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Researching misinformation

An overview of lessons for fact checkers,
evidence gaps and new directions



A JOINT BRIEFING FROM:



About this briefing

Misinformation causes real harm to people's lives, health, finances and to democracy. We need good evidence on how to tackle it. This briefing is part of a research programme set up by Africa Check, Chequeado and Full Fact, to find that evidence and make it useful.

In this final overview briefing, Full Fact's researcher Dr. Dora-Olivia Vicol and Head of Research Amy Sippitt look at the main lessons from research explored in this series, and the gaps still to be filled by research.

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Summary

Bad information ruins lives. There is now a growing body of research from academics from the US, but also increasingly from the UK and other parts of the world, dedicated to understanding who is most susceptible to believing misinformation, how fact checks might cut through political partisanship, and how small tweaks to a headline, choice of imagery, and even format, can support the correction of erroneous beliefs.

Full Fact, Africa Check and Chequeado spent a year poring over this research. We looked at the literature from psychology, political science, education, health and communication studies, in a quest to learn from a wide range of research, to identify available research beyond the United States and ultimately to turn research findings into a set of tools for fact checkers.

Overall we produced eleven briefings, published over the course of 2019 and 2020.

If you're a fan of long form, take a deep dive into the evidence base. You can find the briefings in English, French, and Spanish. Every one of them has benefited from the gracious reviews of academics and fact checkers.

We found that:

- **Some audiences will be more vulnerable to misinformation than others**, but a certain bias towards believing things which are repeated, easy to process, and aligned with our worldviews make us all prone to believing misinformation to some extent.
- Fact checks which **identify what is wrong, explain why, and provide the right answer**, are the most effective at updating beliefs.
- **For long-standing debates, corrections can be an uphill battle.** There is mixed evidence on the role of fact checks in updating beliefs for some types of misinformation, such as vaccine misinformation and conspiracies, and little evidence of the role of fact checks in changing behaviours linked to these beliefs. For these claims, the most effective approach is to prevent them from arising and spreading.
- **How we present fact checks matters.** Despite the emergence of a multitude of media formats, evidence suggests that articles which place the most important information at the top, avoid jargon and keep distraction to a minimum, are the most effective way of communicating information.
- **Media and information literacy programmes show promise.** Interventions with young and adult participants, including long-term classroom training or just short trainings online, were all found to improve audiences' ability to think more

critically about the information they encounter. We need more research to determine how these assessed skills translate into real world behaviours.

- **Fact checking can impact politicians' behaviour.** We need to better understand the circumstances that make this most effective and how to make it a durable effect.

The checklist in this briefing captures the main recommendations when it comes to the production and publicising of fact checks — which is at the heart of what fact checkers do. Have a read, **print out our two page summary**, and pin it by your desk. As we say in every briefing, this is the beginning, not the end, of a conversation between fact checkers and researchers. Every briefing will benefit from feedback from practitioners, and further research where the evidence base is thin.

In the second half of this overview we discuss the research gaps we identified over the course of this research. Most significantly, research relevant to our work is severely lacking in the Global South. Despite our best attempts to explore research outside the United States, this is where the majority of our research recommendations come from.

Checklist for fact checking

Step 1: Production

Act fast. One of the most robust findings is that we are more likely to believe the things we hear repeated. This happens regardless of how educated we are, and even regardless of whether we remember seeing the same story before. Fact check early to reduce the likelihood of inaccurate claims being repeated.

FULL BRIEFING:

 **Who believes and shares misinformation**

Seek corrections from claimants. Fact checks are significantly more effective when they come from the same source who produced the misinformation to begin with. So if you find a claim is wrong, ask the claimant to correct the record. This can be done during the fact check, or after. If they do make a correction, consider including their correction in your fact check. Chances are that, together, you can convince more readers than you would on your own.

FULL BRIEFING:

 **Fact checking in the 2019 election: research recommendations¹ and**

 **What is the impact of fact checkers' work on public figures, institutions and the media?**

Step 2: Content

Don't stop at saying that something is wrong. Explain why, and tell your audiences what is right. Whenever we commit something to memory, we store it in narrative format. Important elements of time, place, actors and motives do not exist in our minds independently of each other, but are usually remembered for how they hang together. This is what psychologists call mental models.

Studies have found that people's tendency to build models of events makes it harder to correct misinformation, if all a fact check does is open a gap in the story. So, if you can,

¹ This briefing was published by Full Fact. See Walter and Tukachinsky, 'A meta-analytic examination of the continued influence of misinformation in the face of correction'; Walter and Murphy, 'How to unring the bell'.

plug that gap. Tell your audiences what is wrong and why, and what the correct answer is if you have it, to update their knowledge for the long term.

FULL BRIEFING:

 **Who believes and shares misinformation**

Don't phrase your headline as a question. Phrase it as the answer you wish audiences to remember. In the age of incidental news consumption, the headline is often the only thing the audience sees. Simply turning your claim into a question (such as “Would a Covid-19 vaccine be mandatory?”) risks doing more harm than good, by familiarising the audience with an unproven claim, but leaving them unclear about its accuracy, and unable to explain it for themselves. A better headline would say that “There is no indication that a Covid-19 vaccine will be mandatory or that those who don't get it will have their movements restricted”. So when a claim is not correct, state this clearly, starting with the headline. Check that every headline has, where possible:

- **A clear object.** (Avoid indeterminate references like “This picture” or “This post” and instead use more descriptive references like “A viral post”)
- **A claim.** (To get readers to update their beliefs, we need to refute — link back to/ challenge the original claim)
- **A clear verdict** on the claim's accuracy.
- **An explanation** for the verdict.

FULL BRIEFING:

 **Who believes and shares misinformation**

Be transparent about what you don't know — but specify where uncertainty lies. As fact checkers, we have a duty to be clear about evidence gaps. But be specific when you reference uncertainty, to avoid leaving readers with the feeling that nothing can be trusted. For instance: be prepared to distinguish between cases where uncertainty comes from an evidence base which is:

- **Based on ranges** — which you might want to specify. Example: Unemployment is estimated at 4%, between 3.8% and 4.2%)

- **Based on probabilities** — where you might want to give percentage-based explanations for words such as “likely” or “very likely”. Example: global warming is likely (66% chance) to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate”
- **Insufficient to support the conclusions of the claim** (for instance, because it is based on a non-representative sample size, and more research is needed)
- **Characterised by major errors of sampling, analysis or interpretation** (such as in the Vitamin D case,² where authors didn’t account for its correlations with age or illness, which were also associated with complications from coronavirus)
- **Absent entirely**

FULL BRIEFING:

 **Communicating uncertainty**

Step 3: Format

An image can draw attention on social media. But text is best for conveying information. Pictures and visual material are great at drawing attention. Our eyes inherently dart to images — particularly of faces — and we all process visual content much faster than we process text. But they are not always best at giving audiences the facts. An experiment which asked participants to read the same story in textual format, text and a picture, or a combination of audiovisual stimuli, found that their attention was drawn to the audiovisual stimuli, missing key elements from the caption. Think also about how much harder it is to copy, and share a particular part of video content, compared to text, and how much more difficult it is to produce a good video, compared to text.

FULL BRIEFING:

 **Communicating fact checks online**

Only include images that support your conclusions. The immediacy with which we process visual stimuli also makes images a double edged sword. On the one hand, an image which mirrors the conclusions of a fact check can make it easier to remember.

2 Kate Lewis, Covid-19 study that links deaths to low vitamin D levels is flawed, Full Fact, June 2020, fullfact.org/health/vitamin-d-study-flawed/

Education research has found time and again that students learn better from materials that include visuals. But an image that tells a different story than the text can also undermine its conclusions. For instance, you wouldn't cover a fact check which debunks vaccine misinformation with a picture of a child wincing as they are receiving an injection. So think about the subject of your text, and image. And make sure that both formats cast your subject in the same light.

FULL BRIEFING:

 [Communicating fact checks online](#)

Use a clean layout that doesn't distract your audiences. Another lesson from how we process text and visual information is that if we want our audiences to focus on our fact check, we need to make sure they are not distracted. Side adverts, pop ups, and other elements can all divert attention from your fact check.

FULL BRIEFING:

 [Communicating fact checks online](#)

Use short, single column paragraphs. An eye tracking study found that participants tend to look more at stories organised in short paragraphs (2 to 3 sentences), compared to longer paragraphs. We also find it easier to read text organised in one column (rather than two), and are quicker at reading shorter lines. This is because whenever we read our eyes switch between moments of concentration (called fixations), and skipping over groups of letters (this is called saccades). Every time we move on to a new line, our eyes do a return sweep — fixating further to the right the longer the previous line was. So make it easy on the eyes. Aim for text that's long enough to fall within a few saccades; but short enough to pick the next line easily.

FULL BRIEFING:

 [Communicating fact checks online](#)

Step 4: Publicity

Always ask yourself: is the claim I am checking worth the public's attention?

When you publicise a fact check, you are also giving the claim renewed exposure — especially if you bring it to the attention of people who wouldn't see it otherwise. While

survey-based experimental research suggests that a clear fact check accompanying the claim should ensure audiences take away the correct information, there is still a risk that the overall publicity of the fact check increases attention to the original set of claims.³ Take this example. A social media user could make up a claim about the flu vaccine every day, just by saying: “It turns your hair green”, “it makes your skin glow”, or “no vaccine has been tested to see if it causes tooth decay”. Interventions by media or internet companies using fact checkers’ work can help prevent them from spreading. But if fact checkers share every fact check on their own channels, the sheer volume of anti-vaccination stories might make audiences think that: “there must be some substance behind these claims because, there’s no smoke without fire”. So ask yourself: is the claim worth the attention? Is there a fire to put out, or are we adding to the smoke?

FULL BRIEFING:

 **Tackling health misinformation**

3 Victoria Kawan, ‘Responsible Reporting in an Age of Information Disorder’ (First Draft, 2019), firstdraftnews.org/how-journalists-can-responsibly-report-on-manipulated-pictures-and-video.

Research gaps and areas for future inquiry

The briefings in this series focused on the questions we as fact checkers ask ourselves as to how we can do our work most effectively. This is how we came to look at: *Who believes and shares misinformation; How to communicate fact checks online to strike the balance between grabbing attention and conveying information; and What is the impact of fact checkers on public figures.*

Every briefing makes the most of the evidence available, and each ends with a set of recommendations. We wanted to give fact checkers answers, and not just call for more research, or point to evidence gaps. But we also identified areas where there is still a lot we don't know, and where research could be more tailored to fact checkers' work.

Above all, future research would benefit from investigating audiences in the Global South, and understanding the regional and cultural diversity in how fact checking might operate around the world. In addition, we urgently need to move away from lab-based experimental research that prioritises internal validity, and towards research that prioritises replicating or examining the real life contexts in which misinformation spreads and in which interventions seek to take effect.

Current gaps in misinformation research⁴

Overall gaps

There is very little research in the Global South. The overwhelming majority of misinformation research is based on the Global North — particularly in the US, followed by the UK, Australia, and Western Europe. This doesn't even begin to reflect the diversity of the next two billion internet users, or of the audiences shared by the 90+ fact checking organisations which are verified signatories of the International Fact-Checking Network's Code of Principles in 2020.

There is a lot of variance in the types of media people consume and trust around the world, in how they identify politically, but also in how myths, rumours, and misinformation burrow in the public imagination. For example, social media constitutes a source of news for 71% of respondents in Argentina, but only 39% of those in the UK, according to the Reuters Institute's Digital News Report 2020. Just 6% of respondents in the UK believe the conspiracy theory that AIDS was caused by a manmade virus, but as many as 27% in South Africa do. Or take partisanship. This is usually measured across a left-right axis in the Anglo-American North, but party distinctions and ideologies don't map along the same continuum elsewhere, and social

⁴ This is a summary of findings detailed in the briefings, but also draws on Dias and Sippitt, "Researching fact checking: Present limitations and future opportunities", *Political Quarterly* (Early View, August 2020)

divisions that shape belief around the world may look very different. Until we have diversified the geography of research, we cannot claim to truly know how fact checking works in different contexts.

Notably, conducting research in the Global South is not simply a matter of transposing research practices established in industrialised countries to new audiences. It also means allowing research design to account for regional variance in the sources, languages, and format of (mis)information. This may entail conducting research outside of the usual online platforms used in the North, and looking instead at radio programmes, WhatsApp messages and audio notes, in person workshops or other formats routinely used by fact checkers around the world.

It may also entail understanding, and accounting for, regional differences in belief formation. Any research project which sets out to correct misinformation in a regionally grounded context would do well to understand the local context of how misinformation is experienced, such as through exploratory qualitative research, and to look for associations between belief and other variables such as religious affiliation and ethnic background.

We would welcome more publicly accessible literature reviews that cross disciplines and explore how we can best promote good information and tackle bad information – beyond the role of a single fact check. We have learned a lot from the research we conducted for these briefings, and we would welcome more literature reviews that continue to draw together research on the multitude of means for tackling bad information, and – importantly – that are accessible outside a paywall. We acknowledge the fact that topics like anti-vaccination have received years of attention from academics and health organisations, and our research has only touched the surface of what we think we could learn from these established fields of research. In particular, we expect there is much more to learn from research on health communication on how to tackle long-term behaviours like quitting smoking campaigns.

Gaps in our understanding of the effect of fact checks

Effects have mainly been measured in the short term – we know little about how fact checks last in time. Participants are recruited, shown examples of misinformation, corrections, or neither, and are then asked to what extent they agree with the central claim being debunked – all within the space of less than an hour. But with the exception of a small number of studies which measure beliefs a week after the intervention, we know very little about how fact checks last in time. This is an important oversight. Audiences may agree with our conclusions at first – and having this data is an encouraging first step. But we don't know if they will remember the fact check, and continue to believe it once they return to the distractions of everyday life. Tracking effects in time is particularly key for media literacy interventions too, which require participants to change behaviours.

Admittedly, addressing this is not a trivial investment, especially if research projects set out to investigate the effects of corrections on large, nationally representative samples. But without a longitudinal view, we are still far from knowing the long-term impact of fact checks.

Experimental conditions are artificial, and we would welcome more studies which seek to test more naturalistic materials. The vast majority of studies are conducted as experiments — in a university lab, or by commissioning survey vendors or using platforms like Mechanical Turk. Participants are recruited, randomly distributed into groups, and presented with a combination of misinformation, correction, or neither. Generally speaking, this is a good first step if we want to determine the potential that seeing a correction has to change readers’ belief in a claim, and even their intention to act upon the claim. Depending on the sample size and representativeness, experiments are also well placed to identify which participants are most, and least, likely to respond to corrections — based on demographic features like gender or age, political ideology, or pre-existing beliefs.

But there are also major limitations to experimental designs.⁵ For one, experiments generally assume or enforce an attentive audience, and as such there is more we still need to understand about how fact checkers’ can garner audiences’ attention. Second, they require standardisation of materials to the point where what participants see in the survey — where misinformation and fact checks are taken out of their natural contexts, and are often fictitious examples — looks very different from what they would encounter in everyday life. In real life, media content is embedded in a network of social relations, politics, and technology and aesthetics. All of these elements contribute to what we believe.

Corrections are mainly tested for their impact on belief in the claim — there are other outcomes to consider. Participants often get asked to what extent they agree with the central claim being debunked, or if they find it to be true. But the work of fact checkers also goes far beyond ascertaining the accuracy of individual claims. It is also about informing, and giving audiences the big picture on — how to understand a data trend (for instance, rising crime numbers), how a variable of public importance is measured (such as employment), how to assess the strengths and limitations of an evidence base (such as on international education comparisons), or how to interpret economic forecasting. Audiences’ understanding of these trends rarely get tested — partly because they are difficult to standardise, and partly because this may not have been considered. Additional outcome measures could test this wider understanding, as well as to what extent this helps audiences make sense of other similar claims in the future. Similarly, another element that is intrinsic to everyday fact checking, but has only ever been explored in a couple of experiments in the US, is fact checkers’ role in

5 This is explored in further detail in Dias and Sippitt, “Researching fact checking: Present limitations and future opportunities”, *Political Quarterly* (Early View, August 2020).

cultivating accuracy, and the activities that some fact checkers do to support this, such as seeking corrections. We'll turn to this shortly.

We need to understand more about behavioural change. The literature on misinformation, but also media literacy more broadly, generally assesses what participants believe or know. But the purpose of fact checking is not just to bolster knowledge. It is also to enable the public to mobilise that knowledge in practice. Take vaccine misinformation. Understanding the life-saving power of vaccines is one thing, but acting to ensure that your immunisations are up to date is another. We currently know very little about how, and even whether, showing participants corrective information changes their behaviours in practice. It could also be useful to explore audiences' own perspectives, and unpack the extent to which they use fact checking to help them make decisions — such as how to vote, or what protective health behaviours to adopt, and how fact checks help them with this.

Gaps in our understanding of how fact checks are best communicated

We need to better understand the role of the medium fact checks appear in and the format they appear. There is much more to believing a claim and updating your beliefs, than simply seeing information. Current literature has examined the relation between belief and demographic variables, political and ideological leaning, and belief in science. But the influence of the medium, and the message, have remained less explored. To account for what contributes to belief, attention, and trust in the message and perceptions of fact checkers, future research could also examine the effects of:

- Seeing fact checks via platforms that are not directly run by the fact checking organisation, such as through a fact check notification on a social media post, and seeing fact checks reposted in other national media outlets;
- Showing a correction as text, compared to showing it as a GIF or video, or a radio show, as several fact checking organisations are increasingly experimenting with the formats of corrections.

Gaps in our understanding of the wider activities that fact checkers do to tackle misinformation

We have limited evidence of the impact that fact checkers' work has on public figures. A big part of our work is holding public figures to account. Through asking public figures for the evidence behind their claims, through publishing our fact checks, and through asking them to correct the record and to stop repeating unsubstantiated claims, fact checkers seek to instill a culture of accuracy. With the exception of anecdotal evidence collected by fact checkers, and a couple of academic studies conducted in the US, we know little about how fact checkers' activities influence the attitudes and behaviours of public figures. This is an area that would benefit from further evidence.

The field of research on media literacy approaches is still young – we need more research exploring the diversity of approaches and the effects they have on short- and long-term behaviours. Differences in the populations, issues, styles of intervention and methods of evaluation adopted make it hard to generalise about a single most effective strategy for media literacy. The more research we have on diverse approaches, the better our understanding will be of how these approaches can be effective. For each approach, we still understand fairly little about how outcomes last in time, and how self-reported skill learnings translate into real world behaviours.

Step into the field

If there is one major limitation of current misinformation research, it is the level of artificiality inherent in lab experiments. Online experiments have been the method of choice for research in this field, and have the benefit of allowing researchers to finely tweak the way misinformation and fact checks appear in an artificial environment. However, while these enable reliable conclusions to be made about how participants (often from convenience samples) react to fact checks in these environments, we still know little about how these conclusions carry to the experience of consuming fact checks in real life.

There are two areas in particular that online experiments could seek to improve: using more nationally representative samples, and using more natural materials. For the first, using nationally representative samples to conduct experiments would significantly improve the reliance we could place on results. We acknowledge this comes with significant resource needs and would require a wider shift in culture and funding across political science research. For the second, studies could do more to source the types of misinformation and correction materials which audiences are likely to encounter in the everyday. This means using real claims disseminated on national media, but also using longer fact checks which include the elements of branding and formatting typical of local fact checking organisations. This might include a trade off between using standardised materials to ensure a controlled experiment (internal validity), and prioritising materials that best reflect the real world (external validity) – and this too requires a wider culture shift in how political science experiments are conducted.

Research could also depart from the tradition of experiments altogether, by turning our attention to fact checkers' work "in the field" – looking at participants' experience of consuming fact checks in their usual setting, in their everyday ways of creating, sharing, and sanctioning misinformation; and examining fact checkers' efforts to tackle systemic causes of misinformation, including through holding public figures to account. We have three ideas for where research could go next:

Test correction formats on fact checkers' websites. Fact checkers could learn more about the effectiveness of different correction formats by producing different versions,

and randomising the version that visitors to their website get to see, and testing outcome measures via a follow up survey. These designs would not be generalisable to the whole public, and would operate with the assumption that all participants who get to a fact checking website are interested and attentive (otherwise they simply wouldn't access it). But it would help us uncover the effects of different formats on belief correction, on a sample of attentive readers. If fact checkers do not have the resources to do this, they could carry out qualitative user research with their own audiences to seek feedback on fact checks.

Investigate fact checkers' impact on public figures. With the exception of a small set of research, we know little about how, and even whether, the presence of fact checkers influences the attitudes and behaviours of public figures. We have detailed in our briefing on this topic how we think our work could impact on public figures, and we are seeking to carry out more research, to help us evaluate this impact. There are a number of methods for how this can be done, including additional field experiments building on studies in the US that have sought to explore this topic. We believe there is much we can discover through qualitative research – in depth interviews with public figures combined with surveys, to explore their attitudes towards information and fact checking, how they perceive the consequences of putting out bad information, the personal and institutional practices which mediate their use of information, or case studies which explore in depth how fact checkers' interventions have impacted on public figures. This is an area we are exploring further.

Understand who creates, shares, sanctions, and challenges (mis)information online. People around the world report seeing inaccurate information, and caring about the harm it does. But we know very little about the role they play in creating, sharing, sanctioning, or challenging misinformation. Further research could plug this gap. For example, large scale quantitative surveys with nationally representative samples could investigate the extent to which respondents encounter, create, and share information they know or later learn to be inaccurate (in the UK, the media regulator Ofcom regularly commissions these surveys). Qualitative research would also help us get to the barriers for doing this that fact checkers could seek to reduce. Semi-structured interviews could ask respondents: when and why did they last notice that someone had shared something false; how did they react and why; what are contexts in which the public actively stand up to bad information, and what are the contexts and personal motivations that inhibit it.

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