

# Analysis of Threats Posed by SNSs with Reference To Level of Its Awareness among People

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## ABSTRACT

With an easy availability of internet and growing awareness about the uses and facilities provided by the social networking sites, not only youth but people of all ages are getting attracted towards these social networking sites. Though the awareness about the use and facilities is increasing but the awareness about the threats posed by these social networking sites to the safety and security of the user and the measures to safeguard oneself from these threats are still lacking. The SNS providers have also made the process of signing into these sites a very easy task but understanding their privacy settings is not a child's play. People, in a wish to know people of diverse cultures and many only in a wish to increase the number of friends in their friend list keep on accepting friendship requests from unknown people. While doing so, most of the time they are unaware that this small act may make them a victim of cyber crime. In order to protect users of SNSs from cyber crime, efforts are required to be made both by SNS providers and users of SNSs. SNS providers can make privacy settings more user friendly and can create awareness about use of privacy settings.

**Keywords**-Social Networking sites, awareness, virtual world, cybercrime, user friendly and Privacy

## I INTRODUCTION

Social networking sites provide a virtual world where people can meet their friends, relatives and even more than billions of unknown people at the place of their convenience and at any time of the day. Along with the benefit of instant communication one can also remain updated about various trends in society through SNSs. Humans are social animals and social networking sites have made it very easy for them to pursue their social lives. In today's fast moving world, no one has time to visit all their friends at their places. SNSs provide a one step solution to the problem of shortage of time and growing distances. All you have to do is to create an account on SNS and you can get all updates about friends and relatives at your place. While enjoying the benefits of

SNSs one should not forget about various threats SNSs may pose to their security. One should think twice before performing any action on SNSs as that action may facilitate cyber crime. SNSs provide various privacy setting options using which the chances of cyber crime can be reduced to a large extent. Some of the widely used social networking sites are Facebook, Twitter, Instagram, Snapchat etc.

Number of users active on social networking sites in rapidly increasing. As per a report by Dave Chaffey, in Global social media research summary 2018, facebook had largest number of active users i.e. over 2 billion users followed by youtube and then whatsapp.

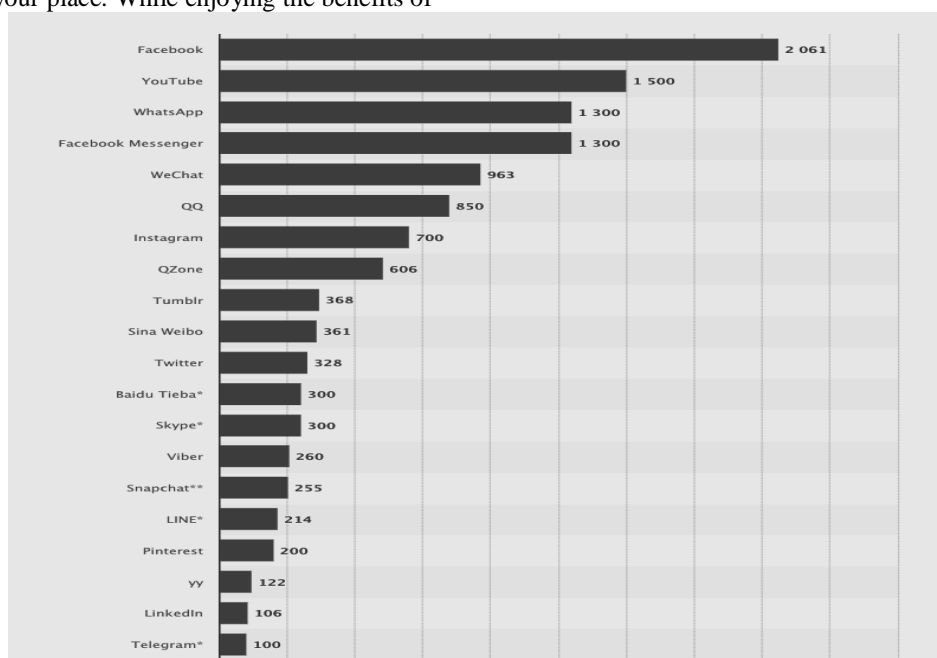


Fig. 1: Source: Global social media research summary 2018

Fig. 1 shows number of users active on some of the most popular social networking sites. QZone, Instagram, QQ, WeChat, all had above 6 million users.

Facebook is an American Social Networking Site based in California. It was founded on 4 February, 2004 and its founders were Mark Zuckerberg, Eduardo Saverin, Andrew McCollum, Dustin Moskovitz and Chris Hughes. Initially the membership for facebook was limited to only Harvard students.

Twitter is a social networking site where people can interact with each other through messages called tweets. It is based in San Francisco and has more than 25 offices all over the world. It was founded on 21 March, 2006 by Jack Dorsey, Noah Glass, Biz Stone and Evan Williams. The website became popular very quickly and was given a title "SMS of the Internet".

Instagram is an application widely used for sharing photographs and videos either publically or to certain followers who have been approved to view the posted content. It was founded on 6 October, 2010 by Kevin Systrom and Mike Krieger. Its ownership is with Facebook.

Snapchat is an application for sharing photographs created by Evan Spiegel, Bobby Murphy, and Reggie Brown and was released in September, 2011.

## II LITERATURE REVIEW

**Mafaisu Chewae, Sameer Hayikader, Muhamad Hairulnizam Hasan, Jamaludin Ibrahim(2015)** have reported that communication and interaction have become a very easy task due to development of technology and growing awareness about social networks. They believe that people are concerned about their privacy on social networking sites.

**Dr. Saswati Gangopadhyay(2014)** found that people of age between 15 and 25 are active users of social networking sites. For them social networking means some of the widely used social networking sites like facebook, instagram etc where they can find friends and can interact with them 24\*7. Mobile phones are a great back up for this 24\*7 trend. They do not hesitate in sharing their private information with even unknown people on these social networking sites. Hence, awareness needs to be created amongst them in order to prevent cyber crime.

**Aamir Suhial (2015)** stressed that there is a need to protect personal information of user of SNSs and highlighted that a new privacy system should be developed and it should be supported by mobile internet devices. According to him, in order to secure private information of user of SNS, some trust factor

algorithm should be used to check history of person sending friend request to existing user of SNS.

**Roshan Jabee and M. Afshar Alam(2016)** are of the view that there should be some default settings of Facebook to avoid cyber-attacks and disclosure of user's personal information publicly. As per their report, 92% users of facebook are students. Out of total users of facebook 77.05% are satisfied with its default settings but still are of the view that the default settings can be improved further. 49% users have complete faith in privacy settings of facebook and 40% do not have any trust. And 24% users have experienced privacy breach while using facebook.

**Abhishek Kumar, Subham Kumar Gupta, Animesh Kumar Rai, Sapna Sinha(2013)** have suggested solution to security issues of social networking sites. According to them, complete knowledge on part of the user is the only solution. They have suggested that one should be careful while making friends on social networking sites and while posting their personal information. They have also put forward architecture for secure communication between the users and secure request-response architecture for exchange of information between the users.

**Wajeb Gharibi and Maha Shaabi (2012)** are of the view that, although social networking sites are providing advanced technology to facilitate communication and interaction but attention is still required towards the matter of privacy and security issues raised by these social networking sites. They believe that new type of security risks are raising along with advancement of technology. They suggest that information security professionals, government officials and other intelligence agencies should develop new tools in order to prevent and adapt to the future potential risks and threats.

**Vinod L. Mane and Kalyan D. Bamane** reported that with development of technology, world is coming together through technology. But it is bringing with it its own drawbacks. Information becomes available to people who are not trustworthy and health social networking sites are also playing a great role in providing personal information about people. They suggest that in order to safeguard oneself from becoming victim, one should be careful while sharing information on social networking sites.

**Amitha C.A. and Dr.Sr.V.J.Kochuthresia (2016)** have concluded in their study that, pattern of interaction of students with their family changes when they use SNSs. They confirmed that that 52% of students are using SNSs for two or more which is hampering their daily activities. As per their study 57% of students are not even aware of the security and privacy. Concerns associated with use of SNSs. In view of above situation, they have suggested that awareness about security and privacy concern and danger that are associated with pleasure of using

SNSs should be created by school authorities through training and awareness programmes.

**Prof. Biren Patel and Viraj Kothari(2017)** have stressed that end, having proper knowledge about the ways in which one can be fooled on social networking sites is the only solution to the problems related to security and privacy on SNSs. They have suggested remaining alert while performing any activity on SNSs. Moreover, they have put forward an architecture for secure communication between the users and secure request response architecture for exchanging information between users.

**L.S.Y. Dehigaspege, U.A.A.S. Hamy, H.A.H. Shehan, S.A. Dissanayake, H.P. Dangalla, W.H.I. Wijewantha and Dhishan Dhammearatchi(2016)** have introduced an algorithm to prevent the cyber-attacks by making use of voice recognition methodology for login and CAPTHAs to identify the spam bots. They have also suggested that location from where SNS is being accessed should be located using GPS.

### III HISTORY OF SOCIAL NETWORKING SITES

Idea of having a platform where people could meet their friends, relatives and even strangers in a virtual world can be traced back some 21 years when Andrew Weinreich launched a SNS called SixDegrees in 1997. It allowed people to add friends and relatives to a list. The site gained popularity at a very fast pace. This is evident from the fact that almost a year after the launch of the site, it had more than 1 million users and that too in an area where not many people were online and the idea of making friends with strangers was not much acceptable. In spite of all this, the site could not maintain its popularity for long and had to be shut down in 2001. According to Andrew Weinreich, the reason behind the failure of Six Degrees was the fact that it was ahead of its time.

After the shutdown of Six Degrees, the next SNS that attracted attention of a huge mass of population was Ryze.com. It was launched in 2001. Adrian Scott was its creator. It was launched with an aim to link business professionals, especially new entrepreneurs.

Between 1997 and 2001 many other SNSs were also launched like Asian Avenue, Live Journal, LunarStorm, Black Planet, MiGenete, CyWorld etc.

Soon after the success of Ryze.com, in 2002 a new SNS came up in the market. It was Friendster, founded by Jonathan Abrams. It is a social gaming site but initially it was a social networking service website. Ryze.com had a great influence on Friendster.com.

Then came MySpace to join the league of popular SNSs. It was founded by Chris DeWolfe, Tom Anderson and Jon Hart on 1 August, 2003. It allowed users to connect with friends, read blogs, share photos and videos on a user-submitted network.

After MySpace, Orkut was founded in 2004. It was developed by Orkut Büyükkökten. It allowed users to make friends with people all around the world. Features and outlook of Orkut has changed many times over time in order to make it safer and more user friendly.

After Myspace, Facebook came up as a turning point in the history of social networking sites. It came up as one of the most user friendly SNS where one could connect with friends, relatives, and strangers and can remain updated about people in their friend list. Users can join groups of users having common interest and can get updates about topics of their interest. It was founded in 2004 by Mark Zuckerberg, Dustin Moskovitz, Eduardo Saverin, Andrew McCollum, Chris Hughes.

Since the launch of Six Degrees, many developers have been inspired to develop sites where users can connect to people all over the world and the trend is still continuing. Almost every day one can come across a new social networking site. Though, the level of reliability of those SNSs varies from site to site.

### IV THREATS POSED BY SOCIAL NETWORKING SITES

Threats posed by social networking sites are generally classified under 4 categories:

- (a) **Threats related to privacy of the user**
  - (i) Generally, users do not hesitate in sharing their photographs on social networking sites. Using these photos, criminals can peep into the lives of the user and collect information about them using face recognition technology.
  - (ii) Using Content Based Image retrieval, location of the user can be identified. This can encourage stalking, undesirable marketing, blackmailing and much more.
  - (iii) Using the tagging feature provided by social networking sites, an adversary can harm the image of well known personalities by tagging them in pictures with which they do not control.
  - (iv) Some of the information or comments posted by the user on the SNSs can never be deleted. This can work as a digital dossier.
- (b) **Threats from SNS variants of traditional network and information security threats**
  - (i) Spamming on social networking sites may create traffic overload. This may lead to loss of trust in that site and can lead to phishing and diversion of user's attention to pornographic sites.
- (c) **Threats to identity of user**
  - (i) Phishing is a process in which a person disguises himself as a legitimate entity and tries to obtain sensitive information using false mails. Such false mails will generally

direct the user to visit some website where they will be asked to fill in some of their personal information which is captured and exploited.

- (ii) Leakage of personal information is also a great threat.
- (iii) Fake profiles can be created to impersonate a person and damage his reputation. This is called profile squatting.

**(d) Social threats**

- (i) Information shared by users on social networking sites can be used for stalking on the user.

## **V REMEDIES AGAINST THREATS POSED BY SNSs**

- (a) Users of SNSs should spare time to understand privacy settings of the site they are using and should set them as per their requirement before performing any action on SNSs.
- (b) Users should avoid posting sensitive information on SNSs as such information is already known to their friends. But posting it on SNSs may attract adversary.
- (c) Users should protect their account with a strong password and keep changing it from time to time.
- (d) User may also link their account on SNSs with their email ID.
- (e) One should avoid adding people to their friend list who are not known to them.
- (f) Campaigns to create awareness should be launched in educational institutions.

- (g) Legislations should be made to make it compulsory for SNS to provide strong inbuilt privacy settings.

## **VI METHODOLOGY**

The present study is exploratory in nature. For the purpose of research, existing literature on the topic was extensively analysed. Secondary data was collected from various websites in form of research papers and reports on related topics. Various keywords related to the topic were used for this purpose. Downloaded research papers were subjected to qualitative analysis using Qualitative Data Analysis software NVivo 11 by QSR international. Using this software text documents, audio files, spreadsheets, databases, digital photos, documents, PDFs, bibliographical data, web pages and social media data can be imported, sorted and analysed. The software was used to find area of topic in which not much research has been done and the area that deserves attention.

## **VII FINDINGS AND DISCUSSION**

Forty nine papers were imported in Nvivo plus software and were analysed using various tools. Word frequency query was run on these papers to find out 100 most frequently repeated words with their synonyms. Length of required words was set to 5 letters. Results of word frequency query in form of word cloud is as follows:



<b>using</b>	5	1404	0.50
<b>media</b>	5	871	0.49
<b>number</b>	6	1510	0.49
<b>online</b>	6	850	0.48
<b>concerns</b>	8	1324	0.45
<b>profile</b>	7	784	0.44
<b>access</b>	6	1033	0.44

Network, social and privacy are the most widely used words throughout the selected literature. Word 'awareness' has not occupied any position amongst the 20 top most frequently used words. This shows that in existing literature not much attention has been paid towards the aspect of level of awareness about privacy amongst users. Moreover, some research on the existing as well as desired settings in SNSs also deserves attention.

### VIII CONCLUSION

In an era where social networking sites are still evolving, trusting completely on SNSs is not recommended. Though SNSs provide various benefits but the threats posed by SNSs seem to be larger than benefits. If proper attention is not paid while using SNSs then it can lead to situations which could be even life threatening. One should remain very careful while using SNSs and it should not be used for passing time as it is being done these days. From the reviewed literature, it is clear that not many people are aware of the threats posed to their privacy by SNSs and not many pay heed to privacy settings of SNSs. Privacy settings of SNSs should be made user friendly and users should be made aware about them by posting videos about privacy settings on SNSs. Educational institutions should make efforts to reduce the influence of SNSs on minds of children and they should be made aware of risks posed by social networking sites.

Lastly, ones safety and security is his own responsibility. One should not forget that their every action counts and has consequences, whether good or bad. Rule for using SNSs is no exception to this general rule.

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