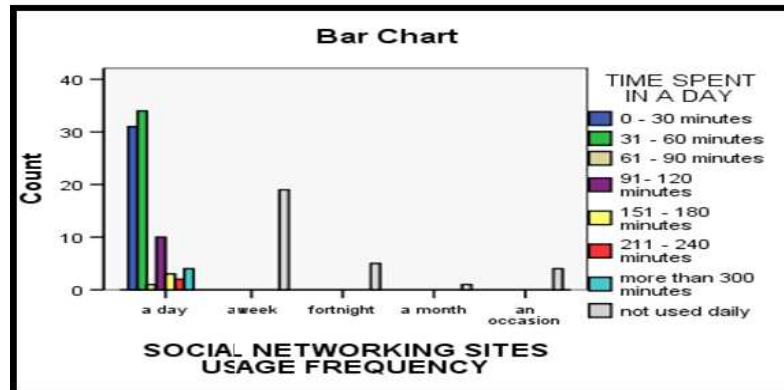
Do you access your social networking site via mobile phone? * GENDER OF THE RESPONDENT Crosstabulation

			GENDER OF THE RESPONDENT		Total
			male	female	
Do you access your social networking site via mobile phone?	yes	Count	34	28	62
		Expected Count	28.3	33.7	62.0
		% within Do you access your social networking site via mobile phone?	54.8%	45.2%	100%
		% within GENDER OF THE RESPONDENT	65.4%	45.2%	54.4%
		% of Total	29.8%	24.6%	54.4%
	no	Count	18	34	52
		Expected Count	23.7	28.3	52.0
		% within Do you access your social networking site via mobile phone?	34.6%	65.4%	100%
		% within GENDER OF THE RESPONDENT	34.6%	54.8%	45.6%
		% of Total	15.8%	29.8%	45.6%
Total		Count	52	62	114
		Expected Count	52.0	62.0	114.0
		% within Do you access your social networking site via mobile phone?	45.6%	54.4%	100%
		% within GENDER OF THE RESPONDENT	100%	100%	100%
		% of Total	45.6%	54.4%	100%

We sampled 114 students and used chi square test as goodness of fit test. The alternative hypothesis [$\chi^2 [1] = 4.66, P < 0.05$] was accepted. Out of 62 females 28 used mobile for accessing their social networks and out of 52 males 34 used mobile for accessing their social networks. It seems that more than 54% of males use mobile for interacting SNS. Out of 62 females 28 used mobile for accessing their social networks and out of 52 males 34 used mobile for accessing their social networks. It seems that more than 54% of males use mobile for interacting SNS. More male users access SNS through their mobiles. The 66.1 % who use SNS through mobile are vulnerable to social engineering attacks, because many internet banking facility, ATM card number and other valuable details may be stored in mobile. When the users without awareness or precautions use Third Party Applications, there are possibilities that they may fall as a prey to existing mobile phone scams. They might get themselves registered to sites they are unaware of, and shed off money as subscription fee which is not useful.

SNS USAGE AND TIME SPENT IN A DAY

FIGURE 1.0



The histogram below shows that 74.6% students are using social networks daily. Thus students are much allured to the use of social networks. It seems to be an addiction of using the site daily. Among the 74.6% of daily users there are 28.1% who use SNS daily for at least between 30 minutes to 1 hour followed by 28.95% of users who use SNS daily at least between 1 hour to 2 hours. It depicts they are spending more than 8.3% of their time in a day. The 25.44% of total 114 doesn't use SNS daily. The 74.6% [N=85] users are using SNS daily, 16.7% users are using it once in a week followed by users who use SNS once in a month [0.9%], fortnight [4.4%]. It depicts that they are spending more than 8.3% of their time in a day.

MANJOR FINDINGS

- Out of 125 samples selected 114 had an account in any of the social networks. So SNS has greater number of users. [114 out of 125].
- Out of that 114 users, 22 users account has been hacked which count to nearly 19.3%.
- There is a no significant association or difference between the gender and profile hacking [SNS]. Both genders have faced the hacking problem.
- 25.44% doesn't use SNS daily. Out of the 74.6% of daily users there are 28.07% who use SNS daily for at least between 30 minutes to 1 hour followed by 28.95% of users who use SNS daily at least between 1 hour to 2 hours. It depicts they are spending more than 8.3% of their time in a day.
- There are 64.1% FACEBOOK users; this shows how popular it is. Then 15% users use TWITTER, 12% users use LINKEDIN. The list follows by 1.2% MYSPACE users, 1.8% Hi5 users and 6% users use others SNS like GOOGLE+, ORKUT, etc.,
- There is more number of students who use face book daily and spent their time. There are 30.8% face book users who spend their time minimum 30 minutes and maximum of 1 hour and 2.8% Facebook users spend more than 300 minutes, approximately more than 5 hours
- Female [67.7%] only share information with people they know, whereas males [28.8%] share all their information with people whom they don't know.
- Most of the SNS users have a greater concern towards their security.
- Most of the users don't believe that third party applications are legitimate. It shows they are aware of the havoc that a third party application is about to bring
- More male users access SNS through their mobiles and they also use third party games.
- Both the gender is unaware of information that a TPA application uses from their profile.
- Users never accept request from strangers
- 52.6% users have not read the SNS privacy policy statements, 41.2% has read the SNS privacy policy statements and 6.1% has reported that they are not aware of such privacy policy.
- Out of 62 females 28 used mobile for accessing their social networks and out of 52 males 34 used mobile for accessing their social networks. It seems that more than 54% of males use mobile for interacting in SNS. More male users access SNS through their mobiles
- The 66.1 % who use SNS through mobile are vulnerable to social engineering attacks, because many internet banking facility, ATM card number other valuable details may be stored in mobile. When the users without awareness or precautions use third party applications, there are possibilities that they may fall as a prey to existing mobile phone scams. They might get themselves registered to sites they are unaware of, and shed off money as subscription fee which is not useful.
- The TEST being conducted is MULTIPLE REGRESSION. This is done to test whether the blocking of profiles by SNS users have any relation with SNS usage frequency, revealing information on SNS, displaying birthday, home town, contact number, mail id, photos. The results show that, there is positive standard regression co-efficient for the predictors: Revealing information on SNS, Displaying home town, Displaying contact number, and Uploading photos. There is negative standard regression co-efficient for the predictors: SNS usage frequency, Displaying birthday, Displaying contact mail id. So there is a number of relation between the blocking of profile from public searches and SNS usage frequency, Displaying birthday and mail id. And there is a strong relation between the blocking of profile from public searches and Revealing information on SNS, Displaying home town, contact number and uploading photos, but the significance between the dependent variable [profile block from public searches] and independent variable [contact variable displayed on SNS] is very strong due to the significance level which is very less than 0.05. Thus, there is a strong relation between them, so when a person has his/her number on their profile they tend to block their profile from public searches.

SUGGESTIONS

The increased number of SNS users and the amount of personal information that is posted are humongous. The social networking world is full of valuable and at the same time useless amounts of information. It is also important for the users to safeguard from the potential security risks and learn precautions that help to protect themselves and their information. Before revealing or posting any sensitive information one has to take utmost care and be aware of the consequences it may bring forth. So before you take any action on SNS be cautious and think wisely. It is recommended to read social network sites- privacy policy, terms of conditions and other relevant documents. If user is not convinced or comfortable they may terminate the use of such SNS. It is always good to prevent any

havoc than to mitigate it after it has occurred. SNS seems to be trustable with their reporting tools such as 'Mark as Spam', 'untagged or report abuse' and 'Report/Block this Person'.

As a preventive measure to the above mentioned threats it is necessary to have the user education about importance of privacy of personal data, tagging photos, provide information the user is perfectly comfortable with, should add only the people whom user knows or trust. Some cases user shouldn't add anyone new or strange in the contacts as friend because they may be having access to maximum information of the user which can be later misused, TPA used through mobile should not be allowed to access contact or other details from mobile. It is better for user to avoid fraudulent accounts. Mandatory fields like UID, PAN, Driving License No. etc., Can be asked and it should be crosschecked with the government database. The privacy policy should be in lay man terms so they are easily understandable, so that SNS creators should give a think over that.

CONCLUSION

SNS are used worldwide. It paves way to synchronize oneself to the pace of the tech world. The current research concludes that many of the SNS users are aware of security and privacy risks. They have their dates of birth, contact number, contact mail id, photo in their profiles. But few others are ignorant of how their personal information will be gathered, used and shared by both the social networking sites and third party applications. Adding fire to fuel few SNS users have also encountered hacking of their profile. Even the users sometimes find inappropriate TAGS of them. Third Party Administration (TPA) often get automatically subscribed and sends unwanted mails which are only junks filling the inbox, but it is not good to blame SNS or third party application, so the best way to protect oneself is by following the above precautionary methods to have a safe and enjoyable online social networking experience.

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