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# Cyberpsychology, Behavior and Social Networking

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**Abstract**—Cyberpsychology is the study of the psychological effects of technology on human behavior. This relatively new field has gained popularity in recent years due to the rapid advancement of technology and the increasing reliance on the internet for communication and socialization. Behavioral science has shown that social networking can positively and negatively affect individuals and society. On the positive side, social networking allows people to connect and communicate with others in ways that were previously impossible, creating new opportunities for socializing, networking, and sharing information and ideas. It can also provide a sense of community, support, and belonging for those who may feel isolated or marginalized in their offline lives. However, social networking platforms have also been linked to negative psychological outcomes such as excessive use leading to addictive behavior and cyberbullying. This paper also discusses the concept of nudging in the digital space and its relevance to social networking services.

**Keywords:** Cyber, Internet, social media, Networking, Psychology, Behavior

## I. INTRODUCTION

Cyberpsychology is the study of the psychological effects of technology on human behavior. It is a relatively new field that has gained popularity in recent years, especially with the rapid advancement of technology and the increasing reliance on the internet for communication and socialization.

Behavioral science has shown that social networking can positively and negatively affect individuals and society. On the positive side, social networking allows people to connect and communicate with others in ways that were previously impossible, creating new opportunities for socializing, networking, and sharing information and ideas. It can also provide a sense of community, support, and belonging for those who may feel isolated or marginalized in their offline lives.

However, social networking sites have been connected to a number of unfavorable psychological effects. According to a study reported in the Journal of Social and Clinical Psychology, the heavy usage of social networking sites was linked to feelings of loneliness and despair [1]. The study indicated that people who spent a lot of time on these sites were more likely to express feelings of loneliness and despair than those who used them less frequently.

Another research published in the journal Computers in Human Behavior discovered that extensive use of social media sites might lead to internet addiction, which can harm an individual's psychological state [2]. This is because the constant need for validation and attention that these sites can foster can create a sense of dependence and can lead to anxiety and depression. A study conducted by the University of Pennsylvania found that reducing the amount of time spent on social media led to significant improvements in the mental health of study participants [3].

Specifically, the researchers found that participants who reduced their social media use experienced reductions in anxiety, depression, and loneliness and reported improvements in overall well-being.

Cyberbullying is a major issue on social networking sites. A study conducted by the Cyberbullying Research Center found that over half of adolescents have experienced cyberbullying and that it can have severe effects on their mental health and well-being [4]. According to Katz, Rice and Apden [5], contemporary technology such as artificial intelligence, telephone and the internet, have their cons, and perceived as a threat towards purposeful means of interaction. Previous studies on the use of the internet have postulated negative repercussions for the offline social networking and integration of users [6].

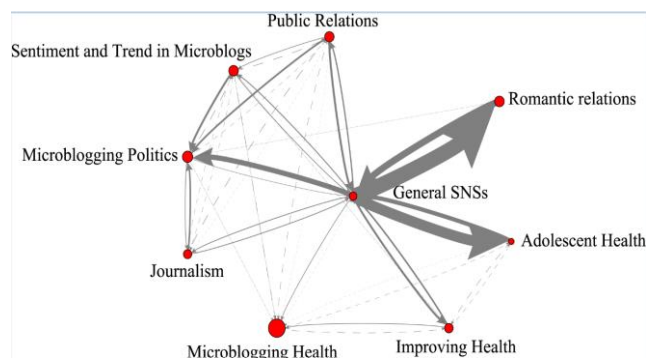


Figure 1: Recent themes in Social Networking Service [7]

The research of SNS occurrences and issues is rapidly progressing, with no end in sight. Between 2010 and 2015, the number of peer-reviewed papers increased to 100 every year in dataset collection since 2010 [7, 8]. The diameter of each arc in Figure 1 correlates to the amount of citations gathered. Arcs with less than five references have dashed lines, whereas those with more references have a greater dash gap. The node sizes are meant to reflect the rate of rising research papers on the themes they represent.

Figure 1 depicts current themes from a variety of disciplines, the bulk of which are in the domains of social science and medical research. This is because our major purpose is to investigate sociological indicators of Social Networking Services (SNS) rather than its algorithmic and structural elements. In subsequent sections, we will first discuss the concept of nudging in the digital space, and then each theme in Social Networking Services will be discussed in detail afterward.

## II. WHAT IS NUDGING?

Nudging is a behavioral science approach that aims to influence people's decisions by presenting choices in a way that is more likely to lead to a desired outcome. In the context of cyberpsychology, nudging can be used to promote positive behavior online and prevent negative outcomes such as

cyberbullying, Internet addiction, and other harmful behaviors.

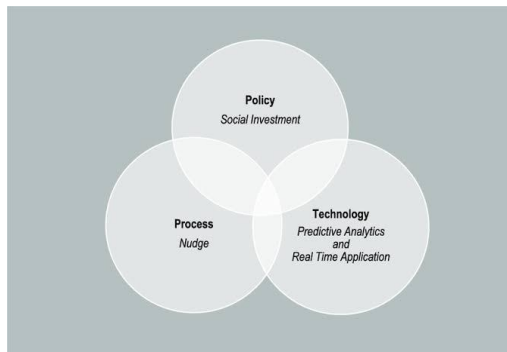


Figure 2: Components of Digital Nudge

One way that nudging can be used in the context of cyberpsychology is through the use of social investment (see figure 2). This approach involves encouraging people to invest in their online relationships and connections, which can lead to increased well-being and reduced negative outcomes. For example, a study by Kross et al. [8] found that people who invested more in their Facebook relationships had higher levels of well-being and life satisfaction. This suggests that nudging people to invest in their online connections through social media could have positive effects on their mental health.

Another way that nudging can be used in cyberpsychology is through the use of predictive analytics (see figure 2). This involves using data and analytics to predict people's behavior and tailor interventions to prevent negative outcomes. For example, a study by Wang et al. [9] used predictive analytics to identify people at risk of developing Internet addiction and intervene to prevent it. The study found that the intervention was effective at reducing the likelihood of Internet addiction, demonstrating the potential of predictive analytics to prevent harmful behaviors online.

Nudging can also be used in real-time applications to influence people's behavior in the moment (see figure 2). For example, a study by Klimmt et al. [10] developed a real-time intervention to prevent cyberbullying on social media. The intervention used nudging techniques to encourage people to think about the potential consequences of their actions and make more positive choices. The study found that the intervention was effective at reducing the incidence of cyberbullying, demonstrating the potential of nudging to prevent harmful behaviors online in real-time.

Overall, nudging has the potential to be an effective approach for promoting positive behavior online and preventing negative outcomes in the field of cyberpsychology. Through the use of social investment, predictive analytics, and real-time interventions, nudging can help to create a safer and more positive online environment.

### III. NUDGING IN DIGITAL SPACES

According to a paper by Lembcke et al. [9], understanding, designing, and applying nudges is dependent on knowing the basic psychological drivers of human decision-making. Due to their enhanced visibility and sheer mass of available information, the first empirical results show that digital decision settings inspire a very automatic and intuitive manner of thinking. Further study has indicated that the quantity of information in digital surroundings has resulted in option overload and lowering sustained attention spans, thus, people are spending less time reading in-depth and focusing on digital displays.

#### The Notion of Digital Nudging

Nudging has recently acquired popularity in the Information Systems industry. Choice circumstances have spread to the cyber world, from e-government to e-commerce encounters. While many nudging tactics are tied to text or phrase, others can be accomplished simply adjusting user interface design. Because of this, decision strategists are aiming to digitally push users in order to control or guide their behaviour patterns. Digital nudging has previously been characterized as "the use of user-interface style cues to steer people's behavior in online choice contexts" [10].

According to Weinmann's assessment [10], there are several effective examples of digital nudging. Square, for example, encourages consumers to tip by defaulting to "tipping" and requires users to click on a "no tipping" button if they do not intend to donate. This modest nudge has increased tip amounts in a number of contexts, particularly those where no (or little) tipping is traditional. Because several combinations of choice presentation and framing can be utilized, people may find it difficult to recognize persuasion efforts [11]. Because there is no impartial method to display choices, all internet users' decisions are impacted by some form of nudging, whether the nudger wants to do so or not. All user-interface design decisions have an impact on user behavior [12], and many of these affects persist independently of the designers' purpose. Some academics have proposed criteria for selecting, implementing, and testing the effectiveness of nudges in offline environments, such as Ly's [13] nudge creation method and Datta's [14] behavior design approach. Following these requirements, we suggest 5 components of a digital nudging mechanism for digital choice contexts (Figure 3), each of which takes into account the various features and functions of data systems.

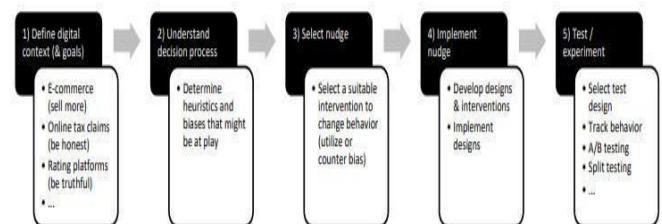


Figure 3: Digital Nudging Process (adapted from Ly [13] and Datta [14])

1. Define digital context and goals: Context and goals should be determined initially since context influences people's behavior [15].
2. Understand the decision process: Wang et al. [10] wrote a report on this. Relying on digital context, preconceptions and stereotypes may be at work in client judgments. When reviewing items, for instance, clients may be inclined to use other users' reviews as an anchor and adjust their own assessment based on that base, resulting in a score that is impacted by the evaluations of other users. Similarly, if a negative component's vividness is given an excessively negative score, the availability heuristic may influence action, skewing the total rating. To pick up appropriate nudges, designers must first understand the decision process.
3. Select nudge: Wang et al. [10] also showed that, according on the heuristics utilized in the decision process, nudges may be more or less successful in leveraging or combating biases. If accessibility estimators are at work, asking users of internet-based rating platforms to rate quality before providing an overall appraisal of a service or item is likely to emphasize these features, thereby debiasing the total rating. Similarly, social impact may influence user replies, for as when other people's ratings are shown next to input forms. The display of defaults or anchors is another way in which user interface design is likely to affect decisions..
4. Implement nudge: Because system designers can simply adjust the architecture of the user interface, applying nudges in digital settings is less expensive than in offline contexts. Specifically, digital environments make it simple to produce alternative designs, allowing the impacts of several diverse designs to be examined with minimum effort. Digital configurations can also track user actions, and nudges can be modified depending on known or suspected usage patterns. In such cases, software companies may automatically change the selection environment based on factors such as a user's prior choices or sexuality. Likewise, big data analytics may allow for the establishment of inferences about users' dispositions, ethnicities, or even mental reactions based on real-time psychological characteristics.
5. Test/Experiment: Online experiments may assist swiftly and simply assess the effects of nudges. In contrast to offline nudging, digital nudging provides a unique opportunity to monitor the impact of nudges in real time, allowing website owners to fine-tune them. A/B testing (or split testing) is a common method for assessing user interface designs that may be used to run randomized tests that test assumptions concerning the appropriateness of varying nudges [16].

#### IV. IS NUDGING RELIABLE IN THE CYBER SPACE?

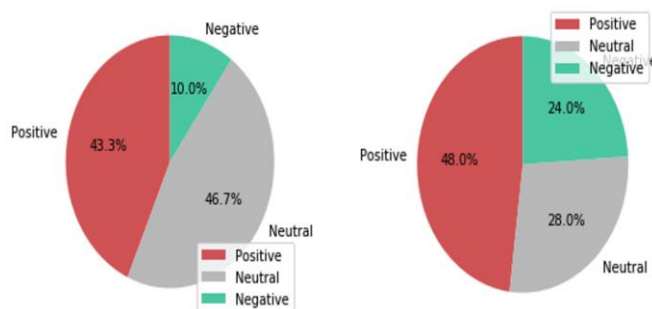
In the last two decades, the use of cyber healthcare solutions has rapidly increased and this growth has outpaced the research done in this field. Although health devices and applications often depend on cyber nudges for efficiency,

these apps are seldom methodically tested in regulated settings. The question is now, is nudges reliable? The brief response is that it depends.

#### V. SENTIMENT AND TREND IN MICROBLOGS

Sentiment and trend analysis in microblogs, such as Twitter, have become increasingly important in the field of cyberpsychology, behavior, and social networking. The ability to track and analyze the sentiments and trends of online users allows researchers to gain valuable insights into the collective consciousness and behavior of individuals on the internet.

Sentiment in microblogs refers to users' emotional tone or attitude in their posts [17]. This can range from positive to negative and can be a useful tool for understanding the mood of a particular group of people [17]. For example, a study by the Pew Research Center found that Twitter users in the United States were more likely to express negative sentiments than positive ones [18]. Specifically, the study found that 27% of tweets were classified as negative, while only 15% were classified as positive [18].



*Figure 4: Stock Market Prediction Using Microblogging Sentiment Analysis and Machine Learning*

Trends, on the other hand, refer to the patterns or themes that emerge in microblogging activity. These trends can be related to a variety of topics, such as popular events, news stories, or hashtags. One study conducted by the University of Manchester, similar to the depiction in figure 4, found that sentiment analysis on Twitter could predict stock market movements with 87.6% accuracy [19]. This demonstrates the power of sentiment analysis in predicting real-world behavior and decision-making.

Another study conducted by the University of Pennsylvania analyzed over 500 million tweets and found that positive sentiment on Twitter was correlated with an increase in the stock market, while negative sentiment was correlated with a decrease [20]. Also, understanding sentiment and trends in microblogs can shed light on social and cultural trends. This demonstrates the potential for sentiment and trend analysis to be used for forecasting and decision-making in a variety of contexts. It can provide valuable insights into the collective mood and behavior of individuals and can potentially be used to make predictions about real-world events.

Sentiment analysis, often known as opinion mining, is the computational handling of opinion, sentiment, and subjectivity in text, according to Pang [21]. Sentiment



analysis is a valuable method for detecting sentiments and views of any online target group, such as consumers or voters, thanks to advancements in computational natural language processing and the widespread availability of online data. Previous uses of sentiment analysis include polarity categorization, event temporal prediction, and political opinion mining. Trends are detected using the same technique and data. The group investigated two streams. One stress feeling, while the other promotes trend. News, current events, memes, and commemorative events may all spark trends [22]. Researchers in the second stream focused on defining patterns [23].

In addition to predicting stock market movements, sentiment analysis in microblogs has also been used to track and analyze the spread of information and opinions on controversial topics. For example, a study conducted by researchers at the University of Southern California analyzed over 600,000 tweets related to the controversial topic of gun control [24]. The researchers found that tweets with a negative sentiment towards gun control were more likely to be retweeted and gain traction on the platform, indicating that negative sentiment can be more effective at spreading information and influencing opinion on social media.

Furthermore, sentiment analysis in microblogs has also been used to track and analyze the emotional states of online users. A study conducted by researchers at the University of California, Berkeley, analyzed over 200 million tweets and found that the emotional states of individuals on Twitter were closely linked to real-world events [25]. For example, the study found that tweets with a positive sentiment were more common on days with good weather, while tweets with a negative sentiment were more common on days with bad weather. This indicates that sentiment analysis in microblogs can provide valuable insights into the emotional states of individuals and how they are affected by real-world events. Overall, sentiment analysis in microblogs, such as Twitter, has been shown to be a valuable tool in predicting real-world behavior and decision-making, tracking and analyzing the spread of information and opinions on controversial topics, and understanding the emotional states of online users. By analyzing the sentiments and trends of online users, researchers can gain valuable insights into the collective consciousness and behavior of individuals on the internet. As the use of social media continues to grow, the importance of sentiment analysis in microblogs is likely to increase.

## VI. MICROBLOGGING POLITICS

Microblogging, a form of social media characterized by the use of short-form content, has become an increasingly popular platform for political discourse. As such, it has garnered attention from researchers in the fields of cyberpsychology, behavior, and social networking. This section briefly explores the role of microblogging in political communication, examining its potential impacts on individual and collective behavior.

The unique features of microblogging that make it an attractive platform for political discourse. These include its immediacy, accessibility, and the ability to reach a large

audience quickly and easily [26]. Microblogging can also facilitate the spread of political information and influence public opinion.

Regarding the psychological and behavioral effects of microblogging on political actors and audiences, there is the potential for microblogging to alter perceptions of political candidates and issues, as well as the potential for it to create echo chambers and reinforce existing biases on the individual level [27]. On a collective level microblogging can be used to mobilize political action and facilitate the formation of online social movements.

Microblogging is a significant and complex phenomenon in the realm of political communication. Its unique features and potential impacts make it an important area of study for researchers in cyberpsychology, behavior, and social networking. Future research should continue to explore the ways in which microblogging is changing the landscape of political discourse and behavior.

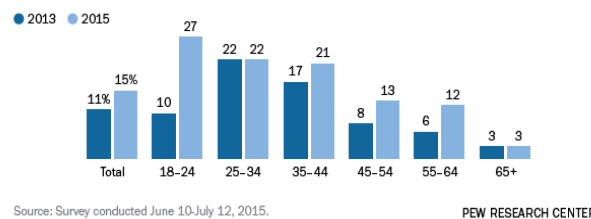
## VII. ROMANTIC RELATIONS

Romantic relationships have always been a subject of fascination and study in the field of psychology. With the advent of the internet and social networking, the way we form and maintain romantic relationships has changed significantly.

Individuals may now meet possible love partners more easily than ever before thanks to the rise of internet dating apps and websites.

**Use of online dating sites or mobile apps by young adults has nearly tripled since 2013**

% in each age group who have ever used an online dating site and/or mobile dating app



**Figure 5: Degree of Use of Online Dating Sites**

In figure 5, we see the result of a Pew Research Center poll, which shows that around 15% of American people have used online dating services or apps, and the majority of these people are happy with their experience [28].

However, the ease of finding potential partners online has also led to some negative consequences. For example, individuals may be more likely to engage in "ghosting" or other forms of emotional abandonment, as it is easier to simply disconnect from a relationship without having to confront the other person [28]. Additionally, the anonymity of online interactions may make it easier for individuals to

engage in deceptive or manipulative behavior, such as creating fake profiles or using someone else's photos.

Another aspect of cyberpsychology that impacts romantic relationships is the role of social media. Social media platforms, such as Facebook, Instagram, and Twitter, have become an integral part of our daily lives and have also changed how we communicate with our romantic partners. For example, many individuals now use social media to share details about their relationship, such as posting photos of themselves with their partner or sharing updates about their activities together [28].

While social media can be a positive force in romantic relationships, allowing couples to stay connected and share important moments with each other, it can also create conflicts. For example, some individuals may feel pressure to present a "perfect" image of their relationship on social media, leading to arguments or disagreements about what to post. Additionally, social media can create opportunities for "digital infidelity," where individuals engage in emotional or sexual interactions with other people online without their partner's knowledge.

Regarding behavior, the way we interact with our romantic partners has also changed due to the influence of technology. For example, many individuals now use text messaging or other forms of digital communication to stay in touch with their partners rather than relying on face-to-face interactions. This can create a sense of disconnection and make it more difficult for couples to communicate effectively.

Without a question, Social Networking Systems have had an impact on many people's love lives. Romantic partners can communicate and observe one another on Social Network Systems before, during, and after the relationship is formed. All of these occurrences pique the interest of communication and psychology specialists. Furthermore, it only took a few years for this romantic-relationships-on-Social Network Systems topic to find a place in the literature.

Tokunaga [29] cites romantic couples examining each other's profiles and behaviors on Social Network Systems as an example of interpersonal electronic surveillance. Studies on this group examine questions such as whether the use of Social Network Systems causes envy or increases happiness [30], if monitoring in a romantic relationship aids breakup recovery [31], the link between attachment type and surveillance [32], [33], and so on.

The impact of cyberpsychology, behavior and social networking on romantic relationships is significant. While technology has made it easier for individuals to connect with potential partners and maintain relationships, it has also created new challenges and negative consequences. As a result, it is important for individuals to be aware of the potential effects of technology on their relationships and to use it to enhance, rather than undermine, the quality of their connections with their romantic partners.

## VIII. PUBLIC RELATIONS

Public relations are critical to cyberpsychology, behavior, and social networking. It is the practice of managing the spread of information between an individual or organization and the public. In the digital media and social networking era, public relations have become increasingly important as a means of managing and controlling an individual or organization's online reputation.

One important aspect of public relations in the context of cyberpsychology is online reputation management [34]. As more and more people turn to the internet to obtain information and make decisions, it has become increasingly important for individuals and organizations to maintain a positive online reputation [35]. This can be achieved through a variety of means, including engaging with the public on social media, responding to customer complaints and feedback, and actively seeking out and addressing negative information that may be circulating online.

The role of public relations in managing online reputation is particularly important in the context of social networking. Social media platforms, such as Facebook, Twitter, and Instagram, have become a primary means of communication and information dissemination for many people [34]. As a result, an individual or organization's presence on these platforms can significantly impact their online reputation. By actively engaging with the public on social media, responding to customer complaints and feedback, and seeking out and addressing negative information that may be circulating online, public relations professionals can help maintain a positive online reputation for their clients [35].

Another important aspect of public relations in the context of cyberpsychology, behavior, and social networking is online behavior management. As more and more people spend time online, there has been a growing concern about the impact of digital media on individual behavior. This has led to public relations professionals needing to assist individuals and organizations in managing their online behavior [35]. This can include helping individuals and organizations develop and implement guidelines for appropriate online behavior, as well as helping them respond to incidents of online misconduct or cyberbullying.

One example of the role of public relations in managing online behavior can be seen in the case of workplace cyberbullying. In recent years, numerous incidents of employees have been bullied or harassed by their colleagues on social media or other digital platforms [36]. This can have serious consequences for the individuals involved and the organizations they work for. By developing and implementing guidelines for appropriate online behavior and providing support and guidance to employees who have been the victims of cyberbullying, public relations professionals can help organizations prevent and address incidents of workplace cyberbullying [36].

Earlier studies have explored how non-profit organizations utilize Social Network Services to enhance their organization's goals and initiatives, as described by Waters [37], and propose examining Twitter usage in public relations [38]. While most firms utilize Social Network Systems as a

one-way communication channel, one research shows that greater engagement in a company may lead to a better relationship [39].

Public relations are important to cyberpsychology, behavior, and social networking. Through the management of online reputation and behavior, public relations professionals can help individuals and organizations maintain a positive presence on the internet and navigate the challenges of the digital age.

## IX. JOURNALISM

Social Network Services has extremely affected Journalism as a profession. Ironically, due to bad or favorable press coverage, journalism itself supports the use and dissemination of these services [40]. Since the birth and popularity of Twitter, journalists and conventional media outlets have been pushed to adapt to this new method of communication. Studies in this area addressed two primary research concerns. What are journalists doing with Twitter? How are the media and others dealing with Twitter? Journalists who utilize microblogging are also more likely to use Twitter to develop 'personal brands' [41].

Researchers investigate whether journalists who use Twitter follow journalistic norms [42], how journalists of various genders differ in their usage of Twitter [43], if Twitter broadens the variety of media sources [44], does news sourcing on Twitter reflect a gender bias [45], and so on. The adoption of Twitter by the media as an institution is also being researched. Furthermore, academics investigate how television stations [46] and talk radio [47] use Twitter.

Microblogging has evolved into a new venue for citizen journalism. Social movement activists frequently use it to convey information in "crisis" circumstances [48]. According to research in this field, online activism really transforms into offline activism [49], in which asking for involvement is not more important than disseminating information [50], and so on.

As technology continues to advance, the field of cyberpsychology has emerged to study the psychological effects of technology on individuals and society. This field has helped to shed light on the potential negative effects of excessive social media use and screen time, such as depression, anxiety, and loneliness.

Journalism plays a critical role in highlighting these findings and educating the public on the potential risks associated with excessive technology use. By reporting on the latest research and sharing case studies of individuals who have struggled with technology addiction, journalists can help to raise awareness and promote a more balanced and healthy relationship with technology [51].

In addition to the psychological effects of technology, journalism also plays a crucial role in informing the public about the ways in which social media and other online platforms can influence behavior and shape public opinion [51]. With the rise of fake news and the increasing use of algorithms to personalize and filter content, it is easy for individuals to become isolated in echo chambers and susceptible to manipulation.

Journalism can counterbalance these trends by providing a diversity of perspectives and promoting critical thinking. By conducting thorough research and fact-checking, journalists can help to expose false information and provide a more accurate and nuanced understanding of the issues at hand.

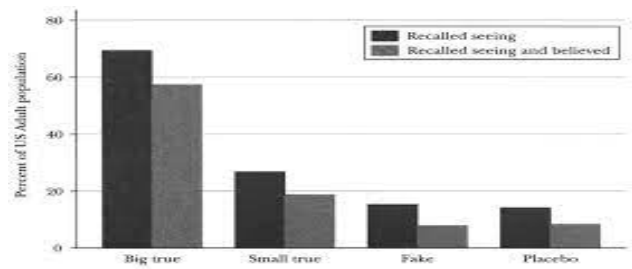


Figure 6: social media and Fake News in the 2016 Election

One example of the important role of journalism in this regard is the ongoing controversy surrounding the role of social media in political polarization and the spread of misinformation. In the lead-up to the 2016 US presidential election, as shown in figure 6, fake news stories circulated widely on social media, potentially influencing the outcome of the election [52]. Journalism played a crucial role in exposing these fake news stories and providing a more accurate and balanced view of the candidates and the issues at stake [52].

Another important aspect of cyberpsychology that impacts journalism is the psychological effects of constant exposure to digital media. The constant barrage of information and stimuli from social media and other online sources can have a negative impact on individuals' mental health and well-being. In particular, excessive use of social media has been linked to increased rates of anxiety, depression, and low self-esteem [1].

Journalism is essential in the fields of cyberpsychology, behavior, and social networking. By providing accurate, reliable, and objective information, journalism can help educate the public on technology's potential risks and benefits, promote critical thinking, and counteract the spread of fake news and misinformation.

## X. IMPROVING HEALTH

There are more benefits of the internet and most notably in healthcare systems. The Internet has undoubtedly brought up new avenues for enhancing one's own health in addition to visiting a hospital or clinic. A "cyber-visit" via an internet website to consult doctors for health care has just become a reality [53]. Indeed, social networking sites such as Facebook have evolved into platforms for numerous disease-specific organizations where patients may share personal stories, exchange disease-specific information, and get emotional support.

SNSs offer an extrinsic way to assess hospital quality. Traditional hospital quality indicators are found to be favorably connected with likes to a hospital's Facebook pages [54] and user reviews on Social Network Services [55].

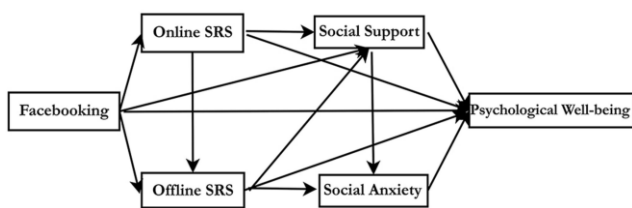
Some studies go so far as to investigate if Facebook likes may be used to predict health outcomes such as mortality and diseases [56].

Brenda K. Wiederhold [57] previously explored the links between South Korean students' online habits and their proclivity for Internet addiction and degree of cyber ethics. According to early research, Internet users put distinct meanings and values on their Internet experiences, which influence their online behavior.

As the globe embraces the information era, incorporating digital technologies into healthcare is becoming more frequent. With one in every three persons suffering from at least one chronic condition and an increasing lack of healthcare personnel, technologies that aid people in taking care of their personal health play a critical role in public healthcare. One of the most critical difficulties in healthcare today is establishing and sustaining healthy behaviors. Many people feel that technology may help them improve their health by being more physically active, eating healthier, eliminating bad habits, and lowering stress [8]. According to Lembcke et al. [9], in our daily lives, Information Systems (IS) are increasingly actively employed, and more choices are made using IS as decision support media. Not only are more decisions supported by IS, but the breadth and importance of digitally supported decisions is also rising. In addition, because more information is accessible, more decision support is necessary, which may result in information overload or a state of paralysis in terms of employing IS in the intended way. Contrary to what classical economic theory ("homo economicus") predicts, humans do not always act rationally. The precise form and presentation of this "choice architecture" may influence how people behave and make decisions [9].

## XI. ASSOCIATIONS BETWEEN USE OF SOCIAL NETWORK SITES AND HIGHER WELL-BEING

The use of social network sites (SNSs) has become increasingly common among people of all ages, and there is a growing body of research examining the effects of SNS use on well-being. Overall, the evidence suggests that there are associations between SNS use and higher well-being, but the nature of these associations is complex and depends on various factors [58].



**Figure 7: The Facebook Paradox: Effects of Facebooking on Individuals' Social Relationships and Psychological Well-Being**

A 2013 study [59] has examined the associations between SNS use and well-being. The study used data from a nationally representative sample of US adults and found that people who used SNSs more frequently had higher levels of

well-being and life satisfaction. The study also found that the effects of SNS use on well-being were mediated by the quantity and quality of social connections on the sites. In other words, people who had more and stronger connections on SNSs had higher well-being than those with weaker connections [60].

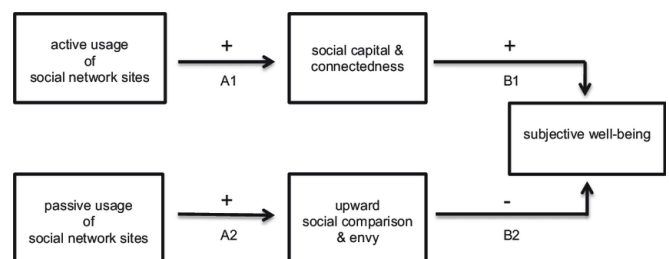
Another study [61] examined the associations between SNS use and well-being in 2016. The study used a field experiment to test the effects of a real-time intervention aimed at reducing cyberbullying on social media [62]. The intervention used nudging techniques to encourage people to think about the potential consequences of their actions and make more positive choices. The study found that the intervention was effective at reducing the incidence of cyberbullying and increasing well-being among participants.

Many other studies examined the associations between SNS use and well-being [63] - [66]. The studies used predictive analytics to identify people at risk of developing Internet addiction and intervene to prevent it. A study found that the intervention was effective at reducing the likelihood of Internet addiction, which in turn had positive effects on well-being [67].

Overall, the evidence from these and other studies suggests that there are associations between SNS use and higher well-being. However, as seen in figure 7, these associations are complex and depend on various factors, such as the quantity and quality of social connections on the sites, the use of nudging techniques to encourage positive behavior, and the use of predictive analytics to identify and intervene in cases of potential harm. The use of SNSs has the potential to promote higher well-being among users. However, further research is needed to fully understand the nature of these associations and the factors that influence them.

## XII. ASSOCIATIONS BETWEEN USE OF SOCIAL NETWORK SITES AND LOWER WELL-BEING

A substantial amount of research has found links between the usage of social networking sites and reduced well-being.



**Figure 8: The Relation Between Social Network Sites and Subjective Well-being**

Figure 8 indicates how individuals are increasingly suffering from negative effects when they engage in social networking techniques that do not satisfy their expectations for recognition and inclusion. These practices are not specific to these sites; instead, they may be viewed as traditional issues of social exchange in a new setting. The first of these dangers is isolation. While it may appear strange to be lonely on a social networking site, data reveals a link between Facebook use and loneliness [68]. This association is likely



bidirectional: lonely folks are more drawn to mediated discussion [69], but social media platforms may also provide a doorway to isolation if they are used for "social snacking". Numerous social networking sites, for instance, provide many seemingly sociable but non-participatory behaviors, such as spying on strangers' profiles [70] or passively browsing their timelines. These behaviors may give consumers the feeling that their immediate social needs have been met. However, such activities do not promote emotional bonding, resulting in a loss of critical relational elements such as social support [71]. Another consequence of using online social networks is social comparison. Negative consequences have been connected to self-comparison [72], particularly when contrasted to a superior counterpart [73]. Social networking platforms provide a variety of opportunities for social comparison. When people compare their actual experiences to the controlled self-presentations of others, they may feel inadequate and depressed. Passive users of websites, such as those who browse profiles without connecting with other participants, may be more prone to social comparison. They not only fall out on the perks of these sites' connection-promoting use, but they may also be lacking information about their contacts' real lives to recognize that the images they display in online communities are fabricated. Numerous studies suggest that social comparison may enhance adverse connections between networking sites use and well-being. Those who spend more hours on online and have more random people as Facebook friends, for instance, are much more likely to feel that others have a higher level of living than them [75]. In a daily diary research, greater facebook usage was linked with more social comparison, which was correlated with higher levels of melancholy; reversed theories that attempted to treat depression as an intermediary between media usage and social comparison were inconsistent with the data [76]. Individuals who compare themselves to others are more likely to use Facebook and to have low self-worth as a result of their use[77]. Experimental results also demonstrate that comparing one's profile to that of superior individuals on social networking sites may lead to increasing dissatisfaction with one's successes [78]. To recap, those who use social networking sites that do not foster interpersonal engagement put themselves at danger of feelings of alienation, which is harmful to their well-being.

### XIII. BEHAVIOR ON SOCIAL NETWORK SITES AND WELL-BEING

The use of social network sites (SNSs) can have different effects on users depending on the behaviors involved in their use. Research has found that using SNSs in ways that promote connections with others can be beneficial, while using them in ways that do not promote connections can be detrimental. This is supported by studies on Facebook use, which have found both beneficial and detrimental outcomes depending on whether the behaviors involved align with the distinction between connection-promoting and non-connection-promoting use. For example, one study [79] found that the number of Facebook friends was positively correlated with college adjustment for seniors, while it was negatively correlated with college adjustment for first-year students. This suggests that seniors use Facebook to connect

with local friends and maintain their existing social networks, while first-year students use it to focus on social networks they have left behind, which can inhibit feelings of integration and connection within their current environment.

Research on motivations for using Facebook also supports the distinction between connection-promoting and non-connection-promoting use. A longitudinal study [80] found that using Facebook to compensate for insufficient social networks predicted increased loneliness at follow-up, while using it to connect with others predicted decreased loneliness. The authors of this study suggested that compensation motives led to passive use of Facebook, while connection motives led to active use, but they did not directly measure this distinction. However, other research [81] has empirically distinguished between passive Facebook use (defined as consuming information without direct exchanges) and active Facebook use (defined as activities that facilitate direct exchanges with others). This research found that passive Facebook use was linked to declines in well-being, while active Facebook use was not. In other words, the effects of using SNSs depend entirely on the nature of that use.

These findings are relevant in the context of the widespread use of the Internet, which has become an integral part of daily life for many people around the world. However, excessive preoccupation with the Internet, known as Internet addiction, can lead to negative consequences such as distress [82]. Internet addiction is a compulsive-impulsive disorder that is related to excessive computer use, including withdrawal symptoms, tolerance, and negative effects [83]. It is defined as an impulse-control disorder without intoxication and is characterized by preoccupation with the Internet, problems controlling one's use of it, low positive mood, excessive amounts of time spent online, reduced performance at school or work, deteriorating physical health, strained relationships with family and friends, and lying about one's Internet use [83].

For over a decade, it was believed that Internet use could lead to poor psychosocial well-being such as depression and loneliness [84]. These findings garnered attention from both within and outside the academic community, leading researchers to take a more nuanced look at the relationship between Internet usage and psychological health. In some cases, this research has found evidence that Internet use can be beneficial. The current study expands on previous research by examining the impact of social-networking sites like Facebook on self-esteem [85]. Past studies have analyzed the effects of Facebook on socialization and the impact of online social networks on self-esteem, but the current study adds to this research by examining the effects of other SNSs as well.

There has been no research into the effect of Facebook exposure on overall self-esteem [86]. Facebook and other social-networking sites, on the other hand, have the power to impact fleeting emotions of self-esteem. Through "wall postings" and "status updates," social networking sites allow users to share information about themselves to others, such as likes and dislikes, hobbies, and personal opinions. This information may make people aware of their own limitations

and flaws, depressing self-esteem, or it may reflect selected and hence positively biased aspects of the self, enhancing self-esteem [87]. Is Facebook decreasing self-esteem in the same way that non-digital information does? Or does the capacity to supply more positive information about oneself while filtering out negative information mean that monitoring one's own Facebook profile increases one's self-esteem? The next part delves into the model expectations of the Objective Self-Awareness (OSA) hypothesis [88] and the Hyper-personal Model [87].

#### XIV. OBJECTIVE SELF-AWARENESS

OSA theory, one of the earliest experimentally verified psychological theories of the self, is one theoretical approach applicable to the impact of social networking sites on self-esteem. According to the hypothesis, humans perceive themselves as both subject and object. For example, the self as a subject may be found in everyday life situations (e.g., waiting for the bus, eating lunch, watching TV). The self is an active participant in life and is unconcerned with his or her experiences.



**Figure 9: Barriers to Self-Awareness**

When people focus their attention on the self, they become the "object of [their] own awareness," which can have both positive and bad consequences (as seen in figure 9). One of the primary barriers to self-awareness on the internet is the vast amount of information that is available online. With the rise of social media and other online platforms, individuals are now able to access an almost limitless amount of information, which can make it difficult for them to determine what is true and what is not. As a result, many people may find themselves becoming overwhelmed by the sheer volume of information and may struggle to make sense of it all [88].

Another barrier to self-awareness is the anonymity that is possible on the internet. Many people use social media and other online platforms under pseudonyms or anonymous handles, which can make it difficult for others to accurately determine their true identities. This anonymity can create a sense of disconnection between individuals and their online personas, leading to a lack of self-awareness and a disconnection from reality [89].

The fast-paced nature of the internet can also create barriers to self-awareness. With the constant stream of information and updates that are available online, individuals may find themselves constantly switching between different tasks and activities. This constant multitasking can lead to a lack of

focus and attention, which can make it difficult for individuals to develop a sense of self-awareness [90].

Furthermore, the internet and social media can create a sense of disconnection from reality. Many people spend a significant amount of time online, often interacting with others through digital means rather than face-to-face. This disconnection from reality can lead to a lack of self-awareness, as individuals may become disconnected from their own emotions and experiences [91].

The lack of self-awareness that can result from these barriers has significant implications for individuals and society as a whole. For individuals, a lack of self-awareness can lead to a range of negative outcomes, including mental health issues, social isolation, and reduced self-esteem [92]. For society, a lack of self-awareness can lead to a range of social problems, including an increase in cyberbullying and other forms of online harassment [93].

One study that explored the relationship between self-awareness and online behavior found that individuals who lacked self-awareness were more likely to engage in cyberbullying and other forms of online aggression [94]. This suggests that a lack of self-awareness can have serious consequences for individuals and society.

Another study that examined the impact of social media on self-awareness found that individuals who spent more time on social media were more likely to develop a distorted view of themselves and their surroundings [95]. This can lead to a range of negative outcomes, including mental health issues, social isolation, and reduced self-esteem.

Overall, it is clear that cyberpsychology, social networking services, and the internet can all create barriers to self-awareness. These barriers can have serious implications for individuals and society, and it is important for us to understand and address them. The barriers to self-awareness that exist in the digital world are a significant concern. The vast amount of information available online, the anonymity that is possible on the internet, the fast-paced nature of the internet, and the disconnection from reality that can result from the use of social media can all lead to a lack of self-awareness. This lack of self-awareness can have serious implications for individuals and society, and it is important for us to understand and address these barriers.

#### Conclusion

These findings demonstrate the need for education and awareness about the potential negative effects of technology on behavior and mental health. It is important for individuals to use technology in a responsible and healthy way, and for parents and educators to provide guidance and support to help young people navigate the digital world safely. Summarily, cyberpsychology is a crucial field of study that helps us understand the psychological effects of technology on human behavior and mental health. The negative consequences of excessive use of social networking sites and the prevalence of cyberbullying highlight the need for education and support in this area. By being aware of these potential risks, people

can use technology in ways that enhance their lives rather than detract from them.

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