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Bias, cognition, and post-truth politics: considering the cognitive-political origins of misperceptions to improve evidence use in political arenas

Author(s)

Justin Parkhurst, London School of Econoimcs and Political Science, London, United Kingdom

j.parkhurst@lse.ac.uk

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Bias, cognition, and post-truth politics: considering the cognitive-political origins of misperceptions to improve evidence use in political arenas

Justin Parkhurst

Associate Professor, London School of Economics and Political Science

Introduction:

While calls for evidence to inform policy have grown over recent years, these appears to stand in stark contrast to recent high level political events demonstrating that large segments of the population can show minimal regard for evidentiary rigour or expertise in regard to politics. Indeed the creation and belief of misinformation, and the apparent public rejection of corrections, during campaigns such as the British EU referendum and the 2016 US presidential election, has led to many now describing the political environment as having entered an era of 'post-truth politics'.

The proliferation of politically motivated misinformation, and the failure of evidence and fact-checking to correct it, can be seen to many as providing a fundamental challenge to the democratic ideals of rational decision making by a well-informed populace. The cognitive sciences, however, have provided a wealth of information that can help explain both the origins and the mechanisms by which evidentiary bias arises, and through which misinformation is embraced or persists (Flynn, Nyhan, and Reifler 2016, Kahan 2011, Kahan et al. 2013).

While recent political events appear to show a lack of relevance of evidence, fact-checking or expertise, the relative importance of these is subject to change and will vary by context. One example is the recognition that highly polarised political contexts can generate or perpetuate biases through processes of motivated reasoning (Kahan 2013); but levels of societal polarisation will shift over time and place. As such, while cognitive psychology has shown that many sources of bias lie in the natural or intuitive functioning of the human mind, it may ultimately be social, political, and structural contexts that will shape whether or how those biases influence the acceptance and use of policy-relevant evidence.

In recent years there have slowly been efforts to link cognitive science with public policy concerns – for example to map out features of policy debates that may facilitate different underlying mechanisms through which bias arises (Parkhurst 2016); or to test different de-biasing or myth-correcting strategies in relation to political information (Nyhan and Reifler 2013, Lewandowsky et al. 2012). There is clearly significant further work needed, however, to consider how such cognitive insights might inform strategies to avoid, offset, or mitigate bias in political arenas (Lilienfeld, Ammirati, and Landfield 2009). This paper will review both the conceptual and empirical work on bias, misinformation, and debiasing in relation to policy-relevant information; and discuss whether these insights can help to design institutional arrangements, rules or processes, that can help to (re)establish the importance and relevance of evidence and expertise, thereby working to address the biases and misinformation of the 'post-truth' age.

Cognitive challenges

Motivated reasoning.

The concept of motivated reasoning captures a range of cognitive processes undertaken to interpret information (including policy relevant evidence) in self-serving ways: ways that conform to, reinforce, or avoid conflicting with existing affinities, needs or goals (Kahan 2011, Kunda 1990, Richey 2012). Indeed, at least one brain imaging study has confirmed that different neural mechanisms may be involved when motivated reasoning takes place (Westen et al. 2006).

Group polarisation appears to be particularly problematic in terms of driving motivated reasoning. Hypothesised to be due to motivation to affinity to an in-group, for instance (Kahan 2013). In a recent paper, Parkhurst (2016) has constructed a cognitive-political framework to identify particular features of policy problems or environments and map out how these present mechanisms or conduits through which certain cognitive processes manifest in evidentiary bias. These features include the level of polarisation, as well as the complexity (and nature of complexity) of the policy issue, and the level of contestation (or importance) of the issue.

The results of motivated reasoning, and other associated cognitive biases, however, can be particularly problematic for the use of evidence to inform policy decisions. Belief in misinformation is an obvious challenge, and may arise from cognitive phenomena such as affinity bias, cognitive dissonance aversion, and confirmation bias in which individuals select and believe those pieces of information that align with, or do not challenge, their ideas, values, or goals (Parkhurst 2017, Lodge and Taber 2000, Strickland, Taber, and Lodge 2011, Kahan 2011).Yet equally well recognised, and potentially even more damning for the idea that evidence can serve a depoliticising role, and can serve as a platform of political agreement, is the phenomenon by which corrective information fails to change beliefs in those adhering to misinformation or inaccuracies (Nyhan and Reifler 2010, Lewandowsky et al. 2012).

In addition to the belief in misinformation, and the failure of valid evidence to correct it, there are a number of other manifestations of motivated reasoning that further undermine the rational ideals of evidence-informed policymaking which have been highlighted in past work:

Rejection of expertise – A significant challenges that motivated reasoning can result in is a rejection of the relevance, authority, or legitimacy of scientific experts or bodies of scientific expertise to inform a policy debate. This can include blanket rejections of 'experts' – such as when, during the lead up to the EU referendum, the UK Secretary of State for Justice, Michael Gove, stated that the public has "had enough of experts"(Mance 2016) , or it can be seen in the dismissal of sources of evidence which are widely accepted as legitimate, such as when in a congressional meeting on climate science, the chair of the House Committee on Science, Space and Technology, representative Lamar Smith, stated that the journal *Science* was "not known as an objective…magazine"(Mack 2017).

Conspiratorial thinking [P1]– Lewandowski and colleagues (2013) report that denial of climate change science is associated with particular political leanings, but also notes the correlation of climate science denial with so-called 'conspiratorial thinking' (belief in things such as the US FBI assassinating Martin Luther King Jr., or NASA faked the moon landing). The authors further note that it has been suggested that those who reject scientific findings tend to obtain their information from

the internet rather than from peer reviewed literature (also see (Lewandowsky, Gignac, and Oberauer 2013)).

Backfire effects – Another key challenge to the idea that evidence can achieve political agreement within the narrative of 'evidence informed policy' is the so-called backfire effect, wherein the provision of policy relevant evidence does not overcome existing biases or denial, but in fact can magnify them (c.f. Lewandowsky et al. 2012). Such has been seen for instance by Gollust et al (2009) who presented members of the public in the US with media information about the social determinants of health. Rather than information leading to consensus, they found polarisation between self-described Democrats and Republicans occurring, with a Republicans less likely to support policies addressing social determinants after exposure to information than democrats (there was no significant difference in support for a control group). Similarly studies of voters provided with negative information about a preferred candidate showed an initial response of even greater support for the candidate – at least up until a 'cognitive tipping point' was reached when individuals eventually rejected the candidate (Redlawsk, Civettini, and Emmerson 2010). The US election and the continued flow of negative information about Donald Trump provides a particularly interesting case study of these phenomena. Some supporters or political actors did abandon trump when certain negative information was released, but not enough to prevent his victory. One can speculate why a cognitive tipping point was not reached in this case – but one possibility is to consider the counterfactual. The level of dislike of the alternative option would likely affect how much negative information is needed before an individual rejects their preferred candidate; and indeed, In the 2016 US presidential election campaign, Hillary Clinton was constructed in an extremely negative light – indeed deserving of arrest (with chants of 'lock her up' occurring during the Republican convention (Gass 2016)), and spoken of with vehemence by opponents rarely seen in American political discourse before.

Possible mitigation – insights from the field

Willson et al. (2002) describe two key approaches to 'debiasing': a deliberative theory driven process, in which individuals become aware of their biases and act to correct them according to "a naive theory about the direction and magnitude of the bias"(p. 188); or alternatively "a spontaneous and automatic response to the nature of the situation and stimulus" (p. 188). The authors raise questions about the magnitude of success of conscious deliberative debiasing, concluding that "[t]he best way to avoid biased judgements and emotions is exposure control, whereby we avoid stimuli that might influence our responses in unwanted ways"(p. 195). These general headings can be broken down into a number of sub-categories as well.

Larrick (2004) presents a review of many debiasing approaches focussed on actions individuals can take themselves (the first of Willson et al's approaches) but there is an important distinction to consider between general approaches to debiasing and strategies that might particularly be relevant to bias in the use of policy-relevant information and evidence. The principle issue to consider is whether the bias ultimately supports, personal interests or goals of the individual, or alternatively whether it works counter to their interests. Many debiasing strategies aim to help people avoid

errors that might work against individuals' (or corporations') best interests – for example how biased judgements may lead to economically irrational purchase choices, or how biases might lead to selection of unsuccessful or inefficient courses of action for a company. Yet the phenomenon of motivated reasoning particularly links to biases that are driven by, or supported by, interests of the individual. As such, one might expect less success in debiasing efforts than in cases where bias or errors correction lie in the individual's self-interest.

Overall, however, authors have noted a much more limited body of work on debiasing than on the basic science identifying biases in the first place. Lilienfeld et al. (2009) found nearly eight times as many articles in the *Psychinfo* database on cognitive bias than on debiasing, stating "it seems fair to say that psychologists have made far more progress in cataloguing cognitive biases… than in finding ways to correct or prevent them (p. 391)." Yet they argue that core cognitive biases can be particularly important drivers of global conflict due to ideological extremism, thus providing an important social welfare impetus for the field to do more to apply the cognitive sciences to these political concerns.

Lewandowski et al. (2012) provide one of the more comprehensive discussions of debiasing to overcome belief in misinformation (including 'rumours' and 'myths' often prevalent in political arenas or debates). They discuss 4 problems leading to belief in misinformation, and discuss mitigating strategies based on cognitive research. The problems are:

- Continued influence effect – continuing to rely on misinformation despite a retraction;
- Familiarity backfire effect – repetition of a myth increases familiarity, reinforcing it;
- Overkill backfire effect – simple myths are more attractive to believe than complicated refutations;
- Worldview backfire effect – evidence challenging worldviews can strengthen myths that reinforce those views.

The authors then discuss solutions to each of these, presented graphically in the following:

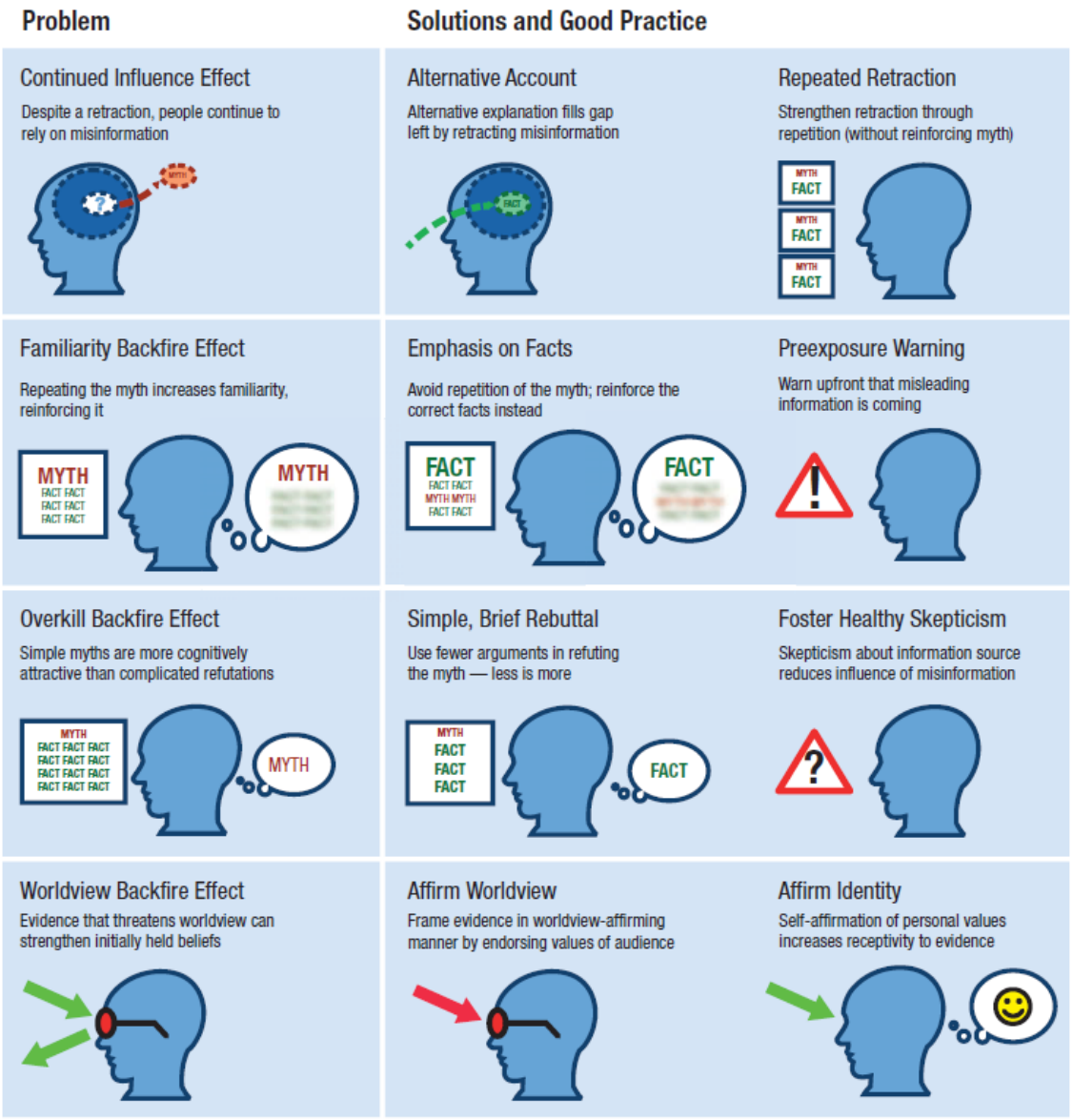

Fig. 1. A graphical summary of findings from the misinformation literature relevant to communication practitioners. The left-hand column summarizes the cognitive problems associated with misinformation, and the right-hand column summarizes the solutions reviewed in this article.

Figure 1 - Source: Lewandowski et al. 2012 p. 122.

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The proposed solutions outlined in the figure draw on a number of insights from the cognitive science literature which includes other potential strategies as well, discussed below.

Metacognition

The concept of metacognition is typically taken to capture an individual's awareness of one's own or others cognitive processes (Flavell 1979) – or more simply 'thinking about thinking' (Maynes 2015). As such it can include awareness of our own sources of cognitive bias. Improved metacognition has been proposed as a strategy to offset cognitive biases (c.f. Maynes 2015). As such metacognitive debiasing strategies would fundamentally reflect Willson et al.'s first approach towards debiasing – that of a deliberative process by which individuals actively understand their bias and work to avoid it.

There appears, however, to be limited evidence that simply making individuals aware of their potential biases reduces the instance of such bias. Frantz (2006), for instance, attempted to offset 'liking' bias in which a participant views a fictional conflict between individuals in a biased way, by explaining the concept of liking bias and asking participants to correct for it. However, she found that this intervention did not actually lead to correcting of the bias.

In a doctoral thesis, Joy-Gaba (2011) experimentally tested whether education about the so called 'bias blind-spot' – in which individuals are likely to see bias in others judgements, but not their own – could offset such bias. She found that education about bias changed people's beliefs, but the education did not change performance on tasks to do with racial attitudes or stereotyping. Scopelliti et al. (2015) also evaluated an intervention of bias education and debiasing training to reduce bias blind-spots, finding it was individuals with low initial blind spot propensities who responded most to debiasing interventions.

Depolarisation

Larrick (2004) discusses how group composition, particularly ensuring a diversity of perspectives, can work to avoid biases as the group naturally see things from multiple perspectives. While not directly discussing political bias, this insight is similar to the reflections by Sunstein (2002) about how group deliberation in polarised settings can lead to further entrenchment or even more extreme positions and beliefs held by individuals.

Affirming identity

Motivated reasoning theory holds that continued belief in biased information can arise from a desire to maintain connection with an ideologically aligned groups, or from a desire to maintain self-integrity in the face of information threatening their beliefs (Nyhan and Reifler 2017, Steele 1988). Given this, it appears that in some cases, efforts made to explicitly affirm a number of personal values may make individuals more receptive to evidence, even if that evidence challenges some of their beliefs. Cohen et al. (2007), for instance, found that self-affirmations could make consideration of a foreign policy report less dependent on their political views, or could lead to greater concession making on abortion policy. Similarly Nyhan and Reifler (2017) found that affirmations could reduce misperceptions about global temperature change, although it did not always increase receptiveness to corrective information for existing misconceptions.

Establishing consensus

Another strategy that has been shown to help reduce rejection of science has been strategies that establish scientific consensus about a topic when presenting the public with information. Van der Linden et al. (2015), for instance, conducted a randomised trial in the US that found that telling people that 90% of medical scientists agreed on the safety of vaccines led to increased acceptance of vaccines as safe and decreased belief in autism links compared to a control group.

Information presentation methods

Finally, an arguably more straightforward, strategy to help avoid biased interpretation of evidence can be to ensure that relevant evidence is presented in ways that make subjective interpretation less likely. Ludolph and colleagues (2016), for instance, found that presenting definitions of vaccines in a Google search result in a more comprehensible fashion, as well as use of a 'knowledge graph box' could reduce biased search and information processing outcomes. In another study, presenting corrective information about climate change in graphical form was seen as more effective in correcting misinformation than presenting an equivalent text correction (Nyhan and Reifler 2017).

Potential institutional responses

While there is now abundant evidence about the cognitive processes that lead to 'bias' in the interpretation of evidence, with increasing application and experimentation to understand how bias plays out in public engagement with policy relevant evidence, there still appears to be much more limited conceptualisation or empirical work on debiasing, and even less work still done to consider how to establish structures and processes that can either avoid or mitigate evidentiary bias.

Recognition of the need to establish structures and processes to work towards this goal helps to shift the conceptualisation of what 'eviedence-informed' policymaking might look like as well. Rather than a rather blanket, but under specified call, for policies to be 'evidence based' (or even 'evidence informed'), we can instead recognise that there may be ways to undertake policymaking which reflect 'better' or 'improved' uses of evidence from the perspective of scientific good practice, and from the perspective of bias minimisation. These ideas reflect a broader concept of the good governance of evidence which Parkhurst (2017) describes as captured in institutional structures, rules, and norms that ensure both fidelity to both scientific and democratic principles within the use of evidence to inform policy.

Establishing norms, rules, practices, or even institutional structures to address the various forms of bias outlined above thus may be an important step to ensuring the integrity of the policy process with regards to how evidence is used and governed to inform policymaking, and may present an important frontier in policy sciences for the future. The discussion below reflects on a few preliminary ideas on types of changes that may work towards this goal (yet as noted, much of this remains at an early level of conceptual and empirical development).

Pre-establishing valid sources of information – The usefulness of presenting scientific consensus about an issue to reduce bias in experimental conditions no doubt can be offset in real world situations when conflicting parties act to undermine the credibility of the scientific consensus itself. Such could be seen in the aforementioned example of House Representative Lamar Smith questioning the objectivity of the journal *Science* after it was quoted in a legislative hearing. As such, it may be particularly important to pre-establish the valid sources of evidence and expertise as early as possible, preferably before specific pollicised issues become introduced into discussion fora.

There still no doubt may be pre-emptive gaming in which stakeholders refuse to accept the legitimacy of a source in the expectation that it will be providing information that undermines their political goals, but if an explicit discussion can be held to establish sources of relevant evidence or expertise in advance, then policy actors can be challenged at this point about why they accept or reject particular sources. A post-hoc accusation of rejecting expertise during a politicised discussion

may not be productive given that the established motivations and polarisations will already be embedded and established.

Pre-establishing rules and norms of evidence review

Similarly, in addition to establishing authoritative sources of evidence to inform policymaking, there may be needs to establish expected rules and norms of practice around how evidence is used to inform policy debates. Parkhurst (2017) for instance reflects on the need for explicit goal clarification in the policy process in which the multiple relevant social goals and concerns are mentioned in advance, so that more appropriate reviews of evidence can take place speaking to those goals. Explicit goal clarification can similarly allow political debates to occur first over the importance or priority of different social goals, before technical evidence speaking to each goal is brought into consideration. If deliberative spaces are set up to allow interaction, rather than division, between opposed groups in this process, and if the process of goal clarification works in a self-affirmation type-way, such steps may also help in debiasing efforts[P2].

Establishing the authority and autonomy of independent evidence providing and checking bodies

In the proliferation of stakeholders attempting to bring evidence to policymaking attention, including think tanks, civil society organisations, and organised lobbiests, there is likely a need for states to establish mandates for key evidence providing bodies that are established based on rules and norms of independence and rigour, and in whom political capital is places as authoritative agencies to provide policy relevant evidence or assessments of evidence. Such bodies of course already exist in some settings. The UK's Parliamentary Office of Science and Technology, or the United States' Congressional Budget Office (CBO), for instance both provide non-partisan evaluations of policies. Bodies such as these thus have important roles to play, but beyond their establishment, there may need to be norms and rules established about how they are used in ways that prevent bypassing them or undermining their authority for political purposes. Indeed, the Trump administration recently showed this as possible when they criticised the CBO as flawed in advance of it producing a report on the impacts of an early healthcare bill. Similarly in the current congress bills have been taken to votes before the CBO has had time to assess their impacts. Merely having institutional bodies in place, then, may not be sufficient if their authority or role is not well established, or if there are not consequences for undermining their authority. [P3]

Internet information presentation and deliberative fora

A critical insight from the debiasing literature appears to be the importance of depolarisation in group discussions and debates. Some individuals particularly point to social media as providing a particularly polarising environment, in which individuals learn about politics and politically relevant information within 'echo chambers' (Sunstein 2017) in which sources of information come from those we already have shared ideological positions with, and where information is targeted or tailored to individuals based on past affinities and searches. This environment runs counter to the insights of the cognitive sciences which shows that groups that are diverse ***

Sunstein (2017) makes a few suggestions to help counter this, including the need for 'deliberative domains' which encourage individuals of multiple views to participate and discuss issues, with expectations or rules in place to encourage or support depolarising discussions.

Conclusions

To be written

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