

Review

The importance of epistemology for the study of misinformation

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Abstract

Scholars have rapidly produced a robust body of literature addressing the public's beliefs in, and interactions with "misinformation." Despite the literature's stated concerns about the underlying truth value of the information and beliefs in question, the field has thus far operated without a reliable epistemology for determining the truth of the information and beliefs in question, often leaving researchers (or third parties) to make such determinations based on loose definitions and a naïve epistemology. We argue that, while this area of research has made great strides in recent years, more attention to definitions, epistemology, and terminology would both improve the validity of the literature and prevent the field of misinformation studies from becoming political conflict by another name.

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Introduction

The scientific study of "misinformation"—often defined in the literature as information that is false [1]—has become an important and rapidly growing area of research [2]. Ostensibly, the primary goal of this research is to stymie the effects of *false* information [2–5]. However, some research conflates *objectively* false information with information that is merely *subjectively* objectionable [6]. This has enlarged the scope of misinformation research [2], and, as a consequence, "misinformation" has lost meaning, being used to refer to a wide range of information that may or may not be false [7–9]. Given that misinformation research has yet

to develop an epistemology through which it can reliably determine whether information is *objectively* false [10], there remains a schism between the stated purpose of the research and what the analyses actually show. Here, we call for greater attention to these issues and provide some initial recommendations.

Critiques

While epistemological concerns apply to all of science, they take on special importance in misinformation research because our focus is not just about discovering what is true but, more specifically, about discovering the truth about how people interact with true and false information. This implies, if not necessitates, that misinformation researchers should be able to identify the trueness and falseness of the information they study. Thus, having a reliable and objective epistemology for distinguishing truth from falsehood is a foundational necessity of our work [11]. Consequently, when misinformation researchers operate without an objective epistemology, it creates two main problems for our field [10]. First, interventions aimed at attenuating the spread of false information [12] risk being poorly calibrated [13]. Second, it increases the risk of researchers succumbing to an observational bias in which "misinformation" becomes equated with 'that which misinformation researchers personally find objectionable' [6]. In such circumstances, a finding like "factor x predicts beliefs in misinformation" can be substituted with "factor x predicts beliefs in ideas which we, the misinformation researchers, personally find objectionable" and be equally valid. This can bias both the scope and perspective of our research which, in turn, can unfortunately lead to results in which the individuals most likely to believe "misinformation" just so happen to belong to groups whose ideological perspectives (e.g., libertarians, conservatives [14,15]) do not align with those of the misinformation researchers studying them [16].

Subjective approaches to identifying misinformation, combined with an expanding umbrella under which claims are labeled as such [2], have arguably contributed to two recent and unfortunate trends: a perceived moral panic over the pervasiveness and persuasiveness of misinformation [7,17–21], and the weaponization of "misinformation" and related terms (e.g., "fake news") by politicians to deflect legitimate criticism (e.g., President Trump calling CNN "fake news") [22]. Such

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rhetorical strategies by politicians are an unsurprising consequence of determining what counts as “misinformation” or “fake news” with a subjective epistemology, rather than with an objective one.

A value-laden enterprise

Epistemological issues are additionally critical due to the literature’s growing influence. Consider the difference between two similar research questions: “Why do people believe *particular ideas*,” versus “Why do people believe *misinformation*.” The former is value-neutral (as far as public opinion research goes) in that it implies an interest in examining general belief formation. The latter, however, is value-laden in that it not only stigmatizes the belief and implies a distinction between the processes involved in believing “misinformation” and those involved in believing true information, but it also implies that the falseness of the “misinformation” is objectively verifiable. However, such epistemic certainty is not only *not* established in some studies, but it is often not possible to establish at all, particularly for certain types of claims [11]. Should such trends continue, the literature could become a vehicle for the stigmatization of opposing political beliefs. This is particularly concerning given the literature’s calls for far-reaching policies [2,5,23], which, however well-intentioned, often come with a “cost to established norms of liberal democracy” [24] in that if we can see a self-evident truth, then deliberation is no longer needed because only bad actors or the delusional could possibly disagree [6,25]. However, those who believe in ideas deemed “misinformation” by researchers might not have a disregard for truth [26] or necessarily even be wrong (*the misinformation researchers might be wrong*).

Thus, what has been called a “post-truth crisis” might have less to do with objectively false information [27], and more to do with the epistemology [6] and authority [28] by which we judge information. There may be a failure by many people—*including ourselves*—to see that our personal view of political truth is less fair and objective than it is biased and subjective [6]. Without an epistemology for determining truth independently of our own biases, even the most well-intentioned scientists will be subject to the same biased tendencies that plague all people [29,30]. This will be especially true for researchers who take a more activist approach to their research [31]. These are just a few reasons why paying greater attention to epistemological issues and being clearer about whether our terms, definitions, and operationalizations speak to falseness (or something else) are crucial for the literature’s success.

I know it when I see it

Despite this critical goal of stymieing the negative outcomes related to false information, methods for discerning truth from falsehood have received

insufficient attention in the literature. But what is truth (and, in a similar vein, what is falsehood) and how should researchers define it for the purposes of scientific inquiry? One might define truth as “that which comports with reality,” but beliefs about reality are only generated by reality itself if reality is self-evident [32]. If reality is not self-evident, then beliefs about it likely stem from some combination of exposures and biases (both our own and those of people who provide information to us), not a claim’s “inherent” credibility or “obvious” falseness [32]. However, notions of what is “true” (or “false”) in some of the literature appear to rely on an assumption that truth is self-evident and that we can reliably know it when we see it [10,13,32]. For example, a growing body of studies examines the public’s ability to discern truth upon exposure to a headline or claim [8,33,34]. In these studies, some respondents are “right” and reliably so, but the ability to discern “truth” correctly is a function of (1) the relationship between the specific claims examined and what respondents’ priors are, and (2) the relationship between respondents’ biases and the biases of the researchers (or their proxies) who decided the truth value of the claims in question. Precisely because truth is not self-evident, some interventions aimed at improving the public’s truth “discernment” unsurprisingly make people more hesitant to believe *any* claim, not just ones that are supposedly “false” [35].

Even when misinformation researchers invoke purportedly unbiased sources to determine truth, such as “the science,” “the scientific consensus,” or “fact checkers,” these appeals are still built on subjective judgments about which scientific perspectives are the most credible or trustworthy, what counts as a consensus, and who the right fact checkers are [6,10,32,36]. This is important because consensuses can change [36,37] and scientists and fact checkers often disagree [38–41], which is why neither “the science” nor “a fact check” should be mistaken as synonymous for “truth.” But, even when scientists or fact checkers do agree, their consensus may represent shared biases as much as it represents objective truth [42–44]. In short, truth is hard to find and often only experts with extensive training, advanced methods, and large datasets can even get close to it; even then, those experts often disagree or get it wrong.

Recommendations

Admittedly, it might not be possible to objectively determine “truth” outside of our own biases. Philosophers have grappled with this issue throughout history, and these issues will certainly not be settled here. Nonetheless, there are still steps that we can take to improve our field. The first is to continually engage with key assumptions, definitions, operationalizations, and findings. Recent attempts at such introspection have shown significant disagreement among misinformation

researchers [1,7,16,24,45,46] and successfully called many of the field's "consensus" findings into question. For example, it remains unclear if exposure to misinformation is particularly persuasive [19,20,47], if beliefs in misinformation are increasing [48], if misinformation causes problematic behaviors [49–51], if misinformation affected the outcome of the 2016 election [52,53], if there was an "infodemic" [27,37], if misinformation is relatively prevalent on social media [27], and if large segments of the population are regularly exposed to misinformation [54,55] or are trapped in "echo chambers" [56,57].

The second is to engage with epistemology and epistemologists. While there has been a lively debate about the epistemology of conspiracy theory research [58–60], works specifically addressing the epistemology of misinformation research have been sparse [6,26,36] and discussions of epistemology are not prominent in the empirical misinformation literature [6]. Even when sidestepping epistemological questions by turning to third parties' judgments of truth value or of source quality [5], researchers might consider ways to determine how well such proxies are performing, given that fact checkers and rating agencies often disagree with each other and may not have well-developed epistemologies of their own [43,61]. Perhaps most importantly, we could motivate studies less from concerns about *false* information (if that is not what we are measuring), and more from concerns about, for example, information that, for some specified reason, is epistemically suspect (a *subjective* assessment of information quality that does not inherently label information as false), contains emotional language, is disputed by fact-checkers, emanates from news outlets disfavored by news rating agencies, or defies a scientific consensus (however that consensus is defined). When researchers insinuate that the information in question is objectively false, as misinformation researchers (*including ourselves!*) have done in the past—we take on a burden of proof that may be impossible to meet and, more importantly, we could be wrong. It might be a better strategy to treat information, beliefs, and opinions as such, and to bracket questions of trueness and falseness, as has been done by opinion researchers in the past [62].

Third, it is crucial that researchers clearly define their constructs for readers and provide specific, less ambiguous operational definitions for concepts such as "misinformation," "fake news," and related variables in their published works. Current definitions of "misinformation" range from "unambiguously false" [63], "false" [64], true but "misleading" [1], to showing "evidence of manipulation" [2]. If claims were "unambiguously false," then no one would believe them because their falseness would be universally apparent. If researchers define misinformation as "false," then they must still clearly define "false," ideally by developing an

epistemology for identifying that which is objectively false. If we define misinformation as "misleading," then "misleading" should be clearly defined, and the ability of the information to persuasively mislead people should be demonstrated (presumably, the misinformation researchers themselves have not been misled if they have been able to discern the misleading nature of the information). If we define misinformation as information showing evidence of "manipulation" [2], then researchers should define "manipulation" and demonstrate, rather than assume, that someone is attempting to intentionally manipulate someone else, that such manipulation has taken place, or that there is something inherently manipulative about the information in question (however, we again note that the researchers themselves presumably would not have been manipulated by the inherently manipulative information). Taking such steps will not only allow readers to understand what researchers mean more clearly by the terms they use but will also help keep researchers' subjective biases in check by preventing them from policing narrative correctitude under the guise of policing "misleading" or "manipulative" communications. Finally, while some scholars have advocated for a broad definition of misinformation that combines false, misleading, and manipulative information under a single umbrella [2], such a strategy risks confusing readers, leaving them to wonder why a claim labeled as "misinformation" has been labeled as such: is the claim objectively false, true but misleading, potentially manipulative, or just found to be subjectively objectionable by the researchers. Crucially, such broad definitions risk the validity of the conclusions we draw from our studies.

Conclusion

Investigating truth claims is a tough slog, and even scientists and trained fact checkers are bound to get things wrong. As such, misinformation researchers should proceed with caution, taking care not to stigmatize certain ideas as "false" that might not be demonstrably false. Researchers can also improve the literature by (1) investigating beliefs related to a broader set of assumed scientific consensuses (that perhaps even misinformation researchers themselves might personally disagree with [65]), (2) being cautious not to overgeneralize about "misinformation" from studies based on a small number of claims, (3) considering the situational aspects that drive "misinformation" (e.g., losing an election, having trust in institutions that are prone to sharing false or otherwise misleading information), and (4) openly debating normative questions about what *should* count as a consensus, when *should* people believe a claim, and what *should* make a source of information trustworthy. Given the stakes involved, misinformation researchers cannot afford to employ an, "I know it when I see it," epistemology that conflates ideas that researchers personally disagree with for some reason with

ideas that are objectively false [32]. It may be the case that such an epistemology gets it right sometimes, but it might be impossible to know how often. As such, we may find that circumspection, on our own part, is best.

Author contribution

Joseph Uscinski: Conceptualization, Writing – original draft preparation, Reviewing and Editing. **Shane Littrell:** Writing – original draft preparation, Reviewing and Editing. **Casey Klofstad:** Writing – Reviewing and Editing.

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Data availability

No data were used for the research described in the article.

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** of outstanding interest

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Further information on references of particular interest

6. Addresses what researchers have called a “post-truth” crises by examining the epistemology of researchers and the public.
7. Examines many of the popular claims about misinformation suggesting that our popular understanding of the misinformation crisis may go beyond the available data.
16. Uses a poll of misinformation researchers to showcase the range of opinions that researchers have about misinformation and how to define it.
36. Addresses the difficulty of determining “the science” and the fallibility of scientists.
42. Addresses the epistemology used by factcheckers and demonstrates the problems that occur when factcheckers go beyond checking facts.
47. Addresses the role of misinformation in belief formation, suggesting that misinformation be more of a post-hoc rationalization for beliefs than a cause.