

Unmasking Misinformation: Evolving Roles and Responsibilities of Indian Journalists in the Digital Age

Aditya Sinha¹, Ranjeet Kumar², Ramanuj Vishwakarma³ y Debabrata Basu⁴

Recibido: 16 de enero de 2023 / Aceptado: 30 de julio de 2023

Abstract. The spread of misinformation and fake news with the advent of social media is widespread to influence public opinion. A lack of common consensus between the journalists, media houses and social media companies on combating disinformation is causing distrust and scope for pessimism. The current research was conducted in the Indian context adopting mixed methods research to find out the roles and responsibilities of journalists and media houses in combating disinformation along with the effect of social media and advanced technologies in the changing scenario. The results revealed that journalists demanded more access to audience and providing a platform for practicing ethical journalism. Secondly, the effect of social media on journalism was considered as a net positive with no escape from the same in this digital era. Thirdly, an upgrade of skills related to tackling misinformation with technology was felt by the journalists. The paper provides the intricacies of journalism practice in the changing world for a better future.

Keywords: Misinformation; digital; social media; journalist; mixed methods

[es] **Combatando la desinformación: roles y responsabilidades emergentes de los periodistas en la era digital.**

Resumen. La difusión de información errónea y noticias falsas con la llegada de las redes sociales es generalizada y tiene el propósito de influir en la opinión pública. La falta de consenso común entre los periodistas, los medios de comunicación y las empresas de redes sociales para combatir la desinformación está generando desconfianza y un ámbito propicio para el pesimismo. La investigación actual se llevó a cabo en el contexto indio, adoptando métodos mixtos de investigación para descubrir los roles y responsabilidades de los periodistas y los medios de comunicación en la lucha contra la desinformación junto con el efecto de las redes sociales y las tecnologías avanzadas en el escenario cambiante. Los resultados revelaron que los periodistas demandaban un mayor acceso al público y la creación de una plataforma para ejercer un periodismo ético. En segundo lugar, se consideró que el efecto de las redes sociales en el periodismo era en su mayoría positivo, sin escapatoria en esta era digital. En tercer lugar, los periodistas sentían la necesidad de mejorar sus habilidades para abordar la desinformación con tecnología. El artículo proporciona detalles sobre la práctica del periodismo en un mundo cambiante para un futuro mejor.

Palabras clave: Desinformación; digital; medios de comunicación social; periodista; métodos mixtos.

Summary. 1. Introduction. 2. Theoretical framework. 3. Methodology. 3.1. Development of Questionnaire. 3.2. Selection of participants for the study. 3.3. Strategy to conduct surveys and interviews. 3.4. Analysis of data. 4. Result and Discussion. 5. Conclusion. 6. References.

Cómo citar: Sinha, A., Kumar, R., Vishwakarma, R. & Basu, D. (2023). Unmasking Misinformation: Evolving Roles and Responsibilities of Indian Journalists in the Digital Age. *Estudios sobre el Mensaje Periodístico* 29 (4), 807-819. <https://dx.doi.org/10.5209/esmp.85674>

1. Introduction

The dissemination of incorrect and flawed information through media sources has long been a common practice. False content can appear on any platform spread over social networks to mainstream media (Wardle, 2017). A popular typology of false information developed by Tandoc Jr et al., 2018, focuses on

inaccurate content identified in the news media. They have categorized fake news into six types, propaganda, news fabrication, photo manipulation, news satire, and news parody. Additionally, Brennen et al., 2020, have provided a more conceptual typology based on falsification techniques. They have differentiated between fabrication, reconfiguration, and satire or parody. Fabrication is related chiefly to the

¹ Bihar Agricultural University (India)
E-mail: inc.aditya@gmail.com

² Bihar Agricultural University (India)
E-mail: rkipm06@gmail.com

³ Bihar Agricultural University (India)
E-mail: entoramanuj@gmail.com

⁴ Bidhan Chandra Krishi Viswavidyalaya (India)
E-mail: drdbasu@gmail.com

distortion of the message for satirical or humorous intent with no direct intention to mislead the audience. In reconfiguration, the content is characterized with a start from real context to show it in a manipulated background. The last type, 'satire' or 'parody', is characterized by extreme falsehoods with the purpose of deception. A rapid rise in the narrative on false information was driven by media coverage of the 2016 United States presidential elections (Allcott & Gentzkow, 2017; Grinberg et al., 2019). The solutions to combat fake news has largely been technical requiring audience to improve their media literacy and undergo deep analysis before believing any news (McClure Haughey et al., 2020; Wagner & Boczkowski, 2019). Another major attribute leading to the dissemination of misinformation is pressure among the journalists to break the news without following journalistic ethics (Franklin & McNair, 2017). India has nearly 900 private satellite television stations on air, out of which over half of them is dedicated for news coverage ("India Profile – Media," 2011) Despite the exponential growth of media houses in India, the standards of journalism are rarely provided importance than compared to creating sensationalism (Chadha & Bhat, 2022). The absence of systemic filtering of the web and media has often led to clashes between authorities and media networks over the nature of content. It is not surprising that India occupies the 161 position among 180 countries in the 2023 World Press Freedom Index rankings conducted by Reporters Without Borders (Iyer & KS, 2023).

In the 21st century, with the active proliferation of the internet and citizen journalism, journalists are challenged to counter fake content emerging from a wide range of sources, including political organizations, non-governmental organizations, corporates, and professionals. Fake information is produced in a wide variety. It can range from a joke or meme, based on a minor deviation from reality to a complex manipulation in the creation of false content using highly developed technologies, such as deep fakes (Salaverría & León, 2022). Disruptive technologies such as artificial intelligence, big data, and the internet of things (IoT) greatly influence the credibility of information available on various media platforms. It is often argued that there is a difference between the deliberate circulation of lies and misinformation and the unconscious dissemination of misinformation (Burnam, 1986). There is no doubt that there is a significant distinction between being untruthful and making a mistake, even if the effects of both closely resemble one another because they both result in the dissemination of erroneous information to the public.

The published literature on journalism in India has explored the roles of citizen journalists in producing online content (Paul, 2018), non-coherence between research and course curriculum (Murthy, 2011; Sinha & Basu, 2020), use of library by the Indian journalists (Joseph, 1993) and related aspects. In the current times with a major influence of social

media, there is a major research gap in understanding the role of journalists and media houses in curbing the effects of misinformation. The current paper aims to fill the research gap by finding answers to the following questions:

1. What is the present information need of the journalists to combat misinformation?
2. What is the use pattern of social media by the journalists to curb the effects of misinformation?
3. What are the strategies adopted to tackle misinformation in the current times?

Thus, this paper adds to the growing scholarship on changing roles and responsibilities of Indian journalists in curbing the effects of disinformation.

2. Theoretical Framework

The theoretical base of this research is based on the media ecology theory which examines the relationship between humans, technology, media, and the environment, with a focus on their evolution, effects and forms (Scolari, 2012; Zhu, 2022). In the present context, ecology is concerned with understanding nature as a human home and environment, as well as the interactions between organisms, their mutual influence, and the environment (Heise, 2002). The main arguments of the media ecology theory based on the context of our research are:

Interconnectedness of Media and Environment

Media ecology theory argues that media and the environment are deeply intertwined and shape each other (Madianou & Miller, 2013). It highlights how media technologies influence human communication patterns, social structures, and cultural practices, while also being influenced by the surrounding natural and social environment.

Cultural and Social Impact

Media ecology theory asserts that media play a crucial role in shaping culture, values, and social norms. It explores how media technologies impact the dissemination of information, the formation of public opinion, and the construction of shared meanings within a society (Foust & Hoyt, 2018).

Medium as the Message

Media ecology theory, influenced by Marshall McLuhan, emphasizes that the medium itself has significant effects on society and individuals (Miroshnichenko, 2021; Witschge et al., 2016). It suggests that different media formats, such as print, radio, television, or digital platforms, create unique environments that shape human perception, cognition, and social interactions.

Technological Determinism

Media ecology theory, to some extent, aligns with technological determinism, suggesting that technological advancements drive social and cultural changes (Livingstone, 2002; Mauthner & Kazimierczak, 2018). It acknowledges the influence of media technologies on shaping human behavior, social interactions, and even power dynamics within a society.

The paper aims at analyzing these factors from the perspective of media communication among journalists in India.

3. Methodology

The current research was conducted during 2022-2023 to understand the awareness, perceived roles and responsibilities of journalists and media houses in limiting disinformation. The social media use pattern of social media by the journalists was also studied to understand the role associated with it. Mixed methods research was followed using both quantitative and qualitative approaches in the study. The quantitative data was collected using structured questionnaires from mainstream media and digital media journalists. The responses were further verified and authenticated using qualitative methods employing face-to-face interviews with five journalists.

3.1. Development of Questionnaire

The questionnaire was developed considering the published literature on journalism practices, misinformation, fact-checking initiatives, and training received on fact-checking in the last ten years (2012-2022). The questionnaire was finally cross-checked with three journalists to weed off the irrelevant questions and improve the readability of the questions. The total number of questions in the quantitative survey was 15 while qualitative questions were 11 in a sequence (Annexure I). The open-ended qualitative questions were asked during face-to-face interviews with five journalists. The qualitative interviews helped gain detailed insights regarding the experiences of the journalists with misinformation.

3.2. Selection of participants for the study

The study respondents were confined to journalists engaged in print media (newspapers) and digital social media (YouTubers and online bloggers) in India. The questionnaire was emailed to 426 journalists from top five circulated newspapers in India released in English and Hindi. The newspapers included Hindi newspapers, namely *Dainik Bhaskar*, *Dainik Jagran*, *Amar Ujala* and English newspapers, namely the Times of India and Hindustan Times (*Figures for the Audit Period July-December 2019, India.*, 2020). The questionnaires were also sent to 20 YouTubers/ online bloggers

who produce regular content on current affairs. The names of their YouTube channels/ website are not mentioned to maintain their anonymity. After regular phone calls and reminder emails, we received responses from 309 journalists. The journalists varied in their job portfolio from political correspondents to editors covering local city news. A diversified portfolio of journalists was chosen since fact-checking and misinformation vary widely. For conducting qualitative interviews, five journalists were recruited from each newspaper. These journalists' job portfolios were desk editors, correspondents, and special reporters. The profile and responsibilities of the five journalists are mentioned below. The names of the journalists are not written to promote anonymity.

Journalist A was a Desk Editor responsible for managing and supervising the news desk operations. "A" coordinates with reporters and correspondents, assigns news stories, and ensures timely publication. "A" reviews and edits articles for accuracy, clarity, and adherence to journalistic standards. "A" stays updated on current events and emerging news trends, collaborating with other editors and journalists to maintain the quality and integrity of the newspaper's content.

Journalist B works as a Correspondent, gathering information by conducting interviews, attending events, and researching news stories. "B" reports on assigned beats such as politics, business, sports, or culture. "B" develops relationships with sources to obtain exclusive information and insights. "B" verifies facts and ensures the accuracy of information before reporting.

Journalist C serves as a Special Reporter, focusing on investigative reporting and in-depth stories. "C" conducts interviews with key individuals, experts, and witnesses relevant to the assigned topic. "C" analyzes data, research findings, and legal documents to support the investigative reporting. "C" uncovers hidden or underreported aspects of a story to provide a comprehensive and unbiased account.

Journalist D is a Desk Editor responsible for managing newsroom operations. "D" assigns tasks, sets editorial priorities, and oversees the editorial process to ensure timely delivery of news content. "D" collaborates with journalists and correspondents to develop story ideas and angles. "D" edits and proofreads articles for grammar, style, and factual accuracy. "D" also coordinates with other departments, such as photography and design, to enhance the visual presentation of news stories.

Journalist E works as a Correspondent, covering assigned beats and generating news stories related to politics, society, or current affairs. "E" attends press conferences, events, and meetings to gather information and quotes from key figures. "E" conducts interviews with relevant individuals, including politicians, experts, and community members. "E" writes news articles, features, and analytical pieces that provide a balanced and informative perspective. "E"

stays updated on developments in the assigned beat, identifying emerging trends or newsworthy events.

The thematic analysis of the responses was based on three guiding questions:

- What are the roles and responsibilities of journalists and media houses in relation to combating misinformation?
- What is the effect of social media in the current journalism scenario?
- How an advanced technologies help in combating disinformation?

3.3. Strategy to conduct surveys and interviews

The survey questionnaire was first prepared in English. Then, in consultation with the co-authors of the paper, the questions were translated into Hindi for sending to journalists from Hindi newspapers. The interviews were conducted in both English and Hindi language. The average duration of the qualitative in-person interviews was 30 minutes. Prior consent was obtained before conducting the interviews. All five interviews were later transcribed in English.

3.4. Analysis of data

The analysis of the quantitative questionnaire was performed using statistical tools like mean and median. For analyzing qualitative interviews, thematic analysis was conducted. Two co-authors transcribed the interview transcripts in English and provided brief codes based on the principle of axial coding (Scott & Medaugh, 2017). Further, the codes were analyzed to identify patterns or underlying information to develop the themes by applying the principles of thematic analysis (Braun & Clarke, 2012).

4. Result and Discussion

The results and conclusions of the study, focusing on the application in India, shed light on the idiosyncrasies of the country and how they impact journalists' strategies in combating misinformation and disinformation. The first part of the questionnaire asked the respondents about basic questions related to age, experience (number of years) in the industry, role in the organization, whether they have received any training on fact checking and misinformation or not, do they make use of secondary data sources to verify the quantitative figures or not, and whether they verify the claims of advertiser before working on an advert or not? The responses are mentioned in Table 1.

Most of the respondents (35.27%) were in the age group of 40-50 years, followed by 26.86 % of respondents in the age group of 29-39 years. The age group of more than 50 years comprised 24.91 % of respondents. Youngsters in the age group of 18-28 were 14.88 per cent of the total. Concerning experience in the profession, 44.01 per cent of the respondents

had 6-15 years of experience, followed by 23.94 per cent respondents with an experience of over 25 years. 20.38 per cent of respondents were amateurs with 0-5 years of experience, while 11.65 per cent had 15-25 years of experience in their kitty. As far as the role is concerned, political correspondent was the largest in number comprising 39.15 per cent. Business reporters comprised of 15.53 per cent and sports correspondent with 9.38 per cent. The respondents in editorial roles comprised of 3.88 per cent. The respondents with the roles not covered under these categories were 32.03 per cent.

The findings indicate that a substantial portion of journalists (68.28%) had never attended any training on fact-checking and misinformation. This could be a significant factor contributing to the spread of misinformation in the media landscape (Thorson, 2016). While a portion of respondents does engage in fact-checking and use secondary data sources to verify information, the majority do not verify claims made by advertisers before working on an advert, which might lead to the dissemination of false or misleading information to the public (Bhaskaran et al., 2017).

Do you verify the claims of the advertiser before working on an advert?

Journalists play a significant role in combating misinformation and educating the audience about reality. As such, the strategy adopted by journalists to check the credibility of information is of paramount importance. A close-ended question with multiple responses was asked from the audience in relation to the strategies they adopted to check the credibility of information. Most respondents (98.05 per cent) looked for social media sites such as Twitter and Facebook to check the authenticity of information. Asking for sources in another news agency was another strategy adopted by the respondents (96.44 per cent). Searching on search engines such as Google and Bing to check for the authenticity was performed by 43.36 of the respondents. Asking family, relatives, and friends was also a strategy adopted by 35.27 per cent of the respondents. Checking on fact-checking websites was performed by 17.45 per cent of the respondents. Around 11.65 per cent of the respondents were found not to adopt any measure for checking the credibility of the information.

The study found that the vast majority of journalists rely on social media sites like Twitter and Facebook, and asking for sources in another news agency (Paladino, 2018). This reliance on social media might be influenced by its widespread use in India, as the country has a large number of social media users (Aneez et al., 2019). However, this approach also poses challenges as social media can be a source of misinformation itself. Relatively fewer journalists use fact-checking websites or search engines to verify information, indicating a potential area for improvement in journalistic practices. The results are presented in Table 2.

Table 1. Summary table of baseline questions

	Number	Percentage
Age (in years)		
18-28	46	14.88
29-39	83	26.86
40-50	109	35.27
>50	77	24.91
Experience (in years)		
0-5	63	20.38
6-15	136	44.01
15-25	36	11.65
>25	74	23.94
Role		
Political correspondent	121	39.15
Business	48	15.53
Sports	29	9.38
Editor	12	3.88
Others	99	32.03
Training on fact-checking and misinformation		
Yes	98	31.71
No	211	68.28
Do you use secondary data sources to verify the quantitative claims		
Yes	103	33.33
No	206	66.66
Do you verify the claims of the advertiser before working on an advert?		
Yes	81	26.21
No	228	73.78

Table 2. Strategy adopted to check the credibility of information*

Adopted strategy	Frequency	Percentage
Check fact-checking websites	54	17.45
Search on websites like Google, Bing	134	43.36
Ask sources in another news agency	298	96.44
Ask family, relatives or friends	109	35.27
Look on social media websites like Twitter, Facebook	303	98.05
Do nothing	36	11.65

Since journalists are the lifeline of the media industry. The study asked journalists about the strategies their media houses could adopt to combat disinformation. The results are presented in Table 3. The most prominent strategy perceived by respondents was to provide less importance to breaking news. This might suggest that

journalists see the rush to be the first to report breaking news as a potential source of misinformation (Toff et al., 2021). Other strategies, such as mandatory training on combating disinformation and fixing accountability on journalists for reporting misinformation, were also perceived as important (Dubois et al., 2020).

Table 3. Perceived strategies to be adopted by media houses to combat disinformation

Adopted strategy	Number	Percentage
Clear editorial policy	30	9.70
Fix accountability	36	11.65
Less thrust on breaking news	81	26.21
Mandatory cross-verification of information	34	11.00
Fact-checker desk in the organization for checking information	22	7.11
Mandatory training on combating disinformation	63	20.38
Use of advanced technology for verification of information	32	10.35
Other	11	3.55

Establishing a benchmark for how journalists see the importance of social media in their profession was another objective of this study. Overall, our results show that the majority of journalists (75.38%) be-

lieved that social media had an “extremely”, “somewhat” or “moderately” good importance on their profession, while only roughly 19.26 % believed the opposite. The results are presented in Figure 1.

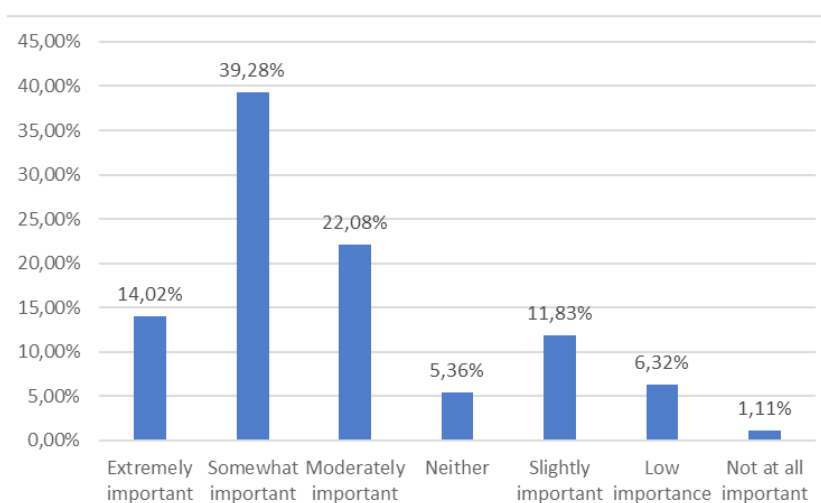


Figure 1. Perceived level of importance of social media in the profession

The use of social media was found to be a significant enabler for journalists in their quest to combat misinformation. In that context, the respondents were asked about their social media usage patterns. The questions invited multiple responses for better understanding, as presented in Table 4. Social media was considered of significant importance to the profession by a majority of journalists. This highlights the role of social media as an essential tool for journalists in India, both for gathering information and interacting with the audience (Varol & Uluturk,

2020). However, a sizeable minority also perceived social media as having a negative impact on their profession, potentially due to concerns about misinformation spread through these platforms. The study further revealed that journalists primarily use social media for connecting with other professionals in the media industry and checking other news media (Al-Zaman, 2021). This indicates that journalists in India use social media not only as a source of news but also for networking and staying updated on what other media outlets are reporting (Peters et al., 2022).

Table 4. Use of social media by journalists*

Use of social media	Frequency	Percentage
To post the latest information	106	34.30
To interact with the audience	68	22.00
Find content for news	71	22.97
Find sources	88	28.47
Verify information sources	64	20.71
Connect with professionals in media	201	65.04
Check other news media	151	48.86
Interview sources	18	5.82
Other	24	7.76

* Multiple responses

The qualitative questions were analyzed for the thematic analysis leading to three themes and six sub-themes which are discussed below:

Role and responsibilities of journalists and media houses in combating misinformation

Greater engagement with audience

All the journalists who were interviewed for the study reported that their workdays were dominated by their rigid schedules and deadlines. The time between writing and interviewing/ collecting story from the ground was very limited. This related to previous discussion on limits and deadlines (Leask et al., 2010), as journalists often find difficult to meet the strict deadlines of reporting. As such, the engagement with audience was lacking which is necessary for unbiased reporting with little misinformation. Engagement with audience was necessary to have different perspectives to the news story in case it required further analysis and generalization.

As one journalist commented,

“It is difficult for us to maintain a balance between news and objectivity. Important news also need to be reported to the online newspaper available on the web in no time. As such, we are left with no option than to write and forget.”

In both print and digital media, it is expected from the journalists to report the news as soon as it breaks leading to less opportunity to engage with audience. This in turn leads to inappropriate coverage of the news. Greater engagement with the audience will be helpful in improving news content leading to better reception from the audience.

Follow ethics on journalism

The journalists face the challenge of covering the news and carry-on administrative responsibilities as well. The editorial policy of most of the newspapers are soft on advertisers. This led to double standards in journalism leading to unethical measures in reporting the information. It was opined by all the respondents that following ethical practices in journalism was necessary to build trust among the audience. One editor described a dilemma fostered by many years in journalism.

“We struggle to follow the journalism ethics on reporting when there a highly paying advertiser in queue”.

One participant recollected his experience on making a story newsworthy with added elements from his side to enthuse the audience. Public interest was also compromised in this way leading to misinformation and distrust.

Promotion of constructive journalism

By covering a more diverse range of stories, constructive journalism was developed in an effort to off-

set the growing audience disengagement. It is widely observed that bias in reporting by media houses lead to a threat on the democratic process along with disengagement of the viewers in many cases (Haagerup, 2017; McIntyre & Sobel, 2018). It was opined by the journalists that media houses should adhere to the basic principles of journalism with a focus on inclusivity rather than hatred. One of the interviewees lamented:

“The editorial policy of media houses are more inclined on creating sensational news on religion and suicides promoting hatred since it has more appeal among the audience. This has resulted in diversion of strength of journalists towards such reporting leading to mistrust and misinformation in the long run”.

The responsibilities that the Indian journalists valued in the study included their role to keep the public informed and educated by acting as a watchdog. They believed that the role of journalists was to question the government and act as a bridge between public interest and governmental policies. In many ways, these roles were compromised by the media house in the recent times for the sake of revenues.

Effect of social media in the current journalism scenario

Effect of social media is a net positive

The effect of social media on journalism cannot be undermined in the current context. Several researchers have reported the increasing use of social media by major newspapers (Canter, 2013; Frechette, 2016; Harper, 2010). The opinion of audience is taken into condieration by journalists in providing detailed information at a later stage. Although social media has also led to a rising threat and harassment by trolls and malicious actors resulting in mental instability. One of the respondents said:

“Although social media has allowed us greater reach and has also provided a gold mine for resources, it is also seen that bullying by malicious people have led us to censor news in many cases”.

It is worth noting that all the respondents believed that social media has provided more positive results than compared to negative effects. For the public of today, simply making information available is insufficient. The majority of audiences in the present times think they should be able to contribute information and thoughts, and they also want to be able to choose what they read. This has resulted the journalists to remain proactive on social media platforms and gain from diverse views presented by the audience.

No escape from social media

The use of social media is ubiquitous in the media space. The speed and brevity offered by social media platforms to help journalists update the stories in

real time is essential in the media space. The opportunities for interaction offered by social media allows journalists to perform news gathering tasks in a better way. It is impossible for the journalists to reach the source for covering news story. As such, social media has provided a platform to stay connected with the audience and story.

Role of advanced technologies in combating disinformation

Automated fact-checking and verification

The respondents believed that artificial intelligence and machine learning could help in pattern recognition leading to detection of misinformation. The digitally manipulated audio and video material are very difficult to decipher without application of technology. Also, there is a need to identify pattern of words to burst fake stories from blogs and websites (Keritysova, 2018). One of the journalists responded:

“There are lots of commercial and free software to produce deep fakes available in the market. The journalist should be trained to counter the fakes so that misinformation could be stopped”.

The respondents agreed that the problem related to deepfakes, and fabricated videos cannot be solved by them without any expertise. There is a need for specialists in various sectors of expertise and digital humanists to devise methods for identifying false information using artificial intelligence and other advanced technologies.

Data analytics and network analysis

The respondents opined on understanding the impact of network analysis in uncovering the sources and dissemination channels of disinformation, as well as in identifying key influencers or nodes within these networks. Further, they also discussed the ethical implications and privacy concerns associated with the use of data analytics and network analysis in combating disinformation.

In the context of the Indian media landscape, the role and responsibilities of journalists and media houses in combating misinformation are crucial. The quantitative results of the study reveal that a significant portion of journalists face challenges related to time constraints and strict deadlines, leading to limited engagement with the audience. This lack of engagement may hinder unbiased reporting and contribute to misinformation. Moreover, the study highlights that following ethical practices in journalism is essential to build trust among the audience. Media houses' editorial policies, at times, prioritize revenue from advertisers over journalistic ethics, leading to compromised reporting and public interest. To address growing audience disengagement and promote constructive journalism, journalists emphasize the

need for media houses to cover diverse stories with a focus on inclusivity rather than sensationalism.

Social media plays a significant role in the current journalism scenario, offering both positive and negative effects. Journalists acknowledge that social media provides greater reach and access to diverse views from the audience. However, it also exposes them to online harassment and bullying by malicious actors, which can lead to self-censorship of news (Holton et al., 2023). Despite the challenges, social media is considered indispensable for journalists as it facilitates real-time news updates, interaction with the audience, and news gathering in situations where reaching the source is difficult.

To combat disinformation, advanced technologies such as artificial intelligence and machine learning are seen as valuable tools for automated fact-checking and verification. These technologies can aid in detecting digitally manipulated content and identifying patterns of false information (García-Marín et al., 2022). Additionally, data analytics and network analysis are recognized as effective methods to uncover the sources and dissemination channels of disinformation and identify key influencers within these networks (Santos, 2023). However, the use of these advanced technologies raises ethical concerns and privacy issues that need to be addressed.

5. Conclusion

Mainstream media industry is at the crossroads worldwide, including India. The problem of disinformation which is also motivated by advertising revenues are a threat to the ethics of journalism. Through our study, we found that a focused training on curtailing misinformation was lacking among the journalists. Also, the journalists were found not to value the aspects of data journalism leading to the verification of the claims before publication. The softness on verification of content developed for advertisers was also a limiting factor affecting journalism practices. The journalists believed that in the current times, a greater engagement with the audience was necessary to combat disinformation. Social media has enabled each citizen to act as a journalist and influence the people (Alejandro, 2010; Nielsen et al., 2016). In such scenario, promotion of constructive journalism is necessary to foster greater engagement in the democratic process influencing the audience. The media houses should take a stand on following ethical practices in journalism which will provide strength to the media, considered as the fourth pillar of democracy. Digital media has led to the disruption in journalism ethics for increased publicity and viewership (Ward, 2018). Journalists believe that with the explosive growth of social media, there is no other option than to imbibe the best outcomes for a holistic development of society. Social media is providing new realms on facing the reality with continuous interaction and sharing of information (Haythornthwaite, 2007). Further, the

support of advanced technologies is necessary to cater the problems arising due to misinformation. The large IT companies such as Facebook and Google are developing their own algorithms to identify fake information and prevent it from reaching the masses. Identification of such information on social media using artificial intelligence and machine learning should be accessible to the journalists (Zhuk et al., 2018).

In conclusion, the study emphasizes that Indian journalists and media houses play a critical role in combating misinformation and building trust among

the audience. To achieve this, they need to overcome challenges related to time constraints, prioritize ethical journalism, promote constructive reporting, and leverage social media while being vigilant about its potential pitfalls. Embracing advanced technologies responsibly can also enhance their ability to counter disinformation effectively. By adopting these strategies, the Indian media can continue to act as a watchdog, keep the public informed, and fulfill their role as a bridge between public interest and governmental policies.

6. References

- Alejandro, J. (2010). Journalism in the age of social media. *Reuters Institute Fellowship Paper*, 5(1–47), 1.
- Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, 31(2), 211–236.
- Al-Zaman, M. S. (2021). Social media fake news in india. *Asian Journal for Public Opinion Research*, 9(1), 25–47.
- Aneez, Z., T Neyazi, A., Kalogeropoulos, A., & Nielsen, R. (2019). India digital news report. *Reuters*.
- Bhaskaran, H., Mishra, H., & Nair, P. (2017). Contextualizing Fake News in Post-truth Era: Journalism Education in India. *Asia Pacific Media Educator*, 27(1), 41–50. <https://doi.org/10.1177/1326365X17702277>
- Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. <https://doi.org/10.1037/13620-004>
- Brennen, J. S., Simon, F. M., Howard, P. N., & Nielsen, R. K. (2020). *Types, sources, and claims of COVID-19 misinformation* [PhD Thesis]. University of Oxford.
- Burnam, T. (1986). *Dictionary of Misinformation* (Vol. 1315). HarperCollins Publishers.
- Canter, L. (2013). The interactive spectrum: The use of social media in UK regional newspapers. *Convergence*, 19(4), 472–495.
- Carlson, M., Robinson, S., Lewis, S. C., & Berkowitz, D. A. (2018). Journalism studies and its core commitments: The making of a communication field. *Journal of Communication*, 68(1), 6–25.
- Chadha, K., & Bhat, P. (2022). Alternative news media and critique of mainstream journalism in India: The case of OpIndia. *Digital Journalism*, 10(8), 1283–1301.
- Dubois, E., Minaeian, S., Paquet-Labelle, A., & Beaudry, S. (2020). Who to Trust on Social Media: How Opinion Leaders and Seekers Avoid Disinformation and Echo Chambers. *Social Media + Society*, 6(2), 2056305120913993. <https://doi.org/10.1177/2056305120913993>
- Figures for the audit period July-December 2019, India*. (2020). Audit Bureau of Circulations.
- Foust, C. R., & Hoyt, K. D. (2018). Social movement 2.0: Integrating and assessing scholarship on social media and movement. *Review of Communication*, 18(1), 37–55. <https://doi.org/10.1080/15358593.2017.1411970>
- Franklin, B., & McNair, B. (2017). *Fake news: Falsehood, fabrication and fantasy in journalism*. Routledge.
- Frechette, J. (2016). From print newspapers to social media: News literacy in a networked environment. *Studies*, 9(4), 545–560.
- García-Marín, D., Elías, C., & Soengas-Pérez, X. (2022). Big Data and Disinformation: Algorithm Mapping for Fact Checking and Artificial Intelligence. In J. Vázquez-Herrero, A. Silva-Rodríguez, M.-C. Negreira-Rey, C. Toural-Bran, & X. López-García (Eds.), *Total Journalism: Models, Techniques and Challenges* (pp. 123–135). Springer International Publishing. https://doi.org/10.1007/978-3-030-88028-6_10
- Grinberg, N., Joseph, K., Friedland, L., Swire-Thompson, B., & Lazer, D. (2019). Fake news on Twitter during the 2016 US presidential election. *Science*, 363(6425), 374–378.
- Haagerup, U. (2017). *Constructive news: How to save the media and democracy with journalism of tomorrow*. Aarhus University Press.
- Harper, R. A. (2010). The social media revolution: Exploring the impact on journalism and news media organizations. *Inquiries Journal*, 2(03).
- Haythornthwaite, C. (2007). Social networks and online community. *The Oxford Handbook of Internet Psychology*, 121–137.
- Heise, U. K. (2002). Unnatural Ecologies: The Metaphor of the Environment in Media Theory. *Configurations*, 10(1), 149–168. <https://doi.org/10.1353/con.2003.0006>
- Holton, A. E., Bélair-Gagnon, V., Bossio, D., & Molyneux, L. (2023). “Not Their Fault, but Their Problem”: Organizational Responses to the Online Harassment of Journalists. *Journalism Practice*, 17(4), 859–874. <https://doi.org/10.1080/17512786.2021.1946417>
- India profile—Media. (2011, March 3). *BBC News*. <https://www.bbc.com/news/world-south-asia-12557390>
- Iyer, S., & KS, M. (2023). Pandemic, politics, and the safety of journalists: Downward spiral of press freedom in India. *Review of Communication*, 0(0), 1–18. <https://doi.org/10.1080/15358593.2023.2216264>

- Joseph, R. (1993). How Indian journalists use libraries. *Information Development*, 9(1–2), 70–75.
- Kertysova, K. (2018). Artificial intelligence and disinformation: How AI changes the way disinformation is produced, disseminated, and can be countered. *Security and Human Rights*, 29(1–4), 55–81.
- Leask, J., Hooker, C., & King, C. (2010). Media coverage of health issues and how to work more effectively with journalists: A qualitative study. *BMC Public Health*, 10(1), 1–7.
- Lewis, S. C., & Molyneux, L. (2018). A decade of research on social media and journalism: Assumptions, blind spots, and a way forward. *Media and Communication*, 6(4), 11–23.
- Livingstone, S. (2002). *Young People and New Media: Childhood and the Changing Media Environment*. 1–278.
- Madianou, M., & Miller, D. (2013). Polymedia: Towards a new theory of digital media in interpersonal communication. *International Journal of Cultural Studies*, 16(2), 169–187. <https://doi.org/10.1177/1367877912452486>
- Mauthner, N. S., & Kazimierczak, K. A. (2018). Theoretical perspectives on technology and society: Implications for understanding the relationship between ICTs and family life. In *Connecting Families?* (pp. 21–40). Policy Press. <https://tinyurl.com/znbb6ehc>
- McClure Haughey, M., Muralikumar, M. D., Wood, C. A., & Starbird, K. (2020). On the misinformation beat: Understanding the work of investigative journalists reporting on problematic information online. *Proceedings of the ACM on Human-Computer Interaction*, 4(CSCW2), 1–22.
- McIntyre, K., & Sobel, M. (2018). Reconstructing Rwanda: How Rwandan reporters use constructive journalism to promote peace. *Journalism Studies*, 19(14), 2126–2147.
- Miroshnichenko, A. (2021). Media and Responsibility for Their Effects: Instrumental vs. Environmental Views. *Laws*, 10(2), Article 2. <https://doi.org/10.3390/laws10020048>
- Murthy, C. (2011). Dilemma of course content and curriculum in Indian journalism education: Theory, Practice and Research. *Asia Pacific Media Educator*, 21, 24–42.
- Nielsen, R. K., Cornia, A., & Kalogeropoulos, A. (2016). Challenges and opportunities for news media and journalism in an increasingly digital, mobile, and social media environment. *Mobile, and Social Media Environment (December 1, 2016)*.
- Paladino, B. (2018). Democracy Disconnected: Social Media's Caustic Influence on Southeast Asia's Fragile Republics. *Agriculture & Food Security*. <https://tinyurl.com/272erkzv>
- Paul, S. (2018). Between participation and autonomy: Understanding Indian citizen journalists. *Journalism Practice*, 12(5), 526–542.
- Peters, C., Schröder, K. C., Lehaff, J., & Vulpius, J. (2022). News as They Know It: Young Adults' Information Repertoires in the Digital Media Landscape. *Digital Journalism*, 10(1), 62–86. <https://doi.org/10.1080/21670811.2021.1885986>
- Salaverriá, R., & León, B. (2022). Misinformation beyond the media: 'Fake News' in the big data ecosystem. In *Total Journalism* (pp. 109–121). Springer.
- Santos, F. C. C. (2023). Artificial Intelligence in Automated Detection of Disinformation: A Thematic Analysis. *Journalism and Media*, 4(2), Article 2. <https://doi.org/10.3390/journalmedia4020043>
- Scolari, C. A. (2012). Media Ecology: Exploring the Metaphor to Expand the Theory. *Communication Theory*, 22(2), 204–225. <https://doi.org/10.1111/j.1468-2885.2012.01404.x>
- Scott, C., & Medaugh, M. (2017). Axial coding. *The International Encyclopedia of Communication Research Methods*, 10, 9781118901731.
- Sinha, A., & Basu, D. (2020). Journalism education in India: The widening gap between research and practice. *Asia Pacific Media Educator*, 30(2), 200–210.
- Tandoc Jr, E. C., Lim, Z. W., & Ling, R. (2018). Defining “fake news” A typology of scholarly definitions. *Digital Journalism*, 6(2), 137–153.
- Thorson, E. (2016). Belief Echoes: The Persistent Effects of Corrected Misinformation. *Political Communication*, 33(3), 460–480. <https://doi.org/10.1080/10584609.2015.1102187>
- Toff, B., Badrinathan, S., Mont'Alverne, C., Ross Arguedas, A., Fletcher, R., & Nielsen, R. (2021). *Listening to what trust in news means to users: Qualitative evidence from four countries*. Reuters Institute for the Study of Journalism. <https://tinyurl.com/5n6cc36t>
- Varol, O., & Uluturk, I. (2020). Journalists on Twitter: Self-branding, audiences, and involvement of bots. *Journal of Computational Social Science*, 3(1), 83–101. <https://doi.org/10.1007/s42001-019-00056-6>
- Wagner, M. C., & Boczkowski, P. J. (2019). The reception of fake news: The interpretations and practices that shape the consumption of perceived misinformation. *Digital Journalism*, 7(7), 870–885.
- Ward, S. J. (2018). *Disrupting journalism ethics: Radical change on the frontier of digital media* (1st Edition). Routledge.
- Wardle, C. (2017). Fake news. It's complicated. *First Draft*, 16, 1–11.
- Witschge, T., Anderson, C. W., Domingo, D., & Hermida, A. (2016). *The SAGE Handbook of Digital Journalism*. SAGE.
- Zhu, Y. (2022). The Historical Evolution of the Media in McLuhan's Theory. *Cross-Currents: An International Peer-Reviewed Journal on Humanities & Social Sciences*, 8(6), 85–90. <https://doi.org/10.36344/ccijhss.2022.v08i06.002>
- Zhuk, D., Tretiakov, A., Gordeichuk, A., & Puchkovskaia, A. (2018). Methods to identify fake news in social media using artificial intelligence technologies. *International Conference on Digital Transformation and Global Society*, 446–454.

Dr. Aditya Sinha is a distinguished academic with a robust background in Agricultural Extension and Education, currently working as Assistant Professor-cum-Junior Scientist (Senior Scale) in the Department of Extension Education at Bihar Agricultural University, Sabour, India. He attained a Ph.D. in Agricultural Extension from Bidhan Chandra Krishi Vishwavidyalaya, India, a remarkable feat rewarded with the Awsar award from the Department of Science and Technology Award and the prestigious First Prize in the Best Doctoral Thesis Award from MANAGE, Hyderabad. Alongside Ph.D., he holds an M.Sc. in Extension Education from Banaras Hindu University, Varanasi, India, and a bachelor's degree in agriculture from Visva Bharati University, Santiniketan, India. Additionally, he acquired a Post Graduate Diploma in Educational Technology from Indira Gandhi National Open University. He has shouldered various responsibilities, including leadership roles in the Center of Excellence in Teaching and Learning, Center of Advanced Faculty Training on ICTs, and handling different research projects in Extension Education. His prolific research contributions encompass a wide array of topics in Agricultural Extension, spanning leadership development, information and communication technologies, educational methodologies, and more. He has a comprehensive publication record, featuring journals, books, book chapters, and reports in reputed publications. ORCID: <https://orcid.org/0000-0002-5193-9048>

Dr. Ranjeet Kumar, a Fellow of the Royal Entomological Society in London, UK, is currently serving as an Assistant Professor-cum-Junior Scientist (Senior Scale) while heading the Department of Entomology at Veer Kunwar Singh College of Agriculture, Dumraon, Buxar, Bihar Agricultural University, Sabour, Bhagalpur, India. He earned his Ph.D. in Entomology with a specialization in Stored Grain Insect Pests from G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India, in 2010, and subsequently worked as a Post Doctoral Fellow until April 2012. He later joined Bihar Agricultural University, Sabour, Bhagalpur, India, as a Subject Matter Specialist in Entomology and later as an Assistant Professor cum Junior Scientist in the Department of Entomology. Dr. Kumar has made significant contributions to the field of Agricultural Entomology through his work in teaching, research, and extension. He actively teaches entomological courses and has established two entomological laboratories funded by ICAR in Saharsa and Dumraon. He received a German Grant to present a research paper at the International Working Conference on Stored Product Protection (IWCSPP 2018) in Berlin, Germany. He has also participated in various international conferences and organized ICAR-sponsored winter schools and short courses. ORCID: <https://orcid.org/0000-0001-8431-1866>

Dr. Ramanuj Vishwakarma is an Assistant Professor and Junior Scientist (Senior Scale) at Bihar Agricultural College, part of Bihar Agricultural University (BAU) in Sabour. He is a prolific author of books, book chapters, and peer-reviewed journal articles, both nationally and internationally. Vishwakarma is also an active Reviewer and Associate Editor for the International Journal of Agriculture Sciences. Within BAU, he manages state and central government-funded projects, specializing in apiculture and linseed pest research. He established a Beekeeping-cum-Honey Production Unit at BAU. He holds a Ph.D. in Agricultural Entomology from Bidhan Chandra Krishi Vishwavidyalaya and a post-graduate degree from Narendra Dev University of Agriculture and Technology. With over eleven years of teaching experience, he has supervised numerous postgraduate and doctoral students. He has organized multiple national and international seminars, conferences, and workshops. He is recognized as a 'Life Fellow' of the Entomological Society of India for his outstanding contributions to the field. ORCID: <https://orcid.org/0000-0003-3718-8687>

Dr. Debabrata Basu is a distinguished Professor at the Department of Agricultural Extension, Bidhan Chandra Krishi Vishwavidyalaya, Nadia, West Bengal, who has made significant contributions to the domain of agricultural extension. Previously, he held the position of Professor of Agricultural Extension at Visva Bharati University, Santiniketan. Dr. Basu's impressive body of work, as reflected in his numerous publications, covers a wide spectrum of research areas. His research interests encompass 'Disaster Management', 'Social Networking', 'Farm Typologies', and 'Gender and Agriculture'. Furthermore, Dr. Basu has explored 'Indigenous Knowledge,' recognizing the significance of traditional practices and local wisdom in agriculture and rural livelihoods. His studies delve into how indigenous knowledge systems can be integrated with modern agricultural practices for sustainable and inclusive development. Dr. Debabrata Basu's impressive portfolio of research projects and publications underscores his expertise and dedication to improving rural development, disaster resilience, gender equality, and the preservation of indigenous knowledge. His research has a meaningful impact on academia and practical applications in the field, making him a respected authority in these vital areas of study. ORCID: <https://orcid.org/0009-0004-2814-1881>

Annexure I: *Questionnaire*

I. Demographic Information:

- a. Age (in years): a) 18-28 b) 29-39 c) 40-50 d) >50
- b. Experience (in years): a) 0-5 b) 6-15 c) 15-25 d) >25
- c. Role: a) Political correspondent b) Business c) Sports d) Editor e) Others (Please specify: _____)

II. Information Needs and Fact-Checking:

- a. Have you received training on fact-checking and misinformation? a) Yes b) No
- b. How often do you use secondary data sources to verify quantitative claims? a) Frequently b) Occasionally c) Rarely d) Never
- c. Do you verify the claims of the advertiser before working on an advert? a) Yes b) No

III. Strategies and Practices:

- a. How important do you consider fact-checking and verification in your role as a journalist? Please rate on a scale of 1 to 5, with 1 being "Not important" and 5 being "Extremely important."
- b. What challenges do you face when verifying information and claims? Please provide specific examples or instances.
- c. In your experience, which strategies have you found effective in tackling misinformation? Please explain.
- d. How do you stay updated on emerging trends and techniques in combating misinformation?
- e. Are there any specific guidelines or ethical considerations you follow while addressing misinformation? Please describe.

IV. Which strategies do you currently adopt to check the credibility of information? Please select all that apply.

- a) Check fact-checking websites
- b) Search on websites like Google, Bing
- c) Ask sources in another news agency
- d) Ask family, relatives, or friends
- e) Look on social media websites like Twitter, Facebook
- f) Do nothing

V. In your opinion, which of the following strategies should media houses adopt to combat disinformation? Please select all that apply.

- a) Clear editorial policy
- b) Fix accountability
- c) Less thrust on breaking news
- d) Mandatory cross-verification of information
- e) Fact-checker desk in the organization for checking information
- f) Mandatory training on combating disinformation g) Use of advanced technology for verification of information
- h) Other (Please specify: _____)

VI. How do you use social media in your profession as a journalist? Please select all that apply.

- a) To post the latest information
- b) To interact with the audience
- c) To find content for news
- d) To find sources
- e) To verify information sources
- f) To connect with professionals in media
- g) To check other news media
- h) To interview sources
- i) Other (Please specify: _____)

VII. On a scale of 1 to 5, with 1 being “Not important” and 5 being “Extremely important,” how would you rate the importance of social media in your profession as a journalist?

VIII. Could you describe the specific role you believe journalists should play in combating misinformation? How do you see your own responsibilities in this regard?

IX. In your experience, what are the key challenges faced by journalists and media houses when it comes to effectively addressing misinformation?

X. How do you ensure that your reporting maintains accuracy and credibility in the face of misinformation? Are there any specific strategies or practices you follow?

XI. Can you provide examples of instances where you have actively worked to counter misinformation or promote fact-checking in your reporting? How did you go about it, and what were the outcomes?

XII. How has social media impacted the way journalists gather and disseminate information? What are the advantages and disadvantages associated with using social media as a journalist?

XIII. In your opinion, what role does social media play in the spread of misinformation? How can journalists effectively navigate social media platforms to combat misinformation?

XIV. Have you encountered situations where social media platforms have helped in debunking or correcting misinformation? Could you share any specific examples or experiences?

XV. How do you perceive the role of advanced technologies (e.g., AI, machine learning, data analytics) in combating disinformation? Do you believe they have the potential to be effective tools in this context? Why or why not?

XVI. Have you personally used any advanced technologies or tools to combat misinformation in your work? If so, how have they supported your efforts, and what challenges or limitations have you encountered?

XVII. What are your thoughts on the ethical considerations and potential risks associated with relying on advanced technologies to combat misinformation? How can these challenges be addressed?

XVIII. Are there any specific advanced technologies or innovative approaches you would recommend for enhancing the ability of journalists and media houses to tackle misinformation effectively?