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Decoding False Information in the Digital Age: Conceptual Frameworks, Classification, Contemporary Challenges and Sustainability

Jasleen Kour[1], Pankaj Garg[2]

[1]Research Scholar, Chitkara School of Mass Communication, Chitkara University, Punjab, India
[2]Chitkara School of Mass Communication, Chitkara University, Punjab, India

Abstract

The rapid evolution of technologies related to digital communication has transformed the process of producing, distributing and consuming information and information products. The availability of knowledge and public involvement, on digital platforms, has been made possible, but appears to have also facilitated the dissemination of inaccurate, misleading and deliberately false information. The flood of dis-information and the significant challenges it poses for the media have increased in tremendous volume. For science communication. For public policy. For social trust. The term “fake news” could seem quite familiar, but it turns out that false information is far more an issue: it encompasses besides false information the presence of misinformation, disinformation, malinformation, alteration, deepfakes, and artificial intelligence (AI)-generated synthetic media. This paper discusses the philosophical foundations, the methodology of classification and some of the problems arising with misinformation in today's digital world. For sustainable development it is important to address misinformation as it can impact education, governance, and public trust. The study classifies misinformation into the following typologies, following theoretical frameworks and in particular the information disorder model, namely relating to the intent, reliability, use and production methods and the impact on the society. It also highlights novel types of digital deception, such as the deepfakes, algorithmically-made material, and the misinformation created from artificial intelligence. The study reveals that false information is not only a technical issue, but a complex socio-technical phenomenon, and considers it to be driven by human cognition, digital platforms and governance frameworks. Categorizing is useful for designing effective means of detection, for digital competence and for the design of responsible information systems.

Keywords: Fake news, false information, misinformation, disinformation, malinformation, deepfakes, artificial intelligence, synthetic media, online literacy

1. Introduction

Digital technologies, social media networks and artificial intelligence (AI) have transformed today's information landscape (Hirvonen et al., 2024). In a traditional communication system, it was limited to traditional bodies like newspapers, broadcast corporation and the creation of information was limited. However, a digital world has provided a space for people, organisations, automated systems and the use of artificial intelligence to develop and share information around the planet within seconds (Benzie and Montasari, 2022). It has shown the availability of information to be more interesting and accessible but

has also created new questions on the trustworthiness of information, its reliability and its validity (Grimeset al., 2023).

Misinformation is in no way an ancient problem for a society. Throughout history people in communities have been subjected to mis-information, misinterpretation of the facts, and rumour. The digital age however has exacerbated the level, pace and scope of information distortion. Unlike the traditional publishing system, social networking services allow for immediate publishing without going through the traditional gatekeepers (Oluoch, 2023). This implies that erroneous or false information are delivered before corrective information reaches millions. Misinformation tends to be novelty, emotional or sensational compared to allotment information (Vosoughi et al., 2018) and spreads faster and farther.

Since the mid-2010s the concept 'fake news' has been applied to everyday conversations about political discourse and online manipulation (Cover et al., 2022). But experts say the word is incorrect, muddling over a variety of contentious materials, sources and purposes. But satire, honest mistakes or correct facts presented in a deceptive fashion is not the same as news stories purposefully crafted to deceive. The academic community is using the term, "information disorder," to refer to the “messy landscape of inaccurate and misleading information.”

An important step towards proposing a framework to distinguish between types of information disorder was taken by Wardle and Derakhshan (2017) who classified information disorderness into three components based on its specific nature: misinformation, disinformation or malinformation. Misinformation: False information, not designed to deceive. The deliberate creation and spreading of misleading information for the purpose of deceiving or misleading. Wrongful information is the misuse of certain factual information, such as compromising a person's privacy, or falsifying context. The 'study of disinformation' is not only about the truth or falsity of what is produced, but just as often or even more, as to why it is produced and the effects of its use.

The information world is so complex that is has created challenge to AI. The work of modern generation of AI systems can generate convincing textual content as well as visual content, audio and videos, which are difficult to distinguish from actual human productions (Warankar and Patil, 2024). Deepfakes are created using machine learning capabilities that create synthetic audio-visual images of people saying or doing things that they did not say or do (Chesney & Citron, 2019). Large language models may generate new type of deception. Examples of examples of this lying with the assistance of AI may include providing misleading and reasonable-sounding facts, fabricating sources, and providing weak arguments.

In this paper we will aim to offer a basic insight in the issue of disinformation, starting with the philosophical basis of disinformation, the various ways of classification as well as current challenges. This paper explores the concept of deception in accordance with the concepts of misinformation, disinformation, malinformation, fake news, manipulated material, deepfakes and misinformation generated by AI. It also tackles the technological, psychological and governance issues related to the management of misinformation in digital spaces that are getting more complex.

From the sustainable development point of view, information integrity is one of the important pillars for resilient society. Misinformation, misinformation and AI-generated synthetic media pose threats to social trust, effective governance and informed decision-making that are key to the Environment, Social and Governance (ESG) framework. From the sustainable development point of view, information integrity is one of the important pillars for resilient society. Misinformation, disinformation and AI-generated synthetic media pose threats to social trust, effective governance and informed decision-making that are

key to the Environment, Social and Governance (ESG) framework. Information disorder is thus not merely a technical problem but a sustainability imperative contributing to SDG 4 (Quality Education), SDG 16 (Peace, Justice and Strong Institutions) and SDG 9 (Industry, Innovation and Infrastructure). Information disorder is thus not merely a technical problem but a sustainability imperative contributing to SDG 4 (Quality Education), SDG 16 (Peace, Justice and Strong Institutions) and SDG 9 (Industry, Innovation and Infrastructure). (Abbas et al., 2026)

2. False Information Classification and Theoretical Framework

2.1 Understanding information disorder

In the digital information nowadays, it's more difficult to distinguish accurate information for inaccurate information. With an explosion of social media platforms, communication networks and artificial intelligence technologies comes a complex information ecosystem where inaccuracies can be accidentally created, or purposefully - deceptive, decontextualised, or automated technologies can produce (Knott et al., 2024). The exacerbated influence of misinformation today has brought to the surface the need to consider the dynamics of misinformation not only from a factual perspective but also in terms of the purpose of content producers, the way of dissemination, and its social effect. In a broad sense, the concept of problematic information—information disorder—(Wardle & Derakhshan, 2017) can be considered as information that is dangerous, misinformation, disinformation and malinformation. This paradigm is an basis on which to analyze problems found in today's information era as it recognizes that misleading information is not a homogeneous concept, but depends on the relationship between truth, intention and harm. Misinformation is when unintentional: One falsely conveys misleading information; Disinformation is when intentional: One tries to manipulate the audience with fake information; Malinformation is when malicious: One uses true information to manipulate the audience. Overall, these categories provide a glimps into the need for a more sophisticated analysis of the information environment at this time than the zero-sum, “fake news” binary.

2.2 Misinformation, Disinformation, and Malinformation

Misinformation is false information that is being transmitted unintentionally and for no bad purpose. Often due to ignorance, incomprehension, old knowledge and a lack of examining the sources before receiving or sharing knowledge. There's no one who would purposely spread misinformation with the intent of causing harm, but it can still cause a lot of harm because digital platforms are where it can go quickly to a lot of people. There is also a more intentional type of information disorder, known as "disinformation. Deliberately produces false information, which is then disseminated to shape perceptions of facts or to manipulate opinions or to meet strategic objectives. It might include fake news, recalling fake images, creating fake personas and orchestrating the spread of false information. Malinformation is different. This is genuine information that is deliberately utilised to injure people. The material may be correct, but if its transmission is inappropriate or it is presented without permission or to the wrong audience then it can be harmful. The difference between misinformation, disinformation, and malinformation with regards to evaluating information means that when evaluating information, you must find out what both the facts and intent of the information were. (Yesmin, 2024)

Table 1. Classification of False Information

Category	Intention	Accuracy	Example
Misinformation	No intention to deceive	False/inaccurate	Sharing incorrect health advice

Disinformation	Intentional deception	False	Fabricated news story
Malinformation	Intentional harm	Usually true	Private information leak
Fabricated Content	Deception	Completely false	Invented event
Manipulated Content	Deception	Altered information	Edited image/video
Imposter Content	Deception	False identity	Fake institutional account
Satire	Entertainment/criticism	Fictional	Political parody
Clickbait	Engagement seeking	Misleading	Exaggerated headline
Deepfake	Often deceptive	Artificially generated	Fake video
AI Hallucination	System error	Incorrect output	False AI-generated citation

2.3 Contemporary Forms of False Information

With the advances of digital communication technology, false information has existed in the form of traditional/narrative fabricated stories as well as additional forms of manipulation and miscommunication. A big concept that's been in discussion is fake news. Literary theorists claim it contains many things from misinformation and fake news to satire and parody, propaganda and misleading marketing—and manufactured content. Satire and parody present a special mix of difficult concepts because they are designed to make use of false information, but not for the purpose of deception, but of telling a joke and/or some kind of criticism. However, this kind of content can contribute to deception when taken out of context as it is often interpreted as reality. Clickbait is another form of dodgy content that's drawn in users through sensational headlines, emotional elements and/or insufficient information to encourage interaction. Clickbait isn't always necessarily incorrect. However, it can impact the public's 'readers' perception of the message, which is often through amplifying the sensational whilst eliding the context. The forms are inaccurate, with a variety of intentionally deceptive or mistaken information. (Ahmed et al., 2022; Picarella, 2024)

2.4 Deepfakes and AI-Generated Synthetic Information

Their common use has given rise to a new class of bogus information, or synthetic media technologies, in recent times due to advances in Artificial Intelligence. Deepfakes are AudioVisual (AV) material created and/or manipulated using Artificial Intelligence (AI) which depict persons, events or utterances accordingly as if they were real. Unlike previous forms of digital manipulation, deepfake technology has the ability to produce very realistic images, audio and films which can get past the normal verification mechanisms. The manipulation of the face and voice, AI-generated images and synthetic video offer additional avenues for deception in several fields, such as political communication, privacy and cybersecurity, not to mention public confidence. Deepfakes are indeed a major concern due to their undermining of trust in digital evidence, reputation attacks and social manipulation, argue Chesney and Citron (2019). In a second trend, generative AI systems have unleashed a new type of disinformation, known as AI hallucination, which generates convincing but factually inaccurate data, like fake citations, incorrect explanations or claims that aren't evidence-based. What we're seeing here are that these new information problems will affect not just the rise of misinformation, but will also feature machine errors which will require new ways to differentiate and manage them. (Ghiurău, and Popescu, 2024 ; Lao et al.,2025)

3. Classification Framework of False Information

3.1 Evolution of False Information Research

Early research studies on false information were based on the analysis of rumours, propaganda and media manipulation and resulted in a broader perception of traditional media influencing the formation of public opinion. Social media emerged, however, and a whole new world of misinformation arose. Although fake news has existed over the years, its prevalence in digital political communication has risen in recent times, as Allcott and Gentzkow (2017) pointed out. In this perspective, Wardle and Derakhshan (2017) have produced the information disorder framework, which suggests the option-accuracy framework for categorising false information, instead of lumping it all together. Tandoc et al. (2018) has made another effort in conceptual clarity by examining the various definitions of "fake news" in academia and demonstrated that 'Fake News' can take the following forms: fabrication, manipulation, satire and propaganda. The findings identified that the problem in communication is not just the incorrect facts, but rather the wrong information is a multidimensional communication problem.

3.2 Social Media, Information Diffusion, and Misinformation Spread

Past research on disinformation has primarily tackled the advent of social media platforms and how information is developed and disseminated online, which has been undergoing significant transformation. Much of the existing disinformation research is related to the rise of social media platforms and how information is produced and disseminated on digital platforms, which is experiencing an unprecedented shift in logic. The social media systems are different to the traditional media systems because people are able to make a contribution to the creation and dissemination of information in an active way. Against the conventional process of editors sifting and deciding which pieces make the cut from an array of submissions. Vosoughi et al (2018) did have an investigation in the spread of fake and genuine information on twitter. They noticed that the information and the ideas are transmitted faster and more widely than the true information and emotional transposition of the same information occur. This is a sociotechnical challenge, and it requires participation from experts in several fields, including communication studies, computer science, psychology, and policy studies to address fake news (Lazer et al., 2018). Ironically, algorithms designed to have consumers interact with content can spread sensational or fake content, a recent study shows. So, the study of false information has gradually shifted from studying individual misinformation bits to studying the entire information ecosystem—including users, platforms and algorithms that feed automated recommendations to them.

3.3 Psychological and Behavioural Dimensions of False Information

But recent studies emphasize the leading part of the human cognitive process in the process of information evaluation and dissemination, which is more than just technology variations. Familiarity effects, emotional reasoning, selective exposure and confirmation bias are each psychological processes that impact the accuracy of individuals' willingness to accept and distribute misinformation. Caution is needed to recognize the importance of analytic reasoning skills—lower levels of which could make one more susceptible to disinformation, as stated by Pennycook and Rand (2019). Moreover, emotional information (particularly fear, rage or social identity information) is likely to be more engaged and circulated. It would be beneficial to develop technology strategies for detecting misleading information, as well as online literacy and responsible sharing of information strategies.

4. Contemporary Challenges in Addressing False Information

4.1 Technological Advancement and Synthetic Media

Safeguarding information is really difficult, given the swift advancement of A.I. and digital hacking technology. Traditionally, disinformation has been in the form of distorted images or text. With the technology as they go, fake news look as if they're real. This incorporates deepfake recordings, voice duplication or AI made photographs. Spread misinformation can seem like a real piece of news, very quickly. This makes it difficult to find what is true and what is fabricated or fake news. The most recent threat to authenticity of audiovisual evidence -- owed to a great extent since it has been regarded as trustworthy evidence -- is deepfake technology. AI tools are getting better and are likely to become more accurate, automated and less detectable in the future – particularly those that spread misinformation. (Kalpokas et al., 2024; Cardenuto et al., 2023)

4.2 Algorithmic Amplification and the Challenges of Digital Platforms

Information dissemination to populace is done through Digital media. Algorithmic amplification is one of the downfalls of the battle against disinformation. There are lots of sites online that use engagement figures such as views, reactions, comments and sharing to grade content. Emotionally arousing and disputed content is more engaging and, therefore, could be more prominent than the accurate and less sensational content. It thus provides a relation whereby deceptions are not only produced by actors, but mediated via technology systems impacting the content distribution. This requires greater transparency in recommending algorithms, more robust content moderation approaches and improved platform governance practices alongside a more effective discourse in debating and dealing with misinformation without compromising free speech (Sooth, 2025).

4.3 Challenges of Detection, Verification and Governance

But it's still challenging to discover fake news because the false information is always shifting with new technology and techniques of confirming facts evolving. More effective for unlikely patterns; AI powered automated detection methods are generally lacking of contextual awareness and cultural variations, and not always suited to the rapidly changing patterns of manipulation (Thandayutham et al., 2025). By humans (people) there is still a need to check the facts of speed and volume of digital information, but the same issues that slow it down need to be addressed. Ethical issues like accountability and freedom of speech, and regulation should be taken into account by governance models. The challenge has to be met in the right way – and that means tech companies, scholars, policy-makers, educators and users all playing their part to come up with fair solutions to the problem that make information more credible, but also allows for legitimate expression.

5. Future Directions and Research Agenda

5.1 Developing Integrated Approaches for Information Integrity

In the future, researchers should hunt for deceptive material in a number of ways. But they should seek and build up frameworks that cover technological, psychological, social and institutional problems or challenges. Technology solutions, such as artificial intelligence based detection methods, have improved at finding altered material; however, there is no signal of progress in addressing this problem of information disorder. A combination of automatic detection systems, expert review, open information systems and public awareness campaigns are better to plan for the future. Real and fake or manipulated content may be easier to identify as the technology for digital-authentication methods, content tracking and ethical Artificial Intelligence systems are designed. However, fairness, transparency and ease of

access must be taken into account to ensure these technologies are effective, otherwise the process of information validation will make them even less fair.

5.2 Strengthening Digital Literacy and Responsible Information Behaviour

Finally, readers and viewers will be the determining factors in deciding on the extent to which information is shared and accepted; online literacy plays a vital role in helping to manage the effects of harmful information online. Future education techniques should concentrate on the development of proficiency in critical thinking, source evaluation, awareness of media and knowledge about upcoming content creation by AI. Online literacy programs can go further beyond the simple task of locating faulty or deceptive information and educate citizens to grasp the ways information is generated, disseminated and resurfaced within the digital spaces. It is especially important that they develop ethical habits to share information, as many types of misinformation are spread by normal people who, by their very nature, share erroneous information. Consequently, there is a pressing need to build up public awareness and analytical ability as an important element of a long term strengthening of the quality of information.

6. Conclusion

With the rapidly evolving landscape of information generation, sharing and manipulation, misinformation has become a significant problem in today's digital world. The term “fake news” has become commonplace across the internet, but research into the phenomenon shows that it is not a singular form of news but rather a wider range of related phenomena, such as misinformation, disinformation, malinformation, manipulated content, deepfakes and AI misinformation. A changing technology has turned the equation behind information disorder from rumours to false information and fake news propagated via algorithms. This is a representation of the trend of information disorder. Artificial Intelligence, Communication, Psychology, Cyber security are among other professions that need to cooperate to address this challenge. Another attribute of the tests should be that they will be able to discover technology in the future. The decades ahead will demand guidelines on how technology should be used, on how to operate platforms, on the openness of the standard AI systems, and on educating the public. Generative AI (gAI) systems are increasingly popular, requiring further research, adaptable approaches, and on-going cooperation with researchers, tech developers, policymakers, and the public to ensure the secure use and retention of information. The ability to keep the trust in the people, have better judgements and keep digital communication systems functioning optimally, it’s critical to grasp the intricacies of how false information can be a complex social and technological issue.

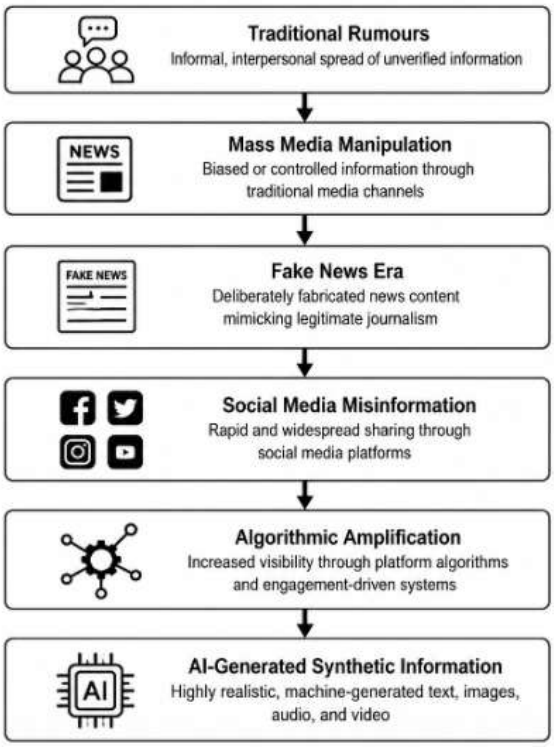


Figure 1. Proposed Conceptual Framework

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