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DIGITAL SAFETY IN CYBERSPACE AND SOCIAL MEDIA USING AI AND ML

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ABSTRACT

Teenagers today have the ability to easily adopt social media and spend more time on it. This leads to illness, tension, depression, and mental illness. Hence, it is mandatory to make them aware of the risks and challenges in the environment and provide them with training in digital safety. This paper discusses the ease and pitfalls of social media. The information about how much time teenagers spend on social media and how much they are aware of digital safety is gathered through a Google form and analysed. This study suggests machine learning and artificial intelligence-based methods for improving digital safety.

Keywords: artificial intelligence, cyber space, digital safety, machine learning, social media

Introduction

Web-based technologies that assist in sharing information, beliefs, and views over the building of virtual networks and communities are known as social media (SM). People of all ages, share their personal information on social media from personal computers, laptops, iPads, and smart phones using social networks (SN) via the internet (figure 1). It is almost difficult to imagine life now without smart phones. Many of them spend their time watching videos, playing games, surfing, and chatting without knowing the risks to their security.
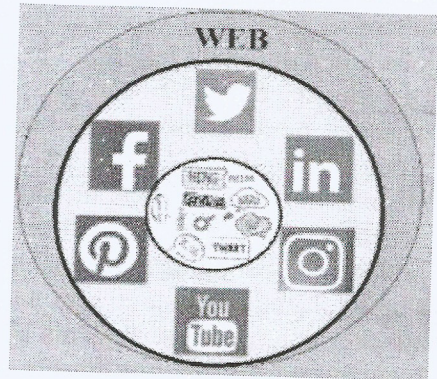
Artificial Intelligence (AI) and Machine Learning (ML) are the emerging technologies used to create intelligent systems. Social networking sites use AI and ML for monitoring people's activities on social media, predicting business plan and making people addicted. This paper, outlines the pros and cons of social media as well as making social media secure using AI and ML.

Figure 1

Advantages of Social Media

Social media connect people globally and allow them to share information instantly with a large audience. It helps to promote and advertise products for business people. Also, act as a new brand of ambassadors. It is one of the best entertainers. On social media, there are many communities assisting with financial support and counselling. It helps to update day-to-day information. Similarly, the government use these platforms for spreading public awareness. Students benefit by discussing assignments and tests; and teachers also use social media to support students in many ways.

Disadvantages of Social Media

Cyberbullying is the major disadvantages of social media. Anyone can send or threaten by sending rumours or prank messages and photos. It is very hard to trace because of fallacious social accounts. Phishing is a severe attack and many people are affected by it. Generally, hackers hijack social accounts and then threaten them with their personal information. Face-to-face interaction rapidly decreased. Unreasonably, spending more time on social media will affect health, so many of them get addicted. Social media can spread fake news globally to large audience without verification. Moreover, it causes many issues like depression, distraction in studies, sleepless nights, and loneliness.

Causes for security issues in social media

Common activities which leads to security issues are: forget to log out from social accounts, click malicious links, ads, mails etc., login to fake websites, connecting virtual private networks,

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downloading third-party applications without knowing its terms and conditions, and ...
passwords for various social accounts (Facebook, Instagram, twitter etc.) for a long p...

Role of AI and ML in social media

AI is a computer technology which simulates human behaviour on machines and is used to cre...
intelligent systems such as expert systems, natural language processing, and pattern recognitio...
is a subset of AI that enables to predict or take decisions by machine from past data (lea...
experience) without coding.

AI and ML are used in social media for monitoring malicious content and managing data, beha...
of consumers and their interests that helps to forecast current trends. In everyday life we hav...
some experiences without being aware of it. Some of the examples are facial recognitio...
showcasing advertising on Facebook, spam mail detection, junk call identification, link...
recommendations for job roles, etc. The use of AI in social media brings profit in cost-effective w...

Literature Study

Adams Oluwadamilola Kemi [1] has represented that Facebook, WhatsApp, YouTube, and Tw...
the most popular social networking sites, are examples of online communication tools. Some po...
outcomes from these technologies are educational and business activities organised via Faceb...
jobs found through LinkedIn. The negative sides of these social networking sites are Internet Ad...
Disorder and fraudulent activities on the internet. Rituparna Das [2] has stated that the rising po...
of social networking sites is becoming a significant area for cyber-crimes and terrorism to ac...
crucial information. The users should protect their personal information to avoid identity th...
misuse, and organisations should follow proper security measures to be cyber-crime safe.

Sehrish et al. [3] has showed that security and privacy can be achieved by educating the use...
privacy and using various security technologies. A user should be very careful about what he...
sharing. If the user shared his own identity, then it should be shared in an uneditable format so th...
attacker could not use it. Jenis Nilkanth Welukar [4] has pointed out that implementing AI in...
security enables organisations to understand prior threat patterns in the identification of nove...
This causes a conservation of time and effort in identifying and investigating incidents and re...
threats.

Hayri Uygun [5] has demonstrated that social media has been transformed by AI and it a...
consumer in more effective ways. AI closely monitors our activity and provides us with w...
need. Sattikar [6] has pointed that a better understanding of AI and ML will allow us to bette...
different systems with features similar to social networks, such as learning managemen...
digital libraries, promotion systems or consumer feedback systems for business. Ishfaq Ma...
specified that social media allows large numbers of individuals to share their information an...
specialised contact lists. However, sharing information and connecting with strangers ca...
security concerns, which have arisen as a result of our actions on social media.

Methodology

The primary objective of the research work is to find out information about how much tim...
spend on social media and how much they are aware of digital safety. For this purpose, data is g...
through a Google form and the results are analysed. Finally, this study concluded with ensu...
safety utilizing AI and ML.

The questionnaire is divided into three sections. The first section consists of name of the pe...
category (student, worker, retired person and others); the time spent on social media, and th...
activities (chat, mail, Facebook/twitter, online shopping, check weather, news, watchin...
gaming, and banking). The second section has the details about the social account...
networking sites. The third section has ten questions about the awareness about the digita...

Result and Findings

The first section contains the questionnaire regarding age, category, how much time the respondents spend their time and frequently using medias in their daily activities.

Age & Category of the respondents

38.9% respondents belong to 10-20 years old; 55.6% respondents belong to 20-35 years old, and the remaining 5.5% respondents belong to 35-50 years old. 83.3% of respondents are student; 11.1% of respondents are worker, and the remaining 5.6% of respondents are others category. The following Chart 1 represents clearly that the respondents are student between 10-25 years.
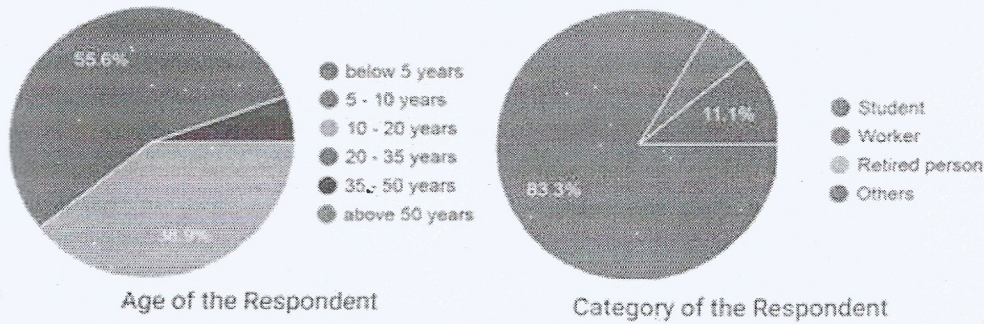

Age of the Respondent — Category of the Respondent

Chart 1

Spending time in social media

33.3% respondents (Chart 2) spent their time below 2 hrs; 22.2% respondents spent their time between 2 to 4 hrs; 33.3% respondents spent their time between 4 to 6 hrs, and 11.2% respondents spent their time between 6 to 8 hrs.

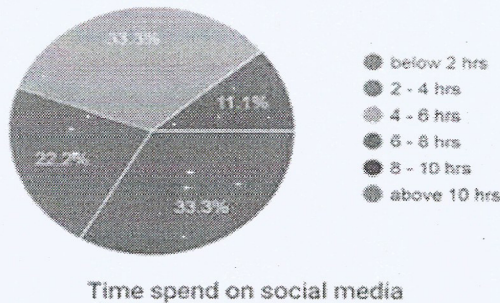Time spend on social media

Chart 2

Daily activities on social media

Almost maximum (83.3%) of respondents (Chart 3) watch video/news. 50% of respondents make use of social media for texting/chatting. 22.2% of respondents playing games on social media. 11.1% of respondents spent their time in Facebook/twitter. 5.6% of respondents do banking, shopping and reading activities in social media.
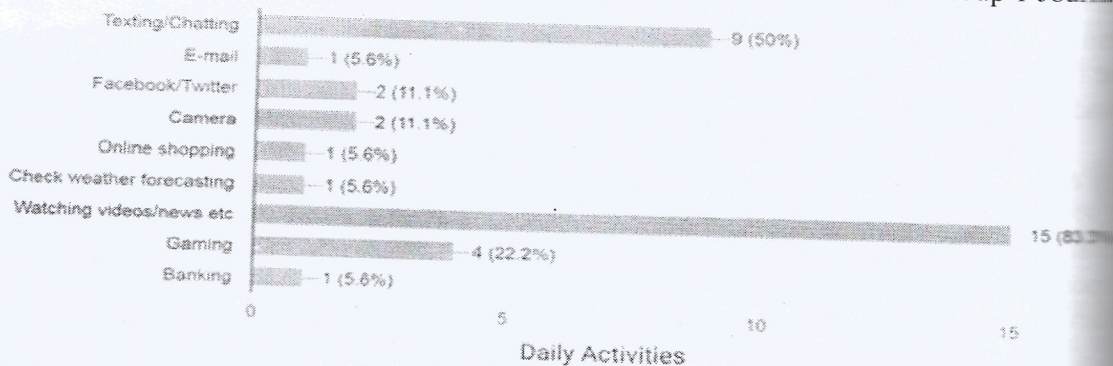
Chart 3

The second section have the questionnaire about widely used social network sites. The top social network sites (Facebook, YouTube, Twitter, WhatsApp, Telegram, Linked In, Skype, Instagram, Google+, and Flickr) are taken for this study.

Social Network Sites

The following Chart 4 represents the respondents social accounts details in the social networking sites. 50% of respondents have Facebook account and 50% of respondents don't have accounts. 78% of respondents frequently use YouTube and 12% of respondents don't use it. 22% of respondents have twitter account and 78% of respondents don't have accounts. 89% of respondents have WhatsApp account and only 11% of respondents don't have accounts. 83% of respondents have telegram account and 17% of respondents don't have accounts. 17% of respondents have LinkedIn account and 83% of respondents don't have accounts. 11% of respondents only use skype and 89% of respondents don't use it. 61% of respondents have Instagram account and 39% of respondents don't have accounts. 50% of respondents have Google+ account and 50% of respondents don't have accounts. 5.5% of respondents know about Flickr and 94.5% of respondents don't aware of it.

This study proved that the usage of WhatsApp, telegram, and YouTube are in higher. The usage of Instagram, Facebook, and Google+ are in moderate. The usage of Twitter, LinkedIn, and Skype are very much low. Many of them didn't aware of Flickr.
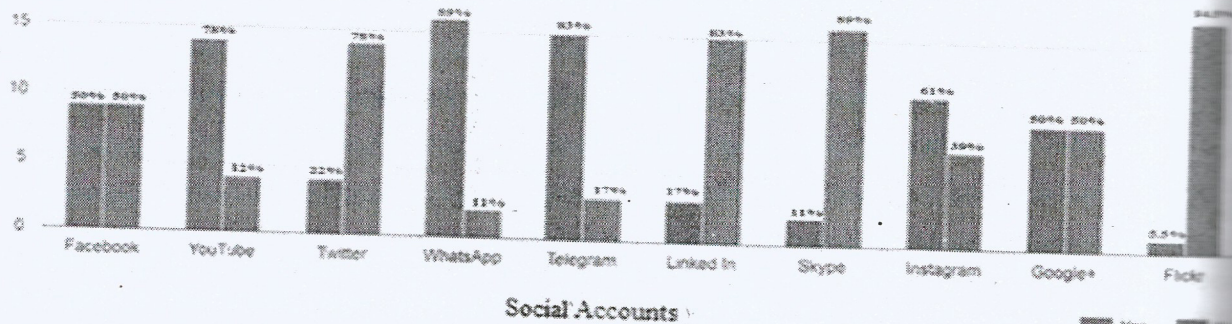

Chart 4

The third section has the questionnaire about the awareness of digital safety in social media. Chart 5 shows the details about password. 66.7% of respondents use password/screen lock to their social media account/smart phone. 83.3% of respondents hope that they have strong password. 50% of respondents maintain different password to their different social accounts and 50% of them have the same password to all of their accounts. 55.8% of respondents have the awareness about two-factor authentication. Chart 6 displays that 50% of respondents properly logoff from their social accounts and 50% of them are not. 94.4% of respondents don't share personal information. 72.2% of respondents customize their privacy settings like show their profile only to their contact. 77.8% of respondents update their security

features frequently. Chart 7 depicts that 77.8% of respondents never accept unknown friend request and 88.9% respondents did not click suspected links.
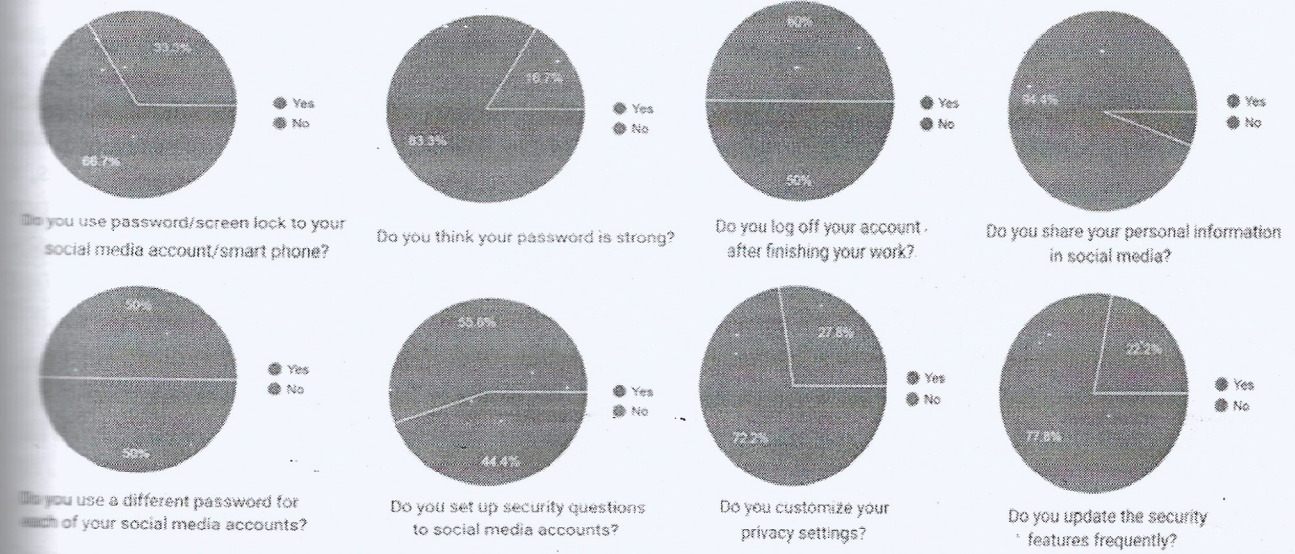

Do you use password/screen lock to your social media account/smart phone?

Do you think your password is strong?

Do you log off your account after finishing your work?

Do you share your personal information in social media?

Do you use a different password for each of your social media accounts?

Do you set up security questions to social media accounts?

Do you customize your privacy settings?

Do you update the security features frequently?

Chart 5

Chart 6

Do you accept unknown friend request?

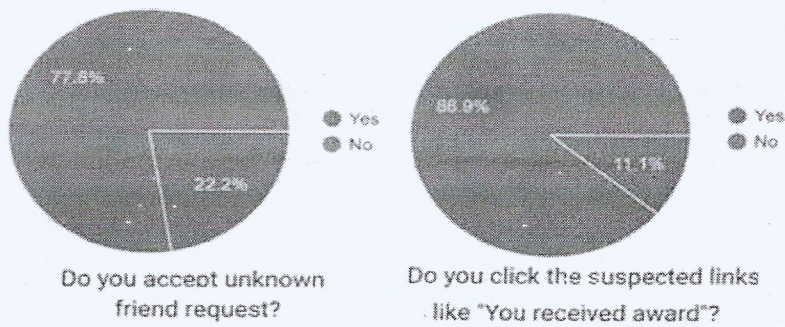Do you click the suspected links like "You received award"?

Chart 7

This section proves that many of them don't logoff properly from their accounts and maintain same password to various social accounts. This will lead to security issues even though they didn't click suspected link and unknown friend request.

Ensuring digital safety in social media

The following practices ensure digital safety in social media: always logout from social accounts after finishing work, clearing browsing histories, avoiding third-party applications without knowing terms, and conditions, keep away from fake websites, malicious links, ads, mail etc., maintaining the privacy/security settings, using strong password for social accounts, and avoiding same password to various social networks. Make it a regular practice to change passwords frequently. Two-factor authentication (finger print or text code on registered mobile) is suggested. Before joining any social accounts by using invite link, make sure of the trustworthy about it.

How AI influenced social media?

Social media bots are a type of AI tool that assists you in cyber space for each of your social media posts. It will pop up with the content "May I help you!". User's activities such as profile, location, interest, post etc., are tracked, filtered and analysed using natural language processing, computer vision. Identifying images/faces in a few seconds from millions of data; content creation such as post, posting, photo collage etc., better and faster; social media advertising to the targeted audience

according to their behaviour, and customer support 24/7 automatically in business are some examples of how AI changed social media. The two major benefits are cost effective and a rise in profit.

Conclusion

The world is getting closer in the way of communication. Now, everyone wants to be connected and share information globally. The world is moving from data, information, knowledge to insights. A long ago, people made an effort to collect information. Today information comes into our hands enormously. Social networks do not have any standards for sending/receiving the amount of data. Everyone simply forwards the message without knowing the trustworthiness of the message. Thus, it reaches a large audience in a short period. This will confuse or sometimes cause addiction, distraction and depression. Privacy and security are also one of the most important areas to be taken seriously. This study shows that teenagers spend their time mostly watching videos, playing games, and sharing comments, posts, etc. They are not aware of the security issues behind these activities. AI and ML will make a promising environment on social media in the future.

Acknowledgement

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