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Theorizing Mediated Information Distortion

The COVID-19 Infodemic and Beyond

BRIAN H. SPITZBERG



“Spitzberg’s exemplary volume explores and explains the most complex puzzles about misinformation, disinformation, conspiracy theories and fake news. It shows, in compelling science and engaging reading, how communication is epidemic, and how false information is its pathogen. Its multidimensional model of meme diffusion offers formal theoretical thinking too seldom seen in social science that will generate new research and ensure its intellectual longevity.”

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THEORIZING MEDIATED INFORMATION DISTORTION

This book explores the phenomenon of distortion of information through media via the lens of the COVID-19 pandemic, and the ways in which relevant information distortion and virality have occurred in regard to the disease and its risks.

Positing that the interrelated processes of misinformation, disinformation, fake news and conspiracy theories are related forms of distortion of information through media (DIM) and can only be understood through a multilevel theoretical model that incorporates message-based, individual difference, social network-based, societal and geotechnical factors, Brian H. Spitzberg develops an integrative, well-argued, and well-evidenced framework within which these issues can and should be addressed.

This book offers a model for further research across such disciplines as communication, journalism/media studies, political science, sociology, cognitive psychology, social psychology, evolutionary psychology, public health, big data analytics, social network analytics, computational linguistics and geographic information sciences, and will interest researchers and students in those areas.

Brian H. Spitzberg, Senate Distinguished Professor Emeritus in the School of Communication at San Diego State University, is author or coauthor of over 175 scholarly publications on communication competence, media and the dark side of communication, including meme and misinformation diffusion, assessment, interpersonal communication competence, jealousy, conflict, threats, coercion, violence and stalking.

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THEORIZING MEDIATED INFORMATION DISTORTION

The COVID-19 Infodemic and Beyond

Brian H. Spitzberg

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Brian H. Spitzberg, Ph.D.
22 February 2022

PREFACE

This particular monograph grew out of a period of introspection and anxiety evoked by a realization that my home discipline of communication could and should be at the forefront of one of the most important issues facing the public sphere. As the country moved from a presidential pulpit of prevarication to a pandemic rife with politically motivated disinformation, the intersection of mediated information distortion with public health seemed like the highest priority for a discipline devoted to studying communication. The highest level of consensus (88–100%) from a Delphi procedure convened across 386 experts and 112 countries and territories concluded “that communication issues remain a key area of risk and opportunity for ending COVID-19 as a public health threat” (Lazarus et al., 2022, p. 334). Widespread doubt in the legitimacy of our democratic electoral process, the validity of anthropocentric climate change and well-established scientific public health practices during a pandemic seem to suggest mass delusion and regression to a 19th-century state of knowledge.

Within the five-year span from 2016 to 2021, the *Oxford English Dictionary* word-of-the-year selections included: “post-truth” (2016), “climate emergency” (2019) and “vax” (2021), and the *Collins English Dictionary* word for 2022 is “permacrisis.” That post-truth preceded the others does not suggest causation, but it certainly seems a harbinger of why global problems seem increasingly intractable. Neither mass delusion nor evolutionary regression seemed plausible to account for how so many people could be so wrong or confused in their beliefs about such important issues. Correct beliefs about these issues have direct life and death implications, so incorrect beliefs carry serious potential consequences, often for the innocent who inherit the political corruption, corroded ecosystems and continued shift from epidemic to

endemic disease risks. It seemed obvious that a large part of the problem had to lie with misuse and manipulation of the communication process, my own home discipline. Yet, no one discipline is well-equipped to comprehend, much less optimally manage, such an unwieldy set of information pathologies. This monograph seeks to demonstrate that many disciplines can, and must, contribute to the science of mediated information distortion in the public and political agora (e.g., Lazarus et al., 2022).

This manuscript reflects one of my faults as an academic author—a predilection for citing everything I can find at a given time that qualifies as legitimate evidence for establishing elements of the argument scaffolding. As one of my mentors in graduate school, Dr. Walter R. Fisher once warned, “You can’t know what *needs* to be done until you know what *has* been done.” I have endeavored to represent as much of the scholarly thought and research as I was able to incorporate. Hardly a week went by in the past year in which some newsworthy event or discovery of an insightful study did not prompt revisions and inclusions in this manuscript. Of course, it is a fool’s errand to attempt a truly comprehensive review, which is why Dr. Fisher also opined that “[o]f course, at some point, you have to just sit down and write” if you ever expect to contribute to the scholarly conversation.

The pieces of the puzzle I was able to put into my argument can be fit to form many potential pictures, and the one presented is but one of these. As such, as with all social scientific theory, this treatise needs to be treated as part of an ongoing conversation rather than an engraving or monument. As we have been realizing, monuments often become anachronistic, and I expect the same of this set of conjectures. Nevertheless, in this case, the excess of citation seemed particularly essential. It is a book about how messages lead people away from legitimate facts and judgment. In an ideal rhetorical world, if messages and messengers are to persuade, it seems incumbent upon them to demonstrate the evidence upon which their claims and credibility depend. In this, I was always strongly influenced in my former love of high school and intercollegiate debate—every argument makes a claim, every claim needs a warrant or rationale, and both of these are bolstered by credible relevant evidence when available. It turns out that there is a lot of evidence to account for, and I have attempted to represent it fairly and extensively. Still, there are clearly places where I am aware of research reaching conclusions contrary to those I reach. It is in the nature of science and theory construction that arguments are subject to counterargument and counterevidence. Since it is reasonable to anticipate that in an increasingly mediated society, “the field of mis- and disinformation studies is here to stay” (Camargo & Simon, 2022, p. 1), this treatise is an attempt to contribute to that disciplinary dialogue within the context of what we now know in the context we now face.

A parallel project that emerged during the development of this book was a typology of typologies of disinformation, misinformation, fake news and

pseudoscience. This typology does not appear in this book, but is available on my ResearchGate site (Spitzberg, 2023). Along with the reference lists, these resources are intended to reveal the complex topography of distorted information in mediated contexts. No single discipline, theory, study or intervention approach is likely to produce significant advances in moving the misinformed, disinformed and conspiratorially inclined into a more validly evidenced and less politicized world of belief and practice, so it is vital that a broad-based integrative approach be embraced. In this process, I was influenced by the meta-theoretical sociologist Jonathan Turner, who advised that the role of meta-theory is to make better theory. To do this, he recommended extracting useful theoretical propositions from other theoretical traditions and resynthesizing them into new and better theories.

In discerning what qualifies as better theory, I was strongly influenced by years of teaching Karl Popper's (1980) demarcation criterion for distinguishing pseudoscience from science. He believed that science makes risky falsifiable claims or predictions, whereas pseudoscience makes unfalsifiable claims. Despite extensive criticism of this criterion, it still often stops a conspiracy theorist in their conversational tracks: What piece of evidence, if it were presented to them, would lead them to change their minds? If there is no conceivable type of evidence that could achieve this, then they are engaged in pseudoscience, ideology, faith or propaganda, but not science. Unfortunately, as Dawkins (1989) cautions: whereas "nothing is more lethal for certain kinds of meme than a tendency to look for evidence" it seems that "the meme for blind faith secures its own perpetuation by the simple unconscious expedient of discouraging rational inquiry" (Dawkins, 1989, p. 198). My own propositions were formulated to approach falsifiability, although I realize that some are still far more general than they will eventually need to be. The fields of misinformation, disinformation, pseudoscience, conspiracy theory and fake news are still surprisingly atheoretical at this moment of history. My hope is that endeavors such as this will spur others toward more formal theorizing of these phenomena.

By way of admission, I am neither a techie nor a social media maven. I seldom actually use social media, even though I have spent much of the last decade studying them and studying studies of them. We may not need to directly encounter snakes or spiders to be cautious of them (Hoehl et al., 2017) and insiders often may be blind to their own biases. Nevertheless, I hope I have not strayed too far beyond the boundaries of my own technological experience and expertise.

Finally, despite the detailed attempt provided herein to explain how and why distorted information diffuses as it does in mediated ecosystems, I still feel unsatisfied in answering the most fundamental question—why do people believe things that are so unverifiable, unfalsifiable, unbelievable and often wildly bizarre? The inverse of this question presents its own quandary: Any

universal characteristic of humans or communication that is used to account for such beliefs will also have to account for why so many people *don't* believe. It seems intuitively contrary to basic evolutionary principles to believe the unbelievable, to hold fervently to the invisible, the improbable and the impossible. The idea that within a year scientists secretly invented a microchip that could be injected with a vaccine that would be activated by 5G towers and somehow control people's minds toward some mysterious secret government and industry cabal (perhaps to expand their cannibalistic and sexually deviant intentions to engage in child sex exploitation) strains any reasonable credulity. In contrast, perhaps more insidious is the rhetorical damage done by simple tropes claiming for every election that "If I win, democracy worked; but if I lose, the election was rigged, so I must have won regardless. Trust democracy if I win, and distrust democracy if I do not." If it is to survive, democratic society must develop resilience to the corrosive effects of misinformation, disinformation, pseudoscience, conspiracy theory and fake news. Autocracies generally thrive on controlling access to free and valid information and in exploiting disinformation, whereas democracies die by ignoring this fact.

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“False knowledge is itself the evil; How can it release us from another evil?
Darkness does not expel darkness.”

Anonymous, *The Bhagavad- gîtâ*, 1901, Dis. IV, p. 118

“Beware of false knowledge; it is more dangerous than ignorance.”

George Bernard Shaw, *Man and Superman*, 1903

“Ignorance more frequently begets confidence than does knowledge.”

Charles Darwin, *The Descent of Man*, 1871

1

VIRUS = LANGUAGE/ LANGUAGE = VIRUS

It's 2022. Your personal information will be hacked. Algorithms fed with biased data will make destructive decisions that affect how billions of people live, work, and love. Online mobs will create chaos, inciting violence and sparking runs on stocks. Tens of millions of people will be dragged down the rabbit holes of conspiracy theories. The one thing that all of these realities have in common is that they emanate from digital space, where a handful of big tech companies, not governments, are the main actors and enforcers.

(Eurasia Group: Bremmer & Kupchan, 2022, p. 5)

This dire warning by an organization focused on global risk analysis is both ominous, and at the same time a bit anachronistic in not even mentioning the pandemic that was still killing thousands of people a day as the Eurasia Group penned its assessment. In so many ways, however, the pandemic was integrally and inseparably entwined with the various infodemics in which the health crisis has been, and will continue to be, communicated (Zielinski, 2021). As people on their COVID-19 deathbeds continued to hold onto their conspiracy theories, beliefs in ineffective alternative medications and politicization of health policy, it became clear early on in the pandemic that more than one genetic form of virus was at work. As the COVID-19 virus mutated into new contagious versions, the viral messages of misinformation, disinformation, pseudoscience, conspiracy theory and fake news continued to infect and metastasize in the minds of millions of people.

In every serious disease outbreak, accurate, consistent, clear, timely and practical communication is essential to pursue public health. History shows, however, that most disease outbreaks coincide with outbreaks of distorted

information diffusion. Any attempt to prepare for the next pandemic, and indeed, any significant effort to avoid the prognostications identified by the risk analysis group cited earlier, will require an understanding of how misinformation, disinformation, pseudoscience, conspiracy theories and fake news function to derail public consensus and agency in managing such risks. “There is” in short, “an urgent social need to better understand how false claims and false realities both germinate and are sustained in and through the digital” (Davisson & Gibbons, 2022, p. 14). This monograph seeks to provide a theoretical assemblage for understanding such information distortion processes.

This analysis will proceed as follows. First, it will identify and define the key concepts and culprits involved: misinformation, disinformation, pseudoscience, conspiracy theories and fake news. These will be collectively conceptualized under the rubric of distortion of information in media (DIM), an intentionally playful neologism to suggest both the core features and consequences of such distortions—a dimming of the light of insight and intelligence. Second, it will examine the risks such processes pose and the toll they have exacted in the COVID-19 pandemic. Third, a particular theoretical framework, the multidimensional model of meme diffusion (M³D), will be introduced as a way of organizing the various factors involved in the mediated diffusion of information distortion. Each level of the model will be used as a window into the evidence regarding how and why DIM develops and diffuses as it does. These M³D processes are theoretically generalizable to other contexts (e.g., political or electoral DIM) but are illustrated throughout primarily through the lens of the COVID-19 pandemic. Through this applied case study, therefore, a better understanding of DIM in general, and a better understanding of disease outbreaks and pandemics in particular, is pursued. Finally, some conjectures are made regarding how our society, individuals and institutions move forward in managing DIM.

Distortion of Information in Media

The etymological root of both misinformation and disinformation is *information*, which owes its origins to 5th-century Latin referring to teaching or instruction, later adapted in French and English in reference to “the shaping of the mind or character; communication of instructive knowledge; education, training” (Oxford English Dictionary online, hereafter OED). Information as a concept is applied in several ways in scholarly literatures, although most conceptualizations envision it as some variation in signals in the world that is attributed meaning by someone (Kajtazi & Haftor, 2011). The most relevant feature here is information as something transmittable and meaningful, where meaning is operationalized as uncertainty- or entropy-reducing. That is, “abstractly, information can be thought of as the resolution

of uncertainty” (Jaoude, 2017, p. 380). This approach owes considerable debt to Shannon and Weaver’s (1949) mathematical model of communication (Rodríguez et al., 2020). At the most general level, they defined communication as “to include all of the procedures by which one mind may affect another” (Shannon & Weaver, 1964, p. 3), the fundamental problem of which is “reproducing at one point either exactly or approximately a message selected at another point” whether or not that message has a particular referential meaning (Shannon, 1948, p. 379). More specifically, their theory is about the accuracy and capacity for information transfer between a sender and a receiver. Technically, Shannon and Weaver’s approach is only indirectly related to meaning. They recognize that messages “frequently . . . have *meaning*; that is they refer to or are correlated according to some system with certain physical or conceptual entities” (Shannon, 1948, p. 379, italics in original). Yet, they also insist that “semantic aspects of communication are irrelevant to the engineering problem” with which they were concerned (p. 379).

Information in this approach is generally coded into binary digits, or bits. For example, using an online translation tool (Text to Binary Converter: rapidtables.com), in binary code, the sentence “This sentence is in binary code” becomes:

```
01010100 01101000 01101001 01110011 00100000 01110011
01100101 01101110 01110100 01100101 01101110 01100011
01100101 00100000 01101001 01110011 00100000 01101001
01101110 00100000 01100010 01101001 01101110 01100001
01110010 01111001 00100000 01100011 01101111 01100100
01100101 00101110
```

Semantically, the self-referential meaning of the sentence in the English alphabet makes the sentence false since the sentence as written in English grammar itself is *not* in fact typeset in binary code. Pragmatically, however, the word “This” is understood to mean the sentence is in reference to something else outside of the set of symbols contained within the sentence; in “this” case, the referent is the subsequent binary code (Hofstadter, 1979). These bits, or binary digits of 1s and 0s, are the translators of information and meaning in all digital media. Clearly, information in this form must be accurate according to the rules of its language, yet can be transmitted regardless of its truth value.

“A *meme* is an act or meaning structure that is capable of replication, which means imitation,” and imitation in turn is “a process of communication, in which one social organism, group, or system engages in activity that represents an informational duplicate or derivative version of another act or meaning” (Spitzberg, 2014, p. 312). Memes use communication to make copies of themselves (Dawkins, 2016). From such a perspective, “memes are

understood as units of information transmitted primarily via social learning processes . . . [as] ideas or units of knowledge . . . that can diffuse through or on social networks of agents” (Schlaile et al., 2018, p. 7). “These entities interact with the environment and each other, face scarce resources, struggle to survive, and may pass on their information through replicative imitation by humans” (Schlaile, 2021, p. 45). *Social media* are among the most common mechanisms for such diffusion, which can be defined as “internet-based channels that allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others” (Carr & Hayes, 2015, p. 50).

The term “meme” has been coopted in common vernacular to refer to reproducible cute, funny, sarcastic, argumentative or ostensibly trivial messages grafted in repurposed ways to textual images or sounds, and indeed, such memes are popular and a significant feature of contemporary culture (e.g., Shifman, 2012, 2014). As Dawkins (1989) quipped, “the word meme seems to be turning out to be a good meme” (p. 322). Memes in this colloquial sense have identifiable content (e.g., ideas & ideologies), form (e.g., visual, audio, and textual), stance (e.g., position or frame intended by the creator or sender) (Shifman, 2013), intertextual admixtures (e.g., juxtaposition of image with text), some cultural relevance to a given group or community, and the potential for imitation and virality (Molina, 2020). Even in this usage as “ostensibly . . . trivial pieces of pop culture,” they surprisingly often reveal “that they play an integral part in some of the defining events of the twenty-first century” (Shifman, 2014, p. 6), and increasingly seem to suggest that “we live in an era driven by a *hypermemonic* logic, in which almost every major public event sprouts a stream of memes” (p. 4). The concept of memes, however, needs to be understood in a much richer theoretical way.

Instead, as originally conceptualized (Dawkins, 1976), *memes* refer to any form of repeatable transferable cultural information between individuals (Shifman, 2013, 2014). Dawkins (1989) admits the more contemporary usage as including tunes, and catch phrases, but he also includes ideas, architectural and ceramic crafts, and clothing fashions. The primary feature of memetic processes is imitation, which is even indicated in the process of citing others’ ideas: “If a scientist hears, or reads about, a good idea, he passes it on to his colleagues and students. He mentions it in his articles and his lectures” (Dawkins, 1989, p. 192).

Mememes, like genes, require three properties: variation, selection and retention. Variation provides the potential for difference and novelty in information choices, selection provides the opportunity for competitive pressures to optimize adaptive fitness of the information choices made, and retention provides the basis for memory and information replication being sustained for future generations of replication (Spitzberg, 2021b). Dawkins (1989)

specifies three “qualities that make for high survival value among memes . . . longevity, fecundity, and copying-fidelity” (p. 194), which index the quality of selection and retention. Thus, memes are variable replicable acts or sets of acts that have meaning (i.e., entropic influence), vary in ways that promote selection, and have the potential for preservation and duplication.

While the concept of memes has undergone extensive debate, criticism, revision and clarification (Burman, 2012; Castaño Díaz, 2013), Dawkins (2016) is explicit that

a meme should be regarded as a unit of information residing in a brain . . . It has a definite structure, realized in whatever physical medium the brain uses for storing information. . . . The phenotypic effects of a meme may be in the form of words, music, visual images, styles of clothes, facial or hand gestures, skills, . . . They are the outward and visible (audible, etc.) manifestations of the memes within the brain.

(pp. 165–166)

In this perspective, people (i.e., organisms) and presumably media are vehicles for memes (i.e., messages as forms of information capable of replication), which themselves represent replicable bits of information. Some of these vehicles will be more fit or adaptive than others at successfully replicating memes (e.g., influencers), which, in turn, may form coalitions (e.g., echo chambers) that further facilitate replication and thus survival. Thus, memetic fitness, representing success in propagating memes (Dawkins, 2016), occurs at the meme (i.e., gene), individual (i.e., organism) and group (e.g., echo chamber, institution, social movement, and nation) levels. Dawkins argues that memes operate in a manner similar to Darwinian selection that ultimately provides them “almost limitless power for slightly inaccurate self-replicating entities, once they arise anywhere in the universe” (p. 322). In this self-replicating process, “given enough generations,” memes are capable of cumulatively developing “systems of great complexity” by banding “together to create systems or machines, that carry them around and work to favour their continued replication” (p. 322). “If memes in brains are analogous to genes they must be self-replicating brain structures, actual patterns of neuronal wiring-up that reconstitute themselves in one brain after another” (Dawkins, 1989, p. 323).

To qualify as information, a message must in turn imply some degree of uncertainty reduction. One of the more overlooked aspects of such a cybernetic perspective is that false information is often highly informative in a subjective or a strategic sense. In the subjective sense, it sometimes reduces a receiver’s self-perceived uncertainty (i.e., information entropy) because (1) it is unusual or unexpected by not conforming to existing understandings of what is true, or (2) it is believed and is therefore subjectively experienced as

uncertainty reduction, or (3) when realized as false, it informs the interpreter of the process by which some sources are engaging in deception or misinformation (Giglietto et al., 2019). At a simple perceptual level, “many fake news attributions are appealing because they offer an avenue for individuals to find sources of nonspecific structure in their environment” (Axt et al., 2021, p. 231). Otherwise, DIM is informative when it simply reinforces, strengthens, solidifies or entrenches existing beliefs by adding additional perceived confirmation to a preexisting belief, value, attitude or behavioral proclivity.

At the same time that distorted information often functions to reduce subjective uncertainty, to inform someone does not necessarily presume the facticity of the information provided (Fox, 1983). For example, Trump *informed* the public that “Many doctors think it is extremely successful, the hydroxychloroquine coupled with the zinc and perhaps the azithromycin. . . . I happen to think it works in the early stages. I think front-line medical people believe that too—some. Many.” (Forgey & Oprysko, 2020). Some of this information could be and was fact-checked for its veracity at the time, given the state of knowledge at the time. The fact that he qualifies “I think” implies the *prima facie* factuality of the communication, even if the proposition that “it works” turned out not to be factual. In contrast, to classify something as disinformation or misinformation implies a more definitive asymmetric evaluation of the facticity of the implicit or explicit proposition in the message(s). Such classifications require a high degree of confidence that counterfactual evidence is available to disqualify a relatively precise proposition implied by a message. Various language philosophers have pursued projects to explore the prospect of tethering truth claims to logical or pragmatic, if not empirical or referential, criteria of validity and legitimacy (e.g., Fox, 1983; Jorgensen, 2010; Kripke, 1975; Noonan, 2021; Ryan, 2004). Other philosophers have predicated the prospect of democratic decision-making on the presumption of communicator honesty and the ability of reasoned discourse to deliberate truth (Habermas, 2022; La-Font, 2018). For Habermas, for example, “information that does not distort communication is precisely what deliberative democratic theory is designed to cultivate” (Koopman, 2019, p. 1333). If information is not always truthfully informative, at least disinformative and misinformative information can, in theory, be determined to be false in some relatively consensual, substantive, deliberative and ultimately disqualifying way.

The noun (distortion) or verb (distort) modifier means to twist “awry or out of shape” or in their more figurative use, “the twisting or perversion of words so as to give to them a different sense; perversion of opinions, facts, history, so as to misapply them” (OED Online). Clear examples of such distortion were reflected in various efforts to frame, edit, soften, shape or compromise scientific information of the Centers for Disease Control and Prevention (CDC) during the pandemic in an effort to “weaken multiple

CDC guidance documents and to exploit and counteract CDC's public health authorities to achieve political goals;" or that "attempted to manipulate the content and block the publication of CDC's scientific reports and destroy evidence of such political interference" (Select Subcommittee on the Coronavirus Crisis Staff, 2022a, p. 1; see also: Chen & Miller, 2022). Distortion can arise from information selection and omission as well as provision and commission.

In contrast, a strategic sense in which uncertainty can be communicative is how many disinformation campaigns seek to divide, confuse and conquer. For example, an analysis of Russian disinformation indicated that it "does not necessarily seek to establish falsehoods but instead pollute discourse to lead populations to doubt the truth and objective facts" (Moy & Gradon, 2020, pp. 4–5). Much of the Russian Internet Research Association social media campaigns capitalize on an attention economy and particularly the amplification of conservative media to exploit political fractures in the U.S. (Zhang, Lukito et al., 2021). By sewing division and informational chaos, the strategic purpose of many disinformation campaigns and malign actors is to foster uncertainty in a group or society. As such, the architectural design of communication to augur uncertainty constitutes a meta-communicative information strategy, even though it may result in increases in systemic uncertainty and social entropy. This is a somewhat new and distinct version of strategic ambiguity in which ambiguity is sought less as a self-aggrandizing tactic of the rhetor (e.g., Nasr, 2022; Sillince et al., 2012) and more as a tactic to disable audience efficacy by inculcating a culture of escalating division (Kim et al., 2018) or indecision (Denis et al., 2011). In one study, a

consequence of overexposure to disinformation (36.2%) was feelings of confusion, where interviewees used expressions such as "not knowing what's true and what's false," "what we have to do and what not" and "I know we're being manipulated but it's hard to identify how."

(Bernal-Triviño, 2020, p. 178)

The effect of COVID-19 DIM is evident in research showing that exposure to COVID-19 misinformation is related to "a belief that the world is full of confusing and misleading sets of information" (Park et al., 2022, p. 2582).

"I Mean What I Say": Types of Information Distortion

In Lewis Carroll's (1946) *Alice in Wonderland*, Alice is confronted by the rather abrupt and confident March Hare and Mad Hatter:

"Then you should say what you mean," the March Hare went on.

“I do,” Alice hastily replied; “at least—at least I mean what I say—that’s the same thing, you know.”

“Not the same thing a bit!” said the Hatter. “Why, you might just as well say that ‘I see what I eat’ is the same thing as ‘I eat what I see’!”

“You might just as well say,” added the March Hare, “that ‘I like what I get’ is the same thing as ‘I get what I like’!”

(p. 78)

We do not always mean what we say or say what we mean, and we certainly do not always get what we like, and this underlying distinction between message and meaning underlies a broad spectrum of information distortion.

There are numerous types and typologies of information distortion (Alba Juez & Mackenzie, 2019; Celliers & Hattingh, 2020; Wijaya, 2022). The diversity is represented in a collection of approximately 70 typologies and taxonomies of DIM (Spitzberg, 2023). This broad collection suggests that deriving definitive or consensual conceptions of the landscape is beyond any single treatment of the concept. Many of the terms and concepts appear to be of relatively recent origin. For example, using Google’s nGram search engine of English word usage in printed texts, only “misinformation” shows a relatively deep history from among the key concepts of conspiracy theory, fake news, disinformation and misinformation (see Figure 1.1).

While the concepts and terms are varied, there is a fair amount of consensus in at least one basic distinction. In general, *misinformation* refers to messages that are in some substantive sense inaccurate or misleading that are sent without malicious or deceptive intent of the sender, whereas *disinformation* refers to messages that are sent with the intent to deceive receivers or distort the information in strategic ways (Armitage & Vaccari, 2021; Spitzberg, 2021a; cf., Fox, 1983). This is similar to the distinction between message error versus message deception, and most adults appear able to discern that there is a qualitative difference and that in general misinformation is more of a salient or prevalent problem in society than disinformation (Hameleers & de Vreese, 2021). It is also similar to the difference Habermas makes between inadvertently making claims that are nonconsensual and disputable versus deliberately making claims presumed by the maker to be alienating, disempowering or exploitative (Southwell et al., 2017; Stahl, 2006). Some scholars also distinguish *malinformation*, or the intentional use of accurate or true information with hostile intent, such as strategic dissemination of hacked information, revenge porn, some hate speech and information extortion (Ferreira, 2022; Wardle & Derakhshan, 2018).

The criterion of intentionality, however, is problematic (Lecheler & Egelhofer, 2021). “The majority of philosophers have identified the intent to mislead the listener as a necessary component of deception in spite of the truthfulness of a communication” (Li & Santos, 2020, pp. 378–379). Truth

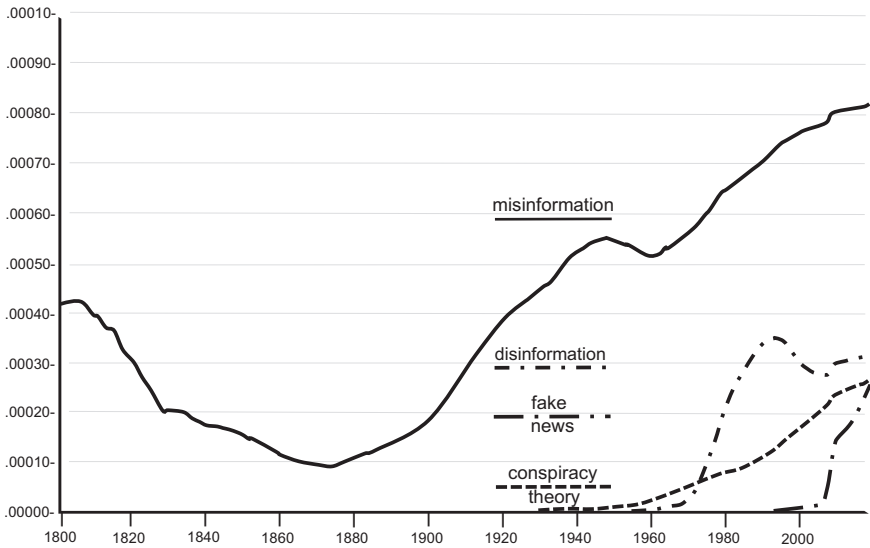


FIGURE 1.1 Google nGram Search of Word Usage for Conspiracy Theory, Fake News, Disinformation and Misinformation (1800–2019)

may not be required for the act of informing, but to misinform or disinform requires a criterion of falsity; of a proposition implied by a message of being a lie, incorrect, mistaken or in some sense demonstrably or known to be untrue (Fox, 1983). Terms like “fake” also implicate intentionality and a knowing falsity or deception (Tandoc, 2021). The privileging of the concept of intention in distinguishing human actions and responsibility is common in legal contexts where *mens rea* is often a feature that guides decisions of guilt and punishment (Frith, 2013), so it is not surprising that it has found use in classifying forms of information distortion. It is the intent to deceive that distinguishes disinformation from misinformation or error-based forms of information distortion, particularly given that their effects are often the same (Li & Santos, 2020). However, intentionality is a problematic criterion both in and out of the courtroom (Tandoc, 2021).

First, people are notoriously inaccurate at reporting on their own psychological states (Rebouillat et al., 2021; Nisbett & Wilson, 1977), emotions (Seager, 2002) and behaviors (Spitzberg, 1987), particularly in instances of information or cognitive overload (White, 1988) or implied culpability in wrongdoing (Laurent et al., 2019). Symbolic communication is almost inherently a voluntary act, and as such, involves some degree of conscious intentionality. Introspective access to all the possible reasons we may have for such intentions, however, and what motives we may have for representing our intentions to others, complicate the value of intentionality as a

nonforensic conceptual criterion in operationalizing the difference between mis- and dis-information. People appear to share distorted information for both intentional and unintentional reasons (Ardèvol-Abreu et al., 2020), and intentionality is often associated with innocent misinformation by the lay public (Osman et al., 2022). “The motivational profiles of deceptive representational acts do not vary in any essential respect across the divide between self and other. . . . We are at risk from self-induced evidential inoculation just as much as we are at risk from the manipulative preemptions of others” (Unnsteinsson, 2022, p. 16–17). That is, we are as subject to self-deceptions as we are to other-deceptions in our communications. We often simply do not know why we do what we do, and we are extraordinarily inclined to manage our self-impressions and face when asked to account for our behavior. In short, intentionality is a socially constructed, malleable, often post hoc entity in its relevance to communicative acts.

A second reason to call into question the value of an intentionality standard for distinguishing mistaken from mendacious messages is the problem of bots and artificial intelligence (AI) in the contemporary information ecology. Many distortions of information are implemented by the design of software programs and coordinated campaigns by groups of persons. These distal disinformative programs then hijack existing valid information sources and diffuse them to more proximal information consumers, who then serve to innocently forward, like and elaborate in their own social networks and platforms. While the intention state of the original message source may be reasonably definitive, it does relatively little to elucidate how such messages diffuse through an information ecosystem. Once viral, such information is likely to evolve through cascades of sometimes intentional and sometimes unintentional dilution, addition, subtraction, alteration, appropriation, reframing and evolution, thereby rendering the distinction between misinformation and disinformation difficult to establish empirically (Giglietto et al., 2019). The software and AI do not *know* that the information they process is in some way false. The programmers and their managers may design these programs with malintent to disinform, but the effects of the distortions fan out more as unintentional misinformation, ultimately dissolving much of the practical import of the distinction. Given Dawkins’ (1989) analogy of memes to genes, he cautions that “we must not think of genes as conscious, purposeful agents. Blind natural selection, however, makes them behave rather as if they were purposeful” (p. 196).

Another issue to consider in defining misinformation and disinformation is that knowledge can be valid yet unproven. For example, Einstein’s 1915 theory of relativity was posited at a time when technology did not afford any obvious ways in which it could be confirmed or disconfirmed. Yet he realized that accurate observation of a shift in stellar positions in the area near the corona of a total eclipse of the sun would demonstrate that mass bends

space. His conjectures were so precise, however, that they qualified as reasoned theoretical arguments *capable* of falsification, abduction, induction, or relative scientific consensus developed from state-of-the-art professional research practices. In the early stages of the COVID-19 pandemic, several large biopharmaceutical companies went to work to produce vaccines. They understood existing models of the coronavirus and the traditional and the newer mRNA science, but it was unknown how effective such vaccines would be until experimenting, testing and observations could provide greater confidence in the specific applications of such knowledge to a novel virus. Science is always evolving and it often makes mistakes. Unlike most epistemologies, however, it is self-correcting over time due to its ethics, culture and methods. At least since the enlightenment, science 50 years in the future always knows more, and more precisely and accurately, than it does at the present. “Scientific development is . . . a unidirectional and irreversible process. Later scientific theories are better than earlier ones for solving puzzles” (Kuhn, 1970, p. 169). Reality is a co-selector or adaptive pressure on science’s stock of ideas, and in the long run, the meme pool of scientific theory evolves in accordance with those pressures (Campbell, 1993; Spitzberg, 2018; Wilkens, 2008).

Such considerations raise a concept closely related to misinformation and disinformation: pseudoscience. *Pseudoscience* refers to claims made to imply that they represent scientific or scientifically achieved claims but fail to represent the kinds of epistemic warranting of the qualified scientific community relevant to the claim(s) (Hansson, 2009). It is “publicly available information that is misleading or deceptive relative to the best available scientific evidence or expertise at the time and that counters statements by actors or institutions who adhere to scientific principles” (Southwell et al., 2022, p. 109). The term “a priori” implies that there are legitimate boundaries of what constitutes scientific knowledge, and that some knowledge is purported and reported to belong to that domain that would constitute illegitimate membership in that category. That is, “it refers to something that masquerades as science, or is falsely presented as scientific by its adherents” (Boudry, 2022, p. 87). Most consensually and formally, pseudoscience: “(1) Refers to entities and/or processes outside the domain of science [i.e., ‘non-metaphysical and disconfirmable semantic content’]. (2) Makes use of a deficient methodology. (3) Is not supported by evidence. (4) Is presented as scientific knowledge,” and that meets “(1) and/or (2) and/or (3), and (4)” (Fasce, 2017, p. 476). In many senses, pseudoscientific claims are to science as fake news is to professional journalism: attempts to propose knowledge as if it is authorized, warranted and evidenced through means particular to a professional community and the community’s methods, when in fact it was not. This definition, however, presupposes a clear definition of scientific epistemic warranting and communities, and this poses several problems as well as possibilities (Dawes, 2018).

There is not one science or scientific method, and the honorifics of a Ph.D. or M.D. alone do not guarantee legitimate membership in an expert scientific community.

There is an ongoing debate about the extent to which there are distinct (e.g., Holtz & Monnerjahn, 2017; Popper, 1980) or fuzzy lines (e.g., Hansson, 2009; Pigliucci, 2013) of demarcation between pseudoscientific knowledge and scientific knowledge claims. For example, one proposal is less that pseudoscience is fundamentally unscientific or lacks empirical content, and instead that it lacks scientific conscientiousness, rendering it as a form of rhetorical “*bullshit with scientific pretensions*” (Moberger, 2020, p. 599, italics in original; see also: Vultee, 2020). Popper (1980) made the demarcation issue a centerpiece in a theory of scientific progress, proffering a reasonably bright line: “the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability” (Popper, 1980, p. 23). Theories like astrology and Freudian psychology are not scientific because they never make sufficiently risky predictions that, if falsified, would lead to the conclusion that the theory from which the predictions were derived is also false. That is, unlike legitimate scientific theory, pseudoscientific theories are always true because their proponents always find ways for their theories to accommodate facts and observations that otherwise might be considered inconsistent with their premises. Scientists and pseudoscientists alike are often passionate and persistent in pursuing their theories, but legitimate scientists (1) pursue increasing precision and riskiness of their predictions and claims, and (2) eventually yield to evidence and observation to discern the validity of their theories.

There is a famous anecdote that when pressed for how Darwin’s theory of evolution could be falsified, the biologist J. B. S. Haldane is reported to have replied something to the effect of: If you find a fossilized rabbit in the Precambrian strata, the theory is false (Dawkins, 2006). Such a naturally occurring fossil find would indeed necessarily be deeply problematic for the theory. It might not fully disqualify it, for so much empirical evidence consistent with the theory has been verified, but it would require substantive constructive revision of the theory. For Popper, science is characterized both by conjectures (i.e., the creative process of theorizing propositions about the workings of the world) and refutations, or a ruthless rationalist critical approach to testing those conjectures until they withstand such pressures over time and across observers. Only the knowledge that survives such critical pressures, both from observation (i.e., scientific methodology) and by a scientific community perpetually competing to improve upon such knowledge (i.e., scientific culture), qualifies as legitimately scientific.

As appealing and useful as this bright line is, scholars are increasingly inclined to view the demarcation to be more of a continuum, or a fuzzy set of distinctions, even though both approaches suffer from a variety of conceptual

problems (Fasce, 2017, 2019; Pigliucci, 2013). For example, while conspiracy theorists may in general have lower evidential criteria for belief (Rodríguez-Ferreiro & Barberia, 2021), they nevertheless often accumulate evidence as backing for their claims. That is, conspiracy theorists engage in a process of reasoned argument in ways often difficult to distinguish from scientific argument, often relying particularly on first-person testimony, anecdotes and distrust in traditional institutions (e.g., mainstream media, government agencies, and pharmaceutical industry) (Bricker & Justice, 2019). In Aristotelian terms, science tends to emphasize *logos* (λόγος) over *pathos* (πάθος) or *ethos* (ἦθος), but may employ all of them, as when the CDC promotes compliance with vaccination appeals by using fear appeals to the loss of life and loved ones (pathos), credibility appeals to their scientific expertise (ethos), and reasoned evidence about the safety and efficacy of the vaccines (logos). Conspiracy theorists may similarly argue against vaccines based on fear appeals of anecdotally reported harms and birth disorders (pathos), attestations by influential or degreed persons (ethos), and evidence selectively interpreted from databases such as the CDC's Vaccine Adverse Event Reporting System (VAERS) (logos). Furthermore, many ideas that are considered conspiracy theories or fake news, such as the efficacy of hydroxychloroquine or ivermectin represent, *in theory*, falsifiable claims (Chavda et al., 2022). Yet, from a Popperian perspective, scientists progressively refine their estimates of vaccine efficacy over time as data or evidence continually recalibrates immunization theory and their theoretical understanding of the virus or disease. Reality and its observed counterfactuals progressively provide selective pressures on the theories in a professional community predisposed to competition and ethical conduct. Reality is able to serve this function because legitimate scientists are enculturated to an ethic of critical accumulative progressiveness in which today's ideas are always capable of improvement through testing, criticism and refutation (Blanke & Boudry, 2022; Spitzberg, 2018). In contrast, pseudoscientific theorists tend to double down on their theory's ability to accommodate, or to selectively discount, any and all counterfactuals without threatening any core assumptions of their theory. To a large degree, such intractable resilience is borne of a proneness toward intuition, motivated reasoning and other cognitive biases (Boudry et al., 2015; see P₁₁). Thus, misinformation, disinformation, fake news and conspiracy theory will often employ some reference to pseudoscientific "evidence" in the process of pressing their claims, often in the same context of critiquing mainstream science. A list of common characteristics attributed to science versus pseudoscience is provided in Table 1.1.

Closely related to these forms of information distortion are specific forms of mis- and dis-information commonly referred to as *fake news*. What qualifies as news itself appears to be evolving. Younger cohorts appear to distinguish between "the news" (e.g., politics, world affairs) and "news" as a much

TABLE 1.1 Demarcating Science from Pseudoscience (Spitzberg)

<i>SCIENCE, is more prone to rely on . . .</i>	<i>PSEUDOSCIENCE, is more prone to rely on . . .</i>
Guiding presumptions: Theoretical (a) internal consistency and (b) reasonable conditionship specificity; and adherence to ethics of (c) comparative criticism, (d) pursuit of observation and testing, and (e) openness to refutation and revision: “every observation, every argument, every conclusion must be open to being revised if necessary” (Holtz & Monnerjahn, 2017, p. 353); that is, a recklessly persistent yet critical and evolutionary pursuit of explanations and predictions that progressively represent reality (Popper). Primary value: Investigation and accumulative demonstration of critically and progressively refined knowledge and theory. • Logical positivist verificationism: The more observable and transparent the statements of a theory, the more scientific it is. • Critical rationalism and falsificationism: The more (reproducibly and risky) falsifiable the statements of a theory, the more scientific it is, sans testable auxiliary (vs. ad hoc) hypotheses. • Lakatos’ sophisticated methodological falsificationism: The more generative (novel) and progressive (accumulative refinement) a research program, the more scientific it is. • Kuhn’s puzzle-solving: The more a community of scholars (re)solves its theoretical puzzles over time with normative exemplars, the more scientific it is. • Merton’s normative criteria: The more universal, communal, disinterested and organized the skepticism, the more scientific it is.	Guiding presumptions: There is no set of anchoring cultural assumptions regarding philosophy, methodology or epistemology in regard to pseudoscience. Primary value: Contrarian self-aggrandizement or sense of security. • Narrative intuitivism: The more a theory narrative feels “right,” intuitive or experientially sensible, the more legitimate it is likely to be. • Belief in authority over evidence: One or a few agents have special ability to determine truth, and their testimony takes precedence. • Reluctance to test: A disinclination to allow third parties to put insider’s claims to collective or comparative test. • Disregard of inconsistent evidence: Contrary evidence is disregarded or disproportionately weighed (e.g., resistance to meta-analyses). • Rhetorical subterfuge: Arguments are distracting, ad hoc, are directed at persons rather than claims or are so convoluted as to be untestable or nonfalsifiable.

Epistemic warranting: Theories accepted only when reasonable explanatory causal factors can provide an account of the phenomenon by a community of professional experts trained by a common relatively consensual core of methodological rigor, and when alternative rival explanations have been reasonably discounted.

The role of probability: All claims are open to test, no claim is inviolably immune from criticism or test, and all claims are statements of probability rather than absolute certainty.

Epistemic warranting: Any critical attribution to partially secret, invisible or mysterious agents to resolve any problematic issues with a theoretical claim. Credibility is based less on internal rigor and more on attacking the rigor of mainstream opinion or author(s). Faith in the truth of claims is unshakable because self-sealing or immunizing conspiratorial attributions discount mainstream scientific criticisms. Thus, all evidence to the contrary is rejected a priori. Pseudoscience seeks ad hoc rhetorical repairs (conventionalizing stratagems) or criticisms to assure resilience of original claims.

The role of certainty: Unshakable certainty remains in one's own position. If scaffolding claims are invalidated, the original conclusion tends to remain unscathed without qualification.