



The independent effects of source expertise and trustworthiness on retraction believability: The moderating role of vested interest

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Abstract

Past research suggests that the trustworthiness of a source issuing a retraction of misinformation impacts retraction effectiveness, whereas source expertise does not. However, this prior research largely used expert sources who had a vested interest in issuing the retraction, which might have reduced the impact of those expert sources. We predicted that source expertise can impact a retraction's believability independent of trustworthiness, but that this is most likely when the source does not have a vested interest in issuing a retraction. Study 1 demonstrated that retractions from an expert source are believed more and lead to less continued belief in misinformation than retractions from an inexperienced source while controlling for perceptions of trustworthiness. Additionally, Study 1 demonstrated that this only occurs when the source had no vested interest in issuing the retraction. Study 2 found similar effects using a design containing manipulations of both expertise and trustworthiness. These results suggest that source expertise can impact retraction effectiveness and that vested interest is a variable that is critical to consider when determining when this will occur.

Keywords Misinformation · Expertise · Trustworthiness · Vested interest

Introduction

Misinformation poses a challenge to society. For example, misinformation about the COVID-19 pandemic is prevalent and harmful, having been linked to thousands of deaths and hospitalizations (Islam et al., 2020). Although sources ranging from credible news and fact-checking organizations to individuals with little expertise on the topics did try to correct such false claims, belief in them persisted and led to tragic consequences. From the perspective of research on the *continued influence effect* of misinformation (CIE; Johnson & Seifert, 1994), this outcome is sadly unsurprising. The CIE refers to the robust finding that misinformation tends to have continued influences on beliefs and judgments even after it has been retracted (for reviews, see Lewandowsky et al., 2012; Seifert, 2002; Swire & Ecker, 2018). Given

this, it is important to understand the factors that influence a retraction's effectiveness.

Most explanations of the CIE stem from cognitive perspectives (Lewandowsky et al., 2012; Swire & Ecker, 2018). For instance, one prominent account posits that the CIE is the result of memory processes (Lewandowsky et al., 2012; Swire & Ecker, 2018). According to this account, misinformation is automatically activated when one encounters a cue related to the misinformation. A strategic monitoring process must then retrieve the retraction in order for the misinformation to be accurately evaluated as false. This strategic monitoring process is proposed to be susceptible to failure, resulting in continued belief in misinformation due to failures to retrieve the retraction.

Such memory processes are likely involved in the CIE. However, additional factors not necessarily linked to those memory processes could also contribute. For example, one set of factors relates to whether people believe that the retraction is valid. O'Rear and Radvansky (2019) demonstrated that retractions are not always believed, and people who do not believe a retraction show greater continued influence effects than those who do. If retraction believability is a key determinant of the CIE, it is important to understand what factors might make a retraction more or less

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believable. One factor that could have such an effect is how *credible* (how generally believable) the source of the retraction appears (Cooper et al., 2016; Petty & Cacioppo, 1981; Petty & Wegener, 1998), whereby more credible sources might confer greater believability to their retractions than less credible sources.

Source credibility is traditionally conceptualized as a summary judgment arising from consideration of two independent components: *source expertise*, which refers to how knowledgeable a source is in the focal domain, and *source trustworthiness*, which refers to how honest a source is likely to be when providing information (Cooper et al., 2016; McGuire, 1985; Petty & Cacioppo, 1981; Petty & Wegener, 1998). Sources higher in expertise and trustworthiness are typically seen as more credible than those lower in these characteristics, and credible sources are generally more persuasive than noncredible sources (Hovland & Weiss, 1951; Pornpitakpan, 2004; Priester & Petty, 1995).

Past research supports some aspects of these notions when examining the impact of source credibility on the CIE, but not others. Guillory and Geraci (2013) found that retractions of misinformation from credible sources are more effective at reducing continued belief in misinformation than retractions from noncredible sources. However, subsequent studies suggested that this effect was driven by source trustworthiness but not source expertise. That is, sources who normatively differed in trustworthiness but were equated on expertise created differences in the CIE. Yet, sources who differed on expertise but were equated on trustworthiness did not show this effect. Additional research has since reinforced these results (Ecker & Antonio, 2021; Pluviano et al., 2020).

These findings are surprising given past work documenting source expertise effects on persuasion, information processing, and resulting behavioral intentions. Expert sources have been found to be more persuasive than non-expert sources (Hovland & Weiss, 1951; Petty et al., 1981; Pornpitakpan, 2004), to validate thoughts in response to persuasive messages more than nonexpert sources (Tormala et al., 2006), and to have greater impact on subsequent product purchasing intentions than nonexpert sources (Ohanian, 1991; Yoon et al., 1998). It is therefore informative to consider why past research has found no impact of source expertise in a CIE context given the importance of source expertise in other domains.

One possibility stems from the specific materials used in the past CIE research (i.e., Ecker & Antonio, 2021; Guillory & Geraci, 2013; Pluviano et al., 2020), which might have inadvertently disadvantaged any potential impact of expertise. Specifically, the expert sources used commonly had vested interests in retracting the misinformation, whereas many of the low-expertise sources did not have vested interests. A source has a vested interest when the source stands to personally benefit if others believe information the source

is disseminating. In the persuasion literature, sources with a vested interest are generally less persuasive than sources without a vested interest (Eagly et al., 1978; Kelman & Hovland, 1953; Walster et al., 1966). As such, it is possible that any possible impact of perceptions of source expertise in past studies looking at the impacts of expertise in the CIE was hindered by the presence of vested interests.

For example, Guillory and Geraci (2013) used a paradigm in which a politician is alleged to have taken a bribe, with that claim later being corrected. In their second study, they sought to manipulate retraction source expertise and hold trustworthiness constant by using sources normatively rated to be high/low in expertise but neutral in trustworthiness. At issue, two of the three high expertise sources used were the politician himself and his campaign manager, who both would have obvious vested interests in retracting claims he had taken a bribe. As such, the lack of expertise effects in this study might have been due to this confound between expertise and vested interest.

One reason vested interest could undermine expertise effects is that vested interest might act as a cue that shifts emphasis towards perceptions of trustworthiness and away from perceptions of expertise. If this is the case, the vested interest cues present in both the high and low expertise sources in past research might have generally shifted participants' focus onto the sources' trustworthiness and away from expertise. This is possible given that vested interest cues might prompt individuals to consider whether the source is telling the truth (Walster et al., 1966), which might then make source trustworthiness more salient than expertise when judging the source's overall credibility. As such, it is possible that only perceptions of trustworthiness will impact perceptions of credibility when the source has a vested interest, but that effects of expertise would emerge if no vested interest cues were present. This possibility is theoretically interesting because it suggests a possible moderator for source expertise effects, both within the CIE domain and beyond. Namely, it is possible that source expertise primarily matters when the source has no self-interest in disseminating a piece of information. As such, examining when source expertise can impact the effectiveness of a retraction would not only further understanding of the CIE, but would also inform the literature on expertise effects more generally.

An additional distinction that might be important regards what the key outcome variable in most CIE studies is truly capturing and whether trustworthiness or expertise might be more likely to predict that specific construct. Much past work has considered continuing influence of misinformation in terms of whether people use misinformation as the basis to make misinformation-relevant inferences (e.g., Ecker et al., 2010, 2011a, b, 2014, 2015; Johnson & Seifert, 1994; Rich & Zaragoza, 2016; Wilkes & Leatherbarrow, 1988). These measures rely on asking participants open-ended

questions that require an inference to be made and evaluating whether the inference is based on misinformation. For example, in a paradigm where misinformation that combustible materials caused a fire was presented and later corrected, if one were to infer that combustible materials caused explosions during the fire that would be considered a misinformation-based inference. However, it is unclear that this is the only form of continued influence that should be considered. Specifically, assessing how much participants continue to *believe* the misinformation after it is retracted also seems valuable. Though a belief measure might seem redundant with inferential measures of misinformation reliance, past research shows that these two outcomes are only moderately correlated (Susmann & Wegener, 2022a, b). Although it is difficult to make a strong a priori prediction about whether perceptions of a retraction source's expertise or trustworthiness should have more of an effect on misinformation belief or its use to make inferences, it is possible that considerations of a source's credibility are most closely related to belief in the misinformation. As such, effects of expertise might be most expected on this outcome whereas effects of expertise might be less likely to carry over to inferential reasoning, which might be influenced by factors beyond belief in misinformation.

Therefore, the present research had several primary aims. First, this work tested whether manipulations of source expertise (Studies 1 and 2) and trustworthiness (Study 2) impact the believability of a retraction, an effect not directly tested by past CIE research examining the impacts of these source perceptions on continued misinformation belief and use (Ecker & Antonio, 2021; Guillory & Geraci, 2013; Pluviano et al., 2020). Second, this work examined whether effects of expertise on retraction believability would only emerge when the source has no vested interest. Third, this work examined whether these effects on retraction believability might mediate the effects of source characteristics on continued belief in and use of the misinformation.

Study 1

Study 1 was designed to examine whether expertise of a source of a retraction only impacts that retraction's effectiveness when the source has no vested interest. Participants received a retraction from a source who either had experience that qualified him to provide the retraction or a source who lacked this experience. This manipulation was designed to mainly impact perceptions of source expertise. The source also either had or did not have a vested interest. The primary prediction for this study was that vested interest would interact with source experience such that the experienced source's retraction would be rated as more believable, lead to less endorsement of the misinformation being true, and lead

to less use of the misinformation when participants were asked to make misinformation-relevant inferences primarily when the retraction source did not have a vested interest. Effects on misinformation endorsement and misinformation-based inferences were expected to be mediated by perceptions of retraction believability. Retractions from the experienced source would be seen as more believable and greater retraction believability would lead to greater endorsement of and reliance on the misinformation, but only when the source had no vested interest. Therefore, an overall moderated mediation pattern was expected.

Method

Participants

Participants were 226 Mechanical Turk workers (58% women) who participated in exchange for monetary compensation. We based our decision of how many participants to recruit for this study on past research within the CIE domain. Specifically, past work has often employed samples large enough to have around 20 participants per cell of the experimental design (e.g., Ecker et al., 2011a, b, 2014, 2015). We decided to recruit a larger sample for the present study to bolster statistical power.

Sensitivity analyses

We conducted several sensitivity analyses to examine whether, given different levels of assumed power, our studies were likely sufficiently sensitive to detect the primary effects of interest. Prior research examining effects of source features on continued influences of misinformation have generally observed effect sizes medium to large in magnitude (Ecker & Antonio, 2021; Guillory & Geraci, 2013; Pluviano et al., 2020).

We used G*Power (Faul et al., 2007) to conduct several sensitivity analyses for multiple regressions. Sample sizes collected in Study 1 or 2 were included along with one of three levels of assumed power: 0.8, 0.9, or 0.95. Given Study 1's sample size of 226, such designs would be sensitive to a Cohen's $f^2 = 0.035$ at an assumed power of 0.8, $f^2 = 0.047$ at an assumed power of 0.9, and $f^2 = 0.058$ at an assumed power of 0.95, all of which would generally be considered relatively small effect sizes (Selya et al., 2012). Likewise, using Study 2's sample size of 353, such designs would be sensitive to a Cohen's $f^2 = 0.022$ at an assumed power of 0.8, $f^2 = 0.030$ at an assumed power of 0.9, and $f^2 = 0.037$ at an assumed power of 0.95, which would again all be considered to be relatively small effects. As such, these sensitivity analyses suggest our designs were likely sufficiently sensitive to detect our effects of interest, even if those effects

were notably smaller than those observed in prior studies examining the CIE and source features.

Design

This study used a 2 (Source Experience: inexperienced vs. experienced) \times 2 (Vested Interest: no vested interest vs. vested interest) between-subjects design. There was a minimum of 56 participants and a maximum of 58 in each cell of the design (see the Online Supplemental Material (OSM) for a full breakdown the number of participants within each cell).

Measures and manipulations

Source experience and vested interest manipulations

The messages used were adapted from those used by Wilkes and Leatherbarrow (1988) and pertained to a warehouse fire that started at a paper company. Four versions of the message were created crossing retraction source experience with source vested interest (see the OSM for the full text of these messages). The messages were presented as a series of statements. In all messages, Statement 4 stated that a short circuit in a side room started the fire. In Statement 5, participants were told that the Fire Marshal received reports that combustible materials, such as paint and gas cylinders, had been carelessly stored in a side room prior to the start of the fire. This statement also suggested that this indicates the paper company might be liable for the damages caused by the fire. The presence of these combustible materials constituted the misinformation in this study. After several filler statements about the fire, Statement 14 contained a retraction of the misinformation.

Two versions of the retraction were created: one attributed to an inexperienced source and one attributed to an experienced source. In both conditions, Statement 8 indicated that no records were kept regarding the contents of the side room before the fire, so determining whether combustible materials were stored in the side room would rely on examinations of forensic evidence. In the experienced retraction source condition, Statement 12 stated that John Anderson, the police investigator who would be examining this evidence, had been on the police force for over 20 years. Participants were also told that he had investigated the causes of hundreds of previous fires and had specialist training in advanced forensic techniques. In the inexperienced retraction source condition, participants were told that John Anderson had been on the police force for less than a year and that this was his first investigation into the cause of a fire.

To manipulate vested interest, extra information was included or excluded from Statement 12 regarding

Investigator Anderson. Those in the vested interest condition were told that Anderson owns a significant amount of stock in the company where the fire occurred and that, if combustible materials were stored in the side room, the company's stock values would decrease dramatically. This information was omitted for those in the no vested interest condition.

Source perception measures

Perceptions of both source expertise and source trustworthiness were assessed. Perceived expertise was measured using three items asking how qualified, knowledgeable, and expert the source was about whether combustible materials had been stored in the side room. An example item is: "To what degree did you think Investigator Anderson was qualified to discuss the possible presence of combustible materials in the side room?" (1 – *Not at all Qualified* to 7 – *Very Qualified*) ($\alpha = 0.90$). To assess trustworthiness, participants were asked to rate how honest (1 – *Not at all Honest* to 7 – *Very Honest*), sincere (1 – *Not at all Sincere* to 7 – *Very Sincere*), and trustworthy (1 – *Not at all Trustworthy* to 7 – *Very Trustworthy*) they found the source when he asserted that no combustible materials were present in the side room at the time of the fire ($\alpha = 0.97$).

Retraction believability measure

Participants were asked the extent to which they believed Investigator Anderson's assertion that there is no evidence that combustible materials were present in the side room at the time of the fire (1 – *I Did Not Believe His Assertion at All* to 7 – *I Believed His Assertion Completely*), how true they thought the assertion was (1 – *I Did Not Think His Assertion Was True at All* to 7 – *I Thought His Assertion Was Very True*), how accurate they thought it was (1 – *I Did Not Think His Assertion Was Accurate at All* to 7 – *I Thought His Assertion Was Very Accurate*), and how credible they thought it was (1 – *I Did Not Find His Assertion to be Credible at All* to 7 – *I Found His Assertion to be Very Credible*). Reliability between these items was high ($\alpha = 0.98$).

Misinformation endorsement measure

Three items were employed to assess the extent to which participants believed the misinformation to be true. An example item is: "To what extent do you agree with the following statement: combustible materials stored in the side room contributed to the fire?" (1 – *Strongly Disagree* to 7 – *Strongly Agree*). Reliability between items was good ($\alpha = 0.98$).

Table 1 Study 1 results from multiple regressions predicting perceptions of retraction source expertise and trustworthiness

Variable	Outcome	<i>b</i>	<i>se</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	Expertise	4.77	0.10	222	49.96	<0.001	4.583	4.959	0.96
	Trustworthiness	4.69	0.09	222	49.68	<0.001	4.507	4.879	0.96
Experience Manipulation (EM)	Expertise	1.05	0.10	222	10.97	<0.001	0.859	1.236	0.59
	Trustworthiness	0.40	0.09	222	4.25	<0.001	0.215	0.587	0.27
Vested Interest Manipulation (VM)	Expertise	-0.06	0.10	222	-0.62	0.533	-0.248	0.129	0.04
	Trustworthiness	-1.18	0.09	222	-12.45	<0.001	-1.362	-0.990	0.64
EM*VM	Expertise	-0.25	0.10	222	-2.59	0.010	-0.435	-0.059	0.17
	Trustworthiness	-0.02	0.09	222	-0.23	0.821	-0.208	0.165	0.02

Number of misinformation-based inferences measure

Nine open-ended questions used by Wilkes and Leatherbarrow (1988) were employed to measure the extent to which participants would base inferences about the warehouse fire event on the misinformation. This measure is intended to capture how much the misinformation is continuing to guide participant's reasoning about the event. Sample questions are: "Why do you think the fire was particularly intense?" and "What could have caused the explosions?" Responses to these questions were coded by two independent coders. The coders categorized whether each response directly or indirectly referenced the misinformation. A response that referenced the misinformation was coded as a 1, whereas a response that made no reference was coded as a 0. If a participant referenced the misinformation but also acknowledged that it is false within a response, that response was coded as a 0. Because there was a fair amount of discrepancy between the coders' ratings (inter-rater correlation: $r=0.73$), a third, independent coder examined the responses to which the original two coders had disagreed and provided a judgment to resolve the discrepancy. In cases where the response was too ambiguous to resolve whether it did or did not reference the misinformation, a code of 0.5 was given. Codes to all nine items were summed for each participant, resulting in an overall measure of how much participants continued to rely on the misinformation to inform their inferences.

Procedure

After providing informed consent, participants were randomly assigned to read one of the four messages, assigning them to either the high or low experience and high or low vested interest conditions. After this, participants completed the source perception measures followed by the retraction believability measure, the misinformation endorsement measure, and the

misinformation-based inference measure.¹ Lastly, participants were debriefed and thanked for their participation.

Results

All study data and analysis syntax are available here: https://osf.io/p6gry/?view_only=26fffc39bf1841d1ad90e364188db151.

Source perceptions

Two multiple regressions were conducted to examine how the source experience (-1 = inexperienced, 1 = experienced) and vested interest (-1 = no vested interest, 1 = vested interest) manipulations impacted perceptions of expertise and perceptions of trustworthiness respectively. Regarding expertise, there was a main effect of experience such that those who read about an experienced source perceived the source to be significantly more of an expert than those who read about an inexperienced source (see Table 1). There was no main effect of the vested interest manipulation. Unexpectedly, there was a significant interaction between the experience and vested interest manipulations such that the impact of the experience manipulation was larger when the source had no vested interest, $b = 1.29$, $se = 0.14$, $t(222) = 9.55$, $p < 0.001$, 95% confidence interval (CI) [1.027, 1.562],

¹ We also assessed whether participants recalled encountering the retraction. However, we had reservations making inferences based on this measure because it is not clear what construct this measure taps. Specifically, this measure could have assessed participants' memory that there was a retraction, or alternatively their construal of what the retraction meant. For instance, some might not identify a retraction from an inexperienced source as a retraction if they do not think it was believable. Because of these concerns, and because this measure did not moderate any of our primary findings, we chose not to report this measure or any analyses with this measure.

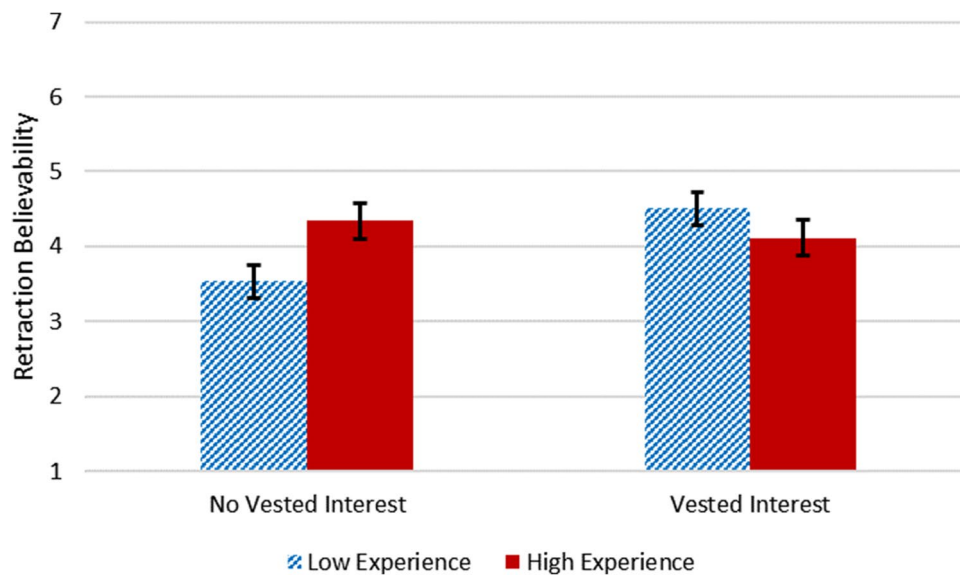


Fig. 1 Study 1 estimated marginal mean values of retraction believability as a function of source experience and vested interest. *Note.* Perceptions of source trustworthiness and the interaction between

trustworthiness and vested interest were controlled for in this analysis. Bars represent means and error bars represent 95% confidence intervals

$r=0.54$, than when the source had a vested interest, $b=0.80$, $se=0.13$, $t(222)=5.95$, $p<0.001$, 95% CI [0.535, 1.065], $r=0.37$.

Regarding trustworthiness, there was a main effect of experience such that the experienced source was perceived to be significantly more trustworthy than the inexperienced source (see Table 1). There was also a main effect of the vested interest manipulation such that the source with a vested interest was perceived to be significantly less trustworthy than the source without a vested interest. The interaction between experience and vested interest was not significant.

Because the source experience manipulation impacted perceptions of trustworthiness in addition to expertise, we controlled for trustworthiness and its interaction with the vested interest manipulation when examining the impact of the experience manipulation on our outcome measures by including these factors as covariates. We did this to ensure that effects of the expertise manipulation were not attributable to its impacts on trustworthiness (or any possible interactions between trustworthiness and the vested interest manipulation).

Retraction believability

Predicting retraction believability, the predicted interaction between the experience and vested interest manipulations emerged, $b=-0.30$, $se=0.07$, $t(220)=-4.22$, $p<0.001$, 95% CI [-0.439, -0.160], $r=0.27$. When the source did not have a vested interest, retractions from the inexperienced source were less believable than retractions from the experienced

source, $b=0.40$, $se=0.10$, $t(220)=3.94$, $p<0.001$, 95% CI [0.202, 0.607], $r=0.26$. When the source had a vested interest, this effect was actually reversed, such that retractions from the inexperienced source were seen as more believable than retractions from the experienced source (see Fig. 1), $b=-0.19$, $se=0.10$, $t(220)=-1.99$, $p=0.048$, 95% CI [-0.387, -0.002], $r=0.13$. There was no main effect of experience, $b=0.10$, $se=0.07$, $t(220)=1.48$, $p=0.14$, 95% CI [-0.035, 0.245], $r=0.10$, but, unexpectedly, there was a significant main effect of vested interest such that retractions from sources without a vested interest were rated as less believable than retractions from sources with a vested interest, $b=0.19$, $se=0.09$, $t(220)=2.04$, $p=0.042$, 95% CI [0.007, 0.366], $r=0.14$. Because this effect was not replicated in Study 2, we hesitate to place meaning on it.

Misinformation endorsement

The predicted interaction between experience and vested interest was significant, $b=0.24$, $se=0.11$, $t(220)=2.19$, $p=0.030$, 95% CI [0.024, 0.460], $r=0.15$. When the source did not have a vested interest, those who saw a retraction from the experienced source endorsed the misinformation significantly less than those who saw a retraction from an inexperienced source, $b=-0.38$, $se=0.16$, $t(220)=-2.37$, $p=0.019$, 95% CI [-0.694, -0.063], $r=0.16$. There was no significant effect of experience when the source had a vested interest (see Fig. 2), $b=0.11$, $se=0.15$, $t(220)=0.69$, $p=0.49$, 95% CI [-0.195, 0.405], $r=0.05$. There were no significant main effects of either experience, $b=-0.14$, $se=0.11$, $t(220)=-1.24$, $p=0.22$, 95% CI [-0.355, 0.081],

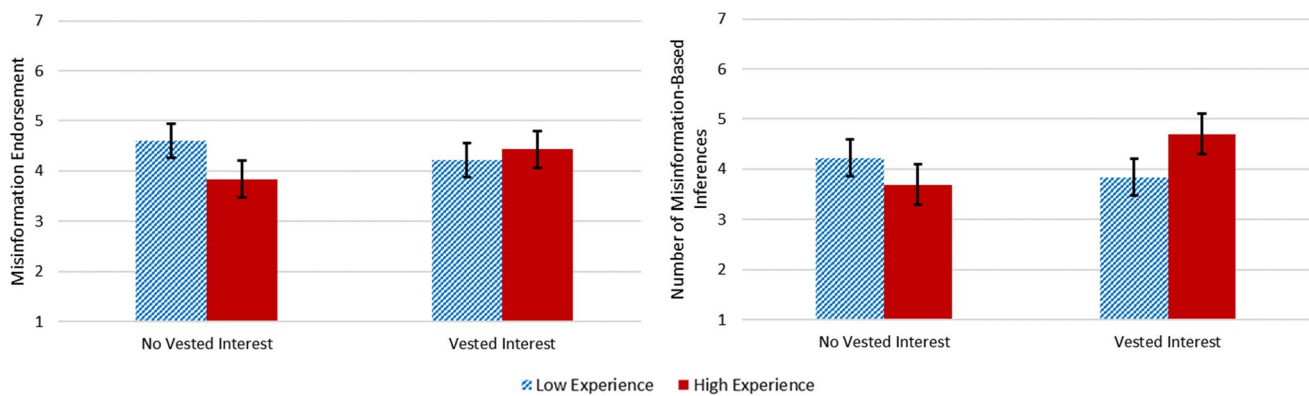


Fig. 2 Study 1 estimated marginal mean values of misinformation endorsement and number of misinformation-based inferences as a function of retraction source experience and vested interest. *Note.* Perceptions of source trustworthiness and the interaction between

trustworthiness and vested interest were controlled for in this analysis. Bars represent means and error bars represent 95% confidence intervals

$r=0.08$, or vested interest, $b=0.06$, $se=0.14$, $t(220)=0.39$, $p=0.70$, 95% CI [-0.224, 0.336], $r=0.03$.

Number of misinformation-based inferences

Misinformation endorsement was significantly correlated with the number of misinformation-based inferences, $r(224)=0.53$, $p<0.001$, but this correlation was not strong enough to conclude that these two measures are redundant. The interaction between experience and vested interest was significant in the predicted direction, $b=0.35$, $se=0.12$, $t(220)=2.88$, $p=0.004$, 95% CI [0.111, 0.589], $r=0.19$. When the source lacked a vested interest, there was a non-significant tendency for participants to make fewer misinformation-based inferences when the retraction came from an experienced versus inexperienced source, $b=-0.27$, $se=0.18$, $t(220)=-1.52$, $p=0.13$, 95% CI [-0.613, -0.079], $r=0.10$. When the source had a vested interest, the effect actually reversed such that participants made significantly more misinformation-based inferences when the retraction came from an experienced versus inexperienced source, $b=0.43$, $se=0.17$, $t(220)=2.59$, $p=0.010$, 95% CI [0.103, 0.762], $r=0.17$. There was no main effect of either experience, $b=0.08$, $se=0.12$, $t(220)=0.68$, $p=0.50$, 95% CI [-0.156, 0.322], $r=0.05$, or vested interest, $b=0.16$, $se=0.16$, $t(220)=1.01$, $p=0.32$, 95% CI [-0.150, 0.464], $r=0.07$.

Mediation analyses

To examine whether retraction believability might mediate the effects of the experience manipulation on misinformation endorsement and the number of misinformation-based inferences, two moderated mediation analyses were conducted. In the first model, the experience manipulation was included as

the focal predictor, retraction believability as the mediating variable, and misinformation endorsement as the outcome variable. The vested interest manipulation was included as a moderator of the paths between the experience manipulation and retraction believability and the path between the experience manipulation and misinformation endorsement. Perceptions of trustworthiness and their interaction with vested interest were included as covariates. Hayes' (2017) Process Macro was used to calculate the conditional indirect effects at high and low vested interest. We used 5,000 bootstrapped samples to test their significance and to determine whether these conditional indirect effects significantly differed from each other.

When the source had no vested interest, there was a significant indirect effect of experience on misinformation endorsement through retraction believability, $ab=-0.30$, $se=0.11$, 95% CI [-0.542, -0.094], such that the retraction from the experienced source was seen as more believable than retractions from the inexperienced source, $a=0.40$, $se=0.10$, $t(220)=3.94$, $p<0.001$, 95% CI [0.202, 0.607], $r=0.26$, and retraction believability negatively predicted misinformation endorsement, $b=-0.74$, $se=0.09$, $t(219)=-7.91$, $p<0.001$, 95% CI [-0.918, -0.552], $r=0.47$. When the source had a vested interest, the indirect effect was unexpectedly significant in the opposite direction, $ab=0.14$, $se=0.06$, 95% CI [0.037, 0.265]. This was because retractions from the inexpert source were now seen as more believable than retractions from the expert source (see Fig. 3), $a=-0.19$, $se=0.10$, $t(220)=-1.99$, $p=0.048$, 95% CI [-0.387, -0.002], $r=0.13$. A significant index of moderated mediation indicated that these two conditional indirect effects were significantly different from each other, $index=0.44$, $se=0.13$, 95% CI [0.201, 0.722]. The direct effect of the Experience \times Vested Interest interaction on misinformation endorsement was not significant, $b=0.02$, $se=0.10$, $t(219)=0.21$, $p=0.83$, 95% CI [-0.178, 0.222], $r=0.01$.

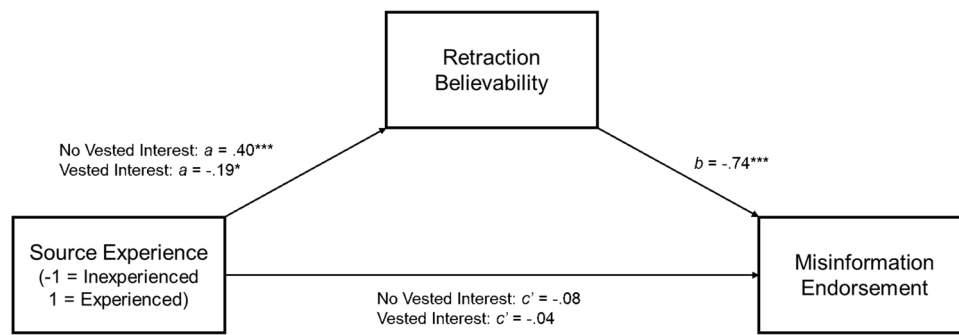


Fig. 3 Study 1 moderated mediation analysis predicting misinformation endorsement from source experience through retraction believability moderated by source vested interest. *Note.* Perceptions of source trustworthiness and the interaction between trustworthiness and vested interest were included as covariates within each regression

The second model was constructed identically to the first except that number of misinformation-based inferences was the outcome variable. When the source did not have a vested interest, the indirect effect of experience on the number of misinformation-based inferences through retraction believability was significant, $ab = -0.14$, $se = 0.07$, 95% CI [-0.300, -0.030]. As in the first model, the retraction from the expert source was seen as more believable, and retraction believability negatively predicted the number of misinformation-based inferences, $b = -0.35$, $se = 0.11$, $t(219) = -3.07$, $p = 0.002$, 95% CI [-0.571, -0.125], $r = 0.20$. As in the first model, the conditional indirect effect was in the opposite direction when the source had a vested interest, $ab = 0.07$, $se = 0.03$, 95% CI [0.012, 0.144], because retractions from the inexperienced source were now seen as more believable. These two indirect effects were significantly different from one another, $index = 0.21$, $se = 0.09$, 95% CI [0.062, 0.406]. The direct effect of the Experience \times Vested Interest interaction remained significant, $b = 0.25$, $se = 0.12$, $t(219) = 1.98$, $p = 0.048$, 95% CI [0.002, 0.489], $r = 0.11$. There was no significant effect of expertise at low vested interest, $b = -0.13$, $se = 0.18$, $t(219) = -0.71$, $p = 0.48$, 95% CI [-0.478, 0.225], $r = 0.04$, but when vested interest was high, those who saw a retraction from the experienced (vs. inexperienced) source made significantly more misinformation-based inferences, $b = 0.36$, $se = 0.17$, $t(219) = 2.20$, $p = 0.029$, 95% CI [0.038, 0.691], $r = 0.12$.

Study 1 Discussion

The results of Study 1 suggest retractions of misinformation are more believable when they come from an expert versus inexperienced source, but only when the source has no vested interest. Additionally, retractions from expert versus inexperienced sources led to less misinformation endorsement and had a

within this moderated mediation analysis. Unstandardized regression coefficients appear next to the respective mediation paths, with a , b , and c' denoting the regression coefficients for the respective paths. Conditional coefficients are reported for moderated paths

similar trending effect on the number of misinformation-based inferences, but this was again only when the source had no vested interest. Perceptions of retraction believability mediated these latter effects. Importantly, these effects emerged while controlling for perceptions of trustworthiness and its interaction with vested interest, indicating that differential perceptions of trustworthiness did not account for these effects.

Unexpectedly, the presence of a vested interest led the source experience manipulation to backfire on perceptions of retraction believability and the number of misinformation-based inferences. We are hesitant to place much importance in these unexpected findings, but it is possible that people would be especially disappointed in an expert source who is perceived to be lying in service of their own self-interest.

Put together, these results indicate that, when people judge whether to believe a retraction or not, information about the source's expertise might matter most when the source has no vested interest in issuing the retraction. When the source has a vested interest, their expertise seems to matter less. This could be because vested interest cues make people think more about whether the retraction is an attempt to deceive, and this might overshadow considerations of how qualified the source is to issue the retraction. These results support the idea that perceptions of source vested interest are necessary to consider when determining whether source expertise will have an impact on retraction effectiveness.

A limitation of this study was that the experience manipulation influenced perceptions of trustworthiness, requiring those perceptions to be statistically controlled in our analyses. It would be beneficial to experimentally manipulate trustworthiness in addition to expertise to achieve greater control of both perceptions and more precisely examine their impacts.

Study 2

Study 2 was designed to replicate the overall pattern of results observed in Study 1 using direct manipulations of source expertise and trustworthiness. As in Study 1, we predicted that retractions from the high expertise source would be seen as more believable, and subsequent belief in and use of the misinformation would be lower, than when a less expert source issued the retraction. Critically, we predicted that this would only be the case when the source did not have a vested interest in issuing the retraction. Additionally, we expected that retractions from a more trustworthy source would be seen as more believable and lead to less continued belief in and use of the misinformation than retractions from a less trustworthy source. Importantly, we predicted that this effect would remain even when the source had a vested interest in issuing the retraction.

Method

Participants

Three-hundred and fifty-three undergraduates (54.4% men, 44.2% women, 0.6% other, 0.3% non-binary) were recruited to participate in this study in exchange for course credit.

Design

This study used a 2 (Source Expertise: low vs. high) \times 2 (Source Trustworthiness: low vs. high) \times 2 (Vested Interest: no vested interest vs. vested interest) between-subjects design. There was a minimum of 42 participants and a maximum of 46 in each cell of the design (see the OSM for a full breakdown the number of participants within each cell).

Measures and manipulations

Source expertise manipulation

The same source experience manipulation used in Study 1 was used to manipulate source expertise in this study.

Source trustworthiness manipulation

Trustworthiness was manipulated by providing additional details about Investigator Anderson immediately following the source expertise information. Those in the high trustworthiness condition were told that Investigator Anderson is known to be a man of integrity who always tells the truth, even when doing so could be personally costly. Those in the low trustworthiness condition were told that he is a man of questionable integrity

and that there are rumors he will sometimes lie, especially if he stands to personally benefit from doing so.

Vested interest manipulation

The vested interest manipulation was largely the same as that used in Study 1 with several minor wording changes (see OSM for exact wording).

Source perception measures

The measure of source expertise was identical to that used in Study 1 ($\alpha=0.79$). The measures used to assess trustworthiness were also largely the same, although the item asking about trustworthiness was replaced with an item asking participants the degree to which they believed Investigator Anderson was saying what he truly believed (7-point scale: 1 – *Not at all* to 7 – *Very Much*; $\alpha=0.93$). Measures of perceived vested interest were also included. These items asked to what extent the presence or absence of combustible materials in the side room could have personal implications for Investigator Anderson, if it could impact him financially, and if it has implications for him outside of his job (7-point scales: 1 – *Not at all* to 7 – *Very Much*; $\alpha=0.85$).

Retraction believability measure

This measure was identical to the one used in Study 1 ($\alpha=0.94$).

Misinformation endorsement and inference measures

The misinformation endorsement ($\alpha=0.90$) and inference measures were the same as those used in Study 1.

Procedure

After providing informed consent, participants were randomly assigned to read the same warehouse fire message used in Study 1 but with either the high or low expertise, trustworthiness, and vested interest information. After reading the randomly assigned message, participants responded to the source perception measures followed by the retraction believability, misinformation endorsement, and inference measures. Finally, participants were debriefed and thanked for their participation.

Results

Source perceptions

Three multiple regressions were constructed predicting each of the three measured source perceptions from the expertise,

Table 2 Study 2 results from multiple regression predicting perceptions of retraction source expertise

Variable	<i>b</i>	<i>se</i>	<i>df</i>	<i>T</i>	<i>p</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	4.45	0.07	346	66.39	<0.001	4.320	4.584	0.96
Expertise Manipulation (EM)	0.48	0.07	346	7.11	<0.001	0.345	0.609	0.36
Trustworthiness Manipulation (EM)	0.18	0.07	346	2.64	0.009	0.045	0.309	0.14
Vested Interest Manipulation (VM)	0.05	0.07	346	0.77	0.442	-0.080	0.184	0.04
EM*TM	0.05	0.07	346	0.70	0.487	-0.085	0.179	0.04
EM*VM	-0.10	0.07	346	-1.54	0.124	-0.235	0.028	0.08
TM*VM	-0.13	0.07	346	-1.89	0.059	-0.259	0.005	0.10

Table 3 Study 2 results from multiple regression predicting perceptions of retraction source trustworthiness

Variable	<i>b</i>	<i>se</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	3.93	0.07	346	54.14	<0.001	3.788	4.074	0.95
Expertise Manipulation (EM)	0.08	0.07	346	1.11	0.266	-0.062	0.224	0.06
Trustworthiness Manipulation (EM)	0.58	0.07	346	7.97	<0.001	0.436	0.721	0.39
Vested Interest Manipulation (VM)	-0.43	0.07	346	-5.92	<0.001	-0.573	-0.287	0.30
EM*TM	-0.02	0.07	346	-0.27	0.788	-0.162	0.123	0.01
EM*VM	-0.13	0.07	346	-1.75	0.081	-0.270	0.016	0.09
TM*VM	-0.18	0.07	346	-2.47	0.014	-0.322	-0.037	0.13

trustworthiness, and vested interest manipulations as well as the interactions between the manipulations of expertise and vested interest, trustworthiness and vested interest, and expertise and trustworthiness. Regarding perceptions of source expertise, the source expertise manipulation significantly impacted perceptions of expertise such that the high expertise source was rated as being more expert than the low expertise source (see Table 2). The trustworthiness manipulation also significantly impacted perceptions of expertise such that the more trustworthy source was perceived to be more expert than the less trustworthy source. The vested interest manipulation did not have a significant effect.

Regarding perceptions of source trustworthiness, the more trustworthy source was perceived to be more trustworthy than the less trustworthy source (see Table 3). The source without a vested interest was also perceived to be more trustworthy than the source with a vested interest. Interestingly, a significant interaction between trustworthiness and vested interest emerged such that the effect of the trustworthiness manipulation was stronger when the source had no vested interest, $b=0.76$, $se=0.10$, $t(346)=7.35$, $p<0.001$, 95% CI [0.555, 0.961], $r=0.37$, than when the source had a vested interest, $b=0.40$, $se=0.10$, $t(346)=3.90$, $p<0.001$, 95% CI [0.198, 0.600], $r=0.21$. The expertise manipulation did not have an impact.

Regarding perceptions of source vested interest, the source with a vested interest was perceived to have

significantly more of a vested interest in issuing a retraction than the source without a vested interest (see Table 4). The untrustworthy source was also perceived to have more of a vested interest than the trustworthy source. The expertise manipulation had no effect.

Retraction believability

Another multiple regression with the same predictors was used to predict retraction believability. There were significant main effects of expertise, trustworthiness, and vested interest, such that retractions from the expert, trustworthy, or low vested interest sources were rated as more believable than retractions from the inexpert, untrustworthy, or high vested interest sources (see Table 5). Critically, the predicted Expertise \times Vested Interest interaction was significant. Replicating Study 1, a significant effect of expertise emerged when vested interest was low, $b=0.34$, $se=0.10$, $t(346)=3.32$, $p=0.001$, 95% CI [0.137, 0.534], $r=0.18$, but not when vested interest was high (see Fig. 4), $b=-0.02$, $se=0.10$, $t(346)=-0.16$, $p=0.87$, 95% CI [-0.213, 0.181], $r=0.01$. There was also a significant Trustworthiness \times Vested Interest interaction such that the effect of trustworthiness was stronger when the source did not have a vested interest, $b=0.62$, $se=0.10$, $t(346)=6.16$, $p<0.001$, 95% CI [0.424, 0.821], $r=0.31$, than when they had a vested

Table 4 Study 2 results from multiple regression predicting perceptions of retraction source vested interest

Variable	<i>b</i>	<i>se</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	4.25	0.07	346	58.59	<0.001	4.108	4.394	0.95
Expertise Manipulation (EM)	0.00	0.07	346	-0.02	0.984	-0.144	0.141	<0.001
Trustworthiness Manipulation (EM)	-0.21	0.07	346	-2.93	0.004	-0.355	-0.070	0.16
Vested Interest Manipulation (VM)	0.80	0.07	346	11.04	<0.001	0.659	0.944	0.51
EM*TM	0.00	0.07	346	0.004	0.997	-0.142	0.143	<0.001
EM*VM	0.10	0.07	346	1.36	0.174	-0.044	0.241	0.07
TM*VM	0.14	0.07	346	1.94	0.053	-0.002	0.283	0.10

Table 5 Study 2 results from multiple regression predicting retraction believability

Variable	<i>b</i>	<i>se</i>	<i>df</i>	<i>t</i>	<i>P</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	3.73	0.07	346	52.43	<0.001	3.589	3.869	0.94
Expertise Manipulation (EM)	0.16	0.07	346	2.24	0.026	0.020	0.300	0.12
Trustworthiness Manipulation (EM)	0.46	0.07	346	6.50	<0.001	0.323	0.602	0.33
Vested Interest Manipulation (VM)	-0.29	0.07	346	-4.09	<0.001	-0.431	-0.151	0.21
EM*TM	0.09	0.07	346	1.24	0.216	-0.052	0.228	0.07
EM*VM	-0.18	0.07	346	-2.47	0.014	-0.316	-0.036	0.13
TM*VM	-0.16	0.07	346	-2.25	0.025	-0.300	-0.020	0.12

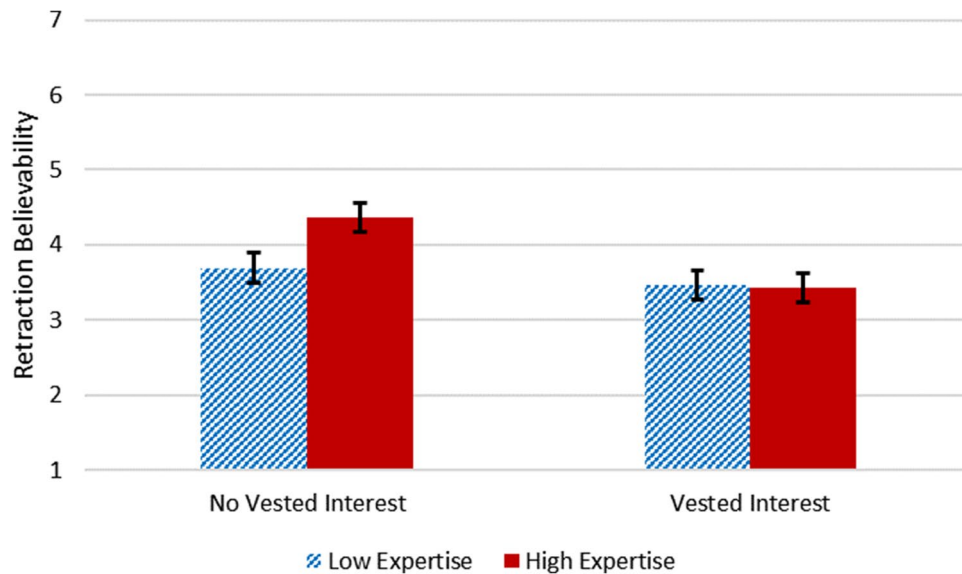
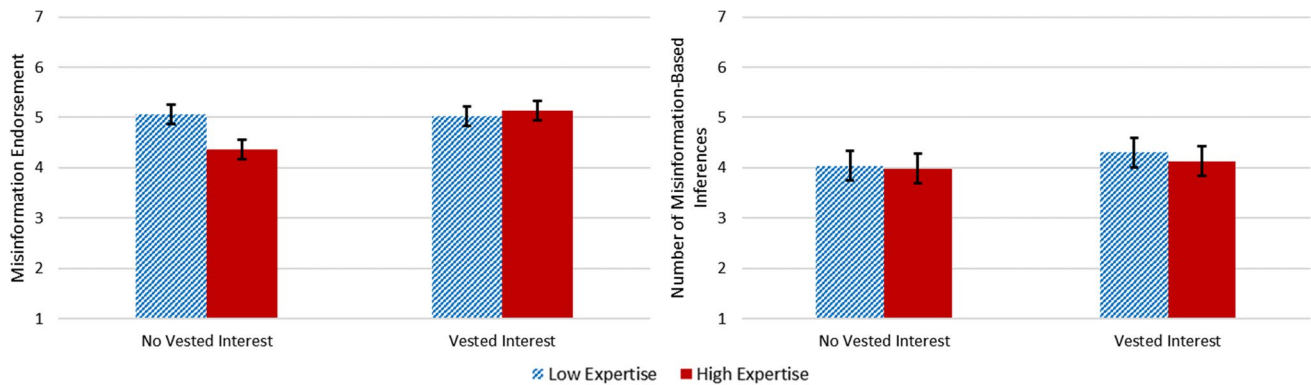


Fig. 4 Study 2 estimated marginal mean values of retraction believability as a function of source expertise and vested interest. *Note.* The main effect of the trustworthiness manipulation and interactions between the trustworthiness and vested interest manipulations and

the expertise and trustworthiness manipulations were also included in this analysis. Bars represent means and error bars represent 95% confidence intervals

Table 6 Study 2 results from multiple regression predicting misinformation endorsement

Variable	<i>b</i>	<i>se</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	4.90	0.07	346	70.97	<0.001	4.767	5.039	0.97
Expertise Manipulation (EM)	-0.14	0.07	346	-2.10	0.037	-0.281	-0.009	0.11
Trustworthiness Manipulation (EM)	-0.21	0.07	346	-2.99	0.003	-0.342	-0.071	0.16
Vested Interest Manipulation (VM)	0.19	0.07	346	2.68	0.008	0.050	0.321	0.14
EM*TM	-0.04	0.07	346	-0.53	0.594	-0.173	0.099	0.03
EM*VM	0.20	0.07	346	2.93	0.004	0.066	0.338	0.16
TM*VM	0.16	0.07	346	2.36	0.019	0.027	0.299	0.13

**Fig. 5** Study 2 estimated marginal mean values of misinformation endorsement and the number of misinformation-based inferences as a function of source expertise and vested interest. *Note.* The main effect of the trustworthiness manipulation and interactions between the

trustworthiness and vested interest manipulations and the expertise and trustworthiness manipulations were also included in this analysis. Bars represent means and error bars represent 95% confidence intervals

interest, $b = 0.30$, $se = 0.10$, $t(346) = 3.02$, $p = 0.003$, 95% CI [0.106, 0.500], $r = 0.16$.

Misinformation endorsement

A multiple regression identical to the one used to predict retraction believability was created to predict misinformation endorsement. There were significant main effects of expertise, trustworthiness, and vested interest such that participants endorsed the misinformation less following a retraction from an expert, trustworthy, or low vested interest source than one from an inexpert, untrustworthy, or high vested interest source (see Table 6). Importantly, the predicted Expertise \times Vested Interest manipulation was significant such that the effect of expertise was significant when the source had no vested interest, $b = -0.35$, $se = 0.10$, $t(346) = -3.54$, $p < 0.001$, 95% CI [-0.540, -0.154], $r = 0.19$, but not when the source had a vested interest (see Fig. 5), $b = 0.06$, $se = 0.10$, $t(346) = 0.59$, $p = 0.56$, 95% CI [-0.134, 0.249], $r = 0.03$. There was also a significant Trustworthiness \times Vested Interest interaction such that the effect of trustworthiness was significant when the source did not have a

vested interest, $b = -0.37$, $se = 0.10$, $t(346) = -3.76$, $p < 0.001$, 95% CI [-0.562, -0.176], $r = 0.20$, but not when the source had a vested interest, $b = -0.04$, $se = 0.10$, $t(346) = -0.45$, $p = 0.66$, 95% CI [-0.235, 0.148], $r = 0.02$.

Number of misinformation-based inferences

Misinformation endorsement was significantly positively correlated with inferences, $r(351) = 0.33$, $p < 0.001$, but not to a degree to which these measures could be considered redundant. An identical multiple regression as that used to predict retraction believability and misinformation endorsement was also created to predict the number of misinformation-based inferences participants made. As opposed to what was observed with misinformation endorsement, there were no significant main effects of expertise or vested interest (see Table 7). There was a significant main effect of trustworthiness, however, such that fewer misinformation-based inferences were made when the retraction came from a trustworthy versus untrustworthy source. Unexpectedly, there was also no significant Expertise \times Vested Interest interaction or Trustworthiness \times Vested Interest interaction.

Table 7 Study 2 results from multiple regression predicting the number of misinformation-based inferences

Variable	<i>b</i>	<i>se</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI lower bound	95% CI upper bound	<i>r</i>
Intercept	4.12	0.11	346	38.46	<0.001	3.908	4.330	0.90
Expertise Manipulation (EM)	-0.06	0.11	346	-0.54	0.589	-0.269	0.153	0.03
Trustworthiness Manipulation (EM)	-0.24	0.11	346	-2.19	0.029	-0.446	-0.024	0.12
Vested Interest Manipulation (VM)	0.10	0.11	346	0.95	0.340	-0.108	0.313	0.05
EM*TM	0.02	0.11	346	0.17	0.864	-0.192	0.229	0.01
EM*VM	-0.03	0.11	346	-0.26	0.796	-0.238	0.183	0.01
TM*VM	0.06	0.11	346	0.56	0.579	-0.151	0.270	0.03

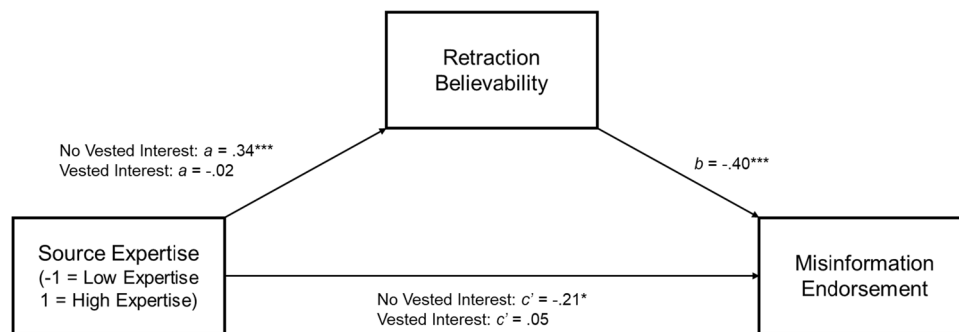


Fig. 6 Study 2 moderated mediation analysis predicting misinformation endorsement from source expertise through retraction believability moderated by source vested interest. *Note.* The trustworthiness manipulation and its interaction with vested interest were included as covariates within each regression within this moderated media-

tion analysis. Unstandardized regression coefficients appear next to the respective mediation paths, with *a*, *b*, and *c'* denoting the regression coefficients for the respective paths. Conditional coefficients are reported for moderated paths

Mediation analyses

As in Study 1 we conducted two moderated mediation analyses. In the first analysis, source expertise served as the focal predictor, retraction believability as the mediator, and misinformation endorsement as the outcome measure. The vested interest manipulation moderated the paths between expertise and retraction believability, and the path between expertise and misinformation endorsement. The trustworthiness manipulation and its interaction with vested interest were also included as covariates. Five thousand bootstrapped samples were again used to calculate the significance of the indirect effects.

When the source had no vested interest, there was a significant negative indirect effect of expertise on misinformation endorsement through retraction believability, $ab = -0.13$, $se = 0.05$, 95% CI [-0.235, -0.051]. The retraction from the expert source was seen as more believable than the one from the inexpert source, $a = 0.34$, $se = 0.10$, $t(347) = 3.34$, $p < 0.001$, 95% CI [0.139, 0.537], $r = 0.18$, and retraction believability negatively predicted misinformation endorsement, $b = -0.40$, $se = 0.05$, $t(346) = -8.37$, $p < 0.001$, 95%

CI [-0.491, -0.304], $r = 0.41$. When the source had a vested interest, the conditional indirect effect was no longer significant, $ab = 0.01$, $se = 0.04$, 95% CI [-0.074, 0.086]. This was because expertise no longer impacted retraction believability in this condition (see Fig. 6), $a = -0.02$, $se = 0.10$, $t(347) = -0.16$, $p = 0.87$, 95% CI [-0.213, 0.181], $r = 0.01$. These two indirect effects differed significantly from each other, $index = 0.14$, $se = 0.06$, 95% CI [0.029, 0.268]. A direct effect of the Expertise \times Vested Interest interaction remained significant, $b = 0.13$, $se = 0.06$, $t(346) = 2.08$, $p = 0.038$, 95% CI [0.007, 0.257], $r = 0.11$, such that the effect of expertise was significant when the source had no vested interest, $b = -0.21$, $se = 0.09$, $t(346) = -2.35$, $p = 0.019$, 95% CI [-0.392, -0.035], $r = 0.13$, but not when the source had a vested interest, $b = 0.05$, $se = 0.09$, $t(346) = 0.57$, $p = 0.57$, 95% CI [-0.124, 0.226], $r = 0.03$.

Though there were no significant total effects of expertise on inferences, we still examined whether there might be indirect effects on inferences through retraction believability. Therefore, we ran a second mediation analysis identical to the first except that the outcome measure was the number of misinformation-based inferences. When the source had

no vested interest, there was a significant indirect effect, $ab = -0.14$, $se = 0.05$, 95% CI [-0.237, -0.054]. Retractions from the expert source were seen as more believable than those from the inexpert source, and retraction believability negatively predicted the number of misinformation-based inferences, $b = -0.41$, $se = 0.08$, $t(346) = -5.22$, $p < 0.001$, 95% CI [-0.559, -0.253], $r = .27$. The indirect effect was no longer significant when the source had a vested interest, $ab = 0.01$, $se = 0.04$, 95% CI [-0.080, 0.087], because expertise did not impact retraction believability in this condition. These indirect effects differed significantly from each other, $index = 0.14$, $se = 0.06$, 95% CI [0.028, 0.276]. There was no significant direct effect of the Expertise \times Vested Interest interaction, $b = -0.10$, $se = 0.10$, $t(346) = -0.96$, $p = 0.34$, 95% CI [-0.304, 0.105], $r = 0.05$.

Study 2 Discussion

The effect of expertise on retraction believability and misinformation endorsement emerged as predicted. Retractions from the expert source were seen as more believable and led to less continued endorsement of the misinformation than retractions from the inexpert source. Importantly, this only occurred when the retraction source had no vested interest. No significant effects of expertise emerged when predicting the number of misinformation-based inferences. As discussed earlier, this might have been because a retraction source's characteristics are more closely linked to belief in the misinformation than its use to make inferences. If inferences are impacted by factors and other relevant information beyond misinformation belief, effects of expertise might not carry over to inferential reasoning.

An additional, unexpected finding was that the effect of the trustworthiness manipulation on retraction believability was reduced, and its effect on misinformation endorsement became non-significant, when the source had a vested interest compared to when the source did not have a vested interest. One possible explanation for this could be because the trustworthiness manipulation was less impactful on perceptions of trustworthiness in the presence of vested interest information. Participants might have used this information in conjunction with the trustworthiness information to judge the source's trustworthiness, which could have diluted the impact of the trustworthiness manipulation. As such, that manipulation could be expected to have less of an impact when vested interest information was present. Therefore, these findings likely do not suggest that trustworthiness per se is less important when a source has a vested interest, but rather that information about a source independently pertaining to their trustworthiness is less impactful when information about vested interest is also present.

General discussion

This research suggests that both source trustworthiness and source expertise can independently impact perceptions of retraction believability, and that those perceptions predict continued belief in the misinformation and its use to inform inferences. Additionally, source expertise only predicted retraction believability when the source had no vested interest. These findings suggest that past research was too quick to dismiss the consequentiality of a retraction source's expertise in the CIE context (Ecker & Antonio, 2021; Guilory & Geraci, 2013; Pluviano et al., 2020; Swire & Ecker, 2018; Swire et al., 2017). Indeed, a casual assessment of the current CIE research on this topic would lead one to conclude that source expertise is meaningless in the CIE, and that sources retracting misinformation can safely ignore how expert they appear. However, the present research offers a critical clarification to research on this topic. Source expertise does matter, specifically when the retracting source has no self-interest in issuing the retraction. Because retracting sources, such as independent fact-checkers, often do not have such self-interest, the present findings suggest that it is quite important for such sources to emphasize their expertise.

Additionally, this research suggests that there might be utility in using multiple outcome measures to assess continued influence of misinformation. Namely, the present research suggests that some effects might appear more consistently when examining continued belief in misinformation than when examining misinformation-based inferential reasoning. Given that both outcomes are important, it is possible that consequential effects might sometimes be missed if one were to focus on one outcome at the exclusion of the other.

The present findings also illustrate the importance of considering recipients' perceptions of a retraction's believability. Past CIE theorizing has largely focused on processes that occur after the retraction is accepted (Johnson & Seifert, 1994; Lewandowsky et al., 2012; Swire & Ecker, 2018; Wilkes & Leatherbarrow, 1988). However, consistent with the findings of O'Rear and Radvansky (2019), the present data suggest that people do not always believe the retraction, and that belief in the retraction is an important predictor of continued belief in the misinformation and its use to inform inferences. Importantly, the present research suggests that both perceptions of expertise and trustworthiness can impact retraction believability. Therefore, future theorizing should consider the conditions under which a retraction should or should not be believed.

More broadly, the present research suggests that the impacts of trustworthiness and expertise on perceptions of credibility might be more nuanced than currently theorized (Cooper et al., 2016; McGuire, 1985; Petty & Cacioppo,

1981; Petty & Wegener, 1998). Specifically, it is possible that factors such as vested interest can shift emphasis away from one perception (e.g., expertise) and place more emphasis on the other perception (e.g., trustworthiness). Future research should examine other factors besides vested interest that could play a similar role. One such factor could be perceptions of source bias (Wallace et al., 2020). Though vested interest has been linked to perceptions of source bias (Wallace et al., 2020), no research to date has examined how source bias itself might raise questions in the minds of source perceivers that differentially focus them on some source perceptions, such as trustworthiness, at the expense of other perceptions, such as expertise.

A potential limitation of the present studies' methods was that vested interest was manipulated by including or withholding information suggesting that the reaction source has a relevant vested interest. A possible issue with this approach is that participants in the vested interest condition received more information than those in the no vested interest, creating an inequality between conditions. That said, we do not believe this inequality was meaningful. It is unlikely that participants in the vested interest condition became notably more fatigued reading a couple of additional sentences than those in the no vested interest conditions, and it is unlikely that the vested interest information had other meaningful impacts on participants other than leading them to believe the source had a vested interest. Nevertheless, future research could use a no vested interest condition that contains neutral, filler information about the source in an amount equal to the vested interest information to rule out this potential issue.

The present research has several notable real-world implications. Because a retracting source's expertise, in addition to trustworthiness, can impact how effective the retraction is at reducing continued belief in misinformation, sources attempting to retract misinformation should generally try to emphasize credentials documenting their trustworthiness and expertise. However, whether one has a vested interest in issuing a retraction might also be important. In cases where a person with a vested interest must be the one issuing the retraction, they might be most successful when emphasizing their trustworthiness over their expertise. This might be particularly important in the political realm, where politicians regularly have a vested interest in correcting negative misinformation about themselves, other members of their party, or policy proposals they endorse. Additionally, it is notable that, in both studies, participants indicated post-retraction misinformation endorsement that was near or above the midpoint of the scale, even when the retracting source had high expertise and no vested interest. This suggests that the continued influence of misinformation can be persistent even in cases where retractions are expected to be most effective.

As such, it is possible that individual factors, such as source credibility, are not always sufficient to satisfactorily reduce the CIE on their own, and that combining them with other factors known to reduce the CIE might be needed (Ecker et al., 2010).

To conclude, these results suggest that retraction source expertise can independently impact whether one sees a retraction as believable, and that this perception predicts continued reliance on misinformation. Importantly, however, these effects might not always occur. Variables such as source vested interest can prevent one from considering a source's expertise and instead place focus on the source's motives to issue the retraction. Therefore, by further understanding these additional variables, future theorizing in the CIE domain will be able to more accurately predict when a retraction will be effective at dispelling belief in misinformation.

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Author contributions M.W. Susmann designed the reported studies in collaboration with D.T. Wegener. M.W. Susmann conducted all of the data analyses in consultation with D.T. Wegener. M.W. Susmann drafted the manuscript and revised it based on feedback from D.T. Wegener.

Data availability All study materials are publicly available in the Online Supplemental Materials for this article. All study data are publicly available here: https://osf.io/p6gry/?view_only=26fffc39bf1841d1ad90e364188db151.

Code availability All study analysis syntax is publicly available here: https://osf.io/p6gry/?view_only=26fffc39bf1841d1ad90e364188db151.

Declarations

Ethics Approval All research within this article received prior ethics approval from the university Institutional Review Board.

Consent to Participate All participants provided informed consent prior to taking part in the studies reported in this article.

Consent to Publish Not applicable.

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