ISBN: 978-93-95847-62-9

SOCIAL MEDIA DYNAMICS: TRENDS AND TRANSFORMATIONS

EDITORS:
DR. AJAY KUMAR DOGRA
DR. SAGARIKA DASH
DR. ARPITA DEY
MR. SOUMEN DAS

BHUMI PUBLISHING, INDIA
FIRST EDITION: AUGUST 2024

Social Media Dynamics: Trends and Transformations

(ISBN: 978-93-95847-62-9)

Editors

Dr. Ajay Kumar Dogra

UIAMS,

Panjab University,

Chandigarh

Dr. Sagarika Dash

Department of Journalism and Mass Communication, Srinath University,

Jamshedpur, Jharkhand

Dr. Arpita Dey

Department of English

Women's College,

Silchar, Assam

Mr. Soumen Das

School of Media Science,

Institute of Management Study,

Kolkata, West Bengal

Bhumi Publishing

August, 2024

Title: Social Media Dynamics: Trends and Transformations

Editors: Dr. Ajay Kumar Dogra, Dr. Sagarika Dash, Dr. Arpita Dey, Mr. Soumen Das

First Edition: August, 2024

ISBN: 978-93-95847-62-9

Published by:

Bhumi Publishing

BHUMI PUBLISHING

Nigave Khalasa, Tal – Karveer, Dist – Kolhapur, Maharashtra, INDIA 416 207

E-mail: bhumipublishing@gmail.com

PREFACE

In the rapidly evolving landscape of the digital age, social media has emerged as a dominant force shaping not only the way we communicate but also how we perceive and interact with the world around us. The pervasive influence of platforms like Facebook, Twitter, Instagram, LinkedIn, and emerging networks has created a dynamic environment where trends shift with astonishing speed, and societal norms are continually redefined.

The book, "Social Media Dynamics: Trends and Transformations," delves into the multifaceted nature of social media, exploring its profound impact on various aspects of our lives. From the role it plays in shaping public opinion and driving political movements to its influence on marketing strategies and personal relationships, this compilation of research, analysis, and case studies offers a comprehensive overview of the ever-changing social media landscape.

In this era where digital interactions often supersede face-to-face communication, understanding the dynamics of social media is crucial for navigating both personal and professional spheres. This book aims to equip readers with insights into the latest trends, the transformative power of these platforms, and the potential challenges they pose to privacy, security, and societal well-being.

We are witnessing a time where social media is not just a tool for communication but a powerful agent of change. As you journey through the chapters, you will encounter diverse perspectives from experts, academics, and industry professionals who shed light on the transformative power of social media. Their contributions provide a rich tapestry of information that will help you understand the current trends and anticipate future developments.

It is our sincere hope that this book will serve as a valuable resource for students, researchers, and professionals seeking to deepen their understanding of social media's evolving dynamics. As we continue to witness the transformations driven by these platforms, let us remain mindful of the balance between innovation and the ethical considerations that accompany this digital evolution.

We extend our deepest gratitude to all the contributors who have shared their knowledge and expertise, making this book a significant addition to the field. We also thank the readers, whose curiosity and passion for understanding social media's impact will undoubtedly drive further exploration and innovation in this ever-changing domain.

Editors

TABLE OF CONTENT

EXPLORING SOCIAL MEDIA DYNAMICS, TRENDS, AND TRANSFORMATIONS: THE DIGITAL REVOLUTION

Navdeep Singh
Department of Computer Science & Engineering,
Punjabi University, Patiala.
Corresponding author E-mail: navdeepsony@gmail.com

Abstract:

Not only have the social networks that arose out of them changed communication, culture and business across the globe as a whole to become tools for human self-expression, political mobilisation and economic development on an unprecedented scale. In this paper, we investigate the changes in some key parameters of social media platforms including content creation and platform algorithms along with socio-economic impacts on these platforms. The technologies such as artificial intelligence (AI), augmented reality (AR) and commerce functionalities have totally shifted the digital experience from an individualistic territory to a business user plane, with the emergence of new platforms which are restricting the use case of another platform. A number of challenges among them data privacy, misinformation, algorithmic bias and social polarisation remain. Meeting these challenges calls for flexibility in the methods used by sovereigns, developers and users to this new kind of institution. This paper will investigate the interplay of these forces and direction predictably ahead for social media dynamics, arguing that it lies in advancements both regarding ethical governance as well as technological innovation.

Keywords: AI in Social Media, User-Generated Content, Social Media Dynamics, Algorithmic Influence, Misinformation, Augmented Reality (AR), Data Privacy

Introduction:

Over a very short period of time, social media platforms have burst on the scene and transformed how people as individuals, organisations or communities experience and engage with their world. Facebook, Twitter, Instagram and TikTok (as well as many others) have fundamentally altered how we communicate with each other but also provide ground for political discussions to flourish or stall; corporate branding strategies can seek markets utilising social media while traditional content providers try desperately to keep up. The use of the state-of-the-art technologies like AI, AR and machine learning has taken these platforms to a whole new level making it more operable thereby opening other ways for user engagement and content distribution (Kaplan & Haenlein, 2010).

But that transformation has not come without its own set of struggles. This instantaneous dissemination of information, though great for community-building and mobilisation has also been rife with misinformation while further atomizing societies. Additionally, concerns about data privacy and the opacity of platform algorithms have led to ethical discourses on social media governance (Kietzmann *et al.,* 2011). In this paper, we will look into the changing landscapes of social media, important trends and challenges as well as where it could all be heading to in future, under its digital age post-COVID-19.

Content Evolution in Social Media

1. Rise of User-Generated Content

User-Generated Content (UGC) is the basis of most social media platforms and enables people to create, share in mass amounts. YouTube, Instagram and TikTok have disrupted content creation creating the so-called influencer economy in which influencers monetise their audience reach and engagement through brand partnerships as well as advertisements (Abidin, 2016). An increased focus on short-form content, for example the overnight success of TikTok — which is powered by videos that are designed to go viral and be easier digestible for a new generation with continually shrinking attention spans.

2. Interactive and Visual Content

Another big trend is the move away from text-based content and towards visual, interactive-style content. Developers can take advantage of AR and VR technologies to develop highly engaging applications, which facilitates users with more immersive experiences. Recent capabilities like Instagram filters and Snapchat lenses make users interact actively with content thereby becoming barely unclear between virtual worlds coupled with the physical one (Nations, 2017).

3. Short-Form and Ephemeral Content

In social media one of the defining trends has been short-lived content with platforms like Snapchat and Instagram Stories taking off. One of its features is the ephemeral content which disappears after a short period of time that facilitates real-time interaction and raises urgency, hence making users interact quite often (Bayer *et al.,* 2016).

Algorithmic Influence and Platform Governance

1. Platform Algorithms

Algorithms on social media shape the spread of information within platforms, determining what type of content users are shown or not seen based on their past activity and preferences. This is making the personalization of content for the users, thus creating "echo chambers", as Pariser (2011) asserts.

2. Algorithmic Bias

In the last few years, studies have been released concerning bias in algorithms on social media platforms that maintains patterns of racism towards gender and race or affects certain groups according to their economic resources. AI-powered recommendation systems have been found to favor polarizing and sensational content that amplifies already-divisive or radical material (Noble, 2018).

3. Governance Challenges

In fact, the opacity of social-media algorithms has led to calls for more accountability and transparency. This has led to calls for better content moderation policies and increasing regulatory scrutiny of online multi-sided platforms, including Facebook, Twitter (Gillespie, 2018). This, however, needs to be balanced against the requirement to control noxious material.

The Role of Emerging Technologies

1. Artificial Intelligence in Social Media

Artificial Intelligence on Social Media platforms have a vital part to play! From content recommendation to targeted advertising, AI helps these platforms analyse user activity and offer a more customised experience. There is also the use of AI to find and delete bad content, such as hate speech or misinformation — but whether it actually works remains a very debatable topic (Bucher, 2018). TikTok specific example where Zeng (2021) gives credit to AI modelled recommendation algorithm that includes user preference prediction and hence helps massively improve in-app experience by directly serving highly personalised content via fully featured auto-play video feeds.

2. Augmented Reality and Virtual Reality

One sector of AR and VR that is shifting the industry for social media are its consumption by users to create immersive content. AR filters, a type of filter used on platforms such as Instagram or Snapchat to overlay virtual elements onto the user's real world experiences (Liao & Humphreys, 2015). With the continuous rise of VR technology, companies like Meta from Facebook are now incorporating virtual spaces into their platforms so users can engage and communicate through 3D places.

3. Blockchain Technology for Data Security

As concerns over data privacy rise, blockchain is being looked at as an answer in terms of protecting user info on social media platforms. Since blockchain has a decentralised nature and it could become a way to let personal data handling in the hands of users which ultimately will reduce vulnerabilities central storage systems have (Tapscott & Tapscott, 2016).

Social and Economic Impacts

1. Commercialization of Social Media

The social media platforms today are perhaps the most commercialised real estate and advertising being their main revenue model. The ascent of influencers is re-developing the regular methods for promoting used along with social media advertising. Shopping features on platforms like Instagram and TikTok, which enable users to buy products directly through the app, is an example of social interaction integrated into commerce (Smith *et al.*, 2021).

2. Social Media as a Political Tool

In the form of social media, it enables political mobilisation and activism as an option. The #MeToo and Black Lives Matter movements have shown how platforms can amplify voices and organise the kind of collective action required to make genuine social changes. Yet, the very same platforms have been used to spread disinformation and meddle public opinion — as shown in the 2016 U.S. presidential election (Tufekci, 2017).

3. Impact on Mental Health

Social media is a platform that was born out of the essence in which people want to connect and freely express themselves, but it has also been found to have adverse psychological effects on depression, anxiety and loneliness. One review of the literature has suggested that the relentless comparison promoted by outlets like Instagram may lead to poorer self-esteem and body image (Chou & Edge 2012).

Challenges and Future Directions

1. Data Privacy and Security

The worrying privacy and data-security implications from the metrics captured on these social media platforms become especially heightened because of how much sensitive information they collect. For example, the Cambridge Analytica scandal demonstrated just how user data can be misused by nefarious actors has driven calls for greater data privacy laws (Isaak & Hanna 2018), and so forth.

2. Misinformation and Content Moderation

Social media companies are making increased efforts to fight misinformation, a growing problem on global events like elections and the COVID-19 pandemic. There are still challenges in the accuracy and fairness of these systems although work is happening all around this area like fact checking, AI driven content moderation etc (Pennycook & Rand, 2021).

3. Future Trends: AI, AR, and Data Sovereignty

Looking to the future with evolutionary AI and AR technology brewing in social labs, expect levels of personalization and user experience never seen before. Moreover, data

sovereignty, a trend in which users own their personal information—may cause a disruption (Zuboff 2019) from the powerful platforms to the empowered people.

Conclusion:

Social media has revolutionised and opened up new possibilities for communications, business, journalism as well as political activism. But at the same time, these present their own challenges; in particular around data privacy, misinformation and algorithmic biases. The integration of new technologies and evolution of platforms further stresses the need for development, standardisation, and enforcement of ethical governance frameworks that centre around transparency & accountability (especially user safety). Social media will be defined by its ability to intertwine innovation and responsibility, ensuring these platforms are for all users inclusive, secure and beneficial.

References:

1. Abidin, C. (2016). Visibility labour: Engaging with influencers in Singapore's social media landscape. Media International Australia, 161(1), 86–94.
2. Bayer, J. B., Ellison, N. B., Schoenebeck, S. Y., & Falk, E. B. (2016). Sharing the small moments: Ephemeral social interaction on Snapchat. Information, Communication & Society, 19(7), 956–977.
3. Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. Journal of Computer-Mediated Communication, 13(1), 210–230.
4. Bucher, T. (2018). If… Then: Algorithmic power and politics. Oxford University Press.
5. Chou, H. T. G., & Edge, N. (2012). "They are happier and having better lives than I am": The impact of using Facebook on perceptions of others' lives. Cyberpsychology, Behavior, and Social Networking, 15(2), 117–121.
6. Gillespie, T. (2018). Custodians of the internet: Platforms, content moderation, and the hidden decisions that shape social media. Yale University Press.
7. Isaak, J., & Hanna, M. J. (2018). User data privacy: Facebook, Cambridge Analytica, and privacy protection. Computer, 51(8), 56–59.
8. Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. Business Horizons, 53(1), 59–68.
9. Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. Business Horizons, 54(3), 241–251.

10. Liao, T., & Humphreys, L. (2015). Layar-ed places: Using mobile augmented reality to tactically reengage, reproduce, and reappropriate public space. New Media & Society, 17(9), 1418–1435.
11. Nations, D. (2017). What is Snapchat? A look at the mobile app and social platform. Lifewire. https://www.lifewire.com/what-is-snapchat-3485907
12. Noble, S. U. (2018). Algorithms of oppression: How search engines reinforce racism. NYU Press.
13. Pariser, E. (2011). The filter bubble: What the internet is hiding from you. Penguin Books.
14. Pennycook, G., & Rand, D. G. (2021). The Implied Truth Effect: Attaching warnings to a subset of fake news stories increases perceived accuracy of stories without warnings. Management Science, 66(11), 4944–4957.
15. Smith, A., & Anderson, M. (2021). Social media use in 2021. Pew Research Center. https://www.pewresearch.org/internet/2021/04/07/social-media-use-in-2021/
16. Tapscott, D., & Tapscott, A. (2016). Blockchain revolution: How the technology behind Bitcoin is changing money, business, and the world. Penguin Random House.
17. Tufekci, Z. (2017). Twitter and tear gas: The power and fragility of networked protest. Yale University Press.
18. Zeng, Q. (2021). Understanding TikTok recommendation: How AI shapes user experience. Journal of Computational Social Science, 4(1), 55–67.
19. Zuboff, S. (2019). The age of surveillance capitalism: The fight for a human future at the new frontier of power. PublicAffairs.

SOCIAL MEDIA ECOSYSTEMS: PSYCHOLOGICAL AND SOCIOLOGICAL PERSPECTIVES ON EMERGING TRENDS AND TRANSFORMATIONS

Neeraj M S and B. P. Nirmala*

Department of Psychiatric Social Work,

National Institute of Mental Health & Neurosciences, Bengaluru, Karnataka, India.

*Corresponding author E-mail: drbpnirmala@gmail.com

Abstract:

This chapter explores the dynamics of social media ecosystems from psychological and sociological perspectives, emphasizing how these platforms influence individual behavior and societal structures. By analyzing secondary data, the chapter provides a comprehensive overview of the psychological effects of social media usage and the sociological implications of emerging trends. It integrates contemporary literature with empirical evidence to examine the broader impact of social media on identity formation, social capital, and community engagement.

Keywords: Social Media Ecosystems, Psychological Impacts, Sociological Perspectives, Identity Formation, Self-Presentation.

Introduction:

Social media has become integral to modern life, profoundly influencing individual psychology and broader societal structures. The ways in which people interact, form identities, and build communities have been significantly transformed by the rise of social media platforms. This chapter examines these transformations through the lenses of psychology and sociology, providing a comprehensive analysis of how social media ecosystems shape behavior and societal dynamics. The study is grounded in contemporary literature and empirical evidence sourced from secondary data. The psychological effects of social media are well-documented, with research indicating both positive and negative outcomes. According to Valkenburg, Peter, and Schouten (2006), social media can enhance social skills and self-esteem among adolescents by providing opportunities for social interaction and self-expression. However, other studies, such as Twenge, Joiner, Rogers, and Martin (2018), highlight the negative impacts, including increased anxiety, depression, and feelings of loneliness, particularly among heavy users of platforms like Instagram and Facebook. The "social comparison theory," initially proposed by Festinger (1954), is frequently applied to understand these adverse effects. With their emphasis on curated content and idealized representations of life, social media platforms exacerbate social comparison, leading to feelings of inadequacy and lower self-esteem (Appel, Gerlach, & Crusius, 2016).

From a sociological perspective, social media has reshaped the way communities are formed and maintained. Putnam's (2000) theory of social capital is particularly relevant, as it explores how social networks can generate benefits for individuals and communities. Social media platforms can enhance social capital by facilitating the formation of connections and fostering a sense of belonging. However, the rise of "echo chambers" and the tendency for users to engage primarily with like-minded individuals can also contribute to social fragmentation and polarization (Sunstein, 2001). Giddens' (1991) concept of "self-identity in modernity" is another critical framework for understanding social media's role in identity formation. In the context of social media, individuals have unprecedented opportunities to construct and curate their identities. Still, this process is also fraught with challenges related to authenticity and the pressure to conform to social norms (Boyd, 2014). Empirical studies provide further insight into social media's psychological and sociological dynamics. For example, a study by Burke, Marlow, and Lento (2010) found that passive consumption of social media content is associated with feelings of social isolation, while active engagement through commenting and sharing can enhance social connectedness. Similarly, research by Hampton, Lee, and Her (2011) shows that social media use can increase social capital by strengthening both bonding and bridging ties. However, the type of platform and user engagement moderates these effects.

This chapter adopts a secondary data analysis approach, drawing on existing research studies, reports, and publicly available datasets to explore social media ecosystems' psychological and sociological dimensions. The chapter analyzes data from various sources and provides a holistic view of how social media influences individual behavior and social structures. The data used in this chapter was sourced from reputable academic journals, industry reports, and existing social media analytics. The quantitative data was derived from large-scale studies examining user engagement, content dissemination, and the psychological effects of social media. Qualitative insights were gathered from published case studies and interviews that explore users' experiences and the sociological impacts of social media. The secondary data was systematically reviewed to identify key themes related to social media's psychological and sociological impacts. Quantitative findings were used to illustrate trends in user behavior and psychological outcomes, while qualitative data provided deeper insights into the lived experiences of social media users. This mixed-methods approach allowed for a comprehensive analysis that integrates both empirical evidence and theoretical frameworks.

Psychological Perspectives on Social Media Ecosystems

Identity Formation and Self-Presentation

Social media platforms provide users with tools to construct and present their identities in highly curated ways. Goffman's (1959) self-presentation theory is particularly relevant in this context, as it describes how individuals perform roles in different social situations. On social

media, users often present idealized versions of themselves, which can lead to a disconnection between online personas and real-life identities. Studies by Gonzales and Hancock (2011) indicate that this dissonance can contribute to lower self-esteem and increased anxiety.

Social Comparison and Mental Health

As previously discussed, social comparison is a critical psychological process on social media. The constant exposure to others' highlights reels can lead to negative emotions, particularly among younger users (Vogel, Rose, Roberts, & Eckles, 2014). However, it is essential to note that not all social comparison is detrimental; upward social comparison (comparing oneself to those better off) can sometimes motivate self-improvement (Taylor & Lobel, 1989).

The Role of Social Media in Emotional Regulation

Social media can also be a tool for emotional regulation, helping users manage their emotions through online interactions and support networks. Research by Frison and Eggermont (2015) shows that adolescents often turn to social media for emotional support, which can mitigate feelings of loneliness and depression. However, the quality of these interactions is crucial, as superficial or negative interactions can exacerbate emotional distress.

Sociological Perspectives on Social Media Ecosystems

Social Capital and Community Building

Social media platforms have the potential to build social capital by facilitating the formation of both bonding and bridging ties. Bonding social capital refers to the strong ties that connect individuals within a close-knit group while bridging social capital refers to the weaker ties that connect individuals across different social groups (Putnam, 2000). Research by Ellison, Steinfield, and Lampe (2007) suggests that social media can enhance both types of social capital, particularly for individuals who might otherwise struggle to maintain social connections.

The Impact of Echo Chambers and Polarization

The sociological phenomenon of echo chambers, where users are exposed predominantly to information that reinforces their existing beliefs, is a significant concern in social media ecosystems. Sunstein (2001) argues that echo chambers contribute to increased polarization, limiting exposure to diverse perspectives and encouraging ideological extremism. Empirical studies, such as those by Barberá, Jost, Nagler, Tucker, and Bonneau (2015), support this view, showing that social media users are more likely to engage with content that aligns with their pre-existing beliefs.

The Role of Social Media in Social Movements

Social media has become a critical tool for social movements, enabling rapid mobilization and the dissemination of information on a global scale. The Arab Spring, the #BlackLivesMatter movement, and the #MeToo movement are prime examples of how social

media can facilitate collective action (Tufekci, 2017). However, the effectiveness of social media as a tool for social change is debated, with some scholars arguing that it can lead to "slacktivism," where online activism does not translate into real-world impact (Morozov, 2009).

Challenges and Ethical Considerations

Privacy Concerns

Privacy is a primary ethical concern in social media ecosystems, particularly given the vast amounts of personal data that platforms collect and use for targeted advertising (Zuboff, 2019). Users often lack control over their data and are unaware of how it is being used, which raises significant ethical questions about consent and data security.

The Spread of Misinformation

The spread of misinformation is another critical challenge in social media ecosystems. The rapid dissemination of false information can have serious consequences, from influencing public opinion to undermining democratic processes (Vosoughi, Roy, & Aral, 2018). Efforts to combat misinformation, such as fact-checking and algorithmic moderation, have had mixed results, with some critics arguing that these measures can infringe on free speech (Tandoc, Lim, & Ling, 2020).

The Ethics of Algorithmic Curation

Algorithmic curation, where social media platforms use algorithms to prioritize content, raises ethical concerns. These algorithms are often designed to maximize user engagement, which can lead to the promotion of sensationalist or polarizing content (Pariser, 2011). More transparency in how these algorithms operate further is needed to address these issues.

Future Directions and Implications

As social media continues to evolve, emerging technologies such as augmented reality (AR) and virtual reality (VR) will likely have profound psychological effects. These technologies could enhance social presence and immersion but may also exacerbate issues related to identity and self-perception (Bailenson, 2018). Future research should explore these impacts in greater detail. The rise of decentralized social media platforms, which operate without central authority and give users greater control over their data, could have significant sociological implications. These platforms may mitigate some of the privacy concerns associated with traditional social media but could also lead to new forms of social fragmentation (Easley & Kleinberg, 2010). There are several research gaps in the current literature on social media. For example, more research is needed on the long-term psychological effects of social media use, particularly among younger populations. Additionally, studies on the sociological impact of social media in non-Western contexts are limited and warrant further exploration. Future research should also consider the ethical implications of new technologies and how they might transform social media ecosystems.

Conclusion:

This chapter has provided a comprehensive analysis of social media ecosystems from psychological and sociological perspectives, highlighting the complex interplay between individual behavior and societal structures. By drawing on secondary data, the chapter has illustrated how social media platforms influence identity formation, social capital, and community dynamics. As social media continues to evolve, it is essential to consider the ethical challenges and potential implications for both individuals and society at large.

References:

1. Appel, H., Gerlach, A. L., & Crusius, J. (2016). The interplay between social comparison orientation and Facebook use: Results of a longitudinal study on envy and life satisfaction. *Journal of Social and Clinical Psychology, 35*(4), 292-314. https://doi.org/10.1521/jscp.2016.35.4.292
2. Bailenson, J. N. (2018). *Experience on demand: What virtual reality is, how it works, and what it can do*. W.W. Norton & Company.
3. Barberá, P., Jost, J. T., Nagler, J., Tucker, J. A., & Bonneau, R. (2015). Tweeting from left to right: Is online political communication more than an echo chamber? *Psychological Science, 26*(10), 1531-1542. https://doi.org/10.1177/0956797615594620
4. Boyd, D. (2014). *It's complicated: The social lives of networked teens*. Yale University Press.
5. Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. *Proceedings of the 28th international conference on Human factors in computing systems* (pp. 1909-1912). https://doi.org/10.1145/1753326.1753613
6. Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168. https://doi.org/10.1111/j.1083-6101.2007.00367.x
7. Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117-140. https://doi.org/10.1177/001872675400700202
8. Frison, E., & Eggermont, S. (2015). The impact of daily stress on adolescents' depressed mood: The role of social support seeking through Facebook. *Computers in Human Behavior, 44*, 315-325. https://doi.org/10.1016/j.chb.2014.11.070
9. Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Stanford University Press.
10. Gonzales, A. L., & Hancock, J. T. (2011). Mirror, mirror on my Facebook wall: Effects of exposure to Facebook on self-esteem. *Cyberpsychology, Behavior, and Social Networking, 14*(1-2), 79-83. https://doi.org/10.1089/cyber.2009.0411

11. Goffman, E. (1959). *The presentation of self in everyday life*. Doubleday Anchor Books.
12. Hampton, K. N., Lee, C. J., & Her, E. J. (2011). How new media affords network diversity: Direct and mediated access to social capital through participation in local social settings. *New Media & Society, 13*(7), 1031-1049. https://doi.org/10.1177/1461444810390342
13. Morozov, E. (2009). The brave new world of slacktivism. *Foreign Policy*. Retrieved from https://foreignpolicy.com/2009/05/19/the-brave-new-world-of-slacktivism/
14. Pariser, E. (2011). *The filter bubble: What the Internet is hiding from you*. Penguin Press.
15. Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.
16. Sunstein, C. R. (2001). *Republic.com*. Princeton University Press.
17. Tandoc, E. C., Lim, Z. W., & Ling, R. (2020). Diffusion of disinformation: How social media users respond to fake news and why. *Journalism, 21*(3), 381-398. https://doi.org/10.1177/1464884919868325
18. Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review, 96*(4), 569-575. https://doi.org/10.1037/0033-295X.96.4.569
19. Tufekci, Z. (2017). *Twitter and tear gas: The power and fragility of networked protest*. Yale University Press.
20. Twenge, J. M., Joiner, T. E., Rogers, M. L., & Martin, G. N. (2018). Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents after 2010 and links to increased new media screen time. *Clinical Psychological Science, 6*(1), 3-17. https://doi.org/10.1177/2167702617723376
21. Valkenburg, P. M., Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *CyberPsychology & Behavior, 9*(5), 584-590. https://doi.org/10.1089/cpb.2006.9.584
22. Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture, 3*(4), 206-222. https://doi.org/10.1037/ppm0000047
23. Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science, 359*(6380), 1146-1151. https://doi.org/10.1126/science.aap9559
24. Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs.

USER PRIVACY CONCERNS, INSIDER ATTACKS AND THEIR CORRELATION

Gaurav Deep
Department of Computer Science and Engineering,
Punjabi University, Patiala
Corresponding author E-mail: deepgaurav48@gmail.com

Abstract:

The processed data is changed into information and stored digitally for future access through cloud computing. Various digital platforms had users hooked as they started sharing information among other platforms; however, data privacy a big issue. It becomes necessary to manage users' data, as attackers and Third-party apps try to get access. Responsibility for Providing Services and Security/ Privacy Enforcement is on the Cloud Service Providers. The access control is available at cloud is to prevent unauthorized sharing of data and internal threats. Even then it is extremely difficult to detect insider attacks, with 74% of companies susceptible and in need of monitoring systems. Electronic business and data security are proposed to be regulated with the Model Law on Electronic Commerce (UN) as well for the safety and protection of electronic transactions in India IT Act 2000. It is therefore necessary for cloud service providers to monitor employee activities so that they protect user data and keep the trust of users. Data protection in addition to the maintenance of privacy is what access control mechanisms are designed, along with when monitoring employees for security requirements.

Keywords: Privacy Concern, Cloud, Insider Attack, Database.

Preface of Privacy Concern

As the processing of data is done, that becomes information. This data should be stored in digital form, saved into computer systems for further use or needed by some other area and so on. Availability of this data easily is basically making it available throughout the world without any time/place constraint done using cloud computing architecture. The size of cloud computing architecture keeps on growing which in turn requires hard and fast rules for data management. [1]

The cloud storage any time–any place concept of data availability is the main power why it attracts users and customers similarly. Application and web development that spans multiple platforms is increasingly trying to leverage the advantages of cloud computing - scale, availability, etc. - so they can service customers around the globe to increase their sales footprints. So in the similar fashion they need to save their data on cloud as well. Handling the data of these users also drags one to worry that is heard more than once about privacy concerns as it which creates problems as Data moves through different applications, platforms. [2]

By privacy concern, we mean that the data of the customer should not be shared without his permission on different applications and platforms. He should be intimated every time as the data moves to increase customer confidence. Users' details have been recorded at many places such as in Banks, financial schemes, Government welfare schemes, Hospitals, Medical labs, Insurance companies, Educational institutes, Motor Companies etc. For increasing their business they are targeting new customers which requires customer details. Many IT companies have come up to fill this gap. Attackers and third-party applications try to get it unauthorized way. Google and Apple have also been on this side to record users' details to sell them to many companies. . Users' digitised data is collected in many ways such as through web cookies on the web browser, third-party applications, chatbots, social sites etc. Even though security concerns are always there to maintain the privacy of the user's data.[4-5]

Role of Cloud in Managing Users' Data

According to U.S. National Institute of Standards and Technology (NIST) guidelines, Cloud Service Provider is responsible for service they are providing and the NIST have also provided a Cloud Reference Architecture model that helps in offering services as well Delivery Models. Service Deployment, Cloud Service Security and Cloud Service Privacy, Service Orchestration are responsibility of the Cloud Service Provider [5]

Keeping users data on database servers in cloud allows availablty and accessible across the globe. The principle of Confidentiality, integrity and availability is also used in Cloud Database [6]. Confidentiality ensures that Secure Information is available only to authorized individuals; integrity ensure that Secure information or system is accurate and complete on the cloud. Secured data is stored and it can be accessed at the demand from anywhere in the cloud. [6]

Data available at cloud servers is shared among various platforms, It is duty of the cloud service provider not to convey this in an unauthorized way. Servers are maintained by the employees that work with Cloud service providers. They carry the obligation to keep privacy and strict company protocols. Even then, a few others lead to Insider Threats. Employees already know the kind of authentication method, encryption method and user authorization used in the company. Not all cloud compromises were disclosed by Cloud service providers with the fear of loss of reputation. [7]

Today, cloud service providers are operating a mixture of both heterogeneous and homogenous hypervisors together. As these characteristics and features require manageability, backing for density hypervisors should give a chance to automatically resize (up or down) according to user requests in the case of changing from/to one similarity level on another. This makes it impossible to securely store data. This is where the access control comes in picture. Access Control - How to Protect Shared Resources against unauthorized access, it consists

authentication and authorisation. Authentication is answer to who you are, what do you know? The entity could be a person, machine or device, set of devices consisting of networked smart sensor nodes and servers [14]. Authorisation is the authorization given to any user for doing some activity such as read, write or create etc on specific objects. In an Access Control Policy domain there are two factors (authorization & unauthorized) which can be either lawful, intentional. [8]

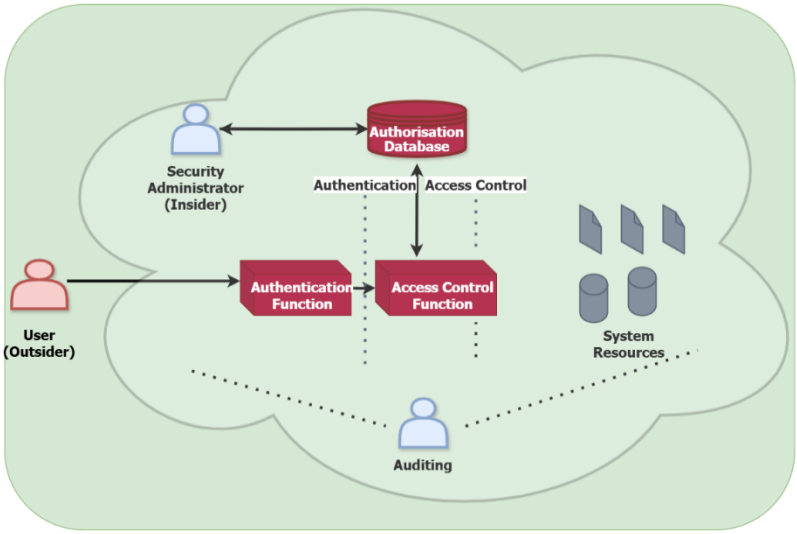


Figure 1: Stakeholders in Cloud Access Control

Roll of Cloud access control performed by Access control Function such as Authentication and authorization. Multiple employees of cloud service provider are working in this direction such as Security Administrator, Auditor, etc. as shown in Figure 1.authentication allows intended user to access his data after verifying with various techniques such as username/Password, Biometric authentication etc., and authorization allows what type of actions are allowed to the user depending upon his role such as Read only, Write only and read-write only . The security administrator so keeps track of what's happening on their side applying company policies for security purposes. At each level employees are involved and providing their services at cloud service provider [9].

Issue of Insiders Attack in Cloud.

In the 2023 Gurucul Insider threat report, 74 % of companies believe that their organizations are vulnerable to insider threat. This kind of intrusion is very slippery. Some of the people who carry them out are insiders who know company policies. By the time this kind of Insider Attack enters companies ' radar, a great deal damage has already occurred [10] as Table 1 illustrates.

Table 1: List of Insider Attack incidents on organisations

Year	Incidents of Insider attack
1979-2006	Boeing [11]
2011	R.S.A Security Firm [11]
2016	Sage [11]
2016-2017	Anthem [11]
2018-2020	Cisco Cloud data [11]
2019	Microsoft [12]
2020	Marriott Hotels [12]
2020	General Electric [12]
2020	Twitter [12]
2022	Pegasus airlines[13]
2022	Cashapp[14]
2022	Yahoo[15]
2023	MGM Resorts International [16]

According to system logs and biometric behaviour masquerading detection, these techniques are in use for insider threat detection. Insider Threat Detection is based on a insider's cyber activity which records his mouse push, keyboard push data, application level behavior, system level performance and graphic user interface (GUI) input, and files on which he is performing searches. This is one of the most dangerous types of attack. Physical traits include but are not limited to eye colour, facial recognition and thumbprint.

Information theft detection includes Cyber Behavior. The insider activity that must be noticeable are printing, web browsing, device usage, login behavior, file access and download / upload activities. As a rule of thumb, communication behaviour collusion means the agent 's activities of email, instant messages, telephone and file sharing or transfer. Psychosocial behavior toward his colleagues and superiors [17-18]. Every Cloud service provider decides the best techniques used for the user Authentication and Authorisation Architecture but it does not ensure that attacks do not happen on the user data.

Role of Indian IT Act on user data theft on the cloud

In the case of any user data theft on the cloud, the requirement of a tracking system arises to fix the responsibility in the case of insider threats. In this direction in the General assembly, the United Nations Commission on International Trade Law has adopted Model Law on Electronic Commerce on 30th January 1997 under the resolution of A/RES/51/162. This Model

Law on Electronic Commerce is adopted inter alia, which means all states need to consider this Adopted law.

In the Year 2000, India's Parliament passed the Indian I.T. Act 2000 to recognize Electronic Records for various Government Services. This I.T. Act Provides a Model under which Electronic Transaction occurs. Members of this Model include the adjudicating officer, Appellate Tribunal, Certifying Authority, Controller, and Indian Computer Emergency Response Team. This model also provides Various Definitions and Roles of all the members of Electronic Transactions such as addressee, asymmetric cryptosystem, certification practice statement, communication device, computer system, computer network, computer resource, cyber café, cybersecurity, data, digital signature, electronic form, Electronic Gazette, electronic record, electronic signature, originator [19-20].

Conclusion:

Intending to provide a secure environment for the users' data and to build confidence among users, Cloud service providers apply various security mechanisms in terms of access control in their data centers for their employees. Various Access Control mechanisms provide control of data to users as well as to Cloud service providers. Cloud service providers design these Access control mechanisms for tracking every activity of their employees in Log Files. Tracking various activities of employees to safeguard the interest of the organization, also breaches sometimes employees' privacy area in the interest of users and their data.

References:

1. Waugh, A., Wilkinson, R., Hills, B., & Dell'Oro, J. (2000, June). Preserving digital information forever. In *Proceedings of the fifth ACM conference on Digital libraries* (pp. 175-184).
2. Youssef, A. E. (2012). Exploring cloud computing services and applications. *Journal of Emerging Trends in Computing and Information Sciences, 3*(6), 838-847.
3. Tan, X., Qin, L., Kim, Y., & Hsu, J. (2012). Impact of privacy concern in social networking web sites. *Internet Research, 22*(2), 211-233.
4. Wirtz, J., Lwin, M. O., & Williams, J. D. (2007). Causes and consequences of consumer online privacy concern. *International Journal of Service Industry Management, 18*(4), 326-348.
5. Liu, F., Tong, J., Mao, J., Bohn, R., Messina, J., Badger, L., & Leaf, D. (2011). NIST cloud computing reference architecture. *NIST Special Publication, 500*(2011), 1-28.
6. Aldossary, S., & Allen, W. (2016). Data security, privacy, availability and integrity in cloud computing: Issues and current solutions. *International Journal of Advanced Computer Science and Applications, 7*(4).
7. Kandias, M., Virvilis, N., & Gritzalis, D. (2013). The insider threat in cloud computing. In *Critical Information Infrastructure Security: 6th International Workshop, CRITIS 2011,*

Lucerne, Switzerland, September 8-9, 2011, Revised Selected Papers (pp. 93-103). Springer Berlin Heidelberg.

8. Younis, Y. A., Kifayat, K., & Merabti, M. (2014). An access control model for cloud computing. *Journal of Information Security and Applications, 19*(1), 45-60.
9. El Sibai, R., Gemayel, N., Bou Abdo, J., & Demerjian, J. (2020). A survey on access control mechanisms for cloud computing. *Transactions on Emerging Telecommunications Technologies, 31*(2), e3720.
10. Singh, M., Mehtre, B. M., Sangeetha, S., & Govindaraju, V. (2023). User behavior-based insider threat detection using a hybrid learning approach. *Journal of Ambient Intelligence and Humanized Computing, 14*(4), 4573-4593.
11. ObserveIT. (2018, March 22). 5 examples of insider threat-caused breaches that illustrate the scope of the problem. *ObserveIT*. https://www.observeit.com/blog/5-examples-of-insider-threat-caused-breaches/
12. Ekran System. (n.d.). 5 real-life examples of breaches caused by insider threats. *Ekran System*. https://www.ekransystem.com/en/blog/real-life-examples-insider-threat-caused-breaches
13. May, P. N. (2022, May 31). Breach at Turkey's Pegasus Airlines exposes 6.5TB of data. *BankInfoSecurity*. https://www.bankinfosecurity.com/pegasus-airlines-breach-exposes-65-tb-data-a-19173
14. Cowley, S. (2022, April 6). Block says a former employee downloaded data on millions of Cash App Investing customers. *The New York Times*. https://www.nytimes.com/2022/04/06/business/block-cash-app-data-breach.html
15. Yahoo password breach puts SQL injection in the crosshairs. (2012, July 12). *ESecurityPlanet*. https://www.esecurityplanet.com/threats/yahoo-password-breach-puts-sql-injection-in-the-crosshairs/
16. Fatima, G. (2023). Cyber attack & breach on the MGM resort explained. *Inszone Insurance*. https://inszoneinsurance.com/blog/cyberattack-mgm-resort-explained
17. Ko, L. L., Divakaran, D. M., Liau, Y. S., & Thing, V. L. (2017). Insider threat detection and its future directions. *International Journal of Security and Networks, 12*(3), 168-187.
18. Alsowail, R. A., & Al-Shehari, T. (2020). Empirical detection techniques of insider threat incidents. *IEEE Access, 8*, 78385-78402.
19. Chander, H., & Kaur, G. (2022). *Cyber laws and IT protection*. PHI Learning Pvt. Ltd.
20. Roy, A. K. (2012, March). Role of cyber law and its usefulness in Indian IT industry. In *2012 1st International Conference on Recent Advances in Information Technology (RAIT)* (pp. 143-147). IEEE.

SOCIAL MEDIA'S ROLE IN MODERN MARKETING MANAGEMENT: EMERGING TRENDS AND TRANSFORMATIONS

Ajay Kumar Dogra
UIAMS,
Panjab University, Chandigarh
Corresponding author E-mail: drajaydogra23@gmail.com

Abstract:

Today's world is under the grip of so much innovation and entrepreneurship, a lot of which rests on social media marketing and online shopping. Social media platforms such as Facebook, WhatsApp, Instagram, YouTube, etc. are the catalysts that help direct the flow of this growing culture of digital consumers. Not only for our day-to-day interaction and entertainment, but over the years, these social networking sites have also become a sound marketing tool. You may already know that social media marketing is a platform to advertise and market goods, products, and services using different social media channels (such as Facebook, Instagram, and Twitter). Social media marketing is the pioneer of this era of online advertising, and the sprouting variety of trends and transformations on social networking sites has cultivated a field that's known as the dynamics of social media in marketing management. The integration of social media with marketing management is a topic that deals with changing economies and cultures. People working and engaged as marketing managers should understand the flow of such changes from the micro to the macro level. Besides these crucial reasons, the growing importance and relevance of social media attract scholars and practitioners working in the domains of communication, digital marketing, branding, advertising, and PR, and many more.

Introduction:

During recent years, communication has entered a digital age of immediacy. While a few years ago platforms such as Facebook, YouTube, and Twitter were budding, the birth of MySpace in 2003 set the tone of the transformation that media was likely to experience. Distance has become almost an old-fashioned term, almost obsolete, and the episodic or punctual contact has thus been replaced by what Castells terms the "network society." Networks are horizontal in essence regardless of their functions, and the scarcest resource thus posed is the attention of those belonging to them. These are the common ground from which social media dynamics arise, so perfectly understood as non-media, by contrast to mass media, and deeply rooted in peer-to-peer exchange and participation. This dyad, communication and the people taking part in it, underlies the idea of the communication model of social media. The old general-public mass-communication model now hinges on a different point, no longer targets but actors.

Social Media are Pervasive in Today's Society

The aim of this chapter is to explore the potential of social media as a technology-enabled, strategic brand management and customer experience platform. It revolves around the following idea: "If in relatively mature social media markets large companies have not solved the strategic or tactical problem of managing their linkages across a portfolio of online and seeks to create electronic word-of-mouth (eWOM) that lends credibility and influence to those passing the information along. Customer-driven conversations emanate in the form of eWOM. Relationship marketing (RM) recognizes that businesses are bounded not just by the exchange of products and services, but by transaction costs that emerge from the management of customer relationships. Marketing's contribution is realized by co-creating value within the dyad and non-zero-sum web of relationships, and by seeing customers as the company's greatest asset. Finally, technology management (TM) convenience, access, ease of use, and Web 2.0 functionality exemplify not having enough time to spend - the TM advantage in the digital marketplace. Social media marketing, therefore, requires a strategic, interactive, attention-getting, value-delivering, long-range, digitally integrated plan that accommodates consumers' future-oriented concerns aimed at eWOM use including those by millennial, and perhaps non-deterministic, future technological users.

Social Media Marketing (SMM) has captured the imagination (or fear) of business practitioners and scholars alike in recent years. It has led to substantial changes concerning how firms are expected to interact with and engage their customers. Although SMM relates to a wider issue - marketing management - the dynamics of social media deserve a specificity that we shall seek to render and to gauge in this section. Social media marketing has seen a recent worldwide proliferation, although this phenomenon nevertheless encompasses a variety of long-established marketing practices in beleaguered pursuit of efficiency goals and a highly debatable customer relationship management spirit of the nineties. To better understand and specify the features of today's social media and derive some potentially new and original social media marketing principles, we need to start from the very beginning. This may sound trite, but it is essential. Indeed, the new phenomenon of social media we experience today saw their first signs some thirty years ago with real-time communications.

Evolution of Social Media in Marketing

Social media networks have open publication on the web, sharing, and collaboration tools. They offer marketing managers an opportunity to connect with customers and execute marketing operations at a low cost. In terms of social interactions, social media platforms facilitate the prosumer behavior of customers, leading to peer and social pressure. predicted the transformation of businesses into social organizations. Social media encourages community, conversation, comments, rating currency, community, and content creation, one-on-one and

many-to-many interaction, and web 2.0 behavior. The nature and quality of these exchanges make businesses and business practices more visible, and building stronger product copyrights.

Marketing utilizes social media for brand building, customer acquisition, and maintenance. Social networks, blogs, collaborative projects, social content sites encourage customer engagement and word-of-mouth. Corporate usage of social media varies according to factors such as the purpose of the media and comfort with reference-generated content. The influence of consumers in social media is high, along with the belief that an expanding group of individuals will keep the conversation under control. The profession, therefore, is willing and able to listen and respond to that influence, and events are organized and monitored. A content-driven internet is motivating blogs, podcasts, video podcasts, and audio commentaries. A multipurpose fad is adding texture to marketing service offerings. Blog networks supply bloggers with outlets and content, with the hope of exerting influence. Social media technologies have become an important part of the business environment because they have changed communication and information dynamics in the workplace. These technologies offer a range of options that allow for social interaction with verified content such as academic findings, polls, film critiques, financial results, matters pertaining to business management, and changes in society.

A historical overview of social media platforms shows that the use of social media for business reasons stretches back to primitive versions of social networking tools. Early forms are chat rooms, instance management software, and blogs. Prodigy Services enabled web publishers to display comments on their content in 1988, and commercial online services such as America Online and CompuServe provided chat rooms and communities in the 1990s. Despite all these kinds of tools having similar purposes and functionalities, they operate on hosting platforms that are comparable. In general, social media networks such as Facebook, YouTube, Flickr, and Last.fm founded a linked staff concerned with the various spheres of their lives. These sites are responsible for the development of prohibitively defined user populations who are now measured by audience estimates, which has resulted in an improvement to paid-for commercials as contact have been made with possible targets. Most of the infrastructures required to make a business into an acquisition are part of these social network management frameworks. The platform infrastructure during that period mainly supported the expansion of e-commerce and focused particularly on career, press, updates, and educational events.

Current Trends in Social Media Marketing

Then, now the focus moves from a theoretical perspective to observing some key trends in social media marketing. The analysis will focus on influencer marketing, offering some potentially new readings of this specific emerging method and focusing more specifically on the

contribution mainly to possible developments in the field of marketing management. These developments in social media require consideration of the potential digital tools for marketing.

The current landscape from the field sheds light on the relevance of social media marketing mainly according to three main kinds of trends, which have, in turn, inspired a wide amount of literature. Our aim here is not to provide a general overview of these relevant aspects of the literature, but rather shed light on what is really new in terms of approaches to be used by managers. Social media provides the opportunity for communication that is not only a mere form of relationship among usual clients interested in a specific brand, but is fundamentally a way to build an ongoing relationship that can change its nature in the long run. If, on the one hand, social media changes a customer's behavior, on the other hand, their potentialities can be considered as a true revolution in terms of the possible impacts that they can have on possible marketing strategies. Indeed, nowadays the most important trend in marketing management is paying much more attention to the conceptualization of possible future dynamics. The increasing relevance of the possible use of multiple customers involving, for instance, in the development of digital applications could be relevant for opening new scenarios for online marketers. This is due to the fact that such an approach could lead to a larger stream of new ideas. Indeed, a very recent contribution in the literature explores how digital strategies can emerge from such active possible proactive creative intervention and how possible the transformation of 'a new way of customers' can be relevant from a social media branding strategy point of view. Furthermore, this perspective calls for proactive attention to factors such as innovative online communities, last but not least if we consider that the shift between different online communities has often led to relevant business turning points as the Shin Bet case sharply puts into evidence. In other words, not only is customer experience recognized as pivotal, but also the customer expects to be 'allowed' to intervene. And, as underlined by some entrepreneurs, 'the customer is always right'.

Influencer marketing is a type of collaboration between brands and those who partner with content creators, brands, businesses, and institutions. Influencers are people who possess the potential to have an impact on a certain field that can affect the emotions, opinions, and behaviors of a great number of people regarding that field. Those who are not seen or evaluated as an opinion leader are not likely to be influential individuals. The concept of influencers has existed and shown itself for centuries, such as celebrities, politicians, writers, etc., who have been evaluated as opinion leaders and are considered influential individuals. Influencers have the potential to use either promotional or inhibitory power.

Influencers can have myriad meanings on social media, such as brand endorsers, ambassadors, key contributors, advocates, opinion leaders, talent partners, and content creators. Recently, influencer marketing has incorporated using the motivations, values, and enthusiasm underpinning the use of a product into the brand message being disseminated. On social media

platforms, influencers are seen as sharing their personal experiences with products in a more realistic way rather than simply promoting a brand. Today, influencer collaborations are also seen as being invaluable in diversifying marketing strategies. This has led to an increase in the number of marketing strategies built on partnerships. With the increase of internet usage, power, and creativity, individual influencers who are also opinion leaders in societies have increased. This is one reason why influencer marketing is relatively competitive in the marketing dynamics. This is no doubt why influencer marketing collaborations have become so popular both in Turkey and across the world of late. Thus, content posted by influencers is today an indispensable element of social media communication dynamics.

Impact of Social Media on Consumer Behavior

Social media is a vibrant, crowded, and complex field of marketing and internet operations. In the last few decades, the academic world and society in general have shown a great deal of interest in social media and its potential for organizations aiming to connect with and influence users online. The evolution of social media marketing has given rise to its own specific focal points and strategies, which have caught the attention of the business world, opening a dedicated branch of internet marketing known as Social Media Optimization (SMO). Social media marketing and optimization tactics extend from a good understanding of the operations and dynamics underpinning the web 2.0 intranet to the motivations that lead users to produce, share, and interact with online content.

Traditionally, researchers have attributed online sharing and interacting within social media to a number of individual psychological/communicative characteristics, including novelty-seeking (creating content leads to being perceived as original, authentic, and interesting), convenience-seeking (social media is considered convenient to use as a platform to assert oneself), inquisitiveness (creating and distributing content makes it possible to check if others share the same opinions), altruism (regarded as an effective way of expressing kindness and helpfulness towards others), egoism (content is shared to communicate status), and the feeling of being trendy (and shared search for trends to maximize social interactions and virtual social capital). These "narcissistic motivations" are indeed capable of providing insight into the rise of uncategorized content within social media, particularly those social media platforms dominated by Generation Y – who were found to demonstrate the high dispersal of aforementioned narcissistic indicators.

Therefore, herein, an objective is the better understanding of psychological insights that govern social media and neuro-marketing in the current pressured marketing managements. This examination mainly aims at uncovering the new era of psychological properties based on the linkage of the digital marketing atmospheres. Consequently, once the psychological backgrounds of the topics significantly vary in the credible social media-based scientific investigation from

the recent past publication, the psychological insights are required to be conducted with the specifics of the service management and marketing from earlier studies of the era. These also consider the marketing management and strategic marketing tracking from the digital platform literature to the new era of virtuality, offering valuable insights to medium to large-scale corporate managers and marketers, alongside the theoretical and academicians.

Emerging Technologies in Social Media Marketing

The influence of the application of emerging technologies, such as artificial intelligence and the Internet of Things, is immense in today's dynamic digital world. An important aspect of business dynamics has undergone a major thrust in being reshaped across various functional alignments. Social media has long been associated with factors like promotion and advertising, while marketing offered the opportunity, especially to emerging companies, to reach out to potential customers. In the current context, traditional moves have reinvented themselves to offer a complete and continuing experience of customer engagement. In relation to the potential of providing alternative new perspectives, attracting, retaining, and nurturing relationships between enterprises and customers have opened more advanced frontiers in contemporary e-marketing strategies.

In today's business ecosystem, where the existence of the human population is heavily relied on technology, particularly the social media platform, industry players are perceived to have a different choice to win their way into the hearts and minds of potential buyers. Consequently, to bar out the rest and provide a riveting experience for potential customers, a debate has been centered on the growing use of technology or innovative means to proactively support an understanding of consumer behavior in social media. It is thus very useful and responsible for contributing to the current developments in the above-described situation, and one of the principal goals of this article. It is therefore in line with the move from the traditional trend to the adopted trend that this category research work will add to the nascent knowledge of change in individuals and marketers' treatment of market segment marketing.

The advancement in social media technologies has led to an abundance of never-ending data. AI has revolutionized the social media marketing industry by converting this large amount of data into meaningful insights. Social media platforms, especially Facebook and Twitter, have been using AI extensively to analyze user data and show the users only what they are interested in. This capability of AI has opened many avenues in the field of marketing. People no longer have to base their marketing strategies on stereotypes or random surveys but could now draw actionable insights based on real-time data.

AI uses complex algorithms on the existing social media data to categorize people based on their preferences and shows them only what they want to see. This yields better results in terms of customer acquisition with fewer resources. AI in social media has also made brand

perception analysis much more precise. Marketers no longer have to search through thousands of posted texts and images on social media to know if their customers are happy or not. AI algorithms like NLP can extract meaning out of unstructured data like text, voice, and even images from which marketers can know the public's sentiment, brand perception, and also what the public needs. By understanding in advance what the public wants, one could serve better than others. As a marketer, one can gain deep insights into who the customers are, their preferences, which campaigns will be effective, and much more. With AI, one can also track with precision what didn't work in the past and modify future plans accordingly. Predictive modeling and analytics tools can highlight how campaigns will perform in advance so as to adopt and make changes accordingly. The insights from such tracking have a positive impact on social media ROI. AI and machine learning algorithms can cater personalized messages to potentially interested customers timely, without being intrusive. With recommendation engines, customers are exposed to the products or services that interest them, hence providing a hassle-free shopping experience. Hence, the amplification of reach using AI technology in marketing is humongous. Social media now relies heavily on advanced analytics and machine learning capabilities to analyze user behavior and comes up with only those push notifications that the user might be interested in. AI-enabled chatbots can provide an improved personalized experience at scale and will get smarter over time, as they recognize the customers' preferences and personalize interaction accordingly. The chatbots with AI will be able to access members' profiles, predict member behavior over time, and suggest the next best courses of action.

Social Media Crisis Management

Social media crisis management is one of the most crucial areas discussed by scholars as well as practitioners. McDonald's, for instance, recently became the target of a social sensation after a worker was discriminated against for being emotionally and physically disabled. Frustrated by the event, zombies (activists) were supported by more than 580,000 people and supported a boycott of McDonald's. The promotion and the manufacturer underwent a substantial decline. The film was one of the top items and hundreds of thousands of passionate comments (positive and negative) on a number of websites have been published. In reply to this, the McDonald's case is one of the most widely reported incidents linked to social media that may entail a crisis.

One more example is the case of New Belgium Brewing, which was forced to address a racist incident at its Brewery in Fort Collins, USA. Here, an employee of a sandwich shop was fired for writing a racial slur against five African Americans on a receipt. What the employee did not know was that these clients worked nearby at New Belgium and that one had previously been denied the same job opportunity as the employee who profiled him. The employee took a copy of the receipt and, two weeks later, posted it on his girlfriend's social media account. Once noticed,

the post went viral, and New Belgium had to respond to the racist incident and explain that it did not tolerate such behavior.

Another case of social media crisis management comes from Chile's Craft Beer Industry. Here, around 3,000 craft beer breweries and microbreweries exist and more than 1,000 of them have an established presence on social media. Due to allegations of sexual misconduct and abuse, social media users started blocking, unfollowing, or publicly disavowing breweries that they also branded as "pro-abuse" (e.g. Wash and leave).

Ethical Considerations in Social Media Marketing

With the increasing use of social media data by marketers, safeguarding data is a critical business activity. suggests that the data use can give unprecedented insights and attempts to uncover the privacy paradoxes of social media data, proposing a structure for the ethics of social media marketing. One of the perspectives frequently mentioned in the literature is the data subject perspective in data mining. uses discussion of morally constitutive interests to argue why people retain privacy interests about the data that exists about them. This is connected to notion of context condition. Another perspective that is used within social media marketing is that of the data user. This is often framed through a demarketing lens. Privacy is an individual's right to protect their "own self and mind", so businesses should not be able to intervene. People will have different preferences regarding privacy.

E-Marketing uses data to drive the role. They suggest that dynamic consumer interactions in social media always bring transparency. Finally, these arguments suggest the context in which we can understand the notion of social media dynamics. Companies managing social media can be characterized as profiting from the illusion of so-called antibiotics of authenticity. Although companies could easily manipulate consumers' online and offline experience, through social media they have the payoff of looking totally above board and thus driving sales. A big potential risk is if there is to be a showdown over revelatory sites such as Wikileaks, as the position of these business secrets will be undermined and might not be able to act ethically, dramatically affecting sales.

Data privacy and security are key ethical issues with respect to the collection and use of consumer data in social media marketing. As data has become not only critical but central to firms, the capacity of firms to make and execute data-driven decisions has emerged as the only true source of sustainable competitive advantage. With the prolific rise in access to a large number of potential consumers clicking through stay-at-home orders to make purchases, the insight gained in this area in recent times has shown the strength of marketing management practices. The importance of ethics to the consumer is noted, but marketing ethics and the issue of disclosure to the targeted end user have not been systematically explored. The importance of dealing with this from an ethical standpoint is evident from several perspectives.

In the age of the digital economy, firms rely on networks of sensors and connected electronic devices to access data about their customers' value creation lives. Many technical, financial, and social barriers to the exploitation of such data have been eradicated, and it is now relatively easy and cheap to begin collecting consumer data as well as the options they are likely to make in large-volume detail. Consequently, the U.S. and European governments have developed legal frameworks and regulatory authorities that require firms to adopt practices for the fair, legal, and protected collection and use of such data on individuals in such disparate geographical sites as Europe, Canada, California, and New York State. To operate such a complex, data-consuming business, significant amounts of money and other consultancy charges would also be saved by the company. Companies that have existing partnerships with or subsidiaries of companies are in the best position to extend their data fields so as to blend data on all users into a smooth experience. Firms that do not have access to real-time, data-driven business are struggling to adapt or are sunsetting and going out of business. Furthermore, there has been a steady rise in the rate of data theft from client connections with organizations, in parallel with the climb in the importance of customer-facing activities.

Global Perspectives on Social Media Marketing

In recent years, social media networks have become a critical mode for communication and marketing. Cross-cultural or global marketing requires the adoption of global or local segmentation, targeting, and positioning strategies. Culture plays a crucial role in coloring consumer perceptions and interpretations. This cannot be completely circumvented, as relevant consumers need to be better interpreted and reached. This section deals with the global perspectives on social media, focusing on how distinct national cultures dictate distinct strategies of engaging with social media in marketing and management. The aim in this section, therefore, is to understand the dynamism "in between" various cultural market contexts. In this way, we can derive more global insights towards the development of often inclusive global marketing activities and strategies. These already diverse papers hail from India, China, Australia, New Zealand, Germany, and Brazil. These emergent economies span a large range of Hofstede's cultural dimensions, both under and above the norm. Even from this simple analysis, it therefore becomes evident that even the so-called emerging and developed economies thought to function under more or less common practice and cultural set-ups are distinctly varied. Marketing activities are social processes that are influenced by the socio-economic and socio-cultural realities of the people. They thus enrich one of the subsets of the marketing literature, cross-cultural marketing or international marketing, by highlighting the negotiation aspect of marketing strategies, negotiations that have a significant impact on the decision-making processes.

Social media channel marketing develops in different cultural contexts in Asia, Europe, Africa, and America, and we will focus on strategies to develop cross-cultural marketing through social media. In a global periphery, marketing strategies must take into account cultural requirements, thus forming conscious communication. Personal and based on values which continue marked by ethno-religious, behavioral, sociocultural, economic, and demographic diversities.

The idea of a people creates philosophy, and the philosophy creates the civilization of the people, a process that creates its culture and creates diversity according to the concept of the civilization model. This ethicist experiences this transformation, in relationship to develop social media as a powerful multicultural communication tool, where the most influential are the cultural dimensions of communication and decisions.

Thus, marketing managers should know and integrate with the dynamics of the people they want to reach, to understand their non-periodic nature and consumer behavior, and to create a competitive ad in the market both at the local and international levels. Such a capacity is based on drift; the present study relates the emergence of cultural marketing strategies with the social-determinant dynamic in the relationship between marketing and culture.

To this end, we conduct a qualitative study of 15 companies, conducted through interviews with key staff responsible for marketing and management activities in a specific cultural context, based on the proposed model valuation. The company in the vision of marketing managers as a social entity, the way in which they create the organization and its characteristics, on the immaterial capital of the company, including the value of culture, and brand and social needs that follow the company's social role.

A relevant cultural marketing dimension and invaluable research can be developed. The research can also be considered to have several functional implications, which highlights the turn of marketing managers towards the company and brands in a social effectiveness, serving as a point of reference on organizational culture and creating values for the actual customer while performed as a non-profit concept that could be applied with ease to all organs and even non-governmental agencies in view of the nature of assess social and overall marketing research.

Conclusion:

In this final part, the social media marketing landscape and its potential future developments will be discussed to stimulate discourse on the topic of future directions of social media marketing. These predictions may serve to encourage future-proofing strategies, which can assist practitioners with one alternative future. Of course, the future cannot be predicted with accuracy, and the aim is not to scare managers into subduing their hard-earned lessons from past experiences, opportunities for sensitivity or intuition, or feelings of courage to experiment. Yet sensitizing marketing practitioners to such alternative futures represents an entry point to help

more effectively understand and manage the dynamics of social media marketing in today's constantly changing digital era. It is vital for marketing practitioners and consumers to work together to create and refine these alternative future scenarios. It is hoped that these predictions will provide practitioners with a basis for further discourse and knowledge exchange related to potential social media marketing developments. Managers are encouraged to contemplate the determinants of the alternative futures projected in this article and to further develop this discussion with their peers, colleagues, and stakeholders. These alternative future scenarios discussed in this final part can also offer a new viewpoint and platform for furthering academic research topics across multiple disciplines. Given the original role and ultimate purpose of marketing – to match an organization, service, or product with consumers/users – we propose accessible formats, future scenarios. For the next decade, the following trends could alter the landscape of social media marketing, revolutionize consumer expectations, and alter the marketing industry. Social media has become a unique platform to engage potential buyers, allowing companies to communicate both publicly and privately. In addition, potential and existing customers have the ability today to see just how well a specific brand treats its customers where they live on social media. This phenomenon sharpens the stake for companies. According to this essay, there are some basic questions surrounding the issue of the recent dynamics of social media as it pertains to the field of marketing management. These questions are:

(1) What are the recent trends that are emerging in the academic literature and in marketing practice?

(2) What transformations have taken place in the past few years in this area?

It seeks to provide the answers to these questions in this chapter. The ongoing transformations in the social media landscape could have critical implications for the practice of marketing management. The dynamics of social media are constantly changing. Besides meeting new journals, new work has been published on the world of social media, whether in the format of eWOMs, customer service 2.0, or consumer insights. In social media, changes have also been observed concerning the relationship with the customer. As suggested by the use of company accounts, most social media have experienced growth. This is an interesting field of subscribe for numerous customers who access their social media. As a result, it provides many possibilities for marketing managers. A huge amount of essential and engaged subscribers on digital marketing agencies. Some users have preferences or sensory restrictions to promote their services.

Overall, the dynamics of social media are changing. Currently, companies are increasingly relying on social media to reach consumers. What happens here as opposed to traditional advertising is that businesses change from top-down to bottom-up. Only after engaging the followers do future posts, marketing, products, or services show trends or confirm

consumer engagement. So, speeches about commodities accumulating followers. It presents interest, tendencies, and the attention attracted. In addition, clients that are good "ads" can be the leaders of customer experience. In this social experience, it is important to keep involving followers and holding the clients together. As a result, the creators adjust according to the focus of the clients. Social media influence the adherence of users by maintaining a high level of trust. Relevance influences a consumer's response to the likability of social media marketing materials. Whether a promotional tweet obtains a new follower, influential followers will cultivate understanding, and as stated in specifics, new subscribers are purchasing their brands.

References:

1. Ahmed, M. A. M., & Hamza, N. R. (2020). The Role of Entrepreneurial Leadership in Entrepreneurial Marketing: An Approach Model for Prioritizing Leadership, Case Study Shiraz Food Industries Middle Euphrates. International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 14(3), 435-442.
2. Guiltinan, J. P. (2019). Better Marketing Management: Preparing for the 21st Century. Routledge. Levitt, T. (1960). Marketing myopia. Harvard Business Review, 38, 45-56.
3. Mohammadian, M., Mofid, M., & Fanni, A. (2021). An Examination of the Relationship Between the Entrepreneurial Behavior and Intrapreneurial Behavior in Public Organizations. Nursing and Midwifery Studies, 10(2), 73-74.
4. Niewiadomski, R., Paduszyński, P., & Bolek, M. (2020). The Importance of Financing Decisions in an Entrepreneurial Business. Equity and Law Journal, 16(94), 41-56.
5. Park, H., & Yu, T. (2022). Expatriate HRM in South Korea: Factors Driving an Untimely Proposition. Sustainability, 14(5), 1671.
6. Serrao-Neumann, S., & Atkinson, M. (2019). Community Engagement and Social Media in Urban Water Planning. Society and Natural Resources, 32(3), 280-291.
7. Xia, L., Matook, S., & Nakata, Y. (2020). Political, Psychological, and Marketing Motivations in Coordinating Political Cyberattacks (Or Not). International Journal of Information Management, 50, 221-234.
8. Zastavna, I. (2022). Methodological Handmaidens in the Market Management SNT Concept: Prosumer and Entrepreneurship. Economic Forum, 20(2), 243-258.
9. Rachmad, Y. E. "Transforming Digital Consumers: The Power of Viral Diffusion in Consumer Behavior." 2024.
10. Khwaja, Muddasar Ghani, Umer Zaman, and Athar Hameed Butt. "Are digital influencers social change catalysts? Empirical findings from the online apparel industry." International Journal of Technology Marketing 16.1-2 (2022): 145-167.

SOCIAL MEDIA DYNAMICS IN CHEMISTRY

Shilpi Shrivastava*[1] and Aloke Verma[2]

[1]Department of Chemistry,

[2]Department of Physics,

Kalinga University, Naya Raipur, Chhattisgarh

*Corresponding author E-mail: shilpi.vikas2905@gmail.com

Introduction:

In the 21st century, social media has revolutionized how we communicate, share information, and connect with others. Platforms like Twitter, Facebook, LinkedIn, and Instagram have become integral parts of our daily lives, influencing various fields, including science. For chemists, social media offers unique opportunities to enhance collaboration, disseminate research, engage with the public, and foster education. This chapter explores the dynamics of social media in the field of Chemistry, highlighting its benefits, challenges, and future trends.

Historical Context

The way chemists communicate has evolved significantly over the years. From traditional print journals and conferences to digital platforms and online communities, the methods of sharing knowledge have continuously adapted to technological advancements. The early adoption of email and forums in the late 20th century paved the way for the widespread use of social media in the scientific community. Today, social media is a vital tool for chemists to stay connected, informed, and engaged with the latest developments in their field.

Benefits of Social Media in Chemistry

Networking and Collaboration: Social media platforms enable chemists to connect with colleagues, mentors, and institutions worldwide. These connections can lead to fruitful collaborations, joint research projects, and the sharing of valuable resources and expertise.

Dissemination of Research and Information: social media allows chemists to rapidly share their research findings with a global audience. Platforms like Twitter and ResearchGate facilitate the dissemination of new studies, conference presentations, and academic papers, increasing the visibility and impact of scientific work.

Public Engagement and Outreach: Chemists can use social media to engage with the public, demystifying complex scientific concepts and promoting the importance of Chemistry in everyday life. Educational campaigns, science communication initiatives, and interactive content can help bridge the gap between scientists and the general public.

Educational Tools and Resources: social media provides access to a wealth of educational content, including tutorials, webinars, podcasts, and online courses. Students and educators can

use these resources to enhance learning, stay updated with the latest advancements, and participate in discussions with peers and experts.

Challenges and Risks

Misinformation and Credibility Issues: One of the major challenges of social media is the spread of misinformation. Chemists must navigate a landscape where false information can easily proliferate, potentially damaging the credibility of scientific facts.

Privacy and Data Security: Sharing information on social media comes with privacy concerns. Chemists must be cautious about the data they share, ensuring that sensitive information is protected and that their online presence does not compromise their professional integrity.

Managing Professional and Personal Boundaries: Maintaining a balance between professional and personal use of social media can be challenging. Chemists need to set clear boundaries to ensure that their professional reputation is upheld while engaging in personal interactions online.

Ethical Considerations: Ethical issues related to the use of social media in science include the proper attribution of ideas, avoiding conflicts of interest, and ensuring that the content shared is accurate and respectful.

Case Studies

Successful Social Media Campaigns in Chemistry: Case studies of notable social media campaigns in Chemistry can provide insights into effective strategies for public engagement and dissemination of information. For example, the #RealTimeChem initiative encourages chemists to share their daily laboratory activities, fostering a sense of community and collaboration.

Influential Chemists on social media: Profiles of chemists who have effectively leveraged social media to enhance their careers, engage with the public, and contribute to scientific discourse can serve as inspiration and guidance for others in the field.

Use of social media in Major Chemical Discoveries: Examining instances where social media played a crucial role in the dissemination and recognition of significant chemical discoveries can highlight the platform's impact on the advancement of the field.

Impact on Education

Integration of social media in Chemistry Curricula: Incorporating social media into Chemistry education can enhance student engagement and provide additional learning opportunities. Educators can use platforms like YouTube for video tutorials, Twitter for real-time discussions, and LinkedIn for professional development.

Student Engagement and Learning Outcomes: Studies have shown that the use of social media in education can improve student engagement, foster collaborative learning, and enhance understanding of complex concepts. Social media can also provide a platform for students to showcase their work and receive feedback from a broader audience.

Online Communities and Peer Support: Social media platforms host numerous online communities where students and professionals can share knowledge, seek advice, and support each other. These communities can be particularly valuable for those in remote or underrepresented regions, providing access to a network of peers and mentors.

Future Trends

Emerging Platforms and Technologies: As technology continues to evolve, new social media platforms and tools are likely to emerge, offering even more innovative ways for chemists to connect, collaborate, and communicate. Virtual reality, augmented reality, and artificial intelligence could play significant roles in the future of social media in Chemistry.

Potential Changes in Scientific Communication: The traditional model of scientific communication is being challenged by the immediacy and accessibility of social media. Open access publishing, preprints, and alternative metrics (altmetrics) are becoming more prevalent, potentially transforming how research is shared and evaluated.

Long-term Implications for the Chemistry Community: The integration of social media into the professional lives of chemists will likely have lasting impacts on the field. From increased collaboration and public engagement to new educational methods and ethical considerations, the dynamics of social media will continue to shape the future of Chemistry.

Conclusion:

Social media has become an indispensable tool in the field of Chemistry, offering numerous benefits while also presenting unique challenges. By effectively leveraging social media, chemists can enhance their professional networks, disseminate research, engage with the public, and contribute to education. As the digital landscape continues to evolve, the Chemistry community must adapt and embrace these changes to fully realize the potential of social media in advancing the field.

References:

1. Dalton, L. (2021). The chemistry community's engagement with social media. *Chemical & Engineering News*. Retrieved from https://cen.acs.org/articles/99/i4/Chemistry-communitys-engagement-social-media.html
2. González, H., & Vargas, M. (2020). The impact of social media on chemical education. *Journal of Chemical Education*, *97*(6), 1650-1656. doi:10.1021/acs.jchemed.9b00861
3. Hayes, A. S., & Allen, J. L. (2021). Social media's influence on chemistry research dissemination. *ACS Omega, 6*(15), 10293-10299. doi:10.1021/acsomega.0c06078
4. Patel, R., & Thompson, B. (2020). Leveraging Twitter for chemistry outreach: Strategies and impacts. *Journal of Chemical Information and Modeling, 60*(9), 4448-4456. doi:10.1021/acs.jcim.0c00110

5. Barker, D. (2021). Social media platforms as a tool for chemistry education. *Chemistry Teacher International, 3*(2), 99-106. doi:10.1515/cti-2021-0005
6. Kim, S., & Lee, K. (2020). The role of YouTube in promoting chemistry concepts. *Journal of Chemical Education, 97*(5), 1232-1240. doi:10.1021/acs.jchemed.9b01027
7. Liu, Y., & Zhang, X. (2019). Engaging students in chemistry through Instagram. *Journal of Chemical Education, 96*(3), 567-573. doi:10.1021/acs.jchemed.8b00829
8. Smith, J., & Jones, R. (2020). Using LinkedIn for professional networking in chemistry. *Chemistry World, 17*(4), 34-40. Retrieved from https://www.chemistryworld.com/careers/using-linkedin-for-professional-networking/4011498.article
9. Kumar, P. (2019). Social media dynamics in academic chemistry research. *Nature Reviews Chemistry, 3*(11), 676-684. doi:10.1038/s41570-019-0124-8
10. Carter, A. (2021). Social media in the dissemination of chemical safety information. *Journal of Chemical Health & Safety, 28*(3), 207-214. doi:10.1016/j.jchas.2021.02.001
11. Nguyen, T. (2020). The evolution of chemistry communication through social media. *ACS Chemical Health & Safety, 27*(4), 206-213. doi:10.1021/acs.chas.0c00014
12. Wright, C., & Green, M. (2021). The role of Facebook in chemistry education. *Journal of Chemical Education, 98*(7), 2171-2178. doi:10.1021/acs.jchemed.1c00250
13. Lin, J. (2020). Analyzing Twitter trends in chemical research discussions. *Journal of Informetrics, 14*(2), 102026. doi:10.1016/j.joi.2020.102026
14. Ortega, F., & Gutiérrez, A. (2019). Social media and public perception of chemistry. *International Journal of Science Education, 41*(10), 1263-1279. doi:10.1080/09500693.2019.1602435
15. Anderson, H., & Clark, P. (2021). YouTube as a tool for chemistry demonstrations. *Journal of Chemical Education, 98*(5), 1321-1328. doi:10.1021/acs.jchemed.0c01375

THE RISE OF SHORT-FORM VIDEO: HOW TIKTOK AND REELS ARE SHAPING SOCIAL MEDIA ENGAGEMENT

Ankita Lakra
Department of Commerce,
Pandit Sundarlal Sharma (Open) University, Chhattisgarh, Bilaspur
Corresponding author E-mail: ankitalakra97@gmail.com

Short-form video content has emerged as a significant trend in the media landscape, altering the way users engage on many platforms. This trend is being driven by TikTok and Instagram Reels, which provide short, often amusing films to draw viewers in. This section explores how various platforms affect social media participation, emphasizing both their influence and the factors that contribute to their widespread use.

The Rise of TikTok and Instagram Reels

TikTok launched globally in 2018 and quickly became popular for its user layout. Engaging video style. Unlike social media sites, TikTok focuses on videos ranging from 15 seconds to 3 minutes. This brief format caters to today's audience with attention spans as highlighted by Smith (2020) who observed that users prefer appealing content in concise formats.

Similarly, Instagram Reels made its debut in August 2020 to meet the rising demand for videos. Seamlessly integrated into the Instagram platform Reels lets users create and share 15 30 videos to reach an audience, within Instagram's user community.

Lee and Kim (2021) found that incorporating Reels has led to a boost, in user engagement on Instagram resulting in users spending increased time, on the platform and interacting with content often.

Exploratory Analysis of the User Feedback

Thus, in discussing the effects of TikTok and Reels on social media interaction, the qualitative features of users' activity should be explored. Johnson (2021) noted that Due to the increase in technological advancement, short-form videos are popular with the population since they pass on information in a fun and concise way. It also grasps the user's desire for instant satisfaction that is in congruence with today's fast world.

In addition, these platforms' participatory culture makes them promote user-generated content, which improves interaction. According to Jenkins (2006), it discusses how users can create instead of just watching what has been created for them. TikTok and Reels make this possible through features that allow one to create and share videos, which are creative outlets to meet other people.

The Ideas at the Algorithm's Core: Their Ability to Formulate Engagement

The two apps depend on the algorithms, and TikTok and Reels would not be as popular without them. Both firms apply advanced machine learning strategies to create relevant content streaming for firms' followers. Due to the use of algorithms in understanding the users and their behaviour, the kinds of content that are delivered to users are very interesting and useful hence users spend a lot of time on social networks.

In the case of TikTok, Zhou *et al.* (2020) identified that its collection of videos known as the "For You" page increases viewership of videos. The chances of using the platform for many hours are enhanced by the fact that the algorithm also recommends content that is relevant to users' interests. Just like this, Reels are algo-rhythmically recommended dependent on the users' preferences and particularly how the algorithm wants to feed the users content that they would fancy (Duffy & Kang, 2021).

Effectiveness on Content Production and Advertising

The same case applies to short-form video which has also changed the way content is created and marketed. Businesses and celebrities have leveraged on Tik Tok and Reels to reach out to youthful, tech-savvy consumers. As eMarketer noted in a report of 2022, 68% of marketers intend to invest more money in short-form video marketing since it effectively attracts the target audience's attention.

Furthermore, the relevance and reality of short-form videos can also get the consumers' attention. While most of these videos are professional and polished, they depict actual people and credible everyday contexts, creating a familiar bonding. This supports the existing literature, most especially Chen and Zhou (2020) who pointed out that consumers trust relatable content.

Challenges and Criticisms

However, there are various issues and critiques that TikTok and Reels deal with currently. The first major concern is that of addictions and dependencies. While the application provides a wide choice of interesting materials, it also can cause an obsessive use of the device, according to Anderson and Jiang (2018). Besides, the platforms have also come under criticism over issues such as data privacy, and the security of users' data collecting and utilization (Gorman, 2021).

The last criticism that people have regarding the use of Facebook is related to the issue of content moderation. TikTok and Instagram are platforms where most young people spend their time, it has been viral to proven that both apps have poor content moderation where most of the daily uploaded contents are often negatives and bad ones sneak through (Newton, 2020). Solving these problems is essential to keep user confidence and prevent the appearance of unsafe user environments on the Internet.

Future Directions and Trends:

Regarding the future, it is further expected that the appropriate trend of short-form video streaming will continue. Thus, more advancements in content creation tools and algorithms are foreseeable as the technology of the future proceeds. Moreover, the enhancement of the multimedia environment by integrating the primary and augmented reality or virtual reality options may further improve the interaction with the contents.

Also, the concept of social commerce where customers can buy products immediately from short videos is expected to disrupt e-commerce. For instance, social networks such as TikTok and Instagram are already introducing shopping options and enabling users to buy things inside the application (Wu & Li, 2021). Thus, the given intersection of entertainment and commerce becomes possible and reveals new possibilities for brands and marketers.

Conclusion:

However, with the evolution of short-form videos, especially TikTok and Instagram reels, the face of the social media platform again changed drastically. By using diverse and exciting content types, advanced stochastic analysis, and open, bright user participation, these platforms have brought people's attention to the fore to a great extent. Although there are still some issues in this space, there is a lot of scope for introducing more changes and expanding presence in this segment. Thus, short-form video is already becoming one of the predominant elements in the further development of interaction via social media platforms.

References:

1. Anderson, M., & Jiang, J. (2018). Teens, Social Media & Technology 2018. Pew Research Center.
2. Chen, Y., & Zhou, S. (2020). Authenticity and Trust in Social Media Advertising: A Comparative Study of Influencers and Brands. Journal of Marketing Communications, 26(2), 137-150.
3. Duffy, B. E., & Kang, J. (2021). Algorithmic Personalization in Social Media: How Reels and TikTok Shape Content Exposure. New Media & Society, 23(4), 785-803.
4. eMarketer. (2022). Short-Form Video Content: Market Trends and Insights.
5. Gorman, S. (2021). Data Privacy Concerns in the Age of TikTok and Instagram Reels. Journal of Information Privacy and Security, 17(3), 154-168.
6. Jenkins, H. (2006). Convergence Culture: Where Old and New Media Collide. New York University Press.
7. Johnson, R. (2021). The Appeal of Short-Form Video Content: A User Perspective. Media Psychology, 24(1), 63-81.
8. Lee, S., & Kim, J. (2021). The Impact of Instagram Reels on User Engagement: A Comparative Analysis. Social Media Studies, 15(2), 245-263.

9. Newton, C. (2020). TikTok's Struggle with Content Moderation: A Closer Look. The Verge.
10. Smith, A. (2020). The Decline of Attention Span in the Digital Age. Digital Behavior Journal, 10(4), 215-229.
11. Wu, J., & Li, Y. (2021). Social Commerce in the Age of Short-Form Video: Opportunities and Challenges. Journal of Electronic Commerce Research, 22(1), 50-65.
12. Zhou, X., Wang, Y., & Li, X. (2020). How TikTok's Algorithm Fuels Engagement: Insights from Data Analysis. International Journal of Data Science, 5(2), 99-112.
13. Short-Form Video Content: TikTok, Reels & YouTube. (2024). retrieved July 24, 2024, from www.newtarget.com
14. TikTok vs. Reels: A Comparison for Social Media Marketers. (2024). retrieved July 24, 2024, from clickup.com/blog/tiktok-vs-reels/

SPREAD OF FALSE INFORMATION AND ADVANCED DETECTION TECHNIQUES: MORAL PANIC NAVIGATED BY SOCIAL MEDIA

Manasa C*[1] and Madhusudhan H S[2]

[1]Department of Chemistry,

[2]Department of Computer Science and Engineering,

Vidyavardhaka College of Engineering, Mysore-570002, Karnataka, India

*Corresponding author E-mail: manasac@vvce.ac.in

Abstract:

This article looks at how moral panics are affected by social media and how digital platforms may spread fear, widen social divides, and demonize outsiders. It makes the case that communications and digital platforms are important targets for the spread of fear. False information spreading on social media is becoming a worldwide concern that jeopardizes political and social advancement. Research on false information detection, or FID, is expanding quickly these days, bringing with it new problems and methods as explanatory detection, multimodal data fusion, and early detection. In order to address FID problems, the research also looks at how crowd intelligence may be extracted and used in FID. In conclusion, the paper discusses outstanding problems and future prospects for FID research, including innovative machine learning models, adversarial attack and defence in detection methods, crowd wisdom aggregation, and model adaptation. An extensive overview of the FID research trends is given in this article.

Keywords: Social Concerns, False Information, Explanatory Detection, Fake News, Digital Technology, Public Communication, Social Media.

Introduction:

The phrase "moral panic" is used in social-scientific studies of crime, deviance, and control. It was made famous by Cohen's study of young hooliganism in post-war Britain [1]. It alludes to situations in which folk demons are held responsible for social ills and how 'right-wing' performers may turn outcasts and outcasts into powerful sources of outrage and fear. The idea has had a big impact on bringing to light how important the media is in creating and exaggerating societal issues. On the other hand, massive changes in the media landscape, such the emergence of social media and digital platforms, are expanding the availability of information and changing how public knowledge is created.

In order to preserve the conceptual usefulness of moral panic, academics need to consider the ways in which social media are "upending traditional flows of information and power [2]." Previous research has either been silent about them or has underreported their variety of

consequences. Cohen's paradigm is criticized for being out of step with modern reality and for its ongoing relevance [3]. Rich societies seem to be racked with constant anxiety and anger, as seen by an increase in authoritarian populism that relies on scapegoating hated individuals. These conditions are inextricably linked to developments in the media. This article examines how social media affects the topics and narratives that fuel moral panics. It makes the case that digital platforms and communications constitute important targets, facilitators, and instruments of panic production, whether they are used to create anxiety about social change, widen social distance, or provide new avenues for demonizing outsiders, slanting communications, influencing public opinion, and organizing resentful individuals. By highlighting these processes, we hope to stimulate established viewpoints and encourage a more comprehensive understanding of the consequences of new media, rather than to undermine them.

Information distribution has undergone a revolution, thanks to social media platforms like Facebook, Twitter, and Sina Weibo, which significantly increase the volume, pace, and diversity of information transmission. On the other hand, social media makes it easier for both accurate and inaccurate information to spread quickly. A recent Knight Foundation poll indicates that Americans believe that false news makes up 65% of what they read on social media [4]. A political hazard arises from the antagonistic dissemination of false information through social media. For instance, up to 529 distinct low-credibility assertions were disseminated on Twitter during the 2016 U.S. presidential election, and over 19 million malicious bot accounts posted or retweeted tweets endorsing Trump or Clinton, potentially influencing the outcome of the election [5]. In a 2018 theme issue dedicated to "Fake News," Science magazine noted that false claims have the potential to cause shock and anxiety in individuals, which fuels societal panic. For example, violent fights between two races occurred in Ethiopia as a consequence of a fake film called "Somalis 'pushed into shallow grave' Ethiopia," and a bogus web report claiming that travel restrictions had been eased in Greece led to a fight between Greek police and migrants.

Multimodal social media postings have progressively gained popularity on social media since the new media age. With the rapid advancement of artificial intelligence (AI), the future of online fake information will encompass not just text but also highly manipulative and high-quality pictures, videos, and audios. By using deep learning models, Deep Fakes generates audio and video that purports to show actual individuals talking and acting in ways they have never done, making fake information more convincing and difficult to spot. Kumar et al. analyze and categorize misleading material according to its knowledge and goal in order to make it easier to comprehend and explain inaccurate information found on the internet and social media [6]. Fostering analytical balance and constructive dialogue that can guide future study by providing a methodical exposition on the many effects of social media and related technology can be seen further. In particular, the paper looks at how digital communications contribute to the spread of

extremist agendas and how social media heightens the frequency and severity of exaggerated reactions. It gives developmental recommendations and a heuristic that may be the topic of more examination and discussion, and it concentrates on broad assertions rather than specific discoveries.

Four kinds of approaches have been developed in recent years for social media false information detection (FID): content-based, feature fusion-based, social context-based, and deep learning-based. Textual or visual characteristics taken from social media postings are mostly used by content-based detection techniques to classify posts as genuine or false. Social context-based techniques depend on features of user interaction among large numbers of users, such following, reposting, and commenting. Approaches based on feature fusion fully utilize both social context and content characteristics. Neural networks are the primary means by which deep learning-based techniques learn the latent depth representation of data. There are still a lot of unanswered questions about FID despite much investigation. First, the performance of current false information detection (FID) approaches may be subpar since they primarily rely on content or propagation aspects and frequently function effectively during the whole lifespan of false information. Second, traditional text-based detection techniques are no longer feasible due to the rise in multimodal posts on social networks; instead, in more complicated cases, it is advantageous to use photos or videos for facial recognition and identification. Third, the decision-making behind the present detection techniques is lacking; they just provide an answer to the question of whether the claim is false. Fake news has been examined in the past from a variety of angles, including knowledge-based, style-based, propagation-based, and credibility-based detection techniques.

The difficulty of identifying fraudulent or inaccurate claims on social networks may be characterized as a set of linked posts and relevant individuals with qualities that correspond to the posts and users. Learning a prediction function that satisfies $F(s) \rightarrow \{0, 1\}$ and $F(s) = 1$ in the case that s contains erroneous information or 0 in the absence of it is the problem at hand.

The techniques may be broadly classified into four categories: feature fusion, content-based, social context-based, and deep learning-based approaches. Additionally, it emphasizes a number of FID tools available online that are crucial for reducing the effect of false information and stopping its spread.

Content Based Method

Typically, microblogs use text, images, or videos to explain happenings. Lexical, syntactic, and subject features as well as certain writing styles or dramatic headlines in fictitious articles are the mainstays of content-based techniques. According to studies, tweets with a high level of credibility tend to have lengthier textual content and more URLs. Part of speech (POS) and feelings are two examples of lexical and syntactic indicators that are frequently employed to

identify fraudulent information. Five categories can be used to categorize language qualities seen in both authentic and fraudulent content: "Ngrams," "punctuation," "psycholinguistic features," "readability," and "syntax." Based on these qualities, a linear Support Vector Machine (SVM) is employed to detect erroneous information.

Topic, mood, and writing style are examples of semantic attributes that are added to FID in order to better represent the localized aspects of false information. For example, Hu et al. has proposed a framework for low-credibility social post detection with sentiment information [7], Horne et al. has proposed a FID model based on fake news article title style [8], Potthast et al. has used different writing styles to detect fake claims [9], and Ito et al. has introduced the Latent Dirichlet Allocation (LDA) topic model for evaluating tweet credibility [10].

Social Context Based Method

Conventional content-based approaches ignore the strong link between several tweets and events in favour of evaluating the veracity of a single microblog or allegation in isolation. Post-based and propagation-based techniques are two further categories under which social context-based techniques fall. Post-based techniques analyze users' trustworthiness or positions to identify misleading information by examining their posts that convey their feelings or thoughts about particular occurrences. Extraverted and laid-back consumers are less likely to be impacted by misleading information, according to studies [11]. According to Long *et al.,* using user profiles in content-based detection techniques can enhance FID performance [12]. By extracting topic characteristics from news articles and user attribute data, respectively, they present a hybrid detection algorithm. Tacchini et al. used a crowdsourcing algorithm and a logistic regression (LR) model to identify misleading information based on users' likes and discovered that social posts containing incorrect information typically receive more likes than factual information [13]. Propagation-based techniques assess the veracity of postings and events in their whole, emphasizing the establishment of networks for the spread of information and the propagation of credibility. To identify misleading information, studies have suggested hybrid SVM classifiers, Bayesian nonparametric models, DSTS models, and certain tree or network architectures [14]. While Gupta et al. has built a credibility propagation network with users, posts, and events to model the spread of erroneous information [15], Ma et al. has represented the transmission of rumor-related microblogs as propagation trees [16]. In order to validate the credibility of information, Jin et al. has suggested a three-layer credibility propagation network that links microblogs, sub-events, and events [17].

Feature Fusion Based Method

While social context-based detection approaches employ features retrieved from information transmission, content-based detection methods use writing style, lexical, and syntactic aspects to determine discrepancies between genuine and false assertions. Scholars are

investigating new feature fusion techniques, including the ones used by Vedova et al. to characterize social context characteristics using like behaviors, stem analysis on social postings, and interaction information between users and posts [18]. Volkova et al. has provided input data for various FID classifiers using psycho-linguistic signals from news content and writers' viewpoints from social context [19]. Shu et al. has provided TriFN, a universal detection framework that uses nonnegative matrix factorization (NMF) methods to identify low-credibility information and analyzes the innate link between news producers, social interactions, and news content [20]. These techniques combine conventional content characteristics with the social connections between news articles, publishers, and users in an effort to detect fake information.

Deep Learning Based Method

The goal of deep learning-based techniques is to automatically abstract a high-level representation of erroneous information data. For FID, the majority of studies mostly uses convolutional neural networks (CNN) and recurrent neural networks (RNN) [21]. Convolutional, pooling, and fully connected layers make up the three types of layers that make up a feedforward neural network, or CNN. From inputs, it can extract both local and global characteristics, and the fully connected layer delivers the classification results. A kind of neural network that works with graph data is called a Graph Convolutional Network (GCN), which is made up of fully linked and convolutional layers. It is capable of efficiently capturing graph structure characteristics. Each convolutional layer's hidden state matrix is produced by nonlinearly varying a unique matrix.

Recurrent Neural Networks (RNN) are able to efficiently extract features from sequential input by transmitting information between neurons within the same hidden layer, hence conserving previous calculations. As social networking postings include temporal properties, FID models can use RNN to capture the sequential aspects of the posts' interaction data in continuous segments. Glorot et al. discovered that RNN might not have a long-term memory due to gradient vanishing [22]. As a result, NLP makes extensive use of gated recurrent units (GRU) and long short-term memory (LSTM).

Similar to RNNs, recursive neural networks (RvNNs) unfold data structurally, enabling the study of hierarchical data structures like syntax analysis trees. Every node acquires its representation by recursive calculation from its direct left and right child nodes, continuing until all nodes have been explored. An unsupervised learning model including both encoding and decoding phases is called Auto-Encoder (AE). Multiple hidden layers are used in the encoding step to convert the input data into latent vectors, which are then reconfigured into the original data during the decoding stage. AE learns as much as it can about the input representation by reducing the reconstruction error.

A type of generative neural network called a generative adversarial network (GAN) consists of a discriminator and a generator. Backpropagation is an iterative process in which the generator creates realistic samples based on the sampling distribution from datasets to deceive the discriminator, and the discriminator determines whether its input originates from actual datasets or fake samples created by the generator. When describing how neural networks distribute attention to input sequences, attention mechanisms are frequently employed. With the goal of collecting important input information, they compute the degree of matching between the current input sequences and the output vectors. As a result, attention processes might be used by detection algorithms to identify words or phrases that have a greater influence on FID.

By modeling linked postings as time-series data, several existing research use deep neural networks to learn latent linguistic representation of erroneous information. Ma *et al.*, for instance, provide an RNN-based detection model that records the temporal-linguistic characteristics of an ongoing stream of user comments [23]. Liu et al. has categorized the propagation channels for recognizing low-credibility information by using CNN and GRU because they think there are distinctions between the propagation patterns of fake news and truthful news [24]. The ACAMI model for FID is put out by Yu et al. It extracts the temporal and semantic representation of events using event2vec and an attention mechanism, and then utilizes CNN to extract high-level features for identifying fraudulent microblog posts [25].

Existing Detection Tools

FID technologies, divided into text- and image-based categories, have been created by researchers. Picture-based technologies such as FotoForensics examine the degree of picture compression in order to determine whether an image has been altered, potentially providing incorrect information. A knowledge search engine called Wolfram Alpha uses data from its knowledge base to confirm the legitimacy of images. Text-based resources, including Factcheck, Snopes, and Politifact, concentrate on identifying textual material and offering analytical reports from reliable journalists or experts. Additionally, online FID tools like as Hoaxy, TwitterTrails, and Fake News Detector have been created. With the use of these resources, researchers may create datasets and provide analytical reports about dubious claims made on social media.

Discussion:

Collective actions known as moral panics are attempts to manipulate morality and public understanding. Claims-making has an impact on them, as interested parties try to incite fear by influencing the images and portrayals in the mainstream media. This paper looks at how digital communications affect these panics and provides a taxonomy of how social media affects problems, situations, and behaviors that cause widespread fear. societal media creates settings that are conducive to the construction of societal issues and presents new sources of disquiet. It is both paradoxical and demanding for the elite.

Social media elevates agitational speech and homophily, which generates social friction and hatred. The definition and creation of deviance are altered by new technologies, which enable diverse stakeholders and lay involvement to affect public messaging in ways that have a significant, undetectable, and highly effective impact. The data that is now available suggests that social media inflates the frequency and intensity of panic attacks, even if determining the precise impacts of social media calls for closer examination. Digital platforms lower transaction costs, increase the dissemination of information pollution, and elevate marginalized voices into prominent claimants. The analysis takes into consideration the impact of social media on the development of fear, which encourages conceptual renewal and improvement. Social media encourages new ways for individuals to participate, giving regular people a bigger voice and enabling mass-driven eruptions. Furthermore, digital platforms play a role in the weaponization of panics since the general consensus is that panics are domestic issues that are used to garner support, gain authority and prestige, or fabricate consent.

Data-mining and behavioral profiling unleash innovative and hyper-targeted claim-making tools that reveal important shifts and reinforce Cohen's paradigm's adaptability and explanatory power. This paper presents a flexible paradigm that may adapt to significant changes in media space and the social ties as they foster by taking emerging social variables into consideration.

Conclusion:

The emergence of digital platforms and technology is reshaping moral panic theory, which emphasizes how the media shapes societal issues. Although the traditional media continues to be important, researchers may broaden the scope and influence of the idea by looking at the various ways that social media affects collective alarm. Though forecasting the characteristics of new media systems and their future growth is premature, it is hoped that the concept of moral panic will continue to shape perceptions of dread and the mobilization of transgressions. An analysis of the current state of FID research has been carried out, bringing with it fresh problems and methods including explanatory identification, multimodal data fusion, and early detection. Additionally, crowd intelligence is employed in FID models, encompassing both hybrid and crowd intelligence-based models.

References:

1. Tartari, M., Scarcelli, C. M., & Rinaldi, C. (Eds.). (2024). *Folk Devils and Moral Panics in the COVID-19 Pandemic*. Taylor & Francis.
2. Ruiu, M. L., & Ragnedda, M. (2024). Comparing the empowerment dynamics of traditional media and social news sites: the case of GameStop. *Digital Journalism*, *12*(3), 314-335.

3. Treagust, D. F., & Won, M. (2023). Paradigms in science education research. In *Handbook of research on science education* (pp. 3-27). Routledge.
4. Eddington, S. J. (2024). Political Advertising, Persuasion, and False News. In *Handbook of Media Psychology: The Science and The Practice* (pp. 45-61). Cham: Springer Nature Switzerland.
5. Ahmad, P. N., Liu, Y., Ali, G., Wani, M. A., & ElAffendi, M. (2023). Robust benchmark for propagandist text detection and mining high-quality data. *Mathematics*, *11*(12), 2668.
6. Kondamudi, M. R., Sahoo, S. R., Chouhan, L., & Yadav, N. (2023). A comprehensive survey of fake news in social networks: Attributes, features, and detection approaches. *Journal of King Saud University-Computer and Information Sciences*, *35*(6), 101571.
7. Bazmi, P., Asadpour, M., & Shakery, A. (2023). Multi-view co-attention network for fake news detection by modeling topic-specific user and news source credibility. *Information Processing & Management*, *60*(1), 103146.
8. Sui, M., Hawkins, I., & Wang, R. (2023). When falsehood wins? Varied effects of sensational elements on users' engagement with real and fake posts. *Computers in Human Behavior*, *142*, 107654.
9. Trnavac, R., & Põldvere, N. (2024). Investigating Appraisal and the Language of Evaluation in Fake News Corpora. *Corpus Pragmatics*, *8*(2), 107-130.
10. Zhou, S., Kan, P., Huang, Q., & Silbernagel, J. (2023). A guided latent Dirichlet allocation approach to investigate real-time latent topics of Twitter data during Hurricane Laura. *Journal of Information Science*, *49*(2), 465-479.
11. Sameeni, M. S., Qadeer, F., Ahmad, W., & Filieri, R. (2024). An empirical examination of brand hate influence on negative consumer behaviors through NeWOM intensity. Does consumer personality matter?. *Journal of Business Research*, *173*, 114469.
12. Luo, G. (2024, May). Research on User Profile Multi Model Fusion Recommendation System Based on Spark. In *2024 7th International Conference on Artificial Intelligence and Big Data (ICAIBD)* (pp. 186-193). IEEE.
13. Tajrian, M., Rahman, A., Kabir, M. A., & Islam, M. R. (2023). A review of methodologies for fake news analysis. *IEEE Access*.
14. Kareem, B. A., Zubaidi, S. L., Al-Ansari, N., & Muhsen, Y. R. (2024). Review of recent trends in the hybridisation of preprocessing-based and parameter optimisation-based hybrid models to forecast univariate streamflow. *CMES-Computer Modeling in Engineering & Sciences*, *138*(1), 1-41.

15. Kaur, K., & Gupta, S. (2023). Towards dissemination, detection and combating misinformation on social media: a literature review. *Journal of business & industrial marketing*, *38*(8), 1656-1674.
16. Hou, D., Yin, S., Gao, C., Li, X., & Wang, Z. (2024). Propagation Dynamics of Rumor vs. Non-rumor across Multiple Social Media Platforms Driven by User Characteristics. *arXiv preprint arXiv:2401.17840*.
17. Wan, P., Wang, X., Pang, G., Wang, L., & Min, G. (2023). A novel rumor detection with multi-objective loss functions in online social networks. *Expert Systems with Applications*, *213*, 119239.
18. Rovera, A., Tancau, A., Boetti, N., Dalla Vedova, M. D., Maggiore, P., & Janner, D. (2023). Fiber optic sensors for harsh and high radiation environments in aerospace applications. *Sensors*, *23*(5), 2512.
19. Ahmed, K., Khan, M. A., Haq, I., Al Mazroa, A., Syam, M. S., Innab, N., ... & Alkahtani, H. K. (2024). Social media's dark secrets: A propagation, lexical and psycholinguistic oriented deep learning approach for fake news proliferation. *Expert Systems with Applications*, *255*, 124650.
20. Guo, B., Ding, Y., Yao, L., Liang, Y., & Yu, Z. (2019). The future of misinformation detection: new perspectives and trends. *arXiv preprint arXiv:1909.03654*.
21. Karunanithy, G., & Hansen, D. F. (2021). FID-Net: A versatile deep neural network architecture for NMR spectral reconstruction and virtual decoupling. *Journal of biomolecular NMR*, *75*(4), 179-191.
22. Zucchet, N., & Orvieto, A. (2024). Recurrent neural networks: vanishing and exploding gradients are not the end of the story. *arXiv preprint arXiv:2405.21064*.
23. Liu, Y. (2019). *Early detection of fake news on social media* (Doctoral dissertation, New Jersey Institute of Technology).
24. Kondamudi, M. R., Sahoo, S. R., Chouhan, L., & Yadav, N. (2023). A comprehensive survey of fake news in social networks: Attributes, features, and detection approaches. *Journal of King Saud University-Computer and Information Sciences*, *35*(6), 101571.
25. Mullender, S., Napper, J., & Ballasteros, F. (2012). a new way to use the Internet. *Blanchardstown Business and Techonology Park Snugborough Road Dublin 15 Republic of Ireland*, *9*, 6.

THE FUTURE OF SOCIAL MEDIA: PREDICTING THE NEXT BIG TRENDS AND INNOVATIONS

S. Sandhya[1], G. Sathyavathy[2] and N. Sweetha[2]

[1]Department of Child Health Nursing,

[2]Department of Medical Surgical Nursing,

Sri Manakula Vinayagar Nursing College, Kalitheerthal Kuppam, Pondicherry

Corresponding author E-mail: sandhyavidhya11@gmail.com, gsathyavathybablu@gmail.com, sweethanandagopal@gmail.com

Abstract:

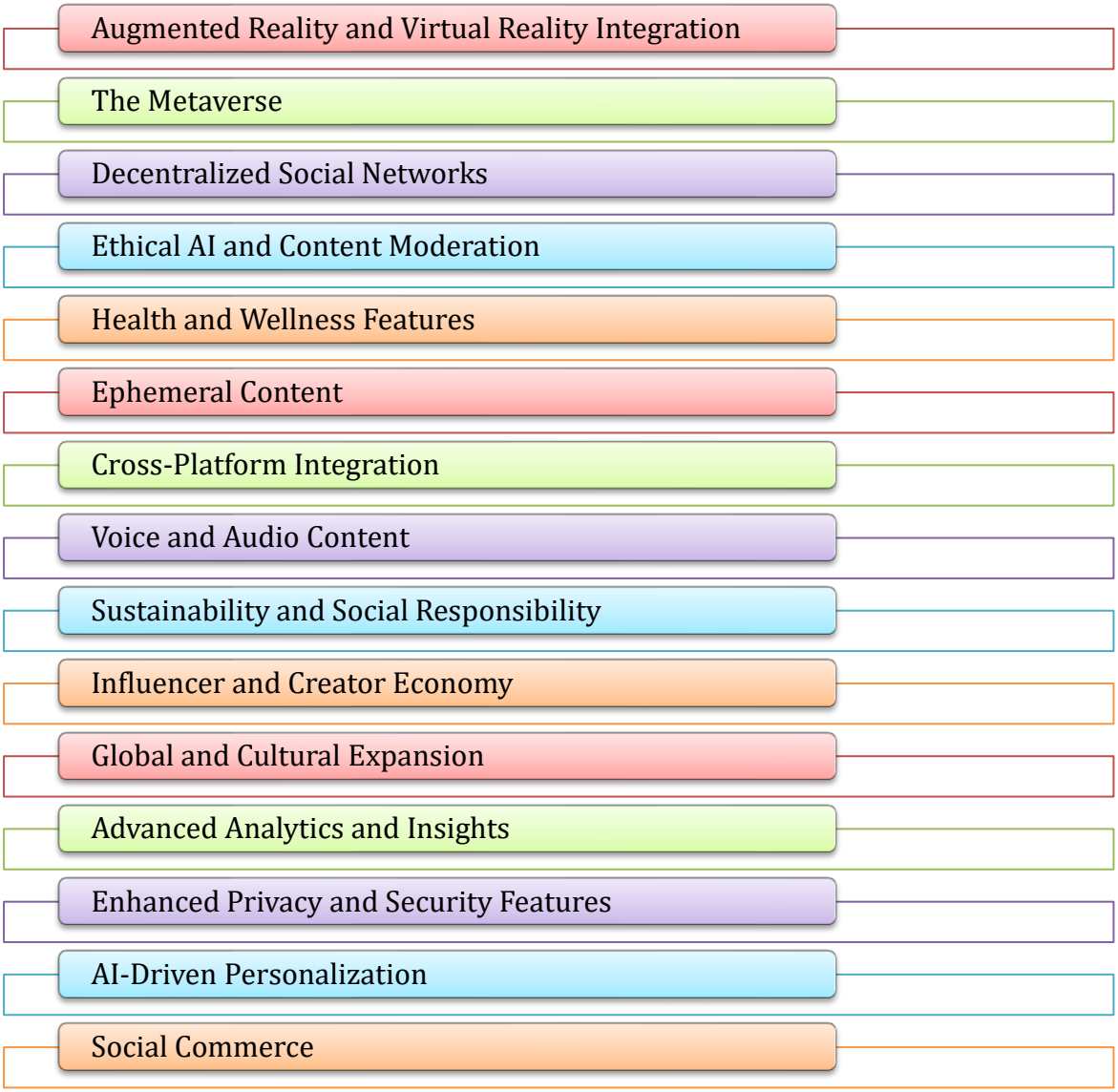
The future of social media is set to undergo profound changes as technological innovations and evolving user expectations drive new trends. This paper explores the key developments likely to shape the next era of digital interaction, including the rise of immersive technologies, the integration of the metaverse, and the expansion of AI-driven personalization. Additionally, the increasing focus on privacy, ethical AI, and content moderation, alongside the growth of social commerce, highlights the complexity of the evolving social media landscape. This exploration provides a comprehensive overview of how these trends will impact user engagement, brand strategies, and the broader digital environment, offering valuable insights into the future trajectory of social media platforms.

Keywords: Social Media, Innovations, Immersive Technologies

Introduction:

Social media's terrain is changing quickly due to both user expectations and technology improvements. It is imperative that we anticipate and comprehend the new developments and trends that will influence the next wave of digital connection as we look to the future. The future of social media is expected to be dynamic and transformational, with developments in AI-driven personalization, immersive technology, the growth of the metaverse, and the increasing significance of privacy and ethical behaviors. In "The Future of Social Media: Predicting the Next Big Trends and Innovations," we will examine the major advancements that have the potential to completely change the way we interact, communicate, and consume material on the internet. By looking at these patterns, we hope to provide light on.

The future of social media is likely to be shaped by several emerging trends and innovations.



Emerging trends and Innovations

I. Augmented Reality (AR) and Virtual Reality (VR), are transforming social media by creating more engaging and interactive experiences. Here's an overview of how these technologies are shaping the future of social media:

1. Augmented Reality (AR):

Enhanced Interaction: On apps like Instagram, Snapchat, and TikTok, augmented reality filters and effects have gained popularity. Users can add artistic effects to images and videos by superimposing digital items onto their real-world environment.

Virtual Try Ons: Through social media apps, augmented reality (AR) allows users to virtually try on things including apparel, accessories, and makeup. With its more participatory shopping experience, this trend is transforming social commerce.

Location-Based AR Experiences: Scavenger hunts, interactive maps, and geotagged content are just a few examples of the location-based AR experiences that social media platforms may produce. This combines digital material with actual locales to increase user engagement.

2. Virtual Reality (VR):

Virtual Social Spaces: VR enables users to interact in virtual social spaces, such as virtual reality chat rooms, events, and meetups. Platforms like Face book Horizon and VR Chat offer immersive environments where users can socialize in 3D worlds.

Virtual Events: VR is transforming how users attend events, such as concerts, conferences, and live shows. Virtual events provide an immersive experience, allowing users to feel as though they are physically present.

3D Content Creation: VR tools are empowering users to create and share 3D content, such as virtual tours, 360degree videos, and immersive storytelling. This adds a new dimension to content creation and consumption on social media.

3. Mixed Reality (MR):

Seamless Integration: Mixed Reality (MR) blends AR and VR, allowing users to interact with both digital and physical environments simultaneously. This creates seamless and dynamic experiences that can be used for gaming, education, and social interactions.

4. Haptic Feedback and Sensory Experiences:

Tactile Interactions: Haptic feedback technology is being integrated into VR devices to provide tactile sensations. Users can feel physical sensations, such as touch and pressure, enhancing the realism of virtual interactions.

Multi Sensory Experiences: Future advancements may include multisensory experiences that incorporate sound, smell, and even taste, creating fully immersive environments that engage multiple senses.

5. AI Integration:

Personalized Experiences: AI algorithms will enhance AR and VR experiences by providing personalized content and recommendations. AI can analyze user preferences and behaviors to deliver tailored immersive experiences.

Real-time Interaction: AI powered virtual assistants and chat bots can interact with users in real-time within AR and VR environments, providing assistance, information, and entertainment.

6. Social and Collaborative VR:

Collaborative Projects: VR platforms will enable users to collaborate on projects in virtual environments, such as designing virtual spaces, co creating art, and developing virtual games.

Virtual Workspaces: Social media platforms may offer virtual workspaces where users can collaborate, attend meetings, and work on tasks together in a virtual office setting.

Immersive technologies are set to revolutionize social media by creating new ways for users to connect, communicate, and engage with content. As AR, VR, and MR continue to advance, the lines between the digital and physical worlds will blur, offering unprecedented interactive and immersive experiences.

II. **Metaverse**

The merging of virtually enhanced physical reality and physically persistent virtual reality gives rise to the metaverse, a communal virtual shared world. It includes a variety of virtual environments that users may explore and engage with through avatars, enabling the smooth fusion of virtual and real-world encounters.

Potential Impact and Applications

1. Social Interaction:

Virtual Social Spaces: Users can gather in virtual environments for socializing, attending events, or just hanging out, transcending geographical limitations.

Virtual Events: Concerts, conferences, and other events can be hosted in the metaverse, offering immersive experiences that mimic real life interactions.

2. Work and Collaboration:

Virtual Offices: Companies can create virtual workspaces, allowing employees to collaborate in a more interactive and engaging manner than traditional video calls.

Remote Work: The metaverse can enhance remote work by providing tools and environments that foster creativity and productivity.

3. Education and Training:

Virtual Classrooms: Educational institutions can offer virtual classrooms, where students can interact with teachers and peers in immersive settings.

Simulations and Training: The metaverse can be used for realistic simulations and training programs in fields like medicine, aviation, and more.

4. Gaming and Entertainment:

Immersive Games: The metaverse offers a new dimension to gaming, with interconnected worlds and persistent narratives.

Content Creation: Users can create and monetize their own content, including games, art, and experiences.

5. Commerce and Economy:

Virtual Goods: The sale of virtual goods, from clothing for avatars to digital art, is a growing market within the metaverse.

Virtual Real Estate: Users and companies can buy, sell, and develop virtual land, creating opportunities for investment and development.

6. Healthcare:

Therapeutic Environments: Virtual environments can be used for therapy, providing safe spaces for mental health treatment and rehabilitation.

Telemedicine: The metaverse can enhance telemedicine by allowing doctors and patients to interact in virtual clinics.

Challenges and Considerations

1. Privacy and Security: Ensuring user data is secured and private is a major concern, given the amount of personal information shared in the metaverse.

2. Digital Divide: Access to the metaverse requires significant technological infrastructure, which may exacerbate existing inequalities.

3. Regulation and Governance: Establishing rules and regulations to govern interactions, transactions, and behavior in the metaverse will be complex.

4. Ethical Issues: Addressing ethical concerns, such as digital addiction, virtual harassment, and identity theft, is crucial for a safe and inclusive metaverse.

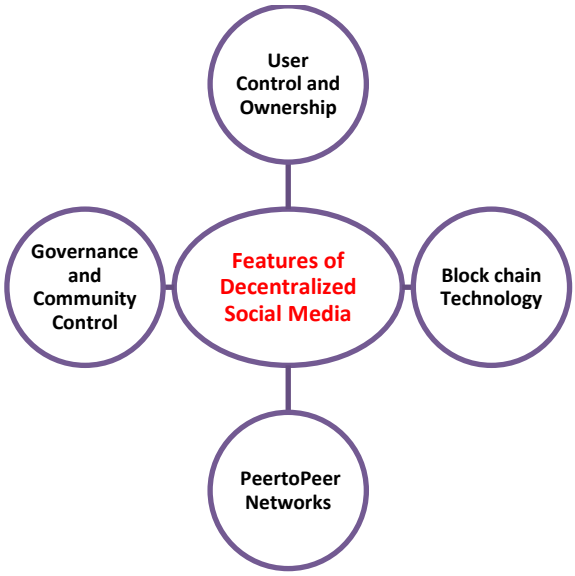
Future Outlook

The metaverse is still in its early stages, but it holds immense potential to transform various aspects of our lives. As technology continues to advance, the metaverse will become more accessible and integrated into our daily routines, offering new possibilities for connection, creation, and innovation.

III. Decentralization

It is a transformative concept that involves distributing control and decision making away from a central authority to a more distributed network. In the context of social media, decentralization aims to address issues such as data privacy, security, censorship, and monopoly power. Here's a detailed look at decentralization and its potential impact on social media:

Features of Decentralized Social Media



1. User Control and Ownership:

Data Sovereignty: Users have full control over their personal data, deciding who can access it and how it can be used. This contrasts with centralized platforms where data is often monetized without user consent.

Content Ownership: Users own their content and digital assets, which can be moved across platforms without losing their value or identity.

2. Block chain Technology:

Distributed Ledger: Block chain provides a decentralized and immutable ledger for recording transactions and interactions, enhancing transparency and security.

Smart Contracts: Automated, self executing contracts on the block chain can facilitate secure and trustless interactions, such as content licensing and payments.

3. Peer to Peer Networks:

Direct Interactions: Decentralized social media platforms utilize peer to peer (P2P) networks, enabling direct interactions between users without intermediaries.

Resilience and Redundancy: P2P networks are more resilient to failures and attacks, as data is distributed across multiple nodes rather than centralized servers.

4. Governance and Community Control:

Decentralized Governance: Decision-making processes are often managed through decentralized autonomous organizations (DAOs), where stakeholders vote on platform policies and changes.

Community Moderation: Content moderation is handled by the community or through decentralized protocols, reducing the risk of biased or arbitrary censorship.

Challenges and Considerations

1. Scalability:

Decentralized networks can face scalability issues, as processing and storing large volumes of data across distributed nodes can be resource intensive.

2. User Experience:

Decentralized platforms may have a steeper learning curve and less polished user interfaces compared to centralized counterparts.

3. Regulation and Compliance:

Navigating regulatory frameworks for data privacy, content moderation, and financial transactions can be complex for decentralized platforms.

4. Network Effects:

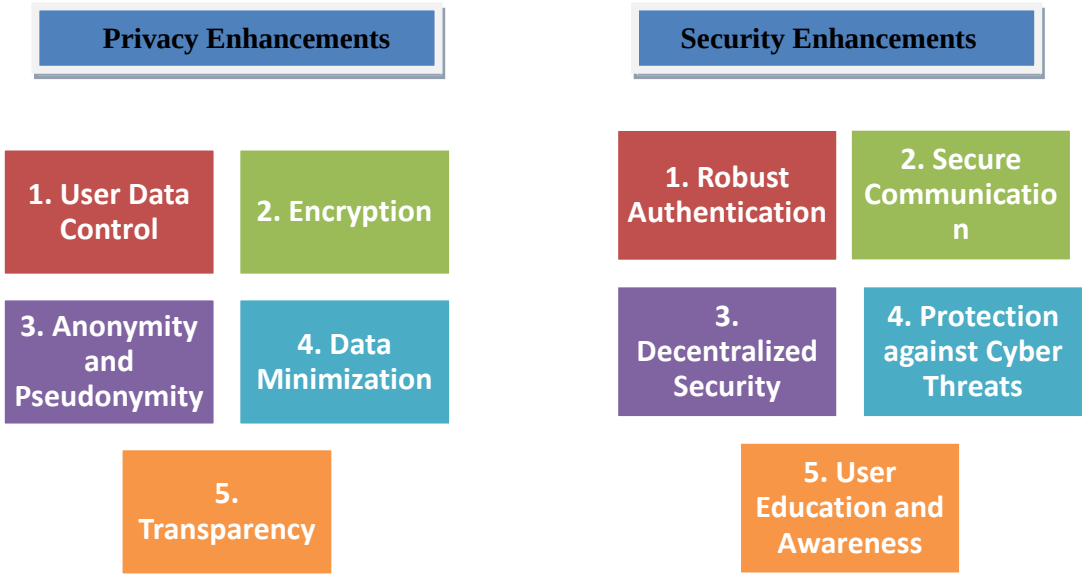
Centralized platforms benefit from strong network effects, making it challenging for decentralized alternatives to attract and retain users.

Future Outlook

Decentralized social media represents a promising alternative to traditional platforms, offering greater control, privacy, and fairness to users. As technology advances and awareness of data privacy grows, decentralized platforms are likely to gain traction. Overcoming challenges related to scalability, usability, and regulation will be key to realizing the full potential of decentralized social media.

IV. Privacy Enhancements

Enhanced privacy and security are central to the evolution of social media, particularly with the rise of decentralized platforms and increased concerns about data protection. Here's a detailed look at how privacy and security are being addressed and improved in social media:



1. User Data Control:

Personal Data Ownership: Users have greater control over their personal data, including the ability to manage and delete their information. Decentralized platforms often allow users to decide who can access their data.

Granular Permissions: Platforms offer detailed privacy settings, enabling users to customize who can view their content, interact with them, and access their personal information.

2. Encryption: End to End Encryption: Messages and content are encrypted so that only the intended recipients can read them, preventing unauthorized access even from the platform itself. This is increasingly common in messaging apps like Signal and WhatsApp.

Data Encryption: Data stored on servers is encrypted to protect it from unauthorized access and breaches. This includes user profiles, posts, and communications.

3. Anonymity and Pseudonymity:

Anonymous Posting: Some platforms allow users to interact and post content without revealing their real identities, which can protect users from surveillance and discrimination.

Pseudonymous Identities: Users can create pseudonymous accounts, providing a layer of separation between their real world identity and their online presence.

4. Data Minimization:

Limited Data Collection: Platforms are adopting practices that minimize the amount of personal data collected, reducing the risk of misuse or breaches.

Purpose Limitation: Data is collected only for specific, legitimate purposes and is not used beyond those purposes.

5. Transparency:

Privacy Policies: Clear and accessible privacy policies inform users about how their data is collected, used, and shared.

Data Access Requests: Users can request access to their data and obtain information on how it is being used or processed.

Security Enhancements

1. Robust Authentication:

Two Factor Authentications (2FA): Adding an extra layer of security by requiring a second form of verification, such as a code sent to a user's mobile device.

Biometric Authentication: Utilizing biometric data (e.g., fingerprints, facial recognition) for secure access to accounts.

2. Secure Communication:

Secure Channels: Ensuring that all communications, including messages and data transfers, are conducted over secure and encrypted channels.

Regular Security Audits: Conducting frequent security audits and assessments to identify and address vulnerabilities.

3. Decentralized Security:

Distributed Ledger Technology: Block chain and other distributed ledger technologies provide secure and transparent methods for managing transactions and data, reducing the risk of central points of failure.

Decentralized Identity Systems: Using decentralized identity solutions to manage and verify identities without relying on a central authority.

4. Protection against Cyber Threats:

Antimalware and AntiPhishing: Implementing technologies and practices to detect and prevent malware, phishing attacks, and other cyber threats.

Intrusion Detection Systems: Monitoring systems for suspicious activities and potential security breaches.

5. User Education and Awareness:

Security Best Practices: Educating users about best practices for securing their accounts, such as using strong passwords and recognizing phishing attempts.

Regular Updates: Providing users with regular updates on security measures and changes to privacy policies.

Challenges and Considerations

1. Balancing Privacy and Functionality:

Striking a balance between robust privacy measures and providing functional and user-friendly services can be challenging. Overly restrictive privacy settings might limit usability.

2. Regulatory Compliance:

Adhering to data protection regulations, such as the GDPR in Europe and CCPA in California, requires constant updates and adjustments to privacy and security practices.

3. Evolving Threats:

The landscape of cyber threats is constantly evolving. Ensuring that privacy and security measures remain effective against new types of attacks is an ongoing challenge.

4. User Behavior:

Even with strong privacy and security measures in place, user behavior (e.g., sharing passwords, falling for scams) can compromise overall security.

Future Directions

Advanced Encryption Techniques: Continued development of advanced encryption methods, such as homomorphic encryption, which allows computations on encrypted data without decrypting it.

AI and Machine Learning: Utilizing AI and machine learning to enhance threat detection, automate security responses, and personalize privacy settings.

Decentralized Privacy Solutions: Expansion of decentralized technologies that enhance privacy and security while maintaining usability and functionality.

V. AI DRIVEN PERSONALIZATION

It is transforming how social media platforms deliver content, advertisements, and user experiences. By leveraging artificial intelligence (AI) and machine learning, platforms can tailor interactions to individual preferences, behaviors, and needs. Here's a detailed overview of how AI driven personalization works and its implications:

Benefits of AI Driven Personalization

1. Enhanced User Experience:

Relevant Content: Users receive content that aligns with their interests and preferences, making their experience more engaging and enjoyable.

Improved Discoverability: Personalized recommendations help users discover new content, products, or services that they may not have encountered otherwise.

2. Increased Engagement and Retention:

Higher Engagement Rates: Relevant content and ads lead to increased interaction, such as likes, shares, and comments, enhancing overall platform engagement.

Greater User Retention: Personalized experiences keep users coming back, as they find the platform more relevant and valuable.

3. Efficient Advertising:

Better ROI: Targeted ads result in higher conversion rates and a better return on investment (ROI) for advertisers by reaching users who are more likely to be interested in their offerings.

Reduced Ad Spend: By targeting the right audience, advertisers can optimize their budgets and reduce wasteful spending on irrelevant ads.

4. Enhanced Customer Support:

Tailored Assistance: AI driven chat bots and virtual assistants provide personalized support, addressing individual issues and queries based on user history and preferences.

Challenges and Considerations

1. Privacy Concerns:

Data Collection: Collecting and analyzing user data for personalization raises privacy concerns, particularly regarding how data is used and shared.

Transparency and Consent: Ensuring that users are informed about data collection practices and providing options for consent is crucial for maintaining trust.

2. Bias and Fairness:

Algorithmic Bias: AI systems can inadvertently reinforce existing biases if they are trained on biased data, leading to unfair or discriminatory outcomes.

Ethical Considerations: Balancing personalization with ethical considerations, such as avoiding manipulation or exploitation, is important for responsible AI use.

3. Complexity and Costs:

Implementation Challenges: Developing and maintaining sophisticated AIdriven personalization systems can be complex and costly.

Resource Intensive: Training AI models and processing large volumes of data require significant computational resources and infrastructure.

4. User Control:

Customizability: Providing users with control over their personalization settings and the ability to adjust or opt out of recommendations is important for user satisfaction.

Future Directions

1. Enhanced Algorithms: Continued advancements in AI and machine learning algorithms will improve the accuracy and relevance of personalization.

2. Ethical AI: Developing ethical guidelines and frameworks for AIdriven personalization to address privacy, bias, and fairness concerns.

3. Greater Integration: AIdriven personalization will become more integrated across various digital experiences, including social media, ecommerce, and content platforms.

4. Explainability: Increasing transparency in how AI systems make personalization decisions to build user trust and understanding.

VI. Social commerce, the integration of ecommerce and social media, is rapidly expanding as platforms enhance their shopping features and create seamless, interactive shopping experiences. Here's a detailed look at the expansion of social commerce and its implications:

Challenges and Considerations

1. Privacy and Data Security:

User Data: Handling and protecting user data, including payment information and browsing behavior, is crucial to maintaining trust and complying with regulations.

Fraud Prevention: Ensuring secure transactions and preventing fraudulent activities is essential for a safe shopping experience.

2. Platform Dependence:

Limited Control: Brands may face challenges related to platform policies, algorithm changes, and dependency on social media platforms for sales.

Evolving Features: Keeping up with rapidly changing social commerce features and best practices requires ongoing adaptation and strategy adjustment.

3. User Experience and Usability:

Seamless Integration: Ensuring a smooth and intuitive shopping experience within social media apps is critical for user satisfaction.

Load Times and Performance: Platforms need to optimize performance to handle high traffic volumes and avoid issues like slow load times or crashes.

4. Regulatory Compliance:

Advertising Standards: Adhering to advertising regulations and guidelines, including transparency and disclosure, is important for ethical social commerce practices.

Consumer Protection: Ensuring that products and transactions meet consumer protection standards and address issues like returns, refunds, and customer service.

Future Trends in Social Commerce

1. Advanced AI and Machine Learning:

Predictive Analytics: Using AI to predict trends and user preferences for more effective product recommendations and targeted marketing.

Chatbots and Virtual Assistants: Enhancing customer service and shopping assistance through AIdriven chatbots and virtual assistants.

2. Augmented Reality (AR) Integration:

Virtual TryOns: AR technology allows users to virtually try on products like clothing and accessories, improving the online shopping experience.

Interactive Product Demos: AR can provide interactive demonstrations and visualizations of products in users' realworld environments.

3. Social Commerce Platforms:

Platform Expansion: More social media platforms will integrate ecommerce features, offering new opportunities for brands and consumers.

Dedicated Social Commerce Apps: The emergence of apps specifically designed for social commerce, combining social networking and shopping functionalities.

4. Global Reach and Localization:

CrossBorder Commerce: Expanding social commerce to international markets with localized content, payment options, and customer support.

Cultural Adaptation: Tailoring social commerce strategies to fit cultural preferences and regional trends.

VII. Ethical Ai In Content Moderation

Ethical AI and content moderation are crucial aspects of ensuring that digital platforms operate responsibly, respect user rights, and maintain a healthy online environment.

Challenges in Content Moderation

1. Scalability:

Volume of Content: Moderating large volumes of user generated content is a significant challenge. AI can help scale moderation efforts, but it must be supplemented by human oversight to handle context sensitive decisions.

2. Context and Nuance:

Understanding Context: AI may struggle with understanding the context and nuances of content, such as satire, cultural references, or evolving social norms. Human moderators can provide the necessary contextual understanding.

False Positives/Negatives: Balancing the moderation to avoid false positives (innocuous content flagged as problematic) and false negatives (problematic content not flagged) is challenging.

3. Freedom of Speech vs. Harm Prevention:

Balancing Act: Striking a balance between preventing harm (e.g., hate speech, misinformation) and preserving freedom of speech is a complex issue. Policies need to be carefully crafted to address harmful content without stifling legitimate expression.

4. Regulatory Compliance:

Adhering to Laws: Platforms must navigate various regulatory requirements related to content moderation, which can vary by region and jurisdiction. Compliance can be complex, particularly for global platforms.

5. User Perception:

Trust and Transparency: Users may perceive moderation practices as either overly restrictive or too lenient. Clear communication and transparency are essential to maintain user trust.

Future Directions

1. Advances in AI: Continued research and development in AI to improve accuracy, fairness, and contextual understanding in content moderation.

2. Collaborative Approaches: Increased collaboration between platforms, researchers, and advocacy groups to develop and implement ethical moderation practices.

3. Regulatory Frameworks: Evolution of regulatory frameworks to address emerging challenges and provide clear guidelines for ethical AI and content moderation.

VIII. Mental Health and Wellbeing are increasingly recognized as crucial aspects of overall health, and digital platforms, including social media and online communities, play a significant role in influencing these areas. Here's a detailed look at how mental health and wellbeing intersect with digital environments:

Impact of Digital Platforms on Mental Health

1. Positive Impacts:

Support Networks: Online communities and social media platforms provide spaces for individuals to connect with support groups, share experiences, and seek advice, particularly for those with mental health conditions or who feel isolated.

Access to Resources: Digital platforms offer access to mental health resources, such as online therapy, educational content, and self help tools, making mental health support more accessible.

Awareness and Advocacy: Social media can raise awareness about mental health issues, reduce stigma, and promote mental health advocacy and education.

2. Negative Impacts:

Social Comparison: Exposure to idealized images and lifestyles can lead to negative self comparisons, impacting self esteem and body image, particularly among younger users.

Cyber bullying and Harassment: Online harassment and cyber bullying can contribute to stress, anxiety, and depression.

Addiction and Overuse: Excessive use of social media and digital platforms can lead to negative impacts on mental health, including sleep disturbances, decreased productivity, and heightened anxiety.

Future Directions

1. Innovative Tools: Development of new digital tools and apps that incorporate evidencebased practices for mental health support, such as cognitive behavioral therapy (CBT) techniques and virtual reality (VR) therapy.

2. AI and Mental Health: Exploring the use of AI to provide personalized mental health support, detect signs of distress, and offer early intervention.

3. Global Perspectives: Addressing mental health in diverse cultural and regional contexts, ensuring that digital solutions are inclusive and relevant to different populations.

Addressing mental health and wellbeing in the digital age requires a balanced approach that leverages the positive aspects of technology while mitigating potential risks. By fostering supportive online environments, promoting digital literacy, and integrating mental health resources, digital platforms can contribute positively to users' mental wellbeing.

IX. Ephemeral content refers to media that is available for a limited time before disappearing. This type of content has become popular on social media platforms and other digital channels due to its fleeting nature and ability to create a sense of urgency and exclusivity. Here's an overview of ephemeral content and its implications:

Benefits of Ephemeral Content

1. Increased Engagement:

Higher Visibility: The temporary nature of ephemeral content can drive higher engagement rates, as users feel a sense of urgency to view it before it disappears.

Increased Interactivity: Interactive features can boost user interaction and participation, making the content more engaging.

2. Authenticity and Connection:

Personal Touch: The informal and spontaneous nature of ephemeral content can create a stronger connection between creators and their audience, enhancing authenticity.

Real-time Sharing: Enables users to share and experience moments in real-time, fostering a sense of immediacy and closeness.

3. Reduced Pressure:

Lower Stakes: Since ephemeral content disappears, users may feel less pressure to produce perfect, curate posts, leading to more genuine and relaxed sharing.

4. Marketing and Branding:

Limited time Offers: Brands can use ephemeral content to promote time sensitive offers or exclusive deals, driving immediate action and sales.

Brand Personality: Provides an opportunity for brands to showcase their personality, behind the scenes content, and engage with their audience in a more casual manner.

Challenges and Considerations

1. Content Longevity:

Ephemeral Nature: The temporary nature of the content means it cannot be revisited or repurposed, potentially limiting its long term value and reach.

Loss of Archives: Users and brands may lose valuable content and insights that could have been beneficial for future reference or analytics.

2. Quality vs. Authenticity:

Balancing Act: While ephemeral content is often more authentic, there is a risk of sacrificing quality and professionalism. Finding the right balance is key to maintaining engagement while ensuring content remains effective.

3. Privacy and Security:

Temporary Storage: Even though ephemeral content disappears, there are concerns about how it is stored, accessed, or shared. Users and brands should be aware of privacy and security implications.

Misuse Potential: There is potential for misuse or unauthorized sharing of ephemeral content before it disappears.

4. Engagement Metrics:

Tracking Impact: Measuring the effectiveness and impact of ephemeral content can be challenging due to its temporary nature. Brands need to find ways to track engagement and performance.

Future Trends

1. Integration with Emerging Technologies:

Augmented Reality (AR): Integration of AR features into ephemeral content to enhance user interaction and experience.

AI and Personalization: Leveraging AI to deliver personalized ephemeral content based on user preferences and behavior.

2. Expansion across Platforms:

Broader Adoption: Increased adoption of ephemeral content features across various social media platforms and digital channels.

3. Enhanced Analytics:

Advanced Metrics: Development of more sophisticated analytics tools to measure the impact and effectiveness of ephemeral content.

X. Cross Platform Integration

It involves creating a seamless and cohesive user experience across multiple digital platforms and devices. This approach ensures that users can interact with content, services, and features consistently, regardless of the platform they are using. Here's a comprehensive look at cross platform integration and its implications:

Challenges and Considerations

1. Technical Complexity:

Integration Challenges: Developing and maintaining cross platform integrations can be technically complex, requiring careful planning and coordination.

Compatibility Issues: Ensuring compatibility between different systems and platforms can be challenging, particularly with varying standards and technologies.

2. Data Security and Privacy:

Data Protection: Ensuring secure data transfer and storage across platforms is crucial to protecting user privacy and preventing data breaches.

Compliance: Adhering to data protection regulations and standards, such as GDPR, across different platforms and jurisdictions.

3. Performance and Optimization:

Consistency vs. Performance: Balancing consistency in user experience with performance optimization, ensuring that integrations do not negatively impact application speed or responsiveness.

Resource Management: Managing resources effectively to support crossplatform functionalities without excessive overhead or inefficiencies.

4. User Preferences and Adaptation:

Diverse Needs: Addressing diverse user preferences and behaviors across platforms, ensuring that the integrated experience meets varied expectations.

Adaptability: Ensuring that integrations can adapt to changing technologies and user behaviors over time.

Future Directions

1. Enhanced Interoperability:

Emerging Standards: Adoption of new standards and technologies to improve interoperability and integration across diverse platforms and devices.

2. Artificial Intelligence (AI):

AI Integration: Leveraging AI to enhance cross platform functionalities, such as personalized experiences and predictive analytics.

3. Omnichannel Strategies:

Unified Experience: Developing omnichannel strategies that integrate cross platform experiences with physical touch points, creating a seamless customer journey.

XI. Voice and Audio Content have become increasingly significant in the digital landscape, driven by advancements in technology and changes in user preferences. This type of content includes various formats such as podcasts, voice search, audio articles, and interactive voice applications. Here's an overview of voice and audio content, its benefits, challenges:

Benefits of Voice and Audio Content

1. Convenience and Accessibility:

HandsFree Interaction: Allows users to engage with content while multitasking, such as during commuting or exercising.

Accessibility: Provides options for users with visual impairments or reading difficulties.

2. Enhanced Engagement:

Personal Connection: Audio content, especially podcasts, can create a personal and intimate connection with the audience through voice.

Multisensory Experience: Engages users through auditory stimulation, complementing other forms of content consumption.

3. Improved Learning and Retention:

Auditory Learning: Supports auditory learners who retain information better through listening.

Flexibility: Users can consume content while performing other tasks, making it easier to fit into busy schedules.

4. Innovative User Experiences:

Interactive Voice: Provides innovative ways to interact with technology and access information, enhancing user experience.

Personalization: Tailors content and interactions based on user preferences and voice patterns.

Challenges and Considerations

1. Quality and Clarity:

Audio Quality: Ensuring clear and high quality audio is essential for effective communication and user satisfaction.

Technical Issues: Addressing issues like background noise, echo, and distortion that can impact the listening experience.

2. Content Discovery and Distribution:

Visibility: Ensuring that voice and audio content is easily discoverable and accessible through various platforms and channels.

SEO for Audio: Optimizing audio content for search engines, including using relevant keywords and metadata.

3. User Privacy and Data Security:

Data Protection: Safeguarding user data, especially when using voice assistants and voice activated services that collect personal information.

Privacy Concerns: Addressing concerns about data collection and voice recordings.

4. Integration and Compatibility:

Platform Compatibility: Ensuring that audio content and voice applications work seamlessly across different devices and platforms.

Voice Interface Design: Designing intuitive and user-friendly voice interfaces to improve interaction and reduce errors.

Future Trends

1. Voice AI and Natural Language Processing (NLP):

Advanced Voice Recognition: Continued advancements in AI and NLP to improve voice recognition accuracy and conversational capabilities.

Contextual Understanding: Enhanced ability for voice assistants to understand context and provide more relevant responses.

2. Increased Personalization:

Tailored Experiences: More personalized audio content and voice interactions based on user behavior, preferences, and voice patterns.

3. Integration with IoT:

Smart Devices: Growing integration of voice and audio content with Internet of Things (IoT) devices, such as smart home systems and wearables.

4. Interactive and Immersive Audio:

Spatial Audio: Development of immersive audio experiences using spatial audio techniques to create a more engaging and realistic sound environment.

XII. Sustainability

Definition:

Sustainability refers to the practice of meeting current needs without compromising the ability of future generations to meet their own needs. It involves balancing economic, environmental, and social goals.

Strategies for Achieving Sustainability:

1. Sustainable Practices:

Green Certifications: Obtaining certifications like LEED (Leadership in Energy and Environmental Design) or ISO 14001 to demonstrate environmental responsibility.

Sustainable Supply Chains: Sourcing materials and products from suppliers that adhere to sustainable practices.

2. Innovation and Technology:

Clean Technologies: Investing in technologies that reduce environmental impact, such as renewable energy sources and energy efficient systems.

Circular Economy: Adopting circular economy principles that emphasize recycling, reusing, and reducing waste.

3. Policy and Regulation:

Compliance: Adhering to environmental regulations and policies that promote sustainability.

Advocacy: Supporting policies and initiatives that advance environmental protection and sustainable development.

Social Responsibility

Definition:

Social responsibility involves the ethical obligation of organizations and individuals to contribute positively to society and the environment. It encompasses actions that go beyond legal requirements and focus on creating social value.

Strategies for Enhancing Social Responsibility:

1. Transparent Reporting:

Sustainability Reporting: Providing transparent reports on sustainability and social responsibility efforts, including progress and challenges.

Stakeholder Engagement: Engaging with stakeholders to understand their concerns and expectations regarding social responsibility.

2. Ethical Leadership:

Leadership Commitment: Demonstrating commitment to social responsibility through leadership actions and decision-making.

Ethical Culture: Fostering an organizational culture that prioritizes ethical behavior and social impact.

3. Community Partnerships:

Collaboration: Partnering with nonprofit organizations, community groups, and other stakeholders to address social and environmental issues.

Local Initiatives: Supporting local initiatives and programs that contribute to community wellbeing and development.

Future Trends

1. Sustainable Innovation: Green Technologies: Continued development and adoption of green technologies and practices that advance sustainability goals.

Circular Economy: Growth in circular economy models that focus on reducing waste and promoting resource efficiency.

2. Increased Accountability:

Transparency: Growing demand for transparency and accountability in sustainability and social responsibility efforts.

Regulatory Changes: Evolving regulations and standards that promote environmental and social responsibility.

3. Stakeholder Engagement:

Collaborative Efforts: Increased collaboration between businesses, governments, and nonprofits to address global challenges and achieve sustainability goals.

Community Involvement: Greater emphasis on involving communities in decision-making processes and sustainability initiatives.

XIII. The Influencer and Creator Economy refers to the rapidly growing ecosystem where individuals—known as influencers or creators—leverage their online presence and content to generate income and create value. This sector has transformed the way brands engage with audiences and has introduced new opportunities and challenges for content creators. Here's an in-depth look at this economy:

Challenges and Considerations

1. Platform Dependence:

Algorithm Changes: Creators are often subject to changes in platform algorithms, which can impact their visibility and engagement.

Platform Policies: Adhering to platform policies and guidelines is crucial, as violations can lead to content removal or account suspension.

2. Content Saturation:

Market Saturation: The growing number of influencers and creators can lead to increased competition and content saturation, making it harder to stand out.

Audience Fatigue: Overexposure to branded content can lead to audience fatigue and decreased engagement.

3. Monetization Challenges:

Income Variability: Revenue can be unpredictable and fluctuate based on factors such as audience engagement, sponsorship deals, and platform changes.

Scalability: Scaling content production and monetization efforts can be challenging, particularly for individual creators with limited resources.

4. Ethical and Legal Issues:

Transparency: Influencers and creators must adhere to transparency and disclosure regulations regarding sponsored content and partnerships.

Intellectual Property: Protecting intellectual property rights and managing content ownership can be complex, particularly with collaborations and brand deals.

Future Trends

1. Rise of New Platforms:

Emerging Platforms: New social media and content platforms will continue to emerge, providing additional opportunities and challenges for influencers and creators.

2. Enhanced Technology:

AI and Automation: Advancements in AI and automation will impact content creation, audience targeting, and engagement strategies.

Virtual and Augmented Reality: The integration of VR and AR technologies will create new possibilities for immersive content experiences.

3. Increased Regulation:

Content Regulation: Growing scrutiny and regulation around influencer marketing and content transparency may lead to stricter guidelines and compliance requirements.

4. Focus on Authenticity: Genuine Connections: There will be an increasing emphasis on authentic and meaningful connections between creators and their audience, moving away from purely transactional relationships.

XIV. Global and Cultural Expansion:

Global and cultural expansion refers to the process of extending operations, content, or influence across international borders while adapting to diverse cultural contexts. This expansion involves navigating different markets, cultural norms, and regulatory environments. Here's a comprehensive look at the aspects, benefits, challenges, and strategies associated with global and cultural expansion:

Benefits of Global and Cultural Expansion

1. Market Growth:

Increased Revenue: Accessing new markets can lead to increased sales and revenue opportunities.

Diversification: Expanding into global markets reduces reliance on a single market and spreads risk.

2. Brand Recognition:

Global Presence: Building a global brand can enhance visibility and reputation on an international scale.

Cultural Appeal: Adapting to local cultures can strengthen brand loyalty and appeal in diverse markets.

3. Innovation and Learning:

Diverse Perspectives: Exposure to different cultures and markets can drive innovation and creativity.

Best Practices: Learning from international markets can lead to the adoption of best practices and improved operational efficiencies.

4. Competitive Advantage:

Market Leadership: Gaining a foothold in emerging markets can position a company as a leader in new regions.

Strategic Partnerships: Building relationships with local partners can provide strategic advantages and insights.

Challenges of Global and Cultural Expansion

1. Cultural Differences: Miscommunication: Language barriers and cultural misunderstandings can lead to miscommunication and operational challenges.

Consumer Preferences: Adapting products and marketing strategies to align with local tastes and preferences can be complex.

2. Regulatory and Legal Issues:

Compliance: Navigating different legal systems and regulatory environments can be challenging and require significant resources.

Intellectual Property Risks: Protecting intellectual property rights can be difficult in markets with varying levels of enforcement.

3. Operational Complexity:

Supply Chain Management: Coordinating global supply chains and logistics can be complex and involve managing multiple suppliers and partners.

Talent Management: Recruiting and managing a diverse workforce across different regions can present challenges.

4. Economic and Political Risks:

Market Volatility: Economic instability and political uncertainties in foreign markets can impact business operations and profitability.

Trade Barriers: Tariffs, trade restrictions, and other barriers can affect the cost and feasibility of international expansion.

Future Trends in Global and Cultural Expansion

1. Digital Transformation:

ECommerce Growth: The rise of ecommerce and digital platforms is facilitating global market entry and expanding reach.

Technology Adoption: Leveraging technology for localization, customer engagement, and market analysis will become increasingly important.

2. Sustainability Focus:

Environmental and Social Responsibility: Growing emphasis on sustainability and corporate social responsibility will influence global expansion strategies.

Ethical Practices: Consumers and stakeholders are increasingly valuing ethical practices and sustainability in global operations.

3. Emerging Markets:

Growth Opportunities: Emerging markets in regions such as Asia, Africa, and Latin America will present new growth opportunities for businesses.

Urbanization: Rapid urbanization in emerging markets will drive demand for goods and services.

4. Geopolitical Dynamics:

Trade Agreements and Policies: Changes in trade agreements and geopolitical relations will impact global expansion strategies.

Regional Integration: Regional trade agreements and economic partnerships will influence market access and opportunities.

XV. Advanced analytics and insights refer to the use of sophisticated techniques and tools to analyze data, derive meaningful patterns, and make informed decisions. This area encompasses various methodologies and technologies that go beyond basic data analysis to provide deeper understanding and predictive capabilities. Here's an overview of advanced analytics and insights, including its key components, benefits, challenges, and best practices:

Challenges of Advanced Analytics

1. Data Quality and Integrity:

Accuracy: Ensuring data accuracy and consistency across various sources to avoid misleading insights.

Completeness: Addressing missing or incomplete data that may impact the reliability of analyses.

2. Complexity of Models:

Model Complexity: Managing and interpreting complex analytical models and algorithms that require specialized knowledge and skills.

Over fitting: Avoiding over fitting, where models perform well on training data but fail to generalize to new data.

3. Data Privacy and Security: Compliance: Adhering to data privacy regulations and ensuring that sensitive data is protected from unauthorized access.

Ethical Considerations: Addressing ethical concerns related to data usage, including potential biases and fairness.

4. Integration and Interoperability:

System Integration: Integrating advanced analytics tools with existing systems and data sources for seamless data flow and analysis.

Interoperability: Ensuring that different analytical tools and platforms work together effectively.

5. Skill and Resource Requirements:

Talent Acquisition: Recruiting and retaining skilled data scientists, analysts, and engineers with expertise in advanced analytics.

Resource Investment: Investing in technology, infrastructure, and training to support advanced analytics initiatives.

Future Trends in Advanced Analytics

1. AI and Machine Learning Integration:

Automated Analytics: Increasing use of AI and machine learning to automate data analysis and generate insights with minimal human intervention.

Adaptive Models: Development of adaptive models that learn and evolve based on new data and changing conditions.

2. Real-time Analytics:

Instant Insights: Growing emphasis on real-time data processing and analytics to provide immediate insights and support timely decision-making.

Edge Computing: Leveraging edge computing to perform analytics closer to the data source, reducing latency and improving responsiveness.

3. Enhanced Data Visualization:

Interactive Dashboards: Development of more interactive and dynamic dashboards that allow users to explore data and insights in real-time.

Advanced Visualizations: Use of advanced visualization techniques such as 3D graphics and augmented reality to represent complex data.

4. Ethical AI and Bias Mitigation:

Fairness and Transparency: Focus on ensuring fairness and transparency in AI and analytics models to address biases and ethical concerns.

Ethical Guidelines: Establishment of guidelines and best practices for the ethical use of data and analytics.

Advanced analytics and insights are critical for leveraging data to drive business success and innovation. By adopting best practices and staying current with emerging trends, organizations can harness the full potential of their data to gain a competitive edge and achieve their strategic goals.

Conclusion:

Emerging breakthroughs and trends will drive a dramatic development in social media in the future, changing the way people interact with digital platforms. Important trends that will likely change user experiences and engagement in the future include the emergence of immersive technology, the growth of the metaverse, and improvements in AI-driven personalization. The way that brands interact with consumers will change as a result of the growth of social commerce, the increased emphasis on improved privacy and security, and the growing use of

ethical AI and content moderation techniques. Future social media tactics and practices will be shaped by the emphasis on mental health, sustainability, and social responsibility. As social media platforms continue to introduce new functionality and tackle new issues, being knowledgeable and flexible will essential to life.

References:

1. Abel, F., Diaz-Aviles, E., Henze, N., Krause, D., & Siehndel, P. (2010). Analyzing the blogosphere for predicting the success of music and movie products. In *Advances in Social Networks Analysis and Mining (ASONAM), 2010 International Conference on* (pp. 276–280). IEEE.
2. Corley, C. D., Cook, D. J., Mikler, A. R., & Singh, K. P. (2010). Using web and social media for influenza surveillance. In *Advances in Computational Biology* (pp. 559–564). Springer New York.
3. Sreenivasan, S. (1997). New neighborhood, no money down. *The New York Times*.
4. Lawrence, J. (1996). A student-created company is the talk of the web. *Cornell Chronicle*.
5. Altman, D. (1995, December). Beverly Hills Internet, builder of web communities, changes name to GeoCities; monthly page views top 6 million. *allBusiness*.
6. Boyd, D., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1-2). http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html
7. Facebook Statistics. (2010). http://www.facebook.com/press/info.php?statistics
8. Tsukayama, H. (2011). HTC Status: For the young and social. *The Washington Post* with Bloomberg Business.
9. Twitter. (2011). 200 million tweets per day. Twitter, Tech. Rep.
10. Goldman, D. (2011). Google+ grows to 10 million users. *CNNMoneyTech*.
11. HubSpot. The future of social media. https://blog.hubspot.com/marketing/future-of-social-media
12. Hootsuite. Social media trends. https://blog.hootsuite.com/social-media-trends
13. Gartner. Top technology trends. https://www.gartner.com/en/insights/top-technology-trends
14. Pew Research Center. (2024, June 30). Social media and the future of public discourse. https://www.pewresearch.org/internet/2024/06/30/social-media-and-the-future-of-public-discourse/
15. McKinsey & Company. The future of digital platforms and ecosystems. https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-future-of-digital-platforms-and-ecosystems
16. Sprout Social. Social media trends. https://sproutsocial.com/insights/social-media-trends/

INTERPERSONAL RELATIONSHIP

A. Ayee
Department of Mental Health Nursing,
Sri Manakula Vinayagar Nursing College, Puducherry,
Pondicherry University
Corresponding author E-mail: malarayee@gmail.com

"Clarity of Communication is Essential for Interpersonal Relationship"

Luke Shen Tien Chi

Introduction:

A close, intimate, and powerful bond or acquaintance between two or more individuals is known as an interpersonal relationship (IPR), which can range in duration from short to long. Based on inference, affection, solidarity, frequent commercial dealings, or some other kind of social commitment, this link may exist. Social, cultural, and other factors play a role in the formation of interpersonal relationships.

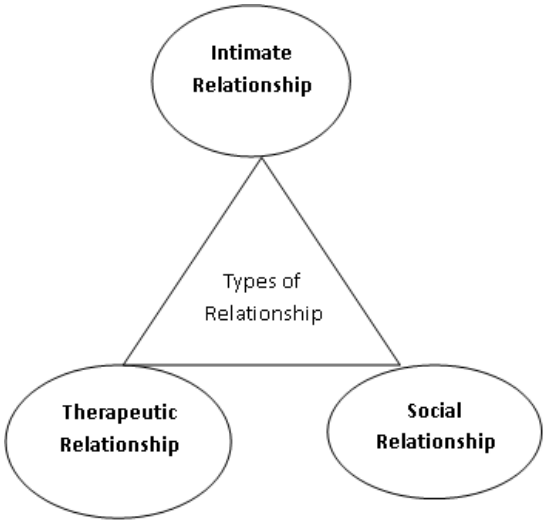
Definitions:

- Interpersonal relationships refer to reciprocal social and emotional interactions between the patient and other persons in the environment **Suresh K. Sharma**
- Interpersonal relationship is defined as a close association between individuals who share common interests & goals. **Suresh K. Sharma**
- Interpersonal relationship means interaction or relations between two or more individuals. **Suresh K. Sharma**

Types of Relationship:

According to the kinds of expectations that communicators have of one another and the relational circumstances in which they communicate.

1. Friendship.
2. Family and kinship relationship
3. Romantic relationship
4. Professional relationship
5. Formalized intimate or long term relationship
6. Non formalized intimate relationship
7. Soul mates
8. Platonic love
9. Brotherhood or Sisterhood
10. Acquaintanceship



Purposes

- To learn about self and society
- To establish and maintain relationships
- To alleviate loneliness
- Helps for diversion
- Helps to meet the needs of others
- Gain confidence and satisfaction

Importance of Interpersonal Relaionship

Need to Belong

According to Maslow's hierarchy of needs, humans need to feel love (sexual/nonsexual) and acceptance from social groups (family, peer groups). In fact, the need to belong is so innately ingrained that it may be strong enough to overcome needs, such as children's abusive parents or staying in abusive romantic relationships. Such examples illustrate the extent to which the psychobiological drive to belong is entrenched.

Social Exchange

- Another way to appreciate the importance of relationships is in terms of a reward framework. This perspective suggests that individuals engage in relations that are rewarding in both tangible and intangible ways. The concept fits into a larger theory of social exchange.
- This theory is based on the idea that relationships develop as a result of cost-benefit analyses. Individuals seek out rewards in interactions with others and are willing to pay a cost for said rewards. In the best-case scenario, rewards will exceed costs, producing a net gain.
- This can lead to "shopping around" or constantly comparing alternatives to maximize the benefits (rewards) while minimizing costs.

Relational Self

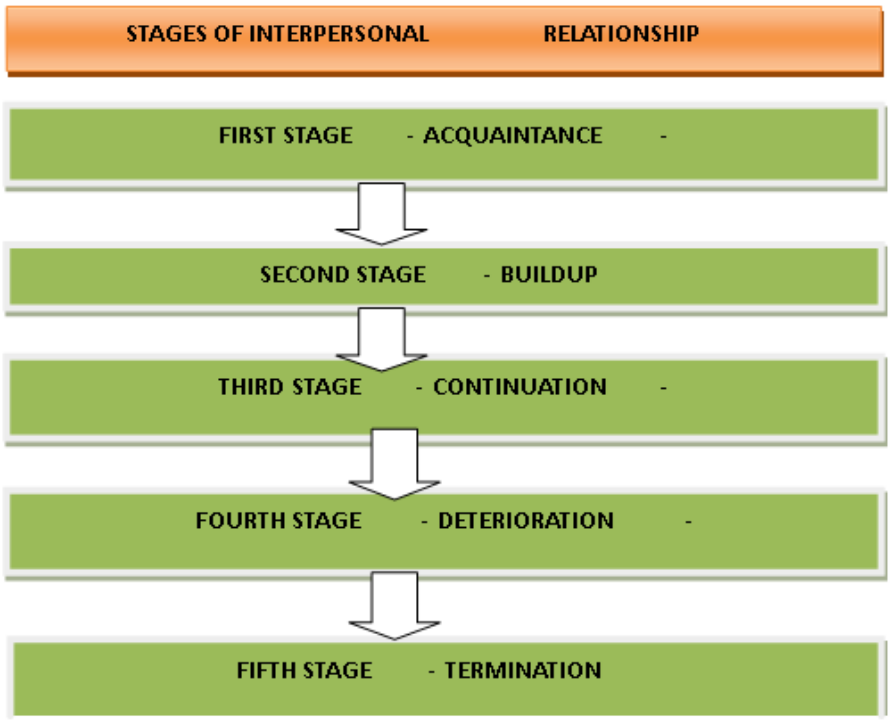
- Relationships are also important for their ability to help individuals develop a sense of self. The relational self is the part of an individual's self-concept that consists of the feelings and beliefs that one has regarding oneself that develops based on interactions with others.
- In other words, one's emotions and behaviors are shaped by prior relationships Thus, relational self theory posits that prior and existing relationships influence one's emotions and behaviors in interactions with new individuals, particularly those individuals who remind him or her of others in his or her life.

- Studies have shown that exposure to someone who resembles a significant other activates specific self-beliefs, changing how one thinks about oneself in the moment more so than exposure to someone who does not resemble significant to other.

Stages of IPR

George Levinger, Psychologist developed IPR Model of relationships.

1. **Stage I - Acquaintance**- Becoming acquainted depends on previous relationships, physical proximity, first impressions, and a variety of other factors. If two people begin to like each other, continued interactions may lead to the next stage, but acquaintance can continue indefinitely.
2. **Stage II - Buildup**- People begin to trust and care about each other. The need for compatibility and such filtering agents as common background and goals will influence whether or not interaction continues.
3. **Stage III - Continuation**- This stage follows a mutual commitment to a long term friendship, intimate relationship. Romantic relationship resulting into marriage, It is generally a long, relative, stable period. Nevertheless continued growth and development will occur during this time. Mutual trust is important for sustaining the relationship.
4. **Stage IV - Deterioration**- Not all relationships deteriorate, but those that do, tend to show signs of trouble, boredom resentment and dissatisfaction may occur and individuals may communicate less and avoid self-disclosure. Loss of trust and betrayals may take place as the downward spiral continues.
5. **Stage V - Termination**- The final stage marks the end of the relationship, either by death in the case of a healthy relationship or by separation.

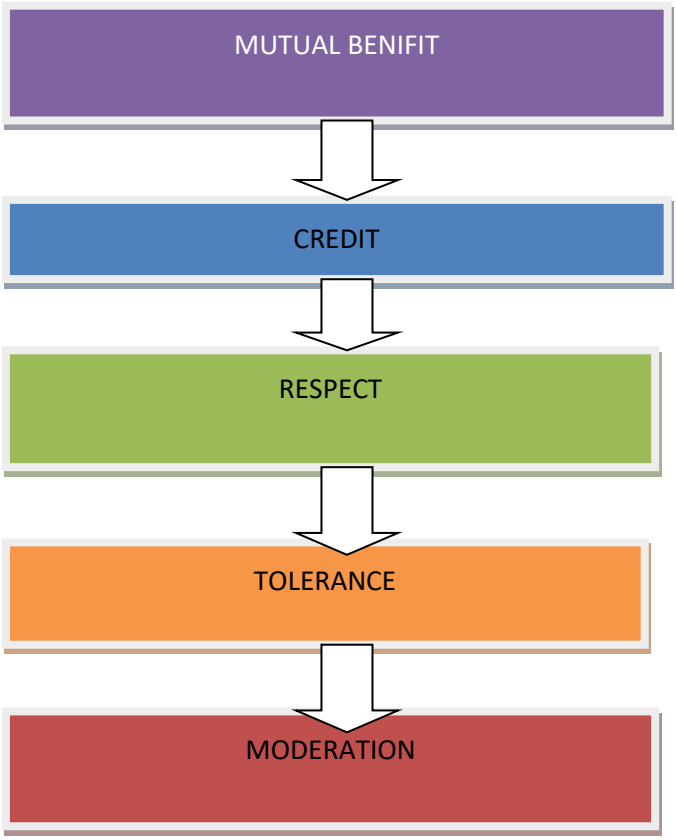


Ways to Build up Good IPR:

- Mutual personal respect
- Altruism
- Strong bond of mutual trust
- Friendly relationships
- Closeness
- Cooperation
- Attachment
- Mutual understanding
- The knowledge of each other
- Face-to-face interactive process
- Mutual love
- Equality

  Harmonious relationship
- Affection

Principles of IPR:



1. **Mutual Benefit Principle**:
    - Interpersonal relationships are actually a type of mental interaction between people and they represent the mindset that a person or group has when they search for ways to satisfy their social demands.
    - The degree to which the social needs of both parties are met determines how an interpersonal connection develops and changes.
    - If both parties are able to satisfy their own social requirements during communication, a close mental relationship that is characterized by friendly attachment might develop; on the other hand, if this is not the case, the relationship may become estranged.
    - The degree of attraction and shared needs among individuals is reflected in interpersonal relationships at different levels.
2. **Credit Principle:**
    - The foundation for extending and strengthening interpersonal contact is to "treat people with sincerity and insist on credit."
    - People can only mutually understand, accept, trust, and resonate in sentiment during the communication process if they are motivated by and have a good aim.
    - Only then can the communication relationship be strengthened and developed.
3. **Respect Principle:**
    - People differ in terms of temperament, character, aptitude, knowledge, and other aspects, yet their personalities are all the same despite the effect of both subjective and objective elements.
    - Maintaining each party's equal standing in interpersonal communication can only be accomplished by respecting oneself and others.
4. **Tolerance Principle**:
    - A person who exhibits tolerance can treat others with kindness, set aside differences to find common ground, and suffer retribution with grace. It also shows that a person does not give a damn about trivial matters.
    - Tolerance promotes interpersonal relationships, opens up channels of communication, and gets rid of conflict and stress in relationships. Contradiction that arises from individual differences, unforeseen errors, or miscommunication is unavoidable in interpersonal communication.
    - It is inevitable for there to be a vicious cycle created if someone offends or hurts you, and you continue to think about it and vow to get revenge. Conversely, if you think that individuals can be made to feel a certain way, then most people can be made to be thoughtful, accepting, and tolerant.

4. Moderation Principle:

- There should be moderate time for conversation. We won't have to expend excessive time and effort because the significance of communication will be overemphasized.
- Communication should take place at a moderate distance.
- Friends must maintain a particular amount of space from one another; however this distance might vary depending on how close the friends are to one another.

Characteristics of Good IPR:

When we first meet someone, there are some traits of a successful relationship that we could notice right away. Relationship strength and stability are derived from other characteristics that evolve with the partnership. A successful relationship will typically have some of the following traits:

Rapport: Feeling at ease or at ease with someone else is known as rapport. This might take some time to develop or it might be automatic.

Empathy: Understanding another person's thoughts, feelings, and behaviours and being able to perceive the world from their perspective is known as empathy.

Trust: To trust someone is to be able to rely on them. You anticipate acceptance and assistance from the person you trust. Accepting and appreciating the other person for who they are is a sign of respect.

Mental Expectations: Mental expectations: As a relationship develops, partners should have comparable expectations of one another. The relationship should be directed towards the mutually beneficial purpose or aims.

Flexibility: Healthy partnerships are adaptable and flexible. Plans you've made together don't always work out because things happen. Sometimes you have to reevaluate your objectives and make concessions

Uniqueness: There is something about the relationship that makes it stand out, exceptional, or distinct.

Irreplaceability: Each connection is as special as the individuals in it, and it can never be duplicated.

Interdependence: You are impacted by the issues that the other person is facing.

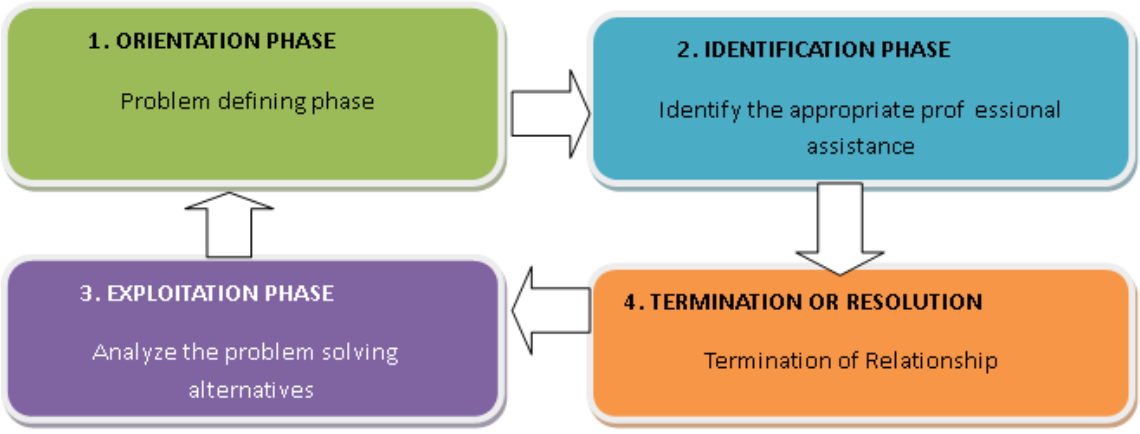
Self-disclosure: Individuals communicate and confide intimate information with each other in interpersonal relationships

Honesty and Accountability: Honesty and accountability include speaking freely and honestly, owning up to mistakes or wrongdoing, and taking ownership of one's actions.

Phases of IPR:

According to Hildegard E Peplau (1952) gave the interpersonal relationship model. Her model describes the phases in a nurse patient relationship in terms of the interpersonal process used in nursing.

Peplau identified four sequential phases in interpersonal relationship.



Orientation Phase

- Starts when client meets nurse as a stranger
- Defining problem and deciding type of service needed
- Client seeks assistance, conveys needs, asks questions, shares preconceptions and expectations of past experiences
- Nurse responds, explains roles to client, helps to identify problems and to use available resources and services.

Identification Phase

 Selection of appropriate professional assistance

Patient begins to have a feeling of belonging and a capability of dealing with the problem which decreases the feeling of helplessness and hopelessness.

Exploitation phase

- Use of professional assistance for problem solving alternatives
- Advantages of services are used is based on the needs and interests of the patients
- Individual feels as an integral part of the helping environment They may make minor requests or attention getting techniques
- The principles of interview technique must be used in order to explore, understand and adequately deal with the underlying problem Patient may fluctuate on independence.
- Nurse must be aware about the various phases of communications
- Nurse aids the patient exploiting all venues of help and progress is made towards the final step.

Resolution Phase:

- Termination of professional relationship
- The patients need have already been met by the collaborative effect of patient and nurse.
- Now they need to terminate their therapeutic relationship and dissolve the links between them.
- Patient drifts away and breaks bond with nurse and healthier emotional balance is demonstrated and both become mature individuals.

Techniques in Interpersonal Relationship

- Acknowledging, assertiveness
- Agreeing and disagreeing
- Asking relevant questions
- Being specific and tentative
- Being defensive
- Belittling
- Challenging
- Clarifying doubts
- Encouraging Comparisons
- Focusing, False reassurance
- Giving information
- Giving common advice
- Humor
- Identify the theme
- Listening
- Nodding the head
- Offering self,
- Observing
- Providing general leads
- Paraphrasing, Pinpointing
- Probing & Passing judgments
- Presenting reality
- Reflecting, Restating
- Rejecting
- Summarizing and planning
- Seeking clarification. Using open-ended questions
- Testing
- Using touch & Using silence
- Voicing Doubt

Essential Skills in Building Strong Relationship

Relax Optimistically: if you are comfortable around others, they will feel coulartalde others will sense it and withdrew. If you appear nervous, others will sense it and withdraw. If you meet someone for first time, brighten up as if you have rediscovered a long lost friend. A smile will always be the most powerful builder of rapport. Communicating with relaxed optimism energy and enthusiasm will provide a strong foundation for lasting

Listen Deeply: Powerful listening some beyond hearing words and it connects us emotionally with our communication partner Listen to what the person is not saying as well as to what he or she is saying, Focus intently and listen to the messages conveyed behind and between words. Listen also with your eyes and heart. Notice facial expression and body postures, but see beneath the surface of visible behaviors. Feel the range of emotions conveyed by tone of voice and rhythm of speech, Discern what the person wants you to hear and also what they want you to feel.

Feel Empathetically: Empathy is the foundation of good two-way communication. Being empathetic is seeing from another person's perspective regardless of your opinion or belief. Treat their mistakes as you would want them to treat your mistakes. Let the individual know that you are concerned with the mistake and that you still respect them as a person. Share their excitement in times of victory and offer encouragement in times of difficulty. Genuine feelings of empathy will strengthen the bond of trust.

Respond Carefully: Choose emotions and words wisely. Measure your emotions according to the person's moods and needs. Words can build or destroy trust. They differ in shades of meaning, intensity and impact. What did you learn when listening deeply to the other individual? message back to them. Validate your understanding of their message.

Synchronize Cooperatively: When people synchronize their watches, they insure that their individual actions will occur on time to produce an intended outcome. Relationships require ongoing cooperative action to survive and thrive. As relationships mature, needs and values of the individuals and relationship will change. Career relationships will require the flexibility to meet changing schedules and new project goals. Cooperative actions provide synchrony and build trusting alliances. They are part of the give and take that empowers strong and enduring relationships.

Act Authentically: Acting authentically means acting with integrity. It means living in harmony with your values. Be yourself when you are with someone else. Drop acts that create false appearances and false security. When you act authentically, you are honest with yourself and others.

Acknowledge Generously: Look for and accentuate the positive qualities in others. Humbly acknowledge the difference that people make to your life. Validate them by expressing your appreciation

Barriers of IPR:

- Physical barrier
- psychological barrier
- Semantic barrier
- Environmental barrier
- Cultural barrier
- Language barrier
- Gender barrier
- Organizational barrier

Communication process related barrier

Methods to Overcome Barriers

Sr. No.	Type of Barrier	Measures to Overcome
1.	**Physical barrier** • Lack of attention • Discomfort due Illness • Hearing problem • Poor listening skills • Poor memory	• Complete attention during the communication process ensures patient comfort consider retention and recollection abilities of patient • Avoided too many overloaded • Information at a time • Assess the sensory perception
2.	• Environmental barriers • Loud noise • Poor lighting • Uncomfortable setting • Unhygienic surrounding and bad odor • High or low temperature • Lack of privacy	• Ensure comfortable position, adequate room temperature and adequate lighting • Environment must be clean and free from bad odor • Provide privacy when disclosing of any personal information
3.	**Psychological barrier** • Shyness or embarrassment in • Sharing information • Distressing emotions • Misperception and misunderstanding prejudice	• Use appropriate communication techniques by using clear and simple words • Don't use any preconceived negative ideas or views of the other person • Free from fear, anxiety, and confusion • Use therapeutic communication techniques to explore the patients problem • Assess the misunderstanding and misconceptions of patients and clarify them adequately

4.	**Social barriers** • Differences in social norms and values • Differences in social strata	• Respect the social norms and values social strata need to be considered while communicating with the patient
5.	**Semantic barriers** • Language, jargon • Incorrect language • Translations	• Avoid by using medical terms in front of the patient • Use local language for better understanding • Language should be very simple, clear, and concised manner • Ensure the patient is too attentive while conveying the information
6.	**Cultural barrier** • Ethnic, religious and cultural differences • Traditions, customs and cultural beliefs	• Understand the patients traditions, customs and cultural beliefs while rendering care to the patient respect each one cultural values and beliefs
7.	**Organizational barriers** • Organizational policy, rules and regulations • Hierarchy of the organization • Size and structure of the organization	• Structure of the organization must be simple, and non complex for smooth communication decentralization in an organization structure promote effective communication
8.	**Communication process** • Related barriers • Unclear and conflicting messages • Use of inappropriate channels • Lack of poor feedback	• Communication should be in very clear, simple and concised manner should select appropriate channel for communication • Ensure adequate feedback from the patient

Johari Window

Johari window is a technique created in 195 by two American psychologists, Joseph Luk (19162014) and Harrington Ingham (1914- 1995), used to help people better understand their relationship with self and others. It is used primarily in self help groups and corporate a heuristic exercise.

Room 1 is the part of ourselves that we see and others see.

Room 2 is the aspects that others unconscious see but we are not aware of.

Room 3 is the most mysterious room in that the or subconscious part of us is seen by neither ourselves nor others.

Room 4 is our private space which we know but keep from others,

Johari Window Model

	Known to Self	**Not Known to Self**
Known to others	Open	Blind
Not known to others	Hidden	Unknown

The four quadrants are:

1. **Open Area (Quadrant 1):** This quadrant represents the things that you know about yourself and the things that others know about you. This includes your behavior, knowledge, skills, attitudes and 'public' history.
2. **Blind Area (Quadrant 2):** This quadrant represents things about you that you are not aware of, but that are known by others. This can include simple information that you do not know or it can involve deep issues (e.g. feelings of inadequacy, incompetence, unworthiness or rejection), which are often difficult for individuals to face directly and yet can be seen by others.
3. **Hidden Area (Quadrant 3):** This quadrant represents things that you know about yourself, but that others do not know.
4. **Unknown Area (Quadrant 4):** This last quadrant represents things that are unknown by you and are unknown by others

Importance of Johari Window

- The Johari window model is a simple and useful tool for illustrating and improving selfawareness and mutual understanding between individuals within a group.
- The Johari window model can also be used to assess and improve a group's relationship with other groups. The johari window model is also referred to as a disclosure/feedback model of self-awareness and by some people an 'Information-processing tool.
- The Johari window actually represents information feelings, experience, views, attitudes, skills, intentions, motivation, etc. within or about a person in relation to their group.

- The Johari window model can also be used to represent the same information for a group in relation to other groups.
- Johari window terminology refers to 'self' and 'others': 'Self' means oneself,. The person subject to the Johari window analysis. Others' mean other people in the person's group or team.

Conclusion:

A strong, intimate, or close association or acquaintance between two or more individuals can be called an interpersonal relationship, and its duration can range from short to long. This association could be founded in common commercial interactions, affection, solidarity, inference, or some other kind of social commitment. Relationships between people are shaped by social, cultural, and other factors. The setting can include relationships with family or kind, friendship, marriage, relationships with coworkers, the workplace, clubs, neighborhoods, and workshop locations.

References:

1. Clement, N. (n.d.). *Essentials of Communication and Education Technology* (2nd ed., pp. 23-37). Jaypee Publishers.
2. Neeraja, K. P. (n.d.). *Communication and Education Technology* (2nd ed., pp. 661-676). Jaypee Publishers.
3. Sharma, S. K. (2017). *Communication and Education Technology: Contemporary Pedagogy for Health Care Professionals* (2nd ed., pp. 27-45).
4. Vati, J. (2018). *Communication and Education Technology for Nurses* (pp. 29-49). Universities Press (India).
5. Malarvizhi, S., & Amirtha Santhi, S. (n.d.). *Communication and Education Technology* (2nd ed., pp. 10-16). EMMESS Publication.
6. Sreevani, R. (2021). *Applied Psychology for Nurses* (4th ed., pp. 211-220). Jaypee Brothers Publication.

NAVIGATING THE DIGITAL FRONTIER: THE TRANSFORMATIVE IMPACT OF SOCIAL MEDIA ON JOURNALISM

Soumen Das

School of Media Science,

Institute of Management Study, Kolkata, West Bengal, India

Corresponding author E-mail: researchwithsoumen@gmail.com

Abstract:

The emergence of social media has completely changed how news is produced, shared, and consumed, revolutionising journalism. Previously the only information gatekeeper, traditional media today has to contend with the likes of Twitter, Facebook, and Instagram, which offer fast and widespread news access. This chapter examines the relationship between social media and journalism, emphasising the democratisation of news, the problems associated with disinformation, and the changing nature of the economy. Social media has given anyone the ability to produce and consume news, posing moral conundrums and placing pressure on journalistic standards. The chapter looks at how social media affects political journalism, news quality, and audience participation. It also includes case studies that show these relationships. In terms of the future of journalism, the incorporation of technologies like AI, AR, and VR brings with it both potential and difficulties. As journalism continues to change in the digital era, striking a balance between accuracy and timeliness as well as managing the changing media landscape will be essential.

Keywords: Social Media, Journalism, Misinformation, Citizen Journalism, Audience Engagement, Political Journalism

Introduction:

A revolutionary age in journalism has begun with the rise of social media, which has drastically changed the ways in which news is created, shared, and consumed. With the explosive growth of digital media, traditional journalism—once dominated by print, radio, and television—has experienced major changes in its environment. With its immediate and global reach, social media has altered the nature of journalism and the job of journalists, democratising access to information. News outlets used to act as gatekeepers, regulating the public's access to information. But as social media has spread, this gatekeeping job has come under more and more pressure. Millions of people now get much of their news from social media sites like Facebook, Instagram, and Twitter, where headlines may quickly go viral and often avoid established news sources. The distinction between professional and citizen journalism is becoming hazier as a result of this change, which has given individuals the ability to produce and consume news.

Real-time reporting, interactive interaction, and a constantly changing news cycle are the hallmarks of the new media ecosystem that has emerged from the merging of social media and journalism. It is now required of journalists to adjust to this fast-paced world where the values of accuracy and thoroughness frequently collide with the need for immediacy. The desire to break a story first can occasionally result in the spread of false or unreliable information, which raises moral questions and calls into question the reliability of news sources. Furthermore, journalists now face additional difficulties as a result of social media's algorithmic structure. Editorial choices may be influenced by the emphasis on engagement metrics, such as likes, shares, and comments, which frequently favour dramatic or emotionally charged content over in-depth research and investigative reporting. This has sparked questions about the calibre of journalism in the era of social media, as the desire for virality can occasionally take precedence over the dedication to providing fair and thorough reporting.

The use of social media in journalism has created new opportunities in spite of these difficulties. It has made it possible for journalists to interact directly with readers, reach a wider audience, and leverage data analytics to gain a deeper understanding of audience preferences. Additionally, social media has developed into a potent instrument for elevating marginalised perspectives and promoting international dialogue on important subjects. It is essential to comprehend the mechanics of this interaction as journalism in the era of social media continues to change. This chapter provides insights into the future of news in a digital age by examining the trends, difficulties, and possibilities brought about by the merger of social media and journalism.

Social Media as a News Source

Social media has become a major news source in the digital age, drastically changing the ways in which news is gathered, reported, and consumed. Real-time information sharing and access for both professional journalists and regular people is now facilitated by social media platforms like Facebook, Instagram, and Twitter. The democratisation of news is among the biggest shifts brought about by social media. Social media enables everyone with an internet connection to report on events as they happen, in contrast to conventional media, where news output is regulated by a small number of gatekeepers. As a result, citizen journalism has grown in popularity, allowing people on the ground to report firsthand stories frequently before major media sources do. One of the benefits of social media is its immediacy, which enables news to travel quickly throughout the world.

But there are a number of drawbacks to relying just on social media for news. False or incorrect information may spread quickly due to the pace at which information is disseminated. The prevalence of misinformation and fake news has increased due to social media companies' lack of editorial control. Not only does this damage the information's trustworthiness, but it also

presents difficulties for journalists who have to work through the difficulties of fact-checking in a fast-paced digital world. Social media has also changed the way that news is traditionally reported. There is now more pressure than ever to break news rapidly, frequently at the price of careful research and analysis. Concerns over the veracity and quality of news have arisen as a result of this shift, since journalists are now expected to put speed above content.

Social media continues to be an essential tool for journalists in spite of these obstacles. It gives users access to a wide range of information sources, opinions, and current events that might improve reporting. Journalists have the opportunity to interact directly with readers, get prompt comments, and learn about public opinion, all of which may help them in their reporting. Social media has made news sourcing quicker and more democratic, but it has also brought up new difficulties, namely with relation to disinformation and veracity. In order to keep up with these developments, journalists must strike a balance between the demands of accurate, well-sourced information and the advantages of immediacy.

Challenges in the Digital Age

Journalism has seen tremendous transformation since the emergence of social media, which offers both advantages and disadvantages. The spread of false information and fake news is one of the most urgent problems. Due to their extensive reach and quick information transmission, social media platforms have developed into ideal environments for the propagation of false information. Users may now easily distribute anything without any form of verification, which has created a problem of trust where it is getting harder and harder to tell the difference between real news and made-up stuff. This damages the public's confidence in media and fosters a disorganised information environment where false information may have detrimental effects on society. In the digital era, journalists have a great deal of difficulty when it comes to ethical quandaries. The need to break breaking news first frequently results in a compromising of journalistic ethics. Social media's immediate nature means that news is frequently reported in real time, leaving little time for careful fact-checking. This haste to publish may lead to the erroneous or partial information being disseminated, harming people and skewing public opinion. In addition, concerns of permission, privacy, and the appropriate use of user-generated content have been brought up by the usage of social media platforms for news gathering.

The effect of real-time reporting on news quality presents another difficulty. Rapid, surface-level reporting has replaced in-depth analysis due to the expectation of instant updates. Constant updates are demanded of journalists, which might take away from the time and resources needed for in-depth reporting and investigative journalism. The shift towards "snackable" news has the potential to undermine the breadth and excellence of journalism, providing readers with a disjointed comprehension of intricate matters. In addition, the impact of social media algorithms poses a problem for the way that news is seen and digested. Instead of

considering the content's journalistic value, these algorithms give priority to interaction indicators like likes, shares, and comments. Sensationalist or highly emotive tales thus frequently garner greater attention, while significant but uninteresting news may go unnoticed. This has the potential to distort public opinion and encourage the dissemination of divisive information. Social media presents serious obstacles to the objectivity and calibre of journalism even as it presents fresh chances for participation and audience connection. In order to meet these obstacles, one must be dedicated to moral principles, do thorough fact-checking, and strike a balance between reporting accuracy and timeliness.

Audience Engagement and Interaction

Since the emergence of social media, the relationship between journalists and their viewers has changed dramatically, turning the latter from passive recipients of news to active players. This change has given media new possibilities as well as problems, especially in terms of how the public is consuming, interacting, and disseminating news. With the use of social media sites like Facebook, Instagram, and Twitter, viewers may now engage with news information in real time by leaving comments, sharing, and even contributing to its creation. Because of this interactive setting, journalism has become more participative, allowing audience opinions to directly impact editorial choices and news coverage. With the ability to rapidly assess public opinion, journalists may now produce more individualised and responsive news. This implies, too, that the need to provide information that stimulates interaction—as shown by likes, shares, and comments—can occasionally eclipse the dedication to precision and nuance in reporting.

In the digital age, engagement metrics have become essential, frequently determining which articles get seen. Social media companies' algorithms favour information that garners a lot of engagement, which feeds the loop of amplifying sensational or emotionally charged news. This has ramifications for journalistic ethics since, in an effort to garner clicks and shares, sensationalism and shallow content may occasionally take precedence over in-depth, investigative reporting. Furthermore, social media's interactive features enable journalists and their viewers to have a two-way dialogue. Because they feel more a part of the news organisation or journalist, viewers may become more dependable and devoted as a result. But technology also brings with it new difficulties, including cyberbullying, which a lot of journalists encounter when interacting with users on these platforms. These include women and minorities in particular.

The influence of social media on public conversation is another important facet of audience involvement. Viral articles, trending topics, and hashtags may shape the news agenda by emphasising some themes while ignoring others. Although user-generated content production has the potential to democratise news, it also runs the risk of amplifying just particular points of view in "echo chambers." Social media has improved audience participation and communication

with journalists, but it has also brought new challenges that they need to properly manage. Maintaining the integrity and credibility of the profession in the digital era requires striking a balance between the demand for involvement with ethical journalistic values.

The Business of Journalism on Social Media

The emergence of social media has significantly transformed the journalism industry's financial model, impacting the ways in which news outlets earn income and disseminate information. Print circulation, broadcast subscriptions, and advertising all played major roles in traditional journalism. But the emergence of digital platforms has upended these sources of income, requiring news organisations to quickly change with the times.

Monetization Strategies: News organisations have expanded their revenue streams on social media. The major source of income is still advertising, and social media sites provide alternatives for tailored advertising that appeal to particular groups. News organisations may draw in advertising looking for a targeted audience thanks to this accuracy. In addition, a lot of media firms have adopted subscription models and paywalls, providing premium subscribers with access to unique material. This change is a reflection of the rising realisation that, even in the age of free material, good journalism has a marketable worth.

Sponsored Content and Native Advertising: The growth of native advertising and sponsored content is another important development. Brands and news organisations work together to provide content that satisfies advertising objectives as well as journalistic standards. These collaborations may make it difficult to distinguish between commercial and editorial material, which raises moral questions. In an industry where conventional advertising revenues have decreased, they also offer a vital source of income.

Challenges with Social Media Algorithms: The material that people view on social media platforms is determined by algorithms, which has a significant effect on the visibility of news. To make sure their material reaches a wide audience, news organisations need to figure out how to navigate these algorithms. As a result, attention is now mostly focused on spectacular headlines and clickbait content that aim to draw readers in and increase traffic. Although this tactic can boost interaction in the near term, it may compromise news reporting quality and journalistic integrity.

Economic Challenges: The prevalence of social media sites like Instagram, Twitter, and Facebook has also put conventional media firms in a difficult financial position. News organisations receive a reduced portion of the revenue from digital advertising due to the huge proportion captured by these platforms. Furthermore, many media businesses have been compelled to make expense cuts due to the drop in print and broadcast advertising, which frequently means layoffs and a reduction in editorial personnel.

In conclusion, social media poses serious problems for the journalism industry even as it opens new avenues for generating cash. A careful balance between upholding journalistic ethics and adjusting to the economic realities of the digital era is necessary to successfully navigate these obstacles.

Social Media and Political Journalism

Social media has completely changed the way that news is generated, read, and shared, which has revolutionised political journalism. Platforms like Twitter, Facebook, and Instagram have developed into essential instruments for political communication in the current digital era, allowing people, journalists, and politicians to participate in the political conversation in real-time. The democratisation of information is one of social media's most important effects on political journalism. Politicians may now speak with the public directly thanks to social media, which has circumvented the traditional media gatekeepers that filtered political news. Politicians might have more control over their messaging and openness because to this direct connection, but there are drawbacks as well. Propaganda and true reporting can be difficult to distinguish from one another since unconfirmed material spreads quickly.

Social media's instantaneous nature has also quickened the news cycle, encouraging reporters to cover political developments as they happen. Although this real-time reporting frequently sacrifices accuracy and depth, it can boost public involvement. There's pressure on journalists to report stories quickly rather than thoroughly, which increases the possibility of disinformation. Furthermore, news articles are frequently chosen for their ability to spark conversation rather than their newsworthiness due to the impact of algorithms on social media platforms, which skews the public's perspective of political concerns. Public opinion now plays a larger part in political journalism thanks to social media. Platforms offer a forum for public conversation where people may express their ideas, take aim at politicians, and even choose what news is covered. As a result of this change, journalism has become more participatory, with journalists now frequently using social media to ascertain public opinion and spot new trends. The echo chamber effect, in which the loudest voices dominate the debate, is another risk that journalists face because of this, which might result in biassed reporting.

Furthermore, social media has been essential to political movements and elections, from the global rise of populism to the Arab Spring. The dynamics of political campaigning and activism have altered as a result of social media's capacity to instantly mobilise huge numbers of people. As such, journalists must comprehend the subtleties and potency of these platforms. Social media has made political journalism more accessible and immediate, but it has also brought up new issues with bias, accuracy, and the power of algorithms. Journalists must adjust to the ongoing changes in political communication while maintaining the standards of truthfulness, equity, and responsibility in their reporting.

Case Studies

1. The Arab Spring: The Role of Social Media in Revolution

Many people consider the start of the Arab Spring in late 2010 to be a turning point in the development of the interaction between social media and journalism. Social media sites like Facebook, Twitter, and YouTube played a major role in amplifying the protest wave throughout the Middle East and North Africa. In addition to being essential tools for communication, these platforms were also important news sources, providing real-time information that traditional media sometimes couldn't match because of censorship or other practical difficulties. In nations such as Tunisia and Egypt, where criticism was prohibited by government-run media, social media emerged as the main platform for individuals to record and communicate their experiences. With the use of hashtags like #Jan25, which refers to the Egyptian Revolution, viewers around the world were able to keep a close eye on happenings. Local and foreign journalists mainly depended on user-generated material, utilising social media platforms for information dissemination and verification. The Arab Spring demonstrated the ability of social media to influence public opinion, plan demonstrations, and—above all—get around traditional media gatekeepers. But the case also highlighted the difficulties faced by journalists in these kinds of settings, such as ensuring the legitimacy of content and controlling the dissemination of false information. Social media was essential in the Arab Spring, but it also demonstrated the necessity for strict journalistic standards in a time when information is readily available and spreads quickly.

2. The Boston Marathon Bombing: Real-Time Reporting and Its Pitfalls

The Boston Marathon bombing in 2013 serves as an excellent example of social media's advantages and disadvantages for real-time crisis reporting. Social media swiftly surpassed established news sources in several circumstances and augmented them when the explosives detonated close to the finish line. Users shared updates, pictures, and videos from the scene on social media sites like Reddit and Twitter, which turned into hotspots for breaking news. Journalists discovered themselves in a race against the clock, facing off against a large number of citizen reporters as well as one another. Although this democratisation of news reporting sped up the flow of information, there were serious drawbacks as well. In the haste to publish, false information travelled quickly. For example, the Reddit community misidentified suspects, which resulted in a virtual witch hunt that hurt innocent people. This case study demonstrates how social media in journalism has two sides. On the one hand, it makes instantaneous, on-location reporting possible, which is beneficial in quickly developing incidents. However, it also highlights the dangers of real-time reporting, since information may often spread more quickly than it should, posing grave moral and professional challenges for reporters.

3. #MeToo Movement: Social Media as a Catalyst for Journalism

One potent illustration of how social media can spark conventional journalism is the #MeToo movement, which went viral in 2017. #MeToo, which started off as a grassroots campaign to draw attention to the widespread incidence of sexual harassment and assault, spread around the world thanks to websites like Twitter. With the help of the hashtag, millions of women were able to tell their tales, building a voice that the mainstream media was forced to acknowledge. Investigative reports, such as those published by The New York Times and The New Yorker on Harvey Weinstein, benefited greatly from the momentum created by the #MeToo movement, and journalists were instrumental in spreading the word about these stories. The survivors' first forum to speak out was social media, but the hard investigative work of journalists produced real results, such as court cases and a wider social reckoning with issues of gender and power. The #MeToo movement demonstrates how social media can act as a springboard for journalism by giving marginalised voices a voice and opening doors for reporters to cover issues that may otherwise go unreported. It also demonstrates the mutually beneficial link between journalism and social media, where both can strengthen the other's influence in tackling important societal concerns.

Together, these case studies show how social media has a significant influence on journalism, posing both opportunities and difficulties. Social media has become an essential instrument for modern journalists, enabling anything from revolutions and disaster reporting to social movement empowerment. However, it also necessitates a fresh dedication to accuracy, ethics, and investigative rigour.

Future Trends and the Way Forward

Social media's influence on journalism will grow as it develops, bringing about major changes. The use of artificial intelligence (AI) in newsrooms to improve content selection, personalised news delivery, and even automated reporting is one prominent trend. More customisation of news to personal tastes will be possible thanks to AI-driven algorithms, but this also poses the risk of echo chambers and filter bubbles, which may limit exposure to different points of view. With platforms favouring video content more and more, visual storytelling is going to become the norm. In order to keep up with this change, journalists will need to embrace multimedia abilities like live streaming, interactive graphics, and video creation. Furthermore, the emergence of Virtual Reality (VR) and Augmented Reality (AR) offers immersive journalistic experiences that let viewers interact with news stories in never-before-seen ways.

The impact of social media on public debate will only increase, but battling false information and deepfakes will become more difficult. In an era where fake information may spread quickly, journalists will need to create ways for promptly checking material and retaining trust. In order to provide more openness and confidence in journalism, blockchain technology

may be able to provide solutions for securing intellectual property and confirming the legitimacy of news sources. Its widespread acceptance is still up in the air, though. In the future, journalists will need to strike a balance between innovation and morality, making sure that the pursuit of interaction doesn't come at the expense of journalistic integrity and quality. To overcome these obstacles, cooperation between social media and conventional media outlets will be crucial. The fundamental principles of journalism—accuracy, justice, and accountability—must continue to be at the forefront as it evolves into the digital era, leading the way in a media environment that is always shifting.

Conclusion:

Social media's introduction has permanently changed the news environment by obfuscating the distinctions between official reporting and popular conversation. The creation, dissemination, and consumption of news are increasingly occurring on digital platforms, forcing conventional journalism to adjust to new standards of audience involvement, immediacy, and interactivity. Information flow has grown more democratic as a result of the transition from a one-way broadcast approach to a more dynamic, interactive setting that allows listeners to actively participate. But there are also serious drawbacks to this change, such as the spread of false information, moral quandaries, and the decline in journalistic credibility. Notwithstanding these obstacles, social media presents previously unheard-of chances for journalism innovation. It makes real-time reporting possible, promotes global connectedness, and gives marginalised voices a forum. Because of the financial strains on conventional news organisations, monetisation techniques need to be reevaluated, and the ways in which social media algorithms affect news visibility need to be better understood.

In the future, new technologies like virtual reality and artificial intelligence will probably cause more changes in the interaction between journalism and social media. These changes might have a further impact on the creation, consumption, and monetisation of news. Truth, accuracy, and accountability—the cornerstones of journalism—must, nevertheless, endure, helping journalists navigate the intricacies of the digital era. The future of journalism in this quickly evolving environment rests on its capacity to meet the problems presented by social media while taking use of its promise to improve public involvement and narrative. Journalism may continue to play a vital role in society by sensibly and morally accepting these changes, keeping the public informed and holding those in positions of power accountable in a world growing more linked by the day.

References:

1. Anderson, C. W. (2013). Rebuilding the news: Metropolitan journalism in the digital age. Temple University Press.

2. Bernhardt, J. M., & Raines, J. M. (2015). Journalism ethics at the crossroads: The role of social media. Routledge.
3. Boyd, D., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. Journal of Computer-Mediated Communication, 13(1), 210-230.
4. Carlson, M. (2017). Journalism ethics and the role of social media. In R. T. Edwards & A. M. Collins (Eds.), The new journalism: The future of news (pp. 57-76). Palgrave Macmillan.
5. Castells, M. (2013). Communication power. Oxford University Press.
6. Deuze, M. (2008). Journalism ethics at the crossroads: Social media and the changing dynamics. In S. Allan & C. Zelizer (Eds.), Journalism ethics at the crossroads (pp. 89-105). Routledge.
7. Hermida, A. (2010). Twittering the news: The emergence of ambient journalism. Journalism Practice, 4(3), 292-308.
8. Jurkowitz, M., & Mitchell, A. (2020). The role of social media in political reporting. Pew Research Center. https://www.journalism.org/2020/01/21/the-role-of-social-media-in-political-reporting/
9. Nielsen, R. K., & Ganter, S. (2021). The crisis of journalism and the rise of social media. Oxford University Press.
10. Picard, R. G. (2014). The economics and financing of media companies. Fordham University Press.
11. Papacharissi, Z. (2010). A private sphere: Democracy in a digital age. Polity Press.
12. Pew Research Center. (2019). The state of the news media. https://www.journalism.org/2019/03/27/the-state-of-the-news-media/
13. Quandt, T. (2018). The transformation of journalism in the digital age. In S. D. Hesse (Ed.), Digital journalism (pp. 123-142). Routledge.
14. Starks, S. (2016). The influence of social media on news consumption and production. Journalism Studies, 17(6), 749-764.
15. Tewksbury, D., & Althaus, S. L. (2000). The impact of online news on traditional media. Journalism & Mass Communication Quarterly, 77(4), 833-850.

NOVEL APPROACHES TO COUNTER HEALTH MISINFORMATION: A SYSTEMATIC LITERATURE REVIEW ON COVID-19 INFODEMIC

Vinit Yadav*[1], Ashok Kumar[2] and Yukti Dhadwal[1]

[1]Institute of Mass Communication and Media Technology,
Kurukshetra University, Kurukshetra

[2]Department of Journalism and Mass Communication,
Central University, Haryana

*Corresponding author E-mail: vinityadav.2011@gmail.com

Abstract:

Technology has changed the whole phenomenon of information processing and consumption. The excessive demand of information and multi user command in content creation or dissemination replicated the nature of information. It increased the information manipulation and misleading practices over wide social media network. This study aims to analyze the literature on misinformation during public health emergency Covid-19 pandemic. A Systematic literature review method was used to meet its objective. Data analysis software N-VIVO and IBM SPSS was also used for analyzing and concrete findings. This study identified three major themes: 1) Covid-19 fake news classifications, 2) Role of fake news detection model(s), and 3) User behavior & social stigma. It was followed by finding five major gaps in the current literature. For a better visualization of results and issues Word Cloud, Project Map, Word Tree &Tree Map was extracted using N-Vivo to essential concerns, focus and anecdotes towards Covid-19 infodemic. The study concludes that there was a lack of scientific or credible information. People have faced more misinformation than accurate and authentic information. Although fact-checking has grown its popularity, its scope has been severely limited. To fight against misinformation more verified information sources, effective and reliable working output of misinformation detection models is need of hour.

Keywords: Misinformation, Disinformation, Fake News, Fact-Checking, Covid-19

Introduction:

China on December 31, 2019, alerted the World Health Organization (WHO) about the first outbreak of a novel coronavirus case in Wuhan (China). Later, after reviewing and rapidly growing cases of corona flu all around the world, the WHO declared it a global pandemic on March 11, 2020. Along with this pandemic, the world was surrounded by an infodemic. "The 2019-nCoV outbreak and response have been accompanied by a massive 'infodemic' — an overabundance of information, misinformation that makes it hard for the people to find trustworthy sources and reliable guidance when they need it" (World Health Organization, 2020).

It was a Covid-19 health emergency; every user is continually producing, receiving, and sharing information without verification. Misinformation and fake news, create misconceptions and fear, and online social media platforms transform people's behavior and expectations. Users believe every piece of misinformation related to the corona pandemic, such as disease, symptoms, cure, vaccination, growth rate, death rate, etc. On a day-to-day basis (Gupta, 2020). It increased untruthfulness and distrust among users worldwide.

A lot of buzz with unverified pieces of misinformation, hoaxes, and rumors continues on various internet-enabled media platforms. These social media posts claim the cure, precaution, outcomes, immunity booster, and other prevention measures to combat the global pandemic coronavirus (Haque *et al.,* 2020). The main issue came in the path of credible information from a reliable source and authentic information left in the race with fake news on social media, which resulted in an unbalanced news ecosystem (Leng *et al.,* 2021). The high volume of information leads to media fatigue and becomes a public health concern, causing the discontinuation of healthy behaviors that are essential to protect individuals (Wang *et al.,* 2021).

Furthermore, "misinformation and rumors regarding COVID-19 are hindering the practice of healthy behaviors (such as hand washing and social distancing) and promoting an erroneous practice that increases the spread of the virus and ultimately results in poor physical and mental health outcomes' (Bode & Vraga, 2021). The International Fact-Checking Network reported fake news between January and April 2020 that can be categorized into five categories. It includes '1) content about causes, symptoms, and cures. 2) spread of the virus 3) government documents and misrepresentation of comments 4) photos and videos of politicians and 5) conspiracy theories blaming a certain country, groups, or communities for the spread of the virus'.

Misinformation and disinformation during a health emergency include false or misleading information in digital and physical environments, which leads to confusion, risk-taking, and behavior that can harm and lead to mistrust of health authorities and public health response.

Research questions

RQ1. What were the gaps in the existing research on Covid-19 misinformation, disinformation, fake news, and fact-checking?

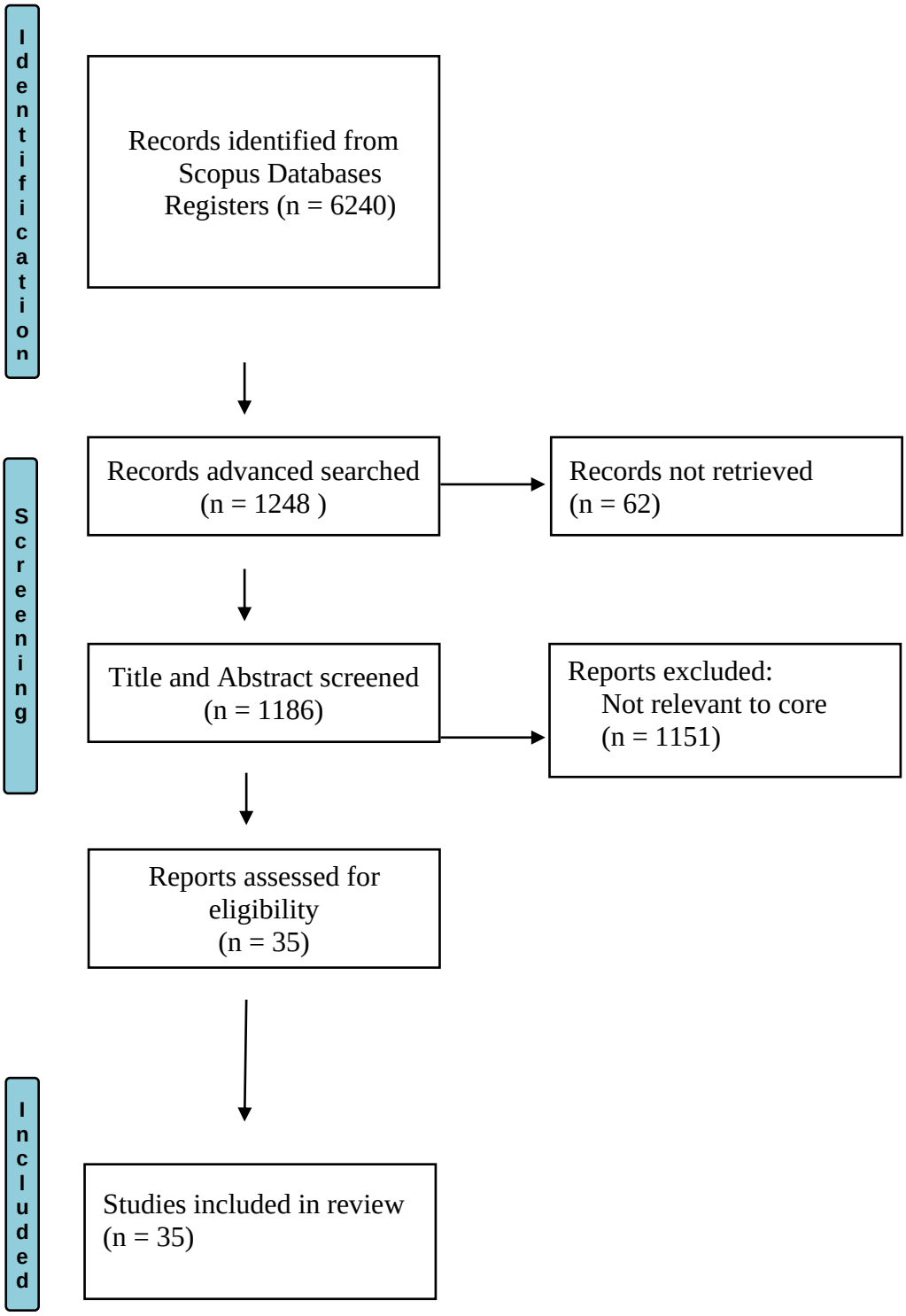
RQ2. What were the different themes covered related to misinformation, fact checking and Covid-19 Infodemic?

Research methodology

The present study used systematic literature review (SLR) to find out the research gaps and identification of themes from available literature on the penetration of misinformation during the health pandemic Covid-19. In this study, Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed to select a sample to reach out aims of the study.

Sample selection: Firstly Scopus data base was selected to find relevant and prominent literature related to the research study from Sage, Springer, Routledge, Taylor and Francis, JCom, Elsevier, Criminology and public policy, Social media+society, Plos one and other prominent journals.

Diagram 1: PRISMA Flow Diagram



Search string: Specific search terms were used to find the relevant literature for the study. The search string was (TITLE-ABS-KEY (misinformation) OR TITLE-ABS-KEY (disinformation) OR TITLE-ABS-KEY ("FAKE NEWS") OR TITLE-ABS-KEY ("FALSE INFORMATION") OR TITLE-ABS-KEY (malinformation) OR TITLE-ABS-KEY ("MISLEADING INFORMATION") OR TITLE-ABS-KEY ("MANIPULATED INFORMATION") OR TITLE-ABS-KEY ("FICTITIOUS INFORMATION") OR TITLE-ABS-KEY ("BOGUS INFORMATION") OR TITLE-ABS-KEY ("FACT CHECKING") OR TITLE-ABS-KEY ("COVID-19 PANDEMIC")) AND PUBYEAR > 2019 AND PUBYEAR < 2023 AND (LIMIT-TO (AFFILCOUNTRY , "India")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "SOCI")).

Total N = 6240 research articles resulted using above keywords search. After an advanced search, N = 1248 research articles were found relevant to the present study. In the next phase, the titles and abstracts of research articles were screened and found to have a final sample of N = 35 research articles (Table-A placed in the Appendix section) from 2019 to 2023 was drawn and used for the analysis. All the selected research papers were classified into different categories and analyzed as shown in Table-1.

Data analysis:

Computer-Assisted Data Analysis Software were used to get insight on the different aspect of Covid-19 misinformation. N-Vivo (trial version) software & IBM SPSS 21 were used throughout the data analysis process for better visualization in form of Word Cloud, Word Tree, Tree map and Project Map supported by pie charts.

Word cloud

For better visualization of the results, Word Cloud was generated, based on frequency and percentage of words. Figure 1 shows a Word cloud where the keywords are represented according to their frequency in the dataset.

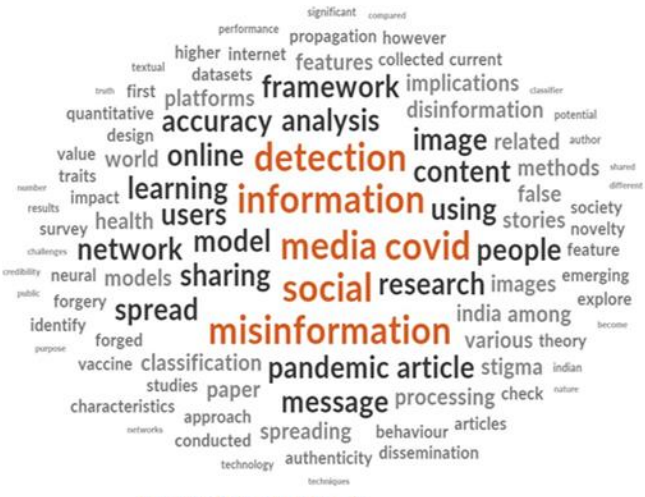


Fig.1: Word Cloud

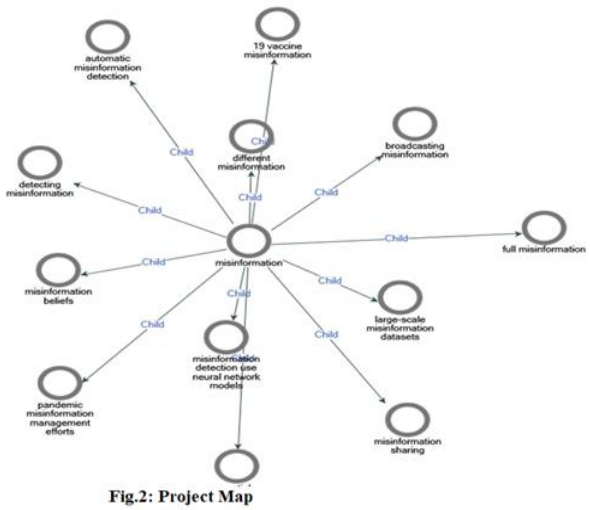


Fig.2: Project Map

Figure 1 indicates the standard words related to misinformation. These are in the center, surrounded by the other preferential words associated with the Covid (network, model, people),

terms related to social (sharing, research, explore), misinformation (pandemic, spread, various theory & stigma), message (processing, authenticity, behavior, dissemination), and detection aids (content, learning, information, methods).

Table 1: Code Book for Research Paper(s) Classification

S. No	Classification	Categories	Code Given
1	Topic	Fake news classification & challenges for fake news detection model	A
		Classification of Covid-19 fake news	B
		Hate speech & social stigma	C
		Deep fakes detection & applications	D
		Biases in perception of truth news stories	E
		Predictors for social media users behaviour	F
2	Publication Year	Year 2020	A
		Year 2021	B
		Year 2022	C
3	Objective	To analyse challenges to control Infodemic & fake news detection models	A
		To analyse the literature & fake news classification	B
		To know the approaches for detecting fake news/accounts on social media platforms	C
		To detect hate speech/deep fakes	D
		To understand users behaviour	E
4	Methods	Systematic Literature Review	A
		Qualitative Approach	B
		Quantitative Approach	C
		Mixed Approach	D
5	Results	Improve the trustworthiness of automated fake news detection models	A
		New approaches for classification of fake news	B
		Understanding social media user's behaviour/motivation towards fake news	C
		Role of technology in detecting deep fakes generation/detection	D
		Scientific research/fact checking to counter misinformation	E
		Need for policy making, regulation & media literacy programs	F

Project map

Project map (Figure.2) shows the all important concerns in one project. A project map is created to explore and present the connections among different essential factors. Project Map helps to explore, organizes, and classify the data. It also identifies the evolving patterns of Covid-19 misinformation, misinformation management efforts, and different misinformation, sharing behavior and detection models for misinformation and visually represents the links between project items.

Word tree:

The word tree (Figure.3) of misinformation shows the associated areas that were extensively used in the research during Covid-19 pandemic.

It shows that misinformation along with disinformation, mal-information spreads intentionally or unintentionally over wide social media networks. User engagement to misinformation always gives hike to the situation like public health emergencies such as Covid-19 pandemic. Figure.3 also shows the different ways of dissemination and detection tools were also associated with the misinformation.

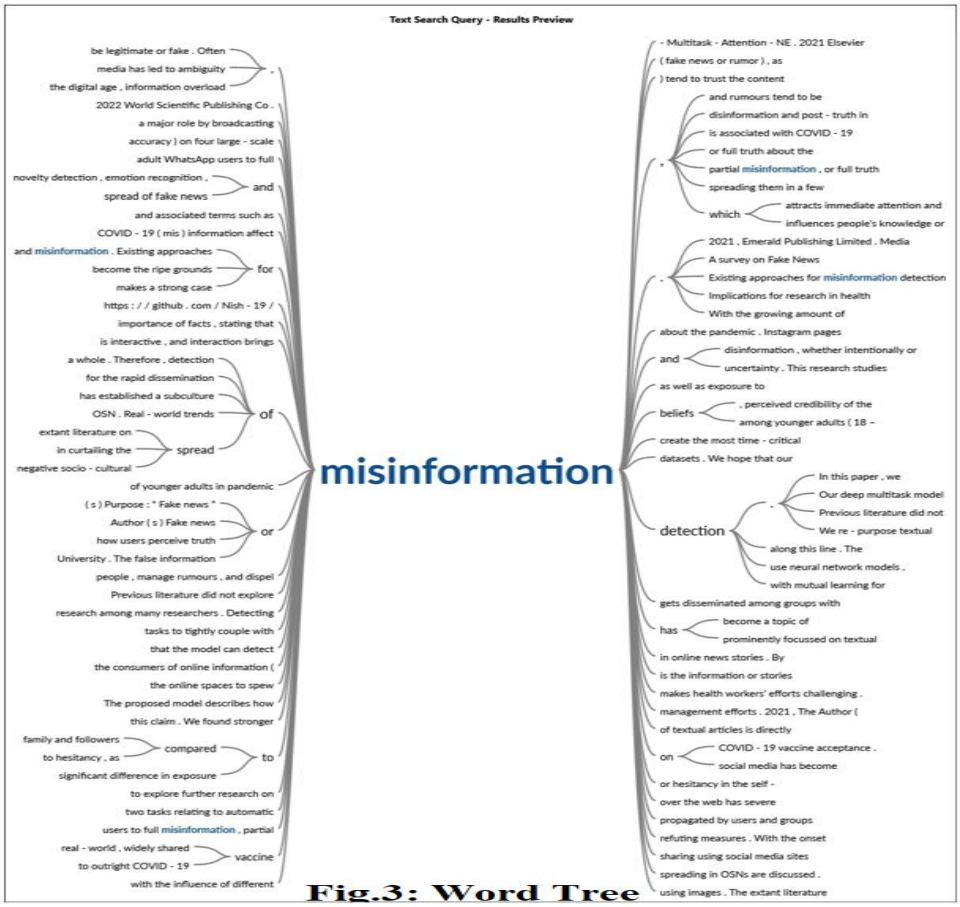


Fig.3: Word Tree

"Authors own elaboration"

Table 1 includes the first classification of the codebook denotes the topic of the selected research articles in Six different categories coded from A to F. Where code A is used for those research articles which fall under the 'Fake news classification & challenges for fake news detection model' category and code F was used for research articles based on 'Predictors for social media user behavior.

The second classification 'Publication year' was categorized into three categories while analyzing the research article(s) for this study. Code A refers to 2020, Code B refers to 2021 and Code C referred for research articles published in year 2022.

Research articles' objective classification was made on the basis of five categories. These categories were coded from A to E. Code A was used for research articles aiming for the analysis of challenges to control Infodemic & fake news detection models. While Code E denoted to understand users behavior.

The fourth classification of research articles (s) was for research methods to conduct their study. For this purpose, methods were classified into four different categories and given the codes A to D. Code A was for systematic literature review, Code B for qualitative approach, Code C for quantitative approach, Code D for mixed/hybrid approach.

Results of the research article(s) were analyzed under the last classification of the codebook. For this purpose, results were categorized into six categories and coded from A to F according to their nature. Code A denotes research article focused to improve the trustworthiness of automated fake news detection models. And it varies up to Code F, which denotes that research articles suggest the need for policy making, regulation & media literacy programs.

Results and Discussion:

This section of the study includes overall results and findings. Firstly, the study found three major themes:

1) Detection model and approaches for misinformation,

2) Media & information literacy and

3) Fact-Checking initiatives and policy maker's role.

Secondly, the study finds five research gaps in the related literature work used to carry out this research study. Each research article(s); N=35 classification and categorization used in this present study are shown in Table 2 and then research gaps are identified accordingly.

Tree map:

A Tree map (Figure 4) is a diagram that shows data in hierarchical order, as a set of nested rectangles of different dimensions, sizes, and shapes. Size indicates the amount based on frequency and percentage. The TreeMap shows three different aspects of the Covid-19 Misinformation. Following are the sub-themes/aspects related to major themes:

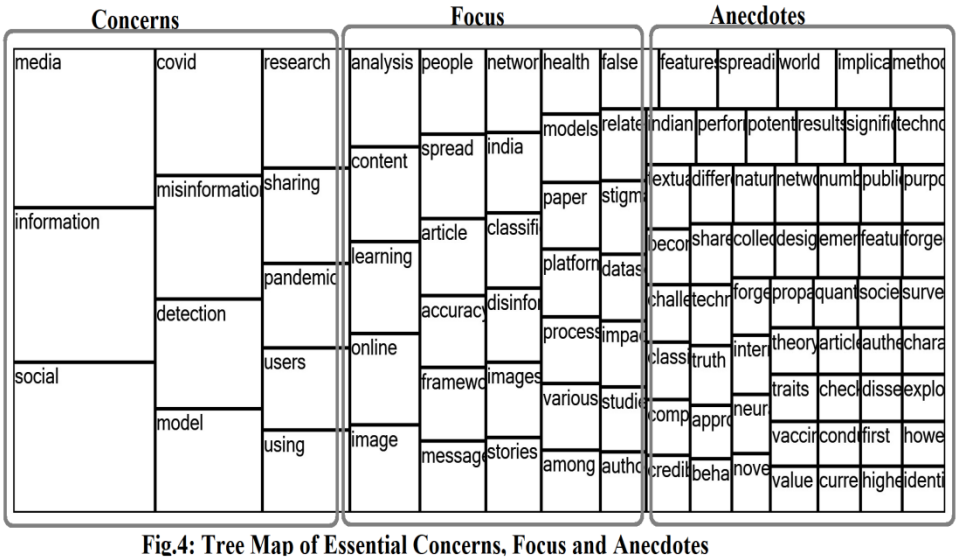


Fig.4: Tree Map of Essential Concerns, Focus and Anecdotes

1) Concerns: Information, misinformation, social media, user sharing behavior, research,, detection models.

2) Focus: Content, learning, accuracy, framework, models, processing, impact.

3) Anecdotes: Challenges, credibility, behavior, truth, features, significance personal traits, disseminations.

Themes: The study found three major themes, associated with sub-themes/aspects shown in Tree Map (figure.4) which are described as follows:

Covid-19 fake news classifications: The Infodemic followed by the Covid-19 pandemic includes major misinformation, disinformation, and fake news issues on cure, precaution, and vaccine for coronavirus. Misinformation in different format frequently available on various platforms got higher engagement of user. It was noticed that misinformation not limited in form of entertainment but related to serious issues on epidemic cause, cure and treatment also (Patra & Pandey, 2021).

Routine orders, day happening were also a part of misinformation to engage people in irrelevant discussion and conflicts. Gender and sentiment polarity can also identify misinformation significantly. Followers, favorite, friends count and other user engagement factors differ in real and misinformation over social media platforms (Raj & Meel, 2022).

Role of fake news detection model(s): As the novel coronavirus (Covid-19) related myths, rumors, conspiracies increased over the time. The scientific, research based and technology enabled tools and techniques need was become essential to deal with a buzz of misinformation in rear time. Misinformation detection tools were contributed by variety of machine learning and deep learning algorithms (Shah & Gantara, 2022). Uppada et al (2022) proposed the social engagement based news authenticity detection method was also implied to verify twitter based news articles and user bias.

Existing approaches for detection of misinformation used neural network models, statistical, linguistic, fact checking and other methods (Kumari *et al.,* 2022). For novel epidemic and pandemic disease, "the detection, assessment, and response to rumours, stigma, and conspiracy theories and their impact on public health in real-time are a challenge." Fake news detection tools need to be used with more accuracy, timeliness and trustworthy result.

User behavior & social stigma: Users are observed engaging with social media platforms during the COVID-19 pandemic. Unauthentic and unscientific information in the form of misinformation, disinformation, and fake news massively targets people to understand and react in a certain way. Unverified information sharing is harmful during a pandemic. Messages with negative polarity result in higher sharing behavior and positive polarity in higher verification (Sharma & Kapoor, 2022). It was also observed that user don't have self regulation to come over heavy information propagation through social media in the mean time of pandemic (Raj & Goswami, 2020).

User got stigmatized over social media on anonymous piece of misinformation and they do not think of the replication and truth behind that buzz or propaganda. It resulted into conflict

overwhelming situation full of emotion, self beliefs, rights and supremacy of independent opinions. People diseased of corona discriminated and not permitted/accepted by the family members, relatives or other known person in home or neighborhood (Sahoo & Patel, 2021).

Research gaps

Topic: On the basis of Table-2, The first classification of the selected research articles denotes the topic of research studies in five different categories coded from A to E. Code A: Fake news classification & challenges for fake news detection model, Code-B: Classification of Covid-19 fake news, Code-C: Hate speech & social stigma, Code-D: Deep fakes detection & applications, Code-E: Biases in perception of truth news stories and Code-F: Predictors for social media users behavior. The analysis of the topics can be seen in figure 5.

Fig.5: Topic of Research Articles

The result shows that most (40%) of the research article topics are based on the first category 'Fake news classification & challenges for fake news detection model (B)'. 28.6% of the research fall under the second category 'Classification of Covid-19 fake news (B)'.14.3% articles are under 'predictors for social media user behavior (F)'. The category 'hate speech & social stigma (C)', 'deep fakes detection & application (D)', 'biases in perception of truth news stories (E)' category based topic included 5.7% of research articles respectively. Also, fact-checks and user interaction (C) and misinformation sharing behavior (E) categories involve 5-5% of research articles each.

Gap-1: Covid-19 research studies are limited to Misinformation classification & detection models/approaches topics. There should be more studies on fact-checkers role & responsibility, user interaction as well as misinformation sharing behavior to tackle the infodemic.

Publication Year: The second classification 'Publication Year' was categorized into three categories while analyze the research article(s) for this study. Code A denotes year 2020, Code B denotes year 2021 and Code C used for research article published in year 2022. The analysis for publication year can be seen in figure.2.

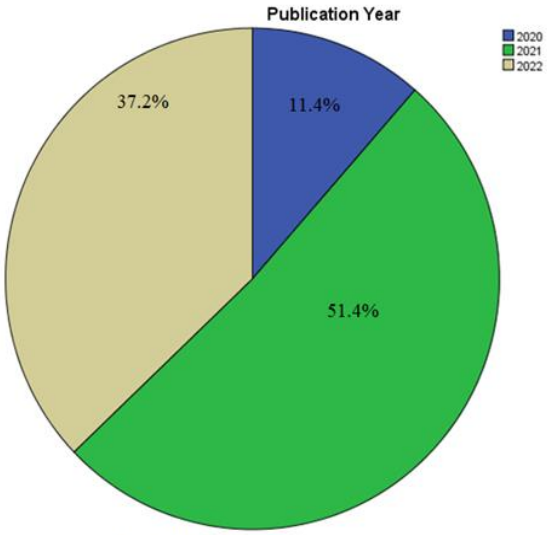


Fig.6: Publication year

The result of this classification shows that research studies more than half 51.4% research articles were published in year 2021 (B). It is followed by the second leading year 2022 (C) for

article publications. There are only 11.4% articles included which were published in year 2020 (A).

Gap-2: Research in the area of Covid-19 misinformation get noticed and widely accepted in year 2021. But a decline range was noticed on research in the concerned area in year 2022. It should increase in coming years with more vast and unfocused areas in future research studies.

Objectives: This research study includes the objectives of the selected research articles in its third classification, where the objectives of research studies were coded from A to E. Here, A- To analyze challenges to control Infodemic & fake news detection models, B- To analyze the literature & fake news classification, C- To know the approaches for detecting fake news/accounts on social media platforms, D- To detect hate speech/deep fakes and E- To understand users behavior. Figure 3 is related to the analysis of the objectives.

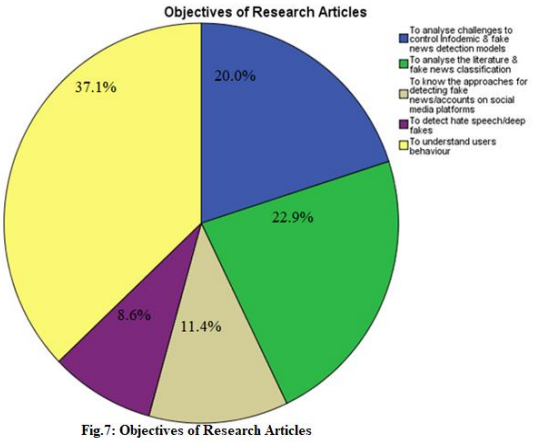


Fig.7: Objectives of Research Articles

It was observed that the maximum, i.e., 37.1% of articles were related to understand user's behavior in engagement of misinformation (E). It was followed by 22.9% of the articles that presented a literature review & classification (B). 20% articles aim was to analyze challenges to control Infodemic & fake news detection models (A). 11.4% articles were focused to know the approaches for detecting fake news/accounts on social media platforms (C) and 8.6% contribute to detect hate speech/deep fakes (D).

Gap-3: There is a need for more defined aims, concepts, and terminology linked to misinformation, disinformation, fake news, and fact-checks especially if it linked to public health emergency such as Covid-19 pandemic.

Methods: This class deals with the different methods that have been used. The codes are given in classification for this category range from A to D, where A- Systematic Literature Review, B- Qualitative approach, C-Quantitative approach, D-Mixed/Hybrid approach. Figure.8 shows the analysis of the methods used in research studies.

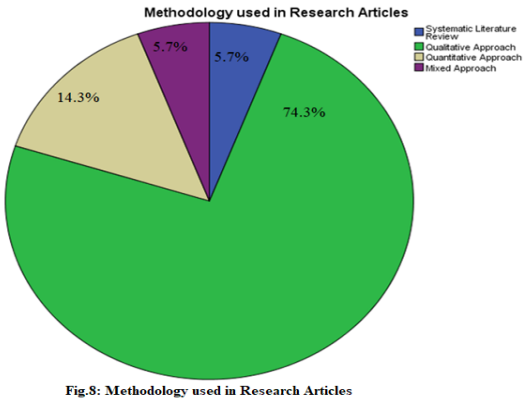


Fig.8: Methodology used in Research Articles

The results show that most of the (74.3%) research articles were based on qualitative methods (B), such as content analysis, interviews. Quantitative approach (C) was adopted in 14.3% of the articles. The systematic literature review (A) & mixed/hybrid approach (D) was used by 5.7%-5.7% respectively.

Gap-4: There is a need for continuous new research work in the field of Infodemic that use a systematic literature review method and a mixed/hybrid approach to analyze and gives a path for breaking the chain of misinformation, disinformation and fake news.

Results: Results of research article(s) were analyzed through six categories ranging from A to F. Code A- Improve the trustworthiness of automated fake news detection models, Code B- New approaches for classification of fake news, Code C- Understanding social media user's behavior/motivation towards fake news, Code D- Role of technology in detecting deep fakes generation/detection, Code E- Scientific research/fact checking to counter misinformation, Code F- Need for policy making, regulation & media literacy programs. The analysis of the results is shown in figure.5.

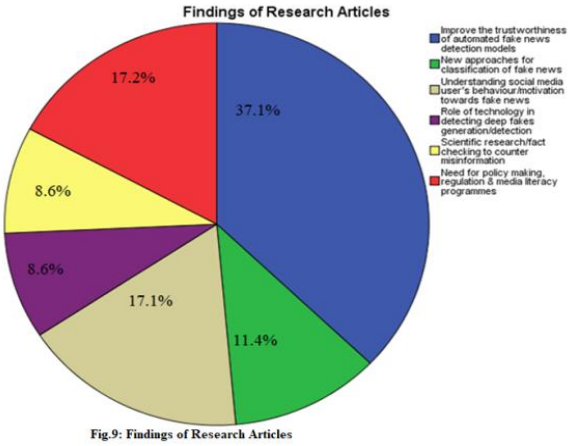


Fig.9: Findings of Research Articles

The results show that improvement in the trustworthiness of automated fake news detection models (A). Understanding social media user's behavior/motivation towards fake news (C) & Need for policy making, regulation & media literacy programs (F) have been included in 17.1% & 17.2 % respectively. 11.4% articles resulted in new approaches for classification of fake news (B). Role of technology in detecting deep fake generation/detection (D) & scientific research/fact checking to counter misinformation (E) have 8.6%-8.6% respectively.

Gap-5: There is a lack of true and verified information for the users. The reach of fact-checks is still limited. It is not enough to tackle the infodemic, especially when followed by a global pandemic. Research based on technology association for misinformation should also increase.

Conclusion and Recommendations:

This study identifies three major themes:

1) Covid-19 fake news classifications,

2) Role of fake news detection model(s), and

3) User behavior & social stigma.

Also it includes the five major gaps in the literature on Covid-19 pandemic and misinformation. This study included rapidly growing issue 'Infodemic', especially during the public health emergency novel coronavirus (Covid-19) pandemic.

The first research gap indicates that the research work on Misinformation classification & detection models/approaches topics. There should be more studies on fact-checkers role & responsibility, user interaction as well as misinformation sharing behavior to tackle the infodemic. Also veracity in the topic of research is needed. It will reduce the penetration of misinformation, disinformation & fake news and uplift the information literacy graph of users. The next research gap found that research studies on Covid-19 get noticed in year 2020 and widely accepted in year 2021. But a decline range was noticed on research in the concerned area in year 2022. It should increase in coming years with more vast and unfocused areas in future research studies.

Another research gap found that objectives of research studies are limited around to detection & assessment of misinformation, fact checker's work and user's attitudes towards cures, vaccines and frauds related to Covid-19. New literature insists on more defined aims, concepts and terminology related to Misinformation, Disinformation, Fake news and Fact-Checks. Researcher's also analyzed the action and behavior of the user's reacting to misinformation and disinformation.

Methodologies of a research work directly indicate the importance and effectiveness of research work. This study found that qualitative and quantitative methods are widely used in research studies carried out in the area of misinformation, disinformation, fake news and Covid-19. There is a demand and need for new research work in the area of infodemic that follows a systematic literature review method, bibliometric, mixed/hybrid to analyze and gives a path for breaking the chain of misinformation, disinformation and fake news.

The last research gap was identified by analyzing the results of selected sample research studies. It concluded that there is a lack of scientific/true information for users and the reach of fact-checks is still up to limited users, which is not enough to tackle an infodemic, especially when followed by a global pandemic. Scientific and credible information, more fact-check initiative and reach of true information will help to gain the trust of users. Research based on technology association for misinformation should also increase.

The study concludes that there was a lack of scientific or credible information. People have faced more misinformation than accurate and authentic information. Although fact-checking has grown its popularity, its scope has been severely limited. To fight against misinformation more verified information sources, effective and reliable working output of misinformation detection models is need of hour.

This research study also has some limitations. The selected literature on the issue was collected from Scopus. Data from other sources such as Web of Science, Google Scholar, Taylor and Francis, Sage and Springer journals can also be included for future research. This study identifies the themes and research gaps in the area of Covid-19 infodemic which can be further utilized and explored in future research.

References:

1. Agarwal, I. Y., Rana, D. P., Shaikh, M., & Poudel, S. (2022). Spatio-temporal approach for classification of COVID-19 pandemic fake news. *Social Network Analysis and Mining*, *12*(1), 68.
2. Agwanda, B., Dagba, G., Opoku, P., Amankwa, M. O., & Nyadera, I. N. (2021). Sub-Sahara Africa and the COVID-19 pandemic: reflecting on challenges and recovery opportunities. *Journal of Developing Societies*, *37*(4), 502-524.
3. Alvi, I., & Saraswat, N. (2020). Information processing—Heuristic vs. systematic and susceptibility of sharing covid 19-related fake news on social media. *J. Content Community Commun*, *12*, 42-56.

4. Arquam, M., Singh, A., & Sharma, R. (2021). A blockchain-based secured and trusted framework for information propagation on online social networks. *Social Network Analysis and Mining*, *11*(1), 49.
5. Babaei, M., Kulshrestha, J., Chakraborty, A., Redmiles, E. M., Cha, M., & Gummadi, K. P. (2021). Analyzing biases in perception of truth in news stories and their implications for fact checking. *IEEE Transactions on Computational Social Systems*, *9*(3), 839-850.
6. Bhattacharya, P., Patel, S. B., Gupta, R., Tanwar, S., & Rodrigues, J. J. (2021). SaTYa: Trusted Bi-LSTM-Based fake news classification scheme for smart community. *IEEE Transactions on Computational Social Systems*, *9*(6), 1758-1767.
7. Barve, Y., & Mulay, P. (2020). Bibliometric survey on incremental learning in text classification algorithms for false information detection. *Libr. Philos. Pract*, *2020*, 2388-2392.
8. Bode, L., &Vraga, E. K. (2021). Correction Experiences on Social Media During COVID-19. *Social Media+ Society*, *7*(2), 20563051211008829 Sage Journal. https://doi.org/10.1177/20563051211008829
9. Chauhan, T., & Palivela, H. (2021). Optimization and improvement of fake news detection using deep learning approaches for societal benefit. *International Journal of Information Management Data Insights*, *1*(2), 100051.
10. Dagar, D., & Vishwakarma, D. K. (2022). A literature review and perspectives in deepfakes: generation, detection, and applications. *International Journal of Multimedia Information Retrieval*, *11*(3), 219-289.
11. Divya, T. V., & Banik, B. G. (2021). Detecting Fake News Over Job Posts via Bi-Directional Long Short-Term Memory (BIDLSTM). *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, *16*(6), 1-18.
12. Ghai, A., Kumar, P., & Gupta, S. (2021). A deep-learning-based image forgery detection framework for controlling the spread of misinformation. *Information Technology & People*, (ahead-of-print).
13. Gupta. S, Sharma. J, Najm. M, Sharma. S. Media Exaggeration and Information Credibility: Qualitatively Analysis of fear generation for Covid-19 using NVIVO (2020). Journal of Content, Community and Communication, 12(6), 14-20. DOI: 10.31620/JCCC.12.20/03 https://shorturl.ae/UAGCa
14. Hannah Nithya, S., & Sahayadhas, A. (2022). Automated fake news detection by LSTM enabled with optimal feature selection. *Journal of Information & Knowledge Management*, *21*(03), 2250036.

15. Haque, M. M., Yousuf, M., Alam, A. S., Saha, P., Ahmed, S. I., & Hassan, N. (2020).Combating Misinformation in Bangladesh: Roles and Responsibilities as Perceived by Journalists, Fact-checkers, and Users. *Proceedings of the ACM on Human-Computer Interaction*, *4*(CSCW2), 1-32.https://doi.org/10.1145/3415201
16. Kanozia, R., Arya, R., Singh, S., Narula, S., & Ganghariya, G. (2021). A study on fake news subject matter, presentation elements, tools of detection, and social media platforms in India. *Asian Journal for Public Opinion Research*, *9*(1), 48-82.
17. Kumari, R., Ashok, N., Ghosal, T., & Ekbal, A. (2022). What the fake? Probing misinformation detection standing on the shoulder of novelty and emotion. *Information Processing & Management*, *59*(1), 102740.
18. Kumari, R., Ashok, N., Ghosal, T., & Ekbal, A. (2021). Misinformation detection using multitask learning with mutual learning for novelty detection and emotion recognition. *Information Processing & Management*, *58*(5), 102631.
19. Khanday, A. M. U. D., Rabani, S. T., Khan, Q. R., & Malik, S. H. (2022). Detecting twitter hate speech in COVID-19 era using machine learning and ensemble learning techniques. *International Journal of Information Management Data Insights*, *2*(2), 100120.
20. Laskar, K. A., & Reyaz, M. (2021). Mapping the fake news infodemic amidst the COVID-19 pandemic: A study of Indian fact-checking websites. *Journal of Arab & Muslim Media Research*, *14*(1), 93-116.
21. Leng, Y., Zhai, Y., Sun, S., Wu, Y., Selzer, J., Strover, S., ...& Ding, Y. (2021). Misinformation during the COVID-19 outbreak in China: Cultural, social and political entanglements. *IEEE Transactions on Big Data*, *7*(1), 69-80.DOI: 10.1109/TBDATA.2021.3055758, https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-1082521
22. Mehta, D., Dwivedi, A., Patra, A., & Anand Kumar, M. (2021). A transformer-based architecture for fake news classification. *Social network analysis and mining*, *11*, 1-12.
23. Nirav Shah, M., & Ganatra, A. (2022). A systematic literature review and existing challenges toward fake news detection models. *Social Network Analysis and Mining*, *12*(1), 168.
24. Patra, R. K., Pandey, N., & Sudarsan, D. (2022). Bibliometric analysis of fake news indexed in Web of Science and Scopus (2001-2020). *Global Knowledge, Memory and Communication*, (ahead-of-print).
25. Patra, R. K., & Pandey, N. (2021). Disinformation on novel coronavirus (COVID 19): a content analysis of news published on fact checking sites in India. *DESIDOC Journal of Library & Information Technology*, *41*(4), 275-283.
26. PRISMA. Prisma-statement.org. (2020). Retrieved from http://www.prisma statement.org/.
27. Raj, A., & Goswami, M. P. (2020). Is fake news spreading more rapidly than COVID-19 in India. *Journal of Content, Community and Communication*, *11*(10), 208-220.

28. Raj, C., & Meel, P. (2022). People lie, actions Don't! Modeling infodemic proliferation predictors among social media users. *Technology in Society*, *68*, 101930.
29. Rajan, B., & Venkatraman, S. (2021). Insta-hate: An exploration of Islamophobia and right-wing nationalism on Instagram amidst the COVID-19 pandemic in India. *Journal of Arab & Muslim Media Research*, *14*(1), 71-91.
30. Rajasekhar, S., Makesh, D., & Jaishree, S. (2021). Assessing media literacy levels among audience in seeking and processing health information during the COVID-19 pandemic. *Media Watch*, *12*(1), 93-108.
31. Sahoo, B. P., & Patel, A. B. (2021). Social stigma in time of COVID-19 pandemic: evidence from India. *International Journal of Sociology and Social Policy*, *41*(11/12), 1170-1182.
32. Sahoo, J., Sahu, S. C., & Mohanty, B. (2021). Research on Fake News An Empirical Analysis of Selected Library and Information Science Journals. *DESIDOC J. Libr. Inf. Technol*, *41*, 268-274.
33. Sampat, B., & Raj, S. (2022). Fake or real news? Understanding the gratifications and personality traits of individuals sharing fake news on social media platforms. *Aslib Journal of Information Management*.
34. Sharma, A., & Kapoor, P. S. (2022). Message sharing and verification behaviour on social media during the COVID-19 pandemic: a study in the context of India and the USA. *Online Information Review*, *46*(1), 22-39.
35. Shrivastava, G., Kumar, P., Ojha, R. P., Srivastava, P. K., Mohan, S., & Srivastava, G. (2020). Defensive modeling of fake news through online social networks. *IEEE Transactions on Computational Social Systems*, *7*(5), 1159-1167.
36. Thaker, J., & Subramanian, A. (2021). Exposure to COVID-19 vaccine hesitancy is as impactful as vaccine misinformation in inducing a decline in vaccination intentions in New Zealand: results from pre-post between-groups randomized block experiment. *Frontiers in Communication*, *6*, 721982.
37. Uppada, S. K., Manasa, K., Vidhathri, B., Harini, R., & Sivaselvan, B. (2022). Novel approaches to fake news and fake account detection in OSNs: user social engagement and visual content centric model. *Social Network Analysis and Mining*, *12*(1), 52.
38. Verma, P. K., Agrawal, P., Amorim, I., & Prodan, R. (2021). WELFake: Word embedding over linguistic features for fake news detection. *IEEE Transactions on Computational Social Systems*, *8*(4), 881-893.
39. Vijaykumar, S., Jin, Y., Rogerson, D., Lu, X., Sharma, S., Maughan, A., ... & Morris, D. (2021). How shades of truth and age affect responses to COVID-19 (Mis) information: randomized survey experiment among WhatsApp users in UK and Brazil. *Humanities and Social Sciences Communications*, *8*(1).

40. Wentao, C. H. U., Kuok-Tiung, L. E. E., Wei, L. U. O., Bhambri, P., & Kautish, S. (2021). Predicting the security threats of internet rumors and spread of false information based on sociological principle. *Computer Standards & Interfaces*, *73*, 103454.
41. Wang, X., Zhang, M., Fan, W., & Zhao, K. (2021). Understanding the spread of COVID-19 misinformation on social media: The effects of topics and a political leader's nudge. *Journal of the Association for Information Science and Technology*.DOI:10.1002/asi.24576
42. World Health Organization, 2020. Coronavirus Disease 2019 (COVID-19) Situation Report – 13. Geneva, Switzerland: WHO, https://shorturl.ae/lx8If

Appendix

Table A: Selected Research Articles

S. No	Authors	Title
1	Nirav Shah M., Ganatra A. (2022)	A systematic literature review and existing challenges toward fake news detection models
2	Agarwal I.Y., Rana D.P., Shaikh M., Poudel S. (2022)	Spatio-temporal approach for classification of COVID-19 pandemic fake news
3	Uppada S.K., Manasa K., Vidhathri B., Harini R., Sivaselvan B. (2022)	Novel approaches to fake news and fake account detection in OSNs: user social engagement and visual content centric model
4	Bhattacharya P., Patel S.B., Gupta R., Tanwar S., Rodrigues J.J.P.C. (2022)	SaTYa: Trusted Bi-LSTM-Based Fake News Classification Scheme for Smart Community
5	Khanday A.M.U.D., Rabani S.T., Khan Q.R., Malik S.H. (2022)	Detecting twitter hate speech in COVID-19 era using machine learning and ensemble learning techniques
6	Sampat B., Raj S. (2022)	Fake or real news? Understanding the gratifications and personality traits of individuals sharing fake news on social media platforms
7	Dagar D., Vishwakarma D.K. (2022)	A literature review and perspectives in deepfakes: generation, detection, and applications
8	Hannah Nithya S., Sahayadhas A. (2022)	Automated Fake News Detection by LSTM Enabled with Optimal Feature Selection
9	Babaei M., Kulshrestha J., Chakraborty A., Redmiles E.M., Cha M., Gummadi K.P. (2022)	Analyzing Biases in Perception of Truth in News Stories and Their Implications for Fact Checking

10	Raj C., Meel P. (2022)	People lie, actions Don't! Modeling infodemic proliferation predictors among social media users
11	Sharma A., Kapoor P.S. (2022)	Message sharing and verification behaviour on social media during the COVID-19 pandemic: a study in the context of India and the USA
12	Patra R.K., Pandey N., Sudarsan D. (2022)	Bibliometric analysis of fake news indexed in Web of Science and Scopus (2001-2020)
13	Kumari R., Ashok N., Ghosal T., Ekbal A. (2022)	What the fake? Probing misinformation detection standing on the shoulder of novelty and emotion
14	Agwanda B., Dagba G., Opoku P., Amankwa M.O., Nyadera I.N. (2021)	Sub-Sahara Africa and the COVID-19 Pandemic: Reflecting on Challenges and Recovery Opportunities
15	Arquam M., Singh A., Sharma R. (2021)	A blockchain-based secured and trusted framework for information propagation on online social networks
16	Mehta D., Dwivedi A., Patra A., Anand Kumar M. (2021)	A transformer-based architecture for fake news classification
17	Vijaykumar S., Jin Y., Rogerson D., Lu X., Sharma S., Maughan A., Fadel B., de Oliveira Costa M.S., Pagliari C., Morris D. (2021)	How shades of truth and age affect responses to COVID-19 (Mis)information: randomized survey experiment among WhatsApp users in UK and Brazil
18	Sahoo B.P., Patel A.B. (2021)	Social stigma in time of COVID-19 pandemic: evidence from India
19	Chauhan T., Palivela H. (2021)	Optimization and improvement of fake news detection using deep learning approaches for societal benefit
20	Kumari R., Ashok N., Ghosal T., Ekbal A. (2021)	Misinformation detection using multitask learning with mutual learning for novelty detection and emotion recognition
21	Patra R.K., Pandey N. (2021)	Disinformation on novel coronavirus (Covid-19): A content analysis of news published on fact-checking sites in India
22	Verma P.K., Agrawal P., Amorim I., Prodan R. (2021)	WELFake: Word Embedding over Linguistic Features for Fake News Detection
23	Sahoo J., Sahu S.C., Mohanty B. (2021)	Research on fake news: An empirical analysis of selected library and information science journals

24	Rajan B., Venkatraman S. (2021)	Insta-hate: An exploration of islamophobia and right-wing nationalism on instagram amidst the COVID-19 pandemic in India
25	Laskar K.A., Reyaz M. (2021)	Mapping the fake news infodemic amidst the covid-19 pandemic: A study of Indian fact-checking websites
26	Kanozia R., Arya R., Singh S., Narula S., Ganghariya G. (2021)	A study on fake news subject matter, presentation elements, tools of detection, and social media platforms in India
27	Divya T.V., Banik B.G. (2021)	Detecting Fake News Over Job Posts via Bi-Directional Long Short-Term Memory (BIDLSTM)
28	Thaker J., Subramanian A. (2021)	Exposure to COVID-19 Vaccine Hesitancy Is as Impactful as Vaccine Misinformation in Inducing a Decline in Vaccination Intentions in NewZealand: Results from Pre-Post Between-Groups Randomized Block Experiment
29	Ghai A., Kumar P., Gupta S. (2021)	A deep-learning-based image forgery detection framework for controlling the spread of misinformation
30	Rajasekhar S., Makesh D., Jaishree S. (2021)	Assessing media literacy levels among audience in seeking and processing health information during the covid-19 pandemic
31	CHU W., LEE K.-T., LUO W., Bhambri P., Kautish S. (2021)	Predicting the security threats of internet rumors and spread of false information based on sociological principle
32	Alvi I., Saraswat N. (2020)	Information processing- Heuristic vs systematic and susceptibility of sharing Covid19- related fake news on social media
33	Shrivastava G., Kumar P., Ojha R.P., Srivastava P.K., Mohan S., Srivastava G. (2020)	Defensive modeling of fake news through online social networks
34	Raj A., Goswami M.P. (2020)	Is fake news spreading more rapidly than COVID-19 in India? A representative study of people's perspective on controlling the spread of fake news on social media
35	Barve Y., Mulay P. (2020)	Bibliometric Survey on Incremental Learning in Text Classification Algorithms for False Information Detection

HARNESSING SOCIAL MEDIA FOR DISEASE SURVEILLANCE IN ANIMALS POPULATIONS

Khushbu[1], Hitesh[2], Anju Poonia[3] and Chandralima Baruah[4]

[1]Department of Veterinary Public Health and Epidemiology, LUVAS, Hisar

[2]Department of Veterinary Gynaecology and Obstetrics, LUVAS, Hisar

[3]Department of veterinary Surgery and Radiology, LUVAS, Hisar

[4]Department of Veterinary Public Health and Epidemiology,
Assam Agricultural University, Jorahat

Summary:

Early reaction and control of disease outbreaks depend heavily on the early detection of infectious diseases. Conventional surveillance techniques are inadequate; however, real-time data collection and dissemination over the internet, automated systems for early outbreak identification, and data aggregation from official and unofficial sources transform epidemiology. The possibility of improving animal disease surveillance lies with usage of with social media and mobile technology. A wealth of user-generated content is produced by social media sites, and this content offers important insights into trends in animal health. Researchers can use this data to enhance early epidemic detection, risk factor identification, and geospatial analysis, and to supplement conventional surveillance systems. This is made possible by sophisticated data processing techniques. The Veterinary Information Network (VIN), Animal Health Surveillance System (AHSS), Disease BioPortal (DBP) and Global Animal Disease Intelligence (GADI) are among the systems that have successfully used social media-based disease surveillance. These systems show how social media can be used to track disease outbreaks, keep an eye on animal health, and influence veterinary public health policy.

The integration of social media with conventional systems, scaling up and guaranteeing sustainability, and tackling data and information overload are some of the future prospects for social media-based animal disease surveillance. Research and development expenditures as well as interdisciplinary cooperation between epidemiologists, computer scientists, and veterinarians are required to overcome obstacles. Animal disease surveillance can be revolutionized by social media and mobile technology, especially in environments with limited resources. We can enhance illness response, prevention, and detection while safeguarding the health of people and animals by embracing innovation and teamwork. This innovative strategy will improve food safety, increase global health security, and lessen the financial impact of disease outbreaks.

Introduction

Engaging in social media is a ubiquitous activity for billions worldwide, generating vast amounts of data. Platforms like Twitter and Facebook produce an immense volume of user-generated content every minute. Advanced data processing methods enable researchers to harness this data, gaining valuable insights into animal health trends. Social media interaction data have proven effective in complementing and enhancing surveillance of infectious diseases affecting animal populations, such as avian influenza, foot-and-mouth disease, and rabies. During outbreaks like the African swine fever and equine influenza, researchers leveraged social media to track disease spread, monitor public perceptions, and identify early warning signs. This innovative approach has improved modeling of disease transmission rates and informed veterinary public health policy. Here, we explore the history, methodology, and benefits of utilizing social media for animal disease surveillance and monitoring. Animal disease surveillance has undergone significant transformations over the years, driven by technological advancements in data collection and computational power. The rise of digital disease surveillance, defined as the use of internet-based data to develop or apply systems for nowcasting or forecasting disease incidence or prevalence, has revolutionized the field. Recently, internet-based search tools and social media have emerged as valuable resources for enhancing animal disease surveillance. These platforms provide real-time data and trends on animal health outcomes, enabling swift detection and response to disease outbreaks. Key milestones in digital animal disease surveillance include the development of veterinary-specific surveillance systems, online disease reporting platforms, and social media monitoring tools.

How Social Media Can Help?

Social media, encompassing interactive digital technologies for creating, sharing, and exchanging information, has revolutionized global communication since the emergence of the first social networking platform, Bolt, in 1996. As of 2024, 4.42 billion people actively use social media, with an average of 9.5 accounts per person and over 2.5 hours spent daily engaging online. This expansion has sparked interest in leveraging social media data to monitor and track animal diseases. Twitter, with 433 million active monthly users, provides valuable insights into animal health trends and disease outbreaks through user-shared messages (tweets) containing information on animal health and veterinary concerns. Researchers can access Twitter data through the Twitter API, utilizing code libraries like Tweepy (Python) or rtweet (R) for analysis and monitoring. Recent studies have demonstrated social media surveillance effectiveness in monitoring avian influenza, tracking rabies cases, identifying early warning signs of African swine fever, and analyzing public perceptions of veterinary health issues. Beyond Twitter, platforms like Facebook (3.5 billion monthly active users) and YouTube (2.5 billion active users)

offer valuable data. Notably, 71% of veterinarians use social media for professional purposes, and 63% of animal health organizations utilize it for disease surveillance.

Google Trends offers a valuable tool for monitoring animal disease outbreaks. By analyzing search queries related to specific animal diseases, researchers can estimate disease activity and geospatial patterns in near real-time. A tailored version, analogous to Google Flu Trends, could track health-seeking behavior of animal owners or veterinarians searching for information on diseases affecting livestock or companion animals. This data, visualized through a search volume index graph updated daily, can provide early detection of disease outbreaks, potentially 1-2 weeks ahead of traditional surveillance reports. Studies have demonstrated strong correlations between Google Trends data and official reports from veterinary authorities. While most effective for highly prevalent diseases in developed countries with high internet penetration, Google Trends can complement traditional animal disease surveillance systems, enhancing timely detection and response.

Several techniques are used in the data collecting process for animal disease surveillance to leverage social media data. Direct access to platform data is made possible by Application Programming Interfaces (APIs), which provide the effective extraction of structured data from discussions pertaining to animal diseases. Programmatic web scraping techniques are used to retrieve data from animal health-related websites, discussion boards, and online forums. Crowdsourcing projects involve the participation of agricultural experts, veterinarians, and animal owners in reporting disease episodes or providing contextual information. Expert social media monitoring programs monitor keyword alerts and notifications, and machine learning and natural language processing (NLP) algorithms examine data to find trends related to illness. Notwithstanding issues with data quality, biases, and privacy, integrating these techniques with conventional surveillance systems improves illness detection and response by providing advantages like better timeliness, geographical resolution, and stakeholder engagement.

Applications of Social Media

Monitoring Disease Outbreaks

Early diagnosis and tracking of animal illness epidemics are made possible by social media. Through the surveillance of disease-associated discourse, phrases, and hashtags, scientists can predict possible animal population outbreaks before they become widespread. Social media real-time data enhances traditional monitoring systems by delivering timely notifications for quick action. For example, keeping an eye on tweets regarding sick animals or strange indicators of disease in cattle can notify veterinary officials to look into and stop epidemics.

Identifying Animal Disease Risk Factors and Trends

Animal diseases, such as zoonotic diseases, vector-borne diseases, or diseases affecting certain animal species, can be identified using social media analysis in terms of risk factors and

trends. To identify elements that contribute to the transmission of illness, such as climate, geography, animal migrations, or farm management techniques, researchers can examine online forums. Finding patterns improves disease prevention, guides focused therapies, and maximizes the use of available resources.

Geospatial Analysis and Mapping of Animal Diseases

Geospatial analysis and mapping are used with social media data to visualize and monitor animal illness outbreaks. Researchers build heat maps and spatial models to anticipate the spread of disease among animal populations by tying disease reports to specific places. This facilitates focused interventions, effective distribution of resources, and knowledgeable decision-making.

Successful Implementations of web-based disease surveillance systems

To keep an eye on animal health, a number of social media-based disease surveillance systems have been created. Veterinary practitioners can exchange knowledge about animal diseases on the Veterinary Information Network (VIN), an online forum and social network. Comparably, with its web-based and mobile app platform, the Animal Health Surveillance System (AHSS) enables users to record animal illness incidences and follow outbreaks.

Data about animal diseases is integrated from news, social media, and scientific literature into the Disease BioPortal (DBP), which offers predictive modeling, trend analysis, and data visualization. Through its web-based and mobile app platform, Global Animal illness Intelligence (GADI) leverages crowdsourcing illness reporting and tracking. Social media is another tool used by government organizations for disease surveillance. Utilizing social media monitoring techniques, the USDA's Animal and Plant Health Inspection Service (APHIS) keeps tabs on discussions pertaining to animal diseases. With data visualization, trend analysis, and alarms, the World Animal Health Information System (WAHIS) offers worldwide surveillance and reporting for animal diseases.

Other noteworthy examples are the Animal Disease Reporting and Monitoring System (ADRMS), which facilitates real-time warnings, data analytics, and community interaction, and the Livestock Disease Surveillance (LDS) mobile app and web-based platform, which report and track livestock diseases. These systems show how social media and digital technologies might improve the tracking of animal diseases. These cutting-edge platforms protect public health, animal health, and the economy by facilitating early illness detection, quick response, and well-informed decision-making.

Future Directions: Integrating Social Media with Traditional Surveillance Systems

The integration of social media with conventional systems holds the key to the future of surveillance for animal diseases. The detection, tracking, and response to disease will all be improved by this integration. The validity and dependability of existing systems will be enhanced by social media's geographic reach and real-time data. By enabling automated data

exchange, integration will decrease human reporting requirements and boost productivity. For example, tying reports from social media to lab validation will bolster monitoring. Seamless integration will be made easier by standardized data formats and application programming interfaces (APIs).

Scaling Up and Sustainability

Infrastructure and resources that are sustainable are needed for social media-based monitoring to be expanded. This entails making investments in technology, people, and training. Governments, academic institutions, and players in the commercial sector working together will guarantee long-term funding and expertise. Scalable data processing and storage will be made possible by cloud-based technologies. Strategies for user engagement will keep participation and reporting. Sustainability also depends on addressing privacy concerns, ensuring data security, and complying with regulatory frameworks.

Addressing Data Overload and Information Overload

The control of data and information overload becomes more important as the amount of data created by social media increases. Relevant data will be filtered by sophisticated analytics and machine learning algorithms, minimizing noise and false positives. Unstructured text can be used to derive insights through Natural Language Processing (NLP). Tools for data visualization will help with intuitive comprehension. Frameworks for prioritizing will direct attention toward outbreaks and diseases that pose a high danger. Information distribution will be streamlined via automated reporting systems.

Overcoming Challenges

The animal health community needs to take a diversified approach in order to overcome the obstacles that social media-based animal disease surveillance faces. In order to create novel solutions, this entails encouraging multidisciplinary collaboration amongst epidemiologists, computer scientists, and social scientists. Enhancing machine learning, natural language processing, and data analytics skills requires funding research and development. Uniform policies and procedures will guarantee dependability and uniformity amongst surveillance systems. Promoting awareness, reporting, and reaction requires involving stakeholders, such as legislators, veterinary professionals, and owners of animals. By utilizing state-of-the-art technologies like blockchain and artificial intelligence (AI), data security, validity, and analytics will be improved. Long-term operations and maintenance will be facilitated by securing sustainability through the allocation of resources and special financing. Global health security will be considerably improved by social media-based animal disease surveillance by tackling these issues and seizing opportunities. This novel strategy will safeguard the health of people and animals, encourage a safer food supply, and lessen the financial effects

of disease outbreaks. Ultimately, the environment, human health, and animal welfare will be protected by a cooperative, technologically advanced surveillance system.

Conclusion:

Animal disease surveillance systems could undergo radical change by using social media and mobile technology, especially in environments with limited resources. Social media is an indispensable tool for tracking the spread of diseases and identifying outbreaks, despite its limitations. This is due to its widespread use and real-time data capabilities. The usefulness of the Internet is hampered by inequities in access, particularly in poor nations where the burden of disease is highest and public health infrastructure is inadequate. Utilizing Short Message Services for reporting cases, mobile phones and handheld devices present a workable option, and their application has already shown promise in contexts with limited resources. Furthermore, as developing diseases cross geographical and species barriers in the twenty-first century, the One Health concept is essential. To create complete surveillance systems, interdisciplinary cooperation between epidemiologists, computer scientists, doctors, veterinarians, and public health experts is required.

The potential of social media and mobile technology to improve animal disease surveillance is highlighted in this chapter, along with the necessity of improved data analytics, standardized protocols, and the investigation of artificial intelligence and machine learning applications. By utilizing these technologies, we can improve the monitoring of animal diseases, safeguard the health of people and animals, and advance the security of world health. Future research initiatives include creating integrated surveillance systems, assessing the efficacy of mobile technologies, and looking for creative ways to solve current problems. In the end, a cooperative and technologically advanced strategy will protect human and animal health, lessen negative economic effects, and guarantee a safer world for everybody. We can overcome the challenges of animal disease surveillance and build a more robust and adaptable global health system by embracing innovation and multidisciplinary collaboration.

References:

1. Brownstein, J. S., Freifeld, C. C., & Madoff, L. C. (2009). Digital disease detection—harnessing the Web for public health surveillance. *The New England journal of medicine*, *360*(21), 2153.
2. Charles-Smith, L. E., Reynolds, T. L., Cameron, M. A., Conway, M., Lau, E. H., Olsen, J. M., ... & Corley, C. D. (2015). Using social media for actionable disease surveillance and outbreak management: a systematic literature review. *PloS one*, *10*(10), e0139701.
3. Christley, R. M., Pinchbeck, G. L., Bowers, R. G., Clancy, D., French, N. P., Bennett, R., & Turner, J. (2005). Infection in social networks: using network analysis to identify high-risk individuals. *American journal of epidemiology*, *162*(10), 1024-1031.

4. Heymann, D. L., & Rodier, G. R. (1998). Global surveillance of communicable diseases. *Emerging infectious diseases*, *4*(3), 362.
5. Yu, V. L., & Madoff, L. C. (2004). ProMED-mail: an early warning system for emerging diseases. *Clinical infectious diseases*, *39*(2), 227-232.
6. Martínez-López, B., Perez, A. M., & Sánchez-Vizcaíno, J. M. (2009). Social network analysis. Review of general concepts and use in preventive veterinary medicine. *Transboundary and emerging diseases*, *56*(4), 109-120.
7. Munaf, S., Swingler, K., Brülisauer, F., O'Hare, A., Gunn, G., & Reeves, A. (2023). Spatio-temporal evaluation of social media as a tool for livestock disease surveillance. *One Health*, *17*, 100657.
8. Mykhalovskiy, E., & Weir, L. (2006). The Global Public Health Intelligence Network and early warning outbreak detection: a Canadian contribution to global public health. *Canadian journal of public health*, *97*, 42-44.
9. Wilson, K., & Brownstein, J. S. (2009). Early detection of disease outbreaks using the Internet. *Cmaj*, *180*(8), 829-831.

Social Media Dynamics: Trends and Transformations

ISBN: 978-93-95847-62-9

About Editors

Dr. Ajay Kumar Dogra is a distinguished dental surgeon and academic with a rich background in healthcare management and research. He holds an MBA and a Ph.D. in Management from Panjab University, Chandigarh. With four years of practical experience at various hospitals he brings valuable industry insights to his academic role. Since 2011, Dr. Dogra has been an Assistant Professor at UIAMS, Panjab University, Chandigarh. His research interests encompass operations, marketing, and human resources. Dr. Dogra's areas of expertise include hospital administration, brand management, service quality, and medical tourism. He is a distinguished researcher and author with more than 25 research publications and 2 books.

Dr. Sagarika Dash is an Associate Professor and Head of the Department of Journalism and Mass Communication at Srinath University, Jamshedpur, Jharkhand. She has an extensive experience in research, with numerous publications in Scopus-Indexed and UGC CARE-Listed Journals. With over 20 years in teaching and research within gender studies, social media and digital Communication, she is recognised for her contribution to curriculum development and has actively mentored students and emerging scholars.

Arpita Dey is an Assistant Professor in the Department of English at Women's College, Silchar, with 11 years of teaching experience at the undergraduate level. Her research interests encompass Indian Writing in English, Literary Theories, and French Feminist Criticism. Over the course of her career, she has made significant contributions to the academic field through numerous research papers published in various Indian and international refereed journals. Known for her dedication to both teaching and research, Arpita Dey continues to inspire students and contribute to the study of English literature through her scholarly work.

Soumen Das is a distinguished Assistant Professor at the School of Media Science, Institute of Management Study, Kolkata. He holds a Master's degree in Journalism and Mass Communication and English Literature, along with Postgraduate Diplomas in Disaster Management and Journalism and Mass Communication. With six years of academic experience and three years as a Film/Video Editor, Soumen's expertise spans Film Studies, Gender Studies, Digital Media, and Communication. His scholarly work has been published in peer-reviewed journals and book chapters with both national and international publishers. In addition to academia, Soumen has earned recognition in filmmaking, with his short films and documentaries selected by national and international film festivals. He has received awards for Best Story Writer and Editor. Passionate about innovative film techniques, Soumen fosters creative talent in his students and continues to contribute to media and communication studies through his research and creative endeavors.

Bhumi Publishing

ISBN 978-93-95847-62-9
9 789395 847629