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# What Is Unique About Acceptance and Correction of Misinformation? Insights From Work on Attitudes, Persuasion, and Beyond

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Research on misinformation has exploded over the past decade in psychology and other disciplines. Much research has been conducted about which variables are associated with the initial acceptance of misinformation (i.e., false statements such as "Venice is the capital of Italy") and which variables are associated with its correction ("No. Rome is the capital of Italy"). A largely independent literature exists about which variables are associated with the initial acceptance of attitudinal claims (i.e., opinion statements such as "Rome is a beautiful city") and their correction (e.g., "No, Rome is not a beautiful city"). This article addresses whether the variables impacting the acceptance of factual claims (often expressed as truth judgments) and opinion claims (often expressed as evaluative judgments) are the same. Concluding that these assessments are mostly impacted similarly by the same variables (e.g., source credibility, claim repetition), it is argued that these two seemingly separate literatures should be integrated into one science of persuasion, at least for studies aimed at making general contributions. Finally, findings from the attitudes literature that potentially can inform the misinformation literature and vice versa are discussed.

***Public Significance Statement***
The spread of misinformation is one of society's biggest challenges today. Work on this topic has accumulated at a rapid pace and has been largely isolated from more general work on attitude and belief change. This article argues that because of the similarities across these domains, they should be integrated into one overall science of persuasion and provides some research suggestions for future work on understanding misinformation acceptance and its correction.

*Keywords:* attitudes, persuasion, misinformation, correction, belief change

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Belief in misinformation, the difficulty in correcting it, and its spread have become hugely important topics in psychology and other fields. Articles routinely appear in the most prestigious outlets in science, and two major psychological organizations have produced white paper articles on the topic (for APA, see van der Linden, 2023; for the Association for Psychological Science, see Armstrong, 2022). It is not surprising that this issue has captured so much attention since belief in misinformation appears to be increasing and can be highly consequential (e.g., impacting elections).

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Richard E. Petty played a lead role in conceptualization, funding acquisition, project administration, resources, validation, writing–original draft, and writing–review and editing.

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Although I applaud the voluminous scientific work on this topic, in this article, I take a step back and ask what is unique about research on misinformation, what other areas of research might it profit from (and vice versa), and how might research proceed going forward. In doing this, I highlight my own work (as suggested in the invitation to prepare this piece), but I also draw on other examples that help make the points of interest. In particular, I reflect on the research that I and others have done on the related topics of attitudes and persuasion and note their potential relevance to understanding misinformation.

Research articles on both misinformation and attitudes/persuasion deal with the initial acceptance of and then ways to change a particular *belief*, where a belief is the linking of an object to some attribute (e.g., Mary is friendly; the Apollo moon landing was fake).[1] Before turning to some other similarities across the misinformation and attitudes domains, it could be informative to discuss two seeming differences between them. The first is that work on misinformation largely focuses on factual claims, whereas work on attitudes focuses on opinion statements. The second is that work on misinformation focuses on judgments of truth, whereas work on attitudes focuses on evaluations.[2] After discussing each of these in turn, I move to the similarities.

## Facts Versus Opinions

As noted, research on misinformation often deals with factual statements and whether people will accept falsehoods. Facts are claims that can be verified (e.g., Rome is the capital of Italy), whereas opinions are claims where there is no objective truth (e.g., Rome is a beautiful city). Knowing whether people categorize a claim as fact or opinion can be consequential. For example, Goethals and Nelson (1973) showed that people gain confidence in their *opinions* when similar others agree with them, but for *facts*, more confidence is gained when dissimilar others agree. Although the distinction between facts and opinions can be useful, it might be important to recognize that the same core information can be presented as factual (e.g., the new car gets 60 mpg) or as an opinion (e.g., the gas mileage of the new car is good). Variable perspective theory (Ostrom & Upshaw, 1968) explains how people can translate factual claims (60 mpg) into subjective assessments (good gas mileage). A key question is whether in forming and changing beliefs, does it matter if the claim being assessed is a factual one or an opinion? Because research on misinformation correction has developed its own literature largely separate from that on opinion change, one might imagine that researchers in the area think so.

## Truth Versus Evaluation

A second difference is that misinformation researchers tend to focus on truth judgments, whereas attitudes researchers focus on evaluative assessments. This distinction is common to various expectancy *X* value theories and has been recognized as a consequential one in many areas of psychology (cf. Dulany, 1968). Within the study of attitudes, Fishbein and Ajzen (1975) noted that one important way to influence attitudes is to provide people with information that is judged along two dimensions—likelihood (expectancy) and desirability (value). For example, if presented with the claim that a new sport utility vehicle gets 26 mpg, people are presumed to assess how true (likely) the claim is and how desirable it is. Believing the statement was completely true would not have a positive impact on attitudes if the trait was not also desirable, and if the trait was desirable, it would not have a positive impact on attitudes if not deemed to be true. Critically, this theory did not specify *how* to get people to believe the claim was true or desirable. The core argument of this article is that the techniques of influence are plausibly the same.[3]

For example, imagine an ad for an sport utility vehicle claims it gets 26 mpg (factual statement) or that it is "very roomy." Assessment of these statements would depend on whether the recipient thinks the statement is true and how desirable the touted attribute seems. Although it is sometimes recognized that the processes involved in accepting and changing false beliefs are the same as accepting and changing true beliefs (e.g., Ecker et al., 2022; Marsh et al., 2016), it is less common to assume that forming or changing factual/truth judgments follow the same principles as opinion/desirability judgments.[4]

## Similarities Across Domain

Even though the literature has distinguished facts from opinions and truth from desirability judgments, why might the same variables influence each? Festinger (1950) noted that people want to be correct in their opinions as well as in their facts. Thus, variables associated with correctness (e.g., source expertise) would presumably influence both. However, being correct is not the only motive that people have, and other goals would presumably apply similarly. For example, people want to fit in with others (Baumeister &

[1] There are various ways to define belief (cf. Sommer et al., 2024), but this one is common in social psychology (Fishbein & Ajzen, 1975; McGuire, 1981).

[2] Although I make some general claims throughout this article, I recognize that there are exceptions to these generalities. The literature on misinformation and attitudes is so vast that it is unrealistic to identify all similarities/differences.

[3] Much has been written about how people make initial likelihood and desirability judgments (Hardman & Macchi, 2003), but little on how to *change* likelihood perceptions, unlike desirability (attitudes).

[4] For example, in their *Annual Review* chapter on truth judgments, Brashier and Marsh (2020) said that they will review "people's judgments about objective truth, not attitudes, and thus we do not cover the persuasion literature" (p. 500). This is a perfectly reasonable statement given their purpose and that the Annual Review series has published many separate articles on attitudes. Yet, each of these reviews covers many of the same variables.

Leary, 1995), and thus people should be more likely to accept both opinions and facts endorsed by one's own group (Mackie et al., 1990). Although some motives might be more impactful on one type of judgment than the other, my argument is that the same motives can impact both facts and opinions. Another way in which facts and opinions are similar is that both have important consequences (e.g., affecting behavior), and indeed, this is why psychologists have expended so much effort studying them.

If truth and attitudinal judgments have much in common, then what we have learned about one should be applicable to the other. Yet, a scan of some popular textbooks on attitudes both predating the misinformation research explosion (Eagly & Chaiken, 1993; Petty & Cacioppo, 1981) and subsequently (Albarracín, 2021; Cooper et al., 2016; Maio et al., 2019) shows that the term misinformation is not in any of the indices. Similarly, the topic of attitude change is not routinely mentioned in contemporary reviews of misinformation. Although the current article is not the first to point out some commonalities across these domains (cf. Lewandowsky et al., 2012), as far as I can tell, this has not been a focus of any prior article. Before describing some ways in which these literatures can become more closely connected, I note some already existing parallels.

## Core Misinformation Phenomena

As noted, research on misinformation is growing rapidly, with a variety of studies examining a diversity of variables. Among the many topics examined, three have perhaps garnered the most attention, and each has strong parallels to work on attitudes.

### Illusory Truth

A core topic of misinformation research concerns what leads people to accept false information in the first place. A key idea is that people tend to have a default to believe that any statement they receive is true, and then some deliberation is required to negate it (Gilbert et al., 1990; Johnson & Seifert, 1994). Thus, truth judgments are assumed to have priority. This is analogous to attitudes work on the *positivity offset*, in which a favorable assessment is thought to be the default (e.g., Cacioppo et al., 1997).[5]

Beyond the true default, another fundamental finding is the impact of statement repetition. The *illusory truth effect* refers to the tendency to see claims as more true the more they are repeated. Although initially demonstrated with novel statements (e.g., Hasher et al., 1977), it was subsequently shown that people would come to accept both true and false statements more as they were repeated (see Udry & Barber, 2024). The most common explanation for this is that repeated statements become more fluent, and this fluency is misattributed to truth (e.g., Unkelbach, 2007).

Regarding evaluative judgments, the *mere exposure effect* (Zajonc, 1968) refers to the tendency to see stimuli more positively the more they are repeated. Also initially demonstrated with novel shapes and words, it was subsequently applied to more meaningful stimuli. Although there are many explanations for this effect, the most common, as with truth judgments, relies on the fluency that comes from repetition (see Montoya et al., 2017). Furthermore, research shows that fluency from repetition can be misattributed to a wide variety of judgments even beyond greater truth and desirability (Alter & Oppenheimer, 2009; Mandler et al., 1987). Thus, there is similarity in the effect of repetition in each domain, including the postulated mechanism.

### Debunking

A second prominent research area is on how to correct misinformation once it is accepted, called *debunking* (e.g., Lewandowsky et al., 2020). Debunking aims to get people to see misinformation as less true than they did initially and is analogous to persuasion research that attempts to get people to see an attitude object as less good than initially. A core early finding was that misinformation is quite difficult to correct and there is often a *continued influence effect (CIE)*—once misinformation is accepted, it can continue to have an impact even after it is corrected (Johnson & Seifert, 1994; Lewandowsky et al., 2012).[6]

The CIE has some parallels to the *sleeper effect* (Hovland et al., 1949) in persuasion research. That is, once a new attitude is adopted based on some information, that attitude can continue to have an impact even after the information on which it is based is discounted (e.g., said to be from a low credibility source; Kelman & Hovland, 1953) or even when the initial information is said to be false (Gruder et al., 1978). A sleeper effect predicts that even if a correction is initially effective, the discounted belief can reemerge over time. Work on the sleeper effect addressed when this continued influence is most likely to occur, such as when the correction follows rather than precedes the initial information (Pratkanis et al., 1988). This is believed to be because when the correction follows the misinformation, the misinformation is more likely to be processed carefully than if known to be incorrect in advance. When the negation tag follows receipt of the misinformation, it can be forgotten, allowing the attitude based on the processed (mis)information to reemerge (Kumkale & Albarracín, 2004; Priester et al., 1999). The CIE is similarly attributed to memory failure for the correction or for the discounting cue (Swire-Thompson et al., 2023; Walter &

[5] Although these defaults have been questioned, the commonality is that positive defaults have been proposed in each domain.

[6] The CIE differs from a *backfire effect,* which refers to increased belief in misinformation following a correction (similar to what is called a *reactance* or *boomerang* effect in persuasion; Sensenig & Brehm, 1968) which can occur when corrections are threatening or vitriolic (Velez & Liu, 2024).

Tukachinsky, 2020). Future work on the CIE and sleeper effect is likely to jointly inform each other given their similarities. Later in this article, I suggest some links between debunking research and implicit measures of judgment.

### Prebunking

In a third influential set of studies, called *prebunking* research, a treatment is given to people *before* they receive misinformation in an attempt to stop the misinformation from taking hold. Unlike the prior two examples, this topic has been linked explicitly to classic attitudes research from the outset, specifically McGuire's (1964) *inoculation theory*, and has also examined a number of concepts developed in the original work (e.g., active vs. passive inoculations, e.g., Green et al., 2022). Thus, just as forewarnings of persuasive intent can lead people to resist an upcoming persuasive message (Petty & Cacioppo, 1979), so too can warnings of impending misinformation reduce reliance upon it (Cook et al., 2017).

Some inoculation-type treatments might work because they teach general skepticism about news, and in this sense, they have some similarities with work on persuasion knowledge (Friestad & Wright, 1994) and research teaching children to be skeptical about advertising (Rozendaal & Buijzen, 2023). The accumulated work on prebunking has significantly expanded the scope of inoculation theory well beyond its original intended domain of cultural truisms (see van der Linden, 2024) and is a notable example of documenting the parallels between each area of research. Because my focus is on attitude research that has *not* been incorporated into the misinformation domain, I will not discuss prebunking further.

## Other Misinformation and Attitude Parallels

The three research domains just outlined might be the most dominant, but there are also many other more isolated studies aimed at understanding misinformation, and many excellent reviews of this literature are available (e.g., Chan & Albarracín, 2023; Ecker et al., 2022; Lewandowsky et al., 2012). Although reference limitations prevent me from making individual citations here, reviews of the misinformation literature point to the impact of many of the same variables and findings as do studies from the persuasion literature. For example, in each domain, enhancing source credibility and the use of emotion can increase acceptance. A particularly important variable in misinformation research that has been understudied with respect to persuasion is a person's social identity, as misinformation and corrections are more likely to be accepted when they are consistent with recipients' group identities (Van Bavel et al., 2024). Notably, identity has also become more prominent in research on persuasion, recently being added as a core social influence heuristic (Cialdini, 2021).

Although there are many more findings that could be mentioned, I focused on these just to give a sense of the strong parallels that exist in the literatures on misinformation and persuasion (see the online Supplemental Material for additional examples). The similarities in findings across these two literatures are sometimes cited, but often not. Importantly, the core goal of the current article is not to review instances in which insights from the persuasion literature have already been applied to misinformation research but to cases in which they have not. Furthermore, as explained below, in the literature on attitude change, the effects that have been applied are often more nuanced than demonstrated so far in the misinformation literature, and these nuances might provide clues for yet-to-be uncovered outcomes regarding misinformation acceptance and/or correction.

## Brief Histories of Each Domain

Before turning to some potential new directions in research, a short discussion of the similar history of work in each area is presented. First, the scientific study of attitude change stemmed largely from an applied concern about Nazi propaganda and the morale of the U.S. troops during World War II (Herf, 2005; Hovland et al., 1949). The increased trajectory of work on misinformation also seems fueled by applied concerns. Within the persuasion domain, subsequent work separated (more or less) into basic and applied wings, with some scholarship aimed at developing general principles of persuasion that potentially could be applied across many domains and other work that had a more applied focus, such as developing programs to modify unhealthy attitudes and behaviors (e.g., smoking cessation). Within the misinformation domain, this strict demarcation seems less clear at present, though as in the attitudes domain, some research appears clearly focused on understanding particular sorts of misinformation (e.g., with respect to climate change; Green et al., 2022), whereas other research examines a diversity of false claims in a seeming attempt to provide more widely applicable knowledge (e.g., Pennycook & Rand, 2019), though not necessarily new theories.

Second, early efforts in each area took a largely cognitive or "learning" approach that focused on simply providing people with facts that countered undesirable opinions (e.g., Hovland et al., 1953) or false statements (e.g., Simis et al., 2016). The assumption was that to change attitudes or false beliefs about smoking, for example, all you had to do is provide the accurate information about the harms of this behavior. If people learned and remembered these facts, one's job was done! However, in the attitudes domain, it was not long before it became clear this view was too simplistic. People could learn accurate information about smoking and still not change their attitudes. And some people might not

learn the information at all and still change their views. Research discovered that learning and memory were not as critical to changing attitudes as was initially believed. Rather, other processes involving motivational and emotional factors were also important (Festinger, 1957). For example, sometimes people want to hold some attitudes rather than others (DeMarree et al., 2014). Early work on misinformation similarly focused on ideas from cognitive psychology that emphasized learning and memory (see Kemp et al., 2024). However, as with the work on attitudes, research on misinformation also discovered the importance of motivational and emotional factors. For example, sometimes people want some facts to be true rather than false (Susmann et al., in press).

Third, the early research on attitudes focused on main effect findings that were typically unidirectional (e.g., high source credibility is good for persuasion), and each variable was postulated to be associated with one psychological process responsible for its outcome (e.g., credibility enhanced message learning). The same sorts of main effect outcomes dominated early work on misinformation. Yet, in the persuasion domain, research began to show that variables could sometimes have reverse main effects, and these opposite effects were often the result of one variable interacting with another. And it turned out that there could be more than one process by which any given variable produced its outcomes.

Before addressing these issues, it is important to note that these more complex effects were associated with the development of new theories that did not tie the outcomes of a given variable to only one process. These multiprocess theories such as our own elaboration likelihood model (Petty & Cacioppo, 1986) and the similar heuristic–systematic model (Chaiken et al., 1989) emphasized four core principles: (1) Attitude change could result from different degrees of thought (i.e., there were relatively high and low deliberation routes to persuasion), (2) thinking could proceed in a relatively objective or a more biased manner, (3) any variable (e.g., source credibility) could affect attitudes in a relatively high (e.g., biasing thinking) or low thought (e.g., input to a heuristic) manner depending on the overall likelihood of thinking in the situation, and (4) higher thought attitude change is more consequential than that induced with lower thought (see Petty & Briñol, 2012). These multiprocess theories not only built off of the earlier learning theories (Hovland et al., 1953; Kelman, 1958) but also incorporated a key idea from cognitive psychology regarding levels of processing (Craik & Lockhart, 1972).

The four core ideas from the multiprocess models of persuasion just outlined have not been well incorporated into misinformation research. Yet, given the parallels identified so far, it seems reasonable that they could apply. For example, in accord with Principles 1 and 2, if a false claim is high in personal relevance, it should receive more scrutiny than if it is low in relevance, but whether that thinking is relatively objective or biased can depend on whether the claim fits with the person's existing attitudes and goals (Petty & Cacioppo, 1990). Thus, whether analytic thinking enhances or undermines susceptibility to misinformation (Pennycook & Rand, 2019) could depend on whether that thinking is relatively objective or biased.

When people are not thinking carefully, they do not necessarily relate the new (mis)information they receive to their existing knowledge (see Marsh & Umanath, 2013, on *knowledge neglect*). When not considering new misinformation carefully, then simple cues are likely to impact acceptance and correction of the claim (e.g., consensus, credibility, fluency, identity). But in accord with Principle 3, in addition to serving as simple cues when thinking about the claim is low, these same variables can impact judgments in a more thoughtful way when thinking is not constrained (Fleming & Petty, 2000). For instance, higher source credibility can motivate more thinking about the evidence for a claim so that the strength or weakness of that evidence is more easily recognized but can also bias thinking when the information presented is ambiguous (Briñol & Petty, 2009). In the misinformation domain, claims can vary in their plausibility (Susmann et al., in press), so claims that are very clearly plausible or implausible would be less susceptible to biased processing than moderately plausible ones. The multiple processes by which variables like source credibility can impact outcomes are rarely studied in the misinformation domain.

Finally, Principle 4 notes that judgments formed more thoughtfully tend to be more consequential. Although there is much research documenting that some attitudes are more consequential than others (see Petty & Krosnick, 1995), there is little work on this regarding truth judgments. Attitudes held with certainty (Rucker et al., 2014), or that are highly accessible (Fazio, 1990), or seen as important (Krosnick, 1988), or based in morality (Skitka, 2010), or low in ambivalence (Priester & Petty, 1996) are more consequential (e.g., predict behavior better; are more resistant to change). Would the same hold for truth judgments? Some work on misinformation is beginning to explore this issue. In one study (Tulin et al., 2024), people who were very certain that a statement was true were significantly more likely to fact check it than those who were very certain that it was false. Although this result was unexpected, the authors suggest that high certainty in truth can enhance people's willingness to challenge their existing beliefs. This seems analogous to a phenomena in the attitudes domain where people high in their *defensive confidence* are emboldened to expose their beliefs to challenge, which ironically can lead them to change (Albarracín & Mitchell, 2004). Additional work exploring strength indicators of truth judgments is warranted. With respect to certainty alone, there is considerable evidence that

assessing it with respect to *any* mental content can enhance the predictive utility of that mental content (Briñol & Petty, 2022).

## Potential New Directions in Misinformation Research

As should be apparent, the attitudes literature suggests a plethora of new variables and processes that might be studied in the misinformation domain. First, in addition to the single variables mentioned, there are many other classic persuasion variables that could be examined. As one example, consider message discrepancy—the distance from the recipient's view of the claim presented (Bochner & Insko, 1966). The accumulated attitudes research suggests a curvilinear outcome such that the further a position taken deviates from the recipients' view, the more it will be accepted up to a point where it eventually becomes so implausible that it is rejected (Wegener et al., 2001). The same finding could be explored within the domain of truth judgments. Second, with respect to processes, the attitudes literature suggests that more can be done to explore the differential consequences that might result from inducing corrections in relatively thoughtful versus nonthoughtful ways. For instance, prebunking efforts tend to be short-lived. It could therefore be useful to examine the extent of thought that goes into prebunking efforts as a moderator of its persistence. Next, I briefly outline some other possible research directions.

### Reverse Effects of Single Variables

Persuasion research indicates that even simple variables, like credibility or repetition, can produce opposite effects. As one example, consider the number of people who support a claim. Although majority support (consensus) mostly leads to more agreement, there are some circumstances in which *minority* endorsement enhances it (Moscovici, 1980; see Wood et al., 1994). Although much research has examined the conditions under which this *minority influence effe*ct occurs, a key idea is that it is critical to understand whether the impact of majority or minority endorsement results from a simple heuristic process that is likely when thinking about a claim is low (where majority endorsement typically wins) or the endorsement affecting the extent of thinking (which can lead to minorities having more impact when they increase processing of strong arguments; see Martin & Hewstone, 2008). Considerable research now shows that several simple variables that often serve as positive cues to acceptance when thinking is low can produce opposite effects when thinking is unconstrained or relatively high (Petty & Briñol, 2012). This notion of variables producing opposite effects deserves further exploration in the misinformation literature.

As a second example, consider repetition of a claim. Although repetition generally enhances perceptions of truth due to fluency, it also allows people more opportunities to think about a claim. The more people think about strong claims, the more they agree with them, but the more they think about weak claims, the less they agree (Cacioppo & Petty, 1989). Conceptually similar results have been observed for misinformation, such that increased analytic thinking is associated with greater endorsement of plausible claims but less acceptance of implausible claims (Pennycook & Rand, 2019). The overall point is that although only one direction of effect of many variables has been shown in the misinformation literature, it seems likely that opposite effects might be possible under conditions similar to those observed in persuasion studies.

### Interaction Effects

Although misinformation researchers have advocated for combining multiple main effect treatments together to enhance impact (Bak-Coleman et al., 2022), examination of interaction effects among variables has been rare. A common interaction in the persuasion literature is between aspects of the source of a claim and the particular claim made. For example, taking a position against one's own or one's group's interest makes people wonder why that happened. In their attributional analysis of persuasion, Eagly et al. (1981) suggested that if a person is going against their own interest, observers might reason that it could be because the position is really valid, making the claim more convincing (Wallace et al., 2020).

Examination of interaction effects between sources and messages is uncommon in the misinformation domain, but in one recent exception, Janssen and van Gog (2023) varied both the political leanings of the misinformation presented (right- or left-leaning) as well as the source (right- or left-wing politician). Although participants overall agreed more with misinformation that agreed with their own politics, there was some evidence that politicians taking positions opposite to that expected enhanced agreement (e.g., when a left-wing politician presented right-leaning misinformation). More research examining who makes a claim along with the concordance of the claim is needed. More generally, there are a large number of interactions of message sources with message claims that could be examined.

One of the most studied interaction effects in persuasion is that which occurs between some aspect of the message recipient and a congruent feature of the source or the message, called *matching* or *personalized persuasion* (Petty et al., in press). One variation of this examined in the misinformation literature is when the source of misinformation is varied to match or mismatch the recipient's attitudes (Swire et al., 2017). However, there are many other matches that have not yet been studied. For example, although it is clear that misinformation can be based on emotion or linked to one's morality, research on attitudes suggests that the best way to combat beliefs based on emotion is to use an emotional rather than a cognitively based countermessage (Fabrigar & Petty, 1999) and to combat morally based attitudes with messages

that also rely on moral rather than practical arguments (Luttrell et al., 2019). Indeed, tailoring messages to the particulars of recipients' beliefs and personalities using artificial intelligence has proven to be effective in combating misinformation (Costello et al., 2024) as it has been for attitude change in general (see Teeny et al., 2021).

### Influencing Strong Beliefs

If strongly held but misinformed beliefs are difficult to change, can the attitudes literature help to address how to unstick them? Because attitudes based on emotion (Rocklage & Luttrell, 2021) and morality (Skitka, 2010) tend to be stronger than those based on cognition and practicality, we noted that one strategy to modify them is to use messages matched to these bases. Recently, we developed and tested another technique that provides a more general approach that does not require knowing the specific basis of the person's attitude. In this work (Xu & Petty, 2022, 2024a), we reasoned that those with strong attitudes would be especially appreciative of a message that did not just counter their side but also recognized some validity to it. If their own side was validated, people would be more willing to acknowledge some validity to the advocated opposing side.

In one study, the moral basis of people's attitudes toward gun control was assessed, and then they were presented with a persuasive message that advocated against their view. The message was either entirely one-sided or also presented some arguments on the recipient's side.[7] Following the message, the recipients' receptiveness to the side advocated was assessed (Minson et al., 2019). For the one-sided message, people were more resistant to it the more morally based their attitudes were, consistent with prior work on attitude strength (Petty & Krosnick, 1995). For the two-sided message, the opposite occurred—the stronger the attitude was, the more open it was to the other side. In other studies, this same interaction effect was shown for other topics and attitude strength indicators.

This research has a somewhat surprising implication for influencing misinformation beliefs: Could it be more effective to include a validation of at least some aspect of the misinformed belief along with the correction rather than just providing the correction alone? In a recent study exploring this (Xu & Petty, 2024b), in May of 2024, we asked about 400 online U.S. participants about their (misinformed) belief that the 2020 election was fraudulent. Participants who agreed with this then had the strength of their belief assessed by summing a number of common strength indicators including belief certainty (Petrocelli et al., 2007), morality (Skitka, 2010), and others. Then, participants were randomly assigned to receive either a one- or two-sided correction message. Both messages stated that researchers had examined the fraud claim carefully and found no evidence for it that would have changed the election outcome and that all lawsuits challenging the election results were defeated in the courts. In the two-sided message, after presenting the same correction, the author acknowledged that there was evidence that there was some fraud in the 2020 election, but just not enough to change the outcome. The message also complimented Donald Trump, noting that he was a charismatic political figure. Following receipt of one of these messages, participants completed the receptiveness items as well as a more direct assessment of their postmessage belief regarding whether the stolen election claim was correct.

A significant two-way interaction was observed on receptiveness that replicated our prior persuasion work and accords with other research on signaling openness to others' views (Hussein & Tormala, 2021). For the two-sided message, as the strength of initial belief in the misinformation increased, recipients reported being more open to the correction message. For the one-sided message, the opposite pattern was present. Furthermore, an analysis of the postmessage belief measure indicated that there was significant mediation of the message X attitude strength interaction on postmessage belief by receptiveness. Although this effect needs to be replicated, our first attempt to apply the logic of our persuasion studies to correction of misinformation was reasonably successful.

### Source Order Effects

So far, I have focused on effects uncovered in persuasion research that might be applied to misinformation, but this is a two-way street. So, let us consider an effect that has emerged in the misinformation space that is not well studied in the persuasion domain. Specifically, a misinformation meta-analysis revealed that a correction to misinformation was more effective when it was provided by the same source who made the original claim rather than a different source (Walter & Tukachinsky, 2020). What relevant research exists in the attitudes domain suggests the opposite might occur because people tend to dislike individuals who change their views, especially strong ones, seeing them as hypocrites (Kreps et al., 2017). This suggests that it should be more effective for a different source to give the countermessage.

Why would each literature suggest something different? In the domain of facts, it could be that people naturally assume that if a person corrects a fact, it is because the source has now learned the truth. In contrast, when an attitude statement is corrected, people might more naturally assume that the source has something to gain from the change. Indeed, hypocrisy judgments are reduced when people come to believe the person's attitude change is genuine (Barden et al., 2005). This suggests that the same reasoning could apply in

[7] Research on one-sided versus two-sided messages has a long history in social psychology (Hovland et al., 1953), and various moderators of their differential effectiveness have been uncovered (see Crowley & Hoyer, 1994, for a review).

the misinformation domain. Thus, if people have reason to think that the correction of misinformation is based on a vested interest (e.g., the person making the correction switched from running one political campaign to another), it would likely be more effective to have a different person make the correction. In this instance, it might be easier to assume that a different source has different facts. The point is that the same psychological principles (based on the attributions made for the change in stance) are likely to govern each type of judgment.

## Other Paradigms of Interest

Having pointed to many parallels between the literatures on attitudes and misinformation, I conclude by briefly mentioning some other research paradigms that also have the potential to be informative, especially because they explicitly have examined the implications for correction of mistaken (or at least unwanted) beliefs.

### Correction in Person Perception

The first impressions we have of people often dominate, but some research has examined how people update their impressions of others when they are told to disregard the initial information (e.g., Devine & Ostrom, 1985; Wyer & Unverzagt, 1985) or that the initial information was incorrect (Gregg et al., 2006, Petty et al., 2006). Although much of this work relies on the same sorts of memory processes prominent in the prevailing misinformation research, especially on debunking, one novel outcome of this work is the discovery that labeling initial information as false can produce a full correction on an explicit measure of attitudes but a continuing influence effect on an implicit (automatic) measure (such as the implicit association test; Greenwald et al., 1998). In one study (Gregg et al., 2006), when an initially disliked group subsequently became likable as a result of new (corrected) information, explicit attitudes toward the group were modified to reflect the updated information, but implicit attitude measures still reflected the original dislike, producing an implicit–explicit discrepancy. In other similar work, only a partial correction on the implicit measure was observed (Petty et al., 2006; see also Rydell et al., 2008).

The fact that explicit measures of attitudes can sometimes be corrected more easily than implicit measures raises the question of whether there is a similar phenomenon with respect to truth judgments. Specifically, even if an explicit measure of truth were to fully reflect a correction, could there be a continuing influence effect on an implicit measure of truth? Could people explicitly report a correct judgment, but yet have some implicit doubt in that correctness that is as consequential as discrepancies between implicit and explicit attitudes have been shown to be (Pearson et al., 2009; Petty et al., 2012)? When and how implicit attitudes can be fully corrected for initial misinformation is an active area of research (see Cone et al., 2017) that might profitably be considered by misinformation scholars.

### Corrections for Perceived Bias

Much work in social psychology concerns biases that people have, especially how these biases impact people's information processing and their judgments (e.g., Kunda, 1990; Petty & Cacioppo, 1990). Most relevant for this article is the idea that sometimes people recognize that a bias they have can produce incorrect judgments, and when concerned about this, they can try to correct their judgments to remove the bias (Petty & Wegener, 1993; Wilson & Brekke, 1994). Most research on misinformation correction focuses on corrections provoked by external sources, but just as people sometimes aim to change their own attitudes without prompting (DeMarree et al., 2014), so too might they sometimes desire to correct their judgments to remove a bias without prompting. Is there anything to learn from the bias correction literature regarding misinformation correction?

At least two findings could be relevant. The first result from the *flexible correction model* (Wegener & Petty, 1997) is that people sometimes have a sense of both the direction and magnitude of a bias they have and use this meta-cognitive information to adjust their judgments to remove the bias. It could be informative to assess if people have any sense of the biases that can operate in the misinformation domain, and if people become concerned about a bias, would their naive theories of bias predict the extent of corrections? For example, are people ever aware of their default truth bias (Brashier & Marsh, 2020) and can they correct for it, or be trained to do so?

A second finding is that although people are often motivated to be accurate and adjust their judgments in an attempt to be veridical, this motive is not the only one that governs people's reasoning. For instance, in one study (McCaslin et al., 2010), students were led to believe that they had an underestimation or an overestimation bias in their judgments (based on false feedback on how they performed on a dot estimation task). After receiving this feedback, they were given the opportunity to do another estimation task. Prior to this, they either received no additional information (control) or were told that their particular bias was desirable or undesirable. In the control condition, participants corrected their new estimates in a direction opposite to the presumed bias. However, when told their bias was desirable, participants reduced their corrections compared to the control group. When told the bias was undesirable, they tended to enhance their corrections. This research not only suggests that people will sometimes spontaneously correct for perceived biases to produce more accurate judgments, but sometimes other motives (self-enhancement in this case) can counteract the accuracy motive.

Although some work in the misinformation domain has suggested that motives such as belonging (Baumeister &

Leary, 1995) can override accuracy motives (e.g., Van Bavel et al., 2024), there is an extensive list of additional motives that could be relevant. As one example, consider hedonic motivation, where rather than seeking knowledge, people have a goal to have fun (Wilson et al., 2019). Some persuasion research has shown that when people have a hedonic rather than an epistemic goal, some well-known effects can reverse. For example, Cancela et al. (2021) showed that although increasing personal relevance enhanced thinking about argument quality when in an epistemic mindset, increasing relevance reduced thinking when in a hedonic mindset. This finding is consistent with the idea that entertainment (getting involved with characters in a story) provides a way to escape from the self (Slater & Rouner, 2002). Thus, although people might typically want to avoid accepting misinformation when in an epistemic mindset, when in a hedonic mindset (such as when misinformation appears during a string of amusing TikToks or YouTube videos), it could be enjoyed and accepted more the more outrageous it is.[8]

## Attitude and Misinformation Sharing

Although to show the parallels across the attitudes and misinformation literatures I have focused on the common principles involved in initial belief acceptance and subsequent correction, before closing this comment it is worth noting the similarities that likely exist between attitude and misinformation *sharing*, a particularly important topic in the misinformation domain. For example, some research suggests that people are more likely to share positive (happy) thoughts even if they are incorrect than negative ones (Altay et al., 2023) or share misinformation that reflects well on their group (Pereira et al., 2021). In the attitudes literature, Catapano and Tormala (2021) demonstrated an analogous positivity effect. That is, across a wide variety of topics, people were more likely to share attitudes that were simply framed in terms of positions the person favored rather than disfavored, even though these reflected the same stance (e.g., "I support the Democrat" vs. "I oppose the Republican"; Bizer & Petty, 2005).

The notion is that sharing positively framed opinions promotes more positive impressions of the person than sharing negatively framed ones. Yet, this positivity bias stands in contrast to some research that suggests that people are more likely to share misinformation that has a connection to negative moral emotions such as disgust (Van Bavel et al., 2021). Resolving when positivity or negativity are more likely to motivate sharing of attitudes or misinformation is an important endeavor, and the findings from each area would likely inform the other. One possible resolution is that which type of information is favored will depend on one's goals. Just as people *form* beliefs that serve different motives (Katz, 1960), belief sharing is also likely determined by the same salient goals (e.g., to inform, to enhance self-esteem, to promote chaos; Farhart et al., 2023).

## Conclusions

The core contention of this article is that although the distinctions between facts versus opinions and truth versus attitudinal judgments are meaningful ones, the factors that impact their acceptance and change (and sharing) might well be the same. That appears to be a reasonable conclusion from decades of work on both attitudes and misinformation. Thus, these domains of research might profitably be integrated into one science of persuasion. This is because getting people to accept any sort of claim (or its opposite) involves persuading them to do so. Whether the claim is about something that is true or false or something that is good or bad, changing an existing belief involves a process of influence. When people are being at least minimally deliberative in deciding whether to accept a claim, they will consider who made the claim, what the evidence is for it, how many others agree, whether it fits with their prior knowledge, and so forth. But simple cues in the environment that lead the claim to feel right or good can also have an impact when people are not being deliberative (Petty & Cacioppo, 1986). Thus, until there is clear evidence that different factors and/or processes affect the assessment of different kinds of claims, it seems parsimonious to assume that they are largely the same.

To be clear, the goal of this article is not to question the value of psychological research on misinformation. Such work is extremely valuable and relevant in today's world. Rather, my argument is that such research can and should contribute more broadly to the literature on psychological change in general. This is because the study of misinformation acceptance and correction has much in common with the psychology of attitude formation and change. It is my hope that future textbooks on attitudes and persuasion will incorporate and integrate work on misinformation (and vice versa). Of course, some scholars might disagree with integrating these areas of research. If so, it would be important for such individuals to identify the variables and/or processes that are unique to misinformation acceptance and correction or that differ from those that would impact acceptance or correction of any other belief. Such research at present appears to be lacking.[9]

I have argued that belief change, regardless of the nature of the belief, likely involves a common set of factors and

[8] In addition to this work from social psychology, there is also relevant work from other disciplines. In particular, consider research on acceptance and correction of rumors (e.g., Tybout et al., 1981) and research on corrective advertising more generally (e.g., Johar, 1996) from the marketing literature.

[9] Some studies have examined factors that help people distinguish misinformation from accurate information and are novel, but these studies do not deal with variables that would differentially impact the *acceptance* of such information and whether conceptually similar results would occur in the attitudes domain. For example, studies showing that older adults are better at identifying true versus false news headlines (perhaps because of a larger knowledge base; Brashier & Schacter, 2020) do not address whether older adults are also better at distinguishing strong (plausible) from weak (implausible) arguments for an opinion issue.

processes, and thus there may be no need to distinguish misinformation beliefs from attitudinal beliefs at the category level. However, within these different domains, there are many specific misinformation and attitudinal beliefs, and each of these individual beliefs undoubtedly has some unique features. For example, attempting to change misinformed beliefs about vaccines surely requires presenting very different corrective information than changing misinformed beliefs about climate change. The same goes for changing attitudes about abortion versus gun control. To the extent that researchers are interested in understanding *particular* misinformed beliefs or *specific* attitudes, it could make sense to develop a literature around those individual beliefs.

For much of the basic research on attitude change in social psychology, however, the beliefs examined in individual studies are chosen arbitrarily, not because the researchers have a specific interest in that topic. Thus, when a persuasion study uses the topic of comprehensive exams (Petty & Cacioppo, 1979) or the number of hours one should sleep per night (Bochner & Insko, 1966), those issues are used only for convenience, and the findings are presumed to apply (rightly or wrongly) across other topics not studied. In research on misinformation/correction, work also began with convenience topics (a warehouse fire; Johnson & Seifert, 1994), but it often seems that researchers truly are interested in the particular topic used. Going forward, both attitudes and misinformation researchers should be more explicit in explaining whether the obtained findings are intended to apply primarily to the studied topic or are expected to be more widely applicable. That is, authors of such articles should articulate whether they are conducting basic psychological research where the findings are presumed to generalize beyond their particular topic or whether they are engaged in more applied work.

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