Persuasion amidst a pandemic: Insights from the Elaboration Likelihood Model

Mark W. Susmann, Mengran Xu, Jason K. Clark, Laura E. Wallace, Kevin L. Blankenship, Aviva Z. Philipp-Muller, Andrew Luttrell, Duane T. Wegener & Richard E. Petty

Published online: 23 Aug 2021.

Submit your article to this journal ↗

Article views: 9569

View related articles ↗

View Crossmark data ↗

Routledge
Taylor & Francis Group

Persuasion amidst a pandemic: Insights from the Elaboration Likelihood Model

Mark W. Susmann[a], Mengran Xu[b], Jason K. Clark[c], Laura E. Wallace[d], Kevin L. Blankenship[e], Aviva Z. Philipp-Muller[a], Andrew Luttrell[f], Duane T. Wegener[a] and Richard E. Petty [ID][a]

[a]Department of Psychology, Ohio State University, Columbus, Ohio, USA; [b]School of Management, Fudan University, Shanghai, China; [c]College of Health and Human Sciences, Purdue University, West Lafayette, Indiana, USA; [d]Department of Psychology, George Mason University, Fairfax, United States; [e]Department of Psychology, Iowa State University, Ames, United States; [f]Department of Psychological Science, Ball State University, Muncie, United States

ABSTRACT
COVID-19 mitigation strategies have largely relied on persuading populations to adopt behavioural changes, so it is critical to understand how such persuasive efforts can be made more effective. The Elaboration Likelihood Model (ELM) of persuasion allows for the integration of a variety of seemingly disparate effects into one overarching framework. This allows for prediction of which effects are more likely to lead to subsequent behaviour change than others and for generation of novel predictions. We review several recent investigations into persuasive effects of variables related to the source of a persuasive message, features of the message itself, the recipient, and interactive effects between variables across these categories. Each investigation is situated within the ELM framework, and future directions derived from the ELM perspective are discussed. Finally, the implications of each piece of research for COVID-19 persuasive messaging are unpacked and evidence-based recommendations are made.

In 2020, the COVID-19 pandemic posed a world-wide public health crisis unlike anything seen in recent history, and the death toll had exceeded 4 million by mid-2021 (Worldometer, 2021) with many additional deaths likely uncounted. The initial lack of available medical interventions or effective vaccines shifted efforts to combat the spread of the disease to changing how people behave. To this end, officials commonly implemented policies encouraging or requiring behaviours such as social distancing and

mask wearing. Subsequently, focus has shifted towards encouraging vaccination. However, the efficacy of these health recommendations is contingent upon individuals' compliance with the encouraged or required behaviours. Unfortunately, this compliance is not assured. For instance, in June 2020, in the United States, only 73% of polled Americans said they always or very often socially distanced from others (Brenan, 2020). Similarly, in Germany only 64% reported wearing a face mask in public, and only 31% of those from the United Kingdom reported doing so (Beswick, 2020). A June 2020 survey of 19 nations showed that willingness to take a COVID-19 vaccine varied from 50 to 90% across different countries (Lazarus et al., 2020).

Fortunately, much social psychological research has examined methods to promote behaviour change. For instance, people generally conform their behaviour to fit with the behaviour of the majority, so appeals that highlight majority behaviour can lead to adoption of that behaviour (Goldstein & Cialdini, 2011). Likewise, appealing to factors such as people's desire to be consistent with their past actions or to capitalise on scarce opportunities can make them more likely to comply with requests, and coercion by perceived authorities can also produce behavioural changes (Cialdini & Griskevicius, 2010). Although these techniques can effectively influence behaviour, each has limitations such as requiring the presence of a current request or monitoring by an authority. In this article we focus on modifying attitudes as an alternative means to change behaviour. The general topic of attitude change (or persuasion), and when it produces attitude-consistent behaviour, has been widely studied within the field of social psychology and can provide guidance for making COVID-19-related persuasive messaging more effective. Compared to other methods such as conformity, compliance, or coercion, behaviour change elicited by a change in related attitudes is not dependent on factors extrinsic to the self, such as the behaviour of others or requests/orders coming from others. Rather, persuading people to adopt a given attitude provides an intrinsic reason for them to adopt attitude-consistent behaviours. Therefore, if attitudes are changed in a way that makes those new attitudes persist over time, those new attitudes are likely to guide future behaviour.

When considering changing attitudes as a means to change related behaviours, it is helpful to first articulate the types of variables involved in a persuasive attempt so that different approaches to enhance the persuasiveness of a message can be more easily categorised. Lasswell (1948) noted that analysing a persuasive communication involves considering: *Who* (the source) says *what* (the message) to *whom* (the recipient) through what *channel* (communication medium) with w*hat effe*ct (the consequences of the communication)? Extensive past persuasion research has examined each of these key persuasion variables to examine how they influence persuasion outcomes (Briñol & Petty, 2009; Petty & Wegener, 1998a). Importantly, each

of these categories of variables can have a wide variety of effects and influence attitudes by multiple processes. For instance, not only have source features been found to serve as a simple cue or heuristic to accept or reject a message (Andreoli & Worchel, 1978; Petty et al., 1981), they have also been found to influence the amount of thought given to a message (Smith & Shaffer, 1995), to bias how people process message arguments (Chaiken & Maheswaran, 1994; Petty et al., 1993), and to impact the degree of confidence people have in their message-relevant thoughts (Briñol & Petty, 2009). Given all of these possible mechanisms, it is imperative to have a framework for predicting when variables affect each of these persuasion processes.

The Elaboration Likelihood Model and multiple roles for persuasion variables

The Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986; see also Petty & Wegener, 1998a; Petty & Briñol, 2012) offers an integrative framework to predict how variables are likely to impact persuasion by different mechanisms in different situations. In brief, the ELM postulates that individuals' motivation and ability to think about, or *elaborate* upon, a message determine how deeply they ultimately elaborate. The amount of elaboration given to a persuasive message determines the effect a given persuasion variable is likely to have and the mechanism by which that persuasion occurs. When elaboration is low, variables that can be simply and easily assessed can act as *peripheral cues* – features associated with a message that signal that the advocated position is desirable but are independent of the central merits (defining qualities) of the attitude object. For example, a credible source (Petty et al., 1981; Priester & Petty, 1995) or simply having many arguments in a message (Petty & Cacioppo, 1984) can boost persuasion when elaboration is low, even if arguments in the message are not particularly strong.

When elaboration is unconstrained (or relatively moderate), persuasion variables can influence the amount of processing dedicated to a message. For example, learning that a message is from a credible source can make people process the message more than when the source is low in credibility (Smith & Shaffer, 1995).

When elaboration is high, variables can play several roles, each associated with additional conditions. First, a variable could communicate the *central merits* of the advocated position itself (e.g., good reasons for why a particular position should be adopted). For example, if a product is being advertised as a means to garner social status, an attractive, high-status source endorsing that product can serve as a strong argument (Shavitt et al., 1994). Of course, particular persuasion variables can only represent the central merits of some but not all attitude objects. Another high-thought role the variable can play is to bias processing of the message, particularly when the quality of the

arguments within the message is ambiguous. For instance, learning that a source is credible can lead people to see ambiguous arguments as being strong, whereas a noncredible source can lead those same arguments to be seen as weak (Chaiken & Maheswaran, 1994). Additionally, variables can impact the amount of confidence people have in their thoughts or attitudes when people encounter that variable after generating their thoughts about an attitude object (Petty et al., 2002). For example, if one generates positive thoughts in response to a message, learning that that message is from a credible source can boost confidence in those thoughts and lead to greater persuasion (Tormala et al., 2006). (Figure 1) visually depictions where each of these roles for persuasion variables rest on the elaboration continuum.

Therefore, by knowing the level of elaboration a recipient is likely to put into a message, along with any additional necessary conditions, one can anticipate the possible effects of a given persuasion variable. That variable could be related to the source, the message itself, the message recipient, or the context in which the attitude object or message is encountered. Importantly, a central postulate of the ELM is that any single persuasion variable can play *multiple roles* depending on the level of elaboration and surrounding context.

Importantly, additional factors might also influence the impact of a variable beyond the amount of elaboration. For example, although a source's own apparent health can serve as a strong argument for products related to maintaining one's health (cf. Shavitt et al., 1994), it would not do so for products unrelated to health. For instance, if a healthy-looking source was trying to persuade others to use a particular type of hand sanitiser, someone motivated to avoid illness might view the source's apparent health as compelling evidence that the product enhances health. However, this would be unlikely to occur for a product like earbuds, which are not directly related to health. Therefore, whether the source can be seen as a strong argument could be moderated by additional variables, such as the relevance
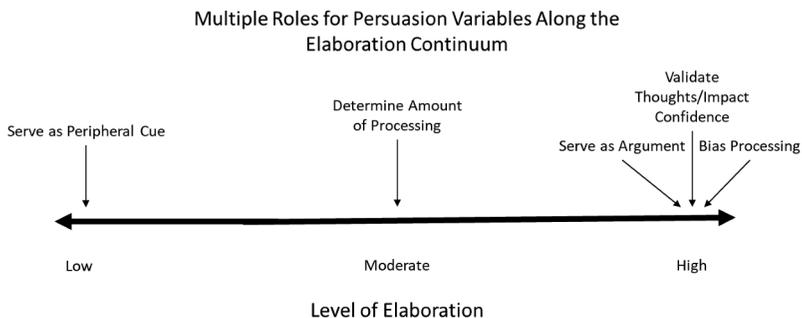

Figure 1. Multiple roles of persuasion variables. Note. A visual depiction of the elaboration continuum (from low to high) and the level of elaboration at which a given persuasion variable would be expected to play a specific role.

of features of the source to the product (Pierro et al., 2004). As such, even at a given level of elaboration, the persuasive effects of one variable could be moderated by additional factors.

The ELM helps to specify the mechanism by which a variable will likely have its effect but leaves room for additional theory to explain the direction of the effect based on additional factors (e.g., whether a variable will serve as a positive or negative cue when thinking is low could depend on the meaning of that variable for the person). As such, the ELM can integrate not only isolated effects of single variables across the elaboration continuum, but also interactive effects that occur at various points on the continuum. Indeed, a benefit of this theoretical framework is that it allows one to easily place a persuasion effect in terms of the level of elaboration at which it likely occurred and the role it played. This allows one to then generate new predictions about how the same variable(s) could have effects at different levels of elaboration or via different mechanisms.

Consequences of elaboration

If the ultimate goal of a persuasive attempt is to produce a relatively enduring change in behaviour (e.g., wearing a mask over an extended period of time rather than just once), it is crucial for the persuasion to create *strong* attitudes, or attitudes that persist over time, are resistant to change, guide attitude-relevant information processing, and, ultimately, produce attitude-relevant behaviour (Krosnick & Petty, 1995). Though strong attitudes are identified as strong by exhibiting these consequences, it is possible to predict which attitudes are likely to show these consequences by understanding the processes by which the persuasion was produced and by assessing known *antecedents* of attitude strength associated with these processes. A number of attitude features have been shown to impact attitude strength. These include, but are not limited to, how confidently the attitude is held, how important the attitude is, and how accessible the attitude is in memory (Luttrell & Sawicki, 2020).

The ELM was one of the first theories to make predictions about the strength of attitudes following persuasion (Petty, 1977). The ELM proposes a link between the amount of elaboration people put into forming or changing an attitude and the strength of that attitude, with greater elaboration leading to greater strength (for examples, see Haugtvedt & Petty, 1992; Haugtvedt & Wegener, 1994; Horcajo & Luttrell, 2016). Even the mere perception that one put a lot of thought into forming an attitude is sufficient to increase that attitude's strength (Barden & Petty, 2008). Therefore, the level of elaboration under which persuasion occurs, or the level at which one thinks it occurred, is consequential for determining whether attitudes will guide behaviour. For instance, when variables act

as peripheral cues at low elaboration levels, they are less likely to produce strength outcomes than when they act as central merits or bias processing at high elaboration levels. Thus, not all persuasion is created equal. If the goal of a public health campaign is to create consequential attitudes – such as being pro-mask or pro-vaccine – understanding the level of elaboration involved in that persuasion is crucial.

Overview

A key advantage of the ELM framework is its ability to articulate the multiple ways a given variable can impact persuasion and the consequences that attitude change is likely to produce. The framework applies across virtually any persuasion variable, be it those relating to the source, message, recipient, or context. Additionally, effects of combinations of variables, such as between source and recipient factors, can also be situated within the model. In this review, we discuss a variety of persuasion effects that seem particularly relevant to communications related to COVID-19. Some of the effects pertain to newly identified persuasion variables that fit within the source, message, or recipient categories, and some pertain to interactions observed between variables that cross these different categories. We use the ELM multiple roles framework to integrate these distinct effects and identify which persuasion mechanisms were likely at play in each as well as to identify future directions that are illuminated by the ELM perspective.

Examining persuasion variables through such a framework is critical when considering how to effectively persuade the public in a context like the COVID-19 pandemic. When persuasive messaging is aimed at creating public safety attitudes that guide behaviour, such messaging must be disseminated in a way most conducive to creating strong attitudes. Ensuring that this occurs requires understanding which persuasion processes tend to produce strong attitudes as well as how and when those processes are most likely to be elicited.

Therefore, the present article has three aims: First, we review recent research we have conducted within the ELM framework relating to the features of the source and the recipients of a persuasive message and how those features can impact persuasive outcomes. We also link those effects to the different roles these variables can play at different levels of elaboration. Second, we review work demonstrating that features of the source, message, and recipient can interact with variables from other categories, with a focus on message by recipient and message by source interactions. We will discuss the resulting persuasive effects of these interactions and how they fit within the multiple roles framework. Finally, throughout the article we integrate these various advances and provide evidence-based recommendations for how public health messaging might be made more effective.

Impacts of message sources, focusing on source bias

Past research has identified several roles that source features can play in the persuasive process (Andreoli & Worchel, 1978; Briñol & Petty, 2009; Chaiken & Maheswaran, 1994; Smith & Shaffer, 1995). Because of this, it is important to understand not only which source perceptions can impact persuasion, but also *how* they will do so in a given situation. To date, most research on source effects has focused on perceptions that the source is trustworthy or expert. This includes recent work in the COVID-19 domain, such as Lu et al.'s (2021) finding that people are more likely to share COVID-19 information with others when it comes from a relatively trustworthy rather than untrustworthy source. However, we believe that there is a separate source perception that has only been identified recently that holds particular relevance to the COVID-19 information environment. Namely, for highly politicised topics, such as COVID-19, it is common to scrutinise whether sources might be biased in their view of the issue (i.e. whether they have a skewed perception on the issue) separately from considerations of their trustworthiness or expertise. This was apparent in the United States, where former President Donald Trump was accused of having a biased view of COVID-19 that led him to downplay the severity of the disease (e.g., Pettypiece, 2020). Conversely, President Trump's political opponents were also accused of overstating the severity of COVID-19 due to having an anti-Trump bias (Bond, 2020). Therefore, in this section, we focus the discussion on perceived source bias (Wallace et al., 2020a) and its implications for persuasion. We discuss roles this perception can play and how this knowledge might be leveraged to benefit COVID-19 messaging.

Source bias

Perceived bias has been relatively overlooked as a source perception in the literature on persuasion and instead has been conflated with perceived untrustworthiness (dishonesty). Yet, in recent years there has been an influx of so-called "fake news," which has raised questions about the difference between "biased" and "fake" (untrustworthy) news. Perceived bias is a distinct component of overall source credibility, where credibility refers to the overall believability of a source. Credibility is perhaps the most commonly studied variable in the persuasion literature. According to traditional conceptualisations of credibility, sources are perceived as maximally credible if they are perceived as expert and trustworthy (Cooper et al., 2016; Hovland et al., 1953; Petty & Wegener, 1998a). However, recent research demonstrates that this conceptualisation is incomplete. That is, perceived source bias can also independently undermine source credibility and, therefore, influence persuasion (Wallace et al., 2020a).

Perceptions of source bias can undermine persuasion

Wallace et al. (2020a, Study 4, $N = 169$) tested whether perceiving a source as biased, such as believing that President Trump was biased in downplaying the severity of the pandemic, could independently undermine source credibility and subsequent persuasion. Participants read about a fictional, but ostensibly real, epidemic in which aid workers had limited resources to address the spread of the disease. Participants read a conversation between aid workers in which different workers advocated for sending aid to different places impacted by the epidemic. To manipulate perceived source bias, in the high-bias condition, participants read that the target source had done his peace corps service in the location he was arguing should receive aid, suggesting that he had a personal connection to the place and might be motivated to send aid there. In the low-bias condition, the source did not mention any personal connection to the place he was arguing should receive aid. This manipulation affected perceived bias but not trustworthiness, expertise, or liking. Yet, the high-bias source was perceived to be less credible (M= 5.81, $SD = 1.43$) than the low-bias source ($M = 6.31$, $SD = 1.49$), and appearing less credible was associated with less support for sending aid to the location he advocated. These findings demonstrated that perceived bias can independently influence perceived credibility beyond effects of perceived trustworthiness and expertise and that perceptions of bias can undermine persuasion. However, it is also possible that source bias could influence persuasion differently in other situations.

Surprise at position switching

One context in which alternative outcomes for source bias might occur is when a source has switched positions on a topic. This type of situation arose often early in the pandemic when knowledge and guidance about COVID-19 evolved quickly. Wallace et al. (2020b) predicted that people would expect high-bias sources to take positions consistent with their biases, but if a biased source switches to the opposite position, recipients should find it surprising. For example, after initially scorning the wearing of face masks, President Trump later switched positions by publicly endorsing their use. Given President Trump's initial anti-mask bias, this position switch was surprising (Cathey, 2020). Although President Trump eventually switched back to being anti-mask, his initial pro-mask switch could have produced greater persuasion because people assume that a biased source would only switch if there was strong evidence for the new position. If so, being perceived as biased could lead sources to have a positive indirect effect on persuasion. Interestingly, this would not be expected to occur for source untrustworthiness because it is not particularly surprising for untrustworthy sources to switch positions. Therefore, instead of identifying effects of source bias that

parallel source untrustworthiness and lack of expertise, this pattern involves unique effects (Wallace et al., 2020b).

One set of studies (Wallace et al., 2020b; N = 544) documenting these effects used a 2 (source bias: high vs. low) x 2 (source trustworthiness: high vs. low) design, in which a news organisation was described by a fact checking agency as having an ideological bias or not and having reported false information previously or being committed to reporting the truth. In all conditions, the news organisation had previously been publishing articles opposed to a proposed university policy in Canada. Participants (Ohio State University students) then learned that the news organisation had switched positions to support the policy, and participants reported their surprise. They then encountered the article that the source wrote in support of the university service programme and reported how compelling they thought the source's reasons were for switching along with their attitudes towards the programme. Participants reported being more surprised when the biased (M = 6.92, SD = 1.69) versus unbiased (M = 4.72, SD = 2.24) source switched positions. There was no effect of source untrustworthiness, and no interaction between untrustworthiness and bias on surprise. Surprise at the position switch was then associated with perceptions that the source had good reasons for the new position (unstandardised b = .17), which was then associated with persuasion in favour of the university service programme (unstandardised b = .79). However, this resulting positive effect of perceived bias on persuasion through surprise (indirect effect = .05 [.02, .09]) was countered by a negative effect of perceived bias on persuasion through credibility (indirect effect = −.01 [−.02, −.001]), replicating the research described above. As such, there was no total effect of perceived bias on persuasion. These findings suggest that being perceived as biased can sometimes have competing positive and negative impacts.

Roles of source bias and future directions

Not only can perceived source bias impact persuasion, but it might do so in different ways depending on the situation. We reviewed two investigations where source bias likely played different roles. In the first case (Wallace et al., 2020a, Study 4), because the message was easy to read and the quality of the arguments was left ambiguous, source bias likely impacted persuasion through a high elaboration process by influencing how people interpreted the strength of the arguments within the message (biased processing). Arguments coming from the low bias source were likely interpreted as stronger than arguments from the high bias source (for additional evidence including influences on thoughts in response to the message, see Wallace et al., 2020a, Studies 2 & 3, in press, Study 7). Therefore, it might be expected that resulting attitudes would be predictive of behaviour, as persuasion via a high thought mechanism, such as biased processing, often leads to greater

attitude-behaviour consistency than persuasion via low thought processes. That said, additional research should test this possibility.

In the second case (Wallace et al., 2020b), source bias likely acted as a peripheral cue. The topic was about a proposed university programme in Canada, which should be irrelevant to students in Ohio, so participants were unlikely to be motivated to elaborate on the message (Petty & Cacioppo, 1979). Therefore, it seems likely that perceived bias paired with a position switch served as a cue about message validity. That said, it is also possible that inferences about the source's reasons for taking a new position could reflect some level of elaboration, possibly reflecting some reasoning about what the position switch by the biased source implied. Future research could examine whether resulting attitudes are predictive of behaviour, which would be less likely if position switching primarily acted as a cue but more likely if position switching is having its effect by inducing people to elaborate on the reasons for the switch.

The ELM approach would also predict that perceived source bias could serve other roles depending on participants' level of motivation or ability to elaborate as well as other conditions necessary for particular roles. For example, at high levels of elaboration it is possible that source bias versus objectivity could serve as an argument for or against a position. For instance, when considering which political candidate one should elect, perceiving that a candidate holds a bias, such as a pro- or anti-COVID-19 health restrictions bias, that agrees with one's own views might be seen as a strong argument in favour of voting for that candidate. Finally, perceived (lack of) source bias could validate thoughts people have about a message. For example, when evaluating the advocacy, if participants learn after a message that a source is unbiased, that could increase the confidence they have in their thoughts generated about the message (for similar effects with source expertise see Tormala et al., 2006).

Implications of source bias for COVID-19 messaging

In many cases, emphasising credentials that signal expertise, trustworthiness, and lack of bias would be most beneficial. This might be particularly challenging in countries where COVID-19 has become an ideologically divisive issue (e.g., the U.S., Brazil), and therefore political biases are likely to be perceived. However, communicators planning to switch positions away from any biases they might be perceived to have could actually be most effective if they highlight their initial biases. For example, if a source who is perceived to be biased against wearing face masks unexpectedly advocates for requiring masks for businesses to reopen, this would be more surprising (and potentially more persuasive) than if an unbiased source switched positions. In general, however, COVID-19 communicators would benefit from attempting to maintain perceptions

of maximal credibility by portraying themselves as unbiased (as well as expert and trustworthy). Likewise, attempts to increase elaboration among recipients might be helpful, as allowing these persuasion effects to emerge via high-thought processes would increase the likelihood that resulting attitudes would predict behaviour.

Impacts of recipient factors, with a focus on the need to evaluate

Just as source characteristics can impact persuasion in multiple ways, so too can characteristics of the message recipient. For instance, individual differences such as the need for cognition, which captures one's chronic motivation to think (Cacioppo & Petty, 1982), can impact the amount of processing that one gives to a message (Cacioppo et al., 1986; Haugtvedt & Petty, 1992), but also whether individuals are more persuaded by initial versus later messages when presented with a series of communications (Petty et al., 2001; cf. Haugtvedt & Wegener, 1994). Because features of the audience can impact how they respond, understanding how a given recipient feature is likely to impact persuasion in the COVID-19 context is useful. Though some work has examined how personality factors such as conscientiousness and agreeableness can predict *compliance* with COVID-19 guidelines (Nofal et al., 2020), research examining how individual differences can impact *persuasion* also has utility. Therefore, in the following section we discuss recently identified differences in aspects of individuals' need to evaluate (Xu et al., in press) that can clarify for whom different types of persuasive appeals are likely to be effective.

Need to evaluate: Expressing, learning, and persuasion

The need to evaluate (NE) scale (Jarvis & Petty, 1996) captures individual differences in people's tendencies to engage in evaluation (e.g., ascribing negativity or positivity to something) and the extent to which they report having attitudes at all. Recent work has identified two additional motives related to evaluation – the motives to express (share) evaluations with others and the motive to learn (seek) the opinions of others that go beyond the original motivation to have attitudes. These individual differences seem especially relevant in a context like the COVID-19 pandemic, where social media platforms provided those motivated to share their opinions an easy platform to do so, and those motivated to learn others' opinions a wide variety of opinions to consider. Being able to independently assess these two newly identified motives can help identify which people are most likely to be persuaded in different contexts.

Need to evaluate: Expressing predicts efficacy of self-persuasion

One means of producing attitude change is *self-persuasion*, where the process of generating persuasive arguments when trying to convince another person leads one to change one's own attitude in the direction of the arguments generated (Janis & King, 1954). Xu et al. (in press) reasoned that, in this context, the motive to express evaluations should have predictive validity above and beyond the other NE motives (i.e., learning and having). It was predicted that the self-persuasion effect would be greater for participants who scored higher on the NE-expressing scale and the other NE motives would not impact the magnitude of the effect. This was predicted because the expression task should be more familiar and fluent for those high in NE-expressing. Past work suggests that when people find it easy to generate favourable thoughts on an issue, they show more change in the direction of those thoughts than when those thoughts seem difficult to generate (e.g., Tormala et al., 2007).

To test these predictions, Xu et al. (in press, Study 5) had participants first rate their attitudes towards three topics: facemask wearing during the COVID-19 pandemic (the topic of interest), recycling, and work-life balance. Those who were already extremely positive and favourable towards mask wearing were not eligible to participate in the rest of the study because there was no room for them to become even more positive. Then, all eligible participants (*N* = 202) were randomly assigned to spend up to three minutes writing either in favour of wearing facemasks (in the relevant condition) or in favour of attaining work-life balance (in the irrelevant condition). After the argument generation task, all participants rated their opinions towards facemask wearing again and completed the NE-expressing, learning, and having scales. In a hierarchical regression with post-advocacy attitude as the dependent measure, all three NE-scales were included in the same model, along with the pre-advocacy attitude measure, advocacy relevance, and the interaction between advocacy relevance and each of the three NE scales. The interaction between type of advocacy condition and NE-expressing was significant in the predicted direction. When participants wrote in favour of facemask wearing, the higher they were in NE-expressing, the more favourable they were towards facemask wearing. The relation between NE-expressing and mask attitudes was not significant when participants wrote in favour of an unrelated behaviour (see Table 1). Additionally, neither the NE-learning nor NE-having scales showed this effect. Indeed, for NE-learning, the effect was in the opposite direction. Therefore, self-persuasion techniques can induce more favourable attitudes towards COVID-19-mitigating behaviours, but understanding recipients' NE-expressing motives is important when determining for whom these techniques are most likely to be effective.

Table 1. Effects of need to evaluate (NE)-expressing on post-advocacy attitudes based on relevance condition from Xu et al. (in press, Study 5).

Full Model Predicting Post-Advocacy Attitudes	
	b
NE-Expressing	.03
NE-Learning	.21*
NE-Having	− .08
Advocacy Relevance	.23
NE-Expressing X Advocacy Relevance	.63**
NE-Learning X Advocacy Relevance	− .32*
NE-Having X Advocacy Relevance	− .10
Pre-Advocacy Attitudes	.86***
Simple Effects of NE-Expressing Based on Advocacy Relevance	
	b
Irrelevant Advocacy	.10
Relevant Advocacy	.52***

Reported regression coefficients are unstandardised. *$p < .05$, **$p < .01$, ***$p < .001$.

Need to evaluate: Learning predicts persuasive impact of evaluative versus factual information

If self-persuasion is a useful technique to induce COVID-19-related attitude change for those high in NE-expressing, might there be a separate technique that is especially efficacious for those high in NE-learning? To examine this question, Xu et al. (in press) turned to a paradigm in which participants received messages (i.e., learning opinions) rather than generating them (i.e., expressing opinions). Because those high in NE-learning are particularly interested in learning the *evaluations* of others, they were predicted to be more persuaded by messages that used explicit evaluative statements than messages that used factual (non-evaluative) language. No such effects were predicted for the NE-expressing scale.

In one study (Xu et al., in press, Study 6), participants ($N = 453$) first completed the NE learning and expressing scales. Next, participants were randomly assigned to read a message that advocated in favour of a new foster care programme for the state of Rhode Island (see Petty et al., 1993; also Briñol et al., 2007). The messages, though containing the same basic arguments, varied in their style such that they contained either highly evaluative (e.g., this programme really is great . . .) or non-evaluative (e.g., this programme really has an effect . . . ") statements. After this, participants reported their attitudes towards the foster care programme and indicated their behavioural intentions with respect to the programme (e.g., sign a petition in support of the programme). There was a two-way interaction between Message Style (evaluative or not) and NE-learning on attitudes. When participants read the evaluative message, there was a significant effect of NE-learning on attitudes such that greater NE-learning predicted more favourable attitudes towards the proposal. For the non-evaluative message, there was no effect of NE-learning on attitudes. NE-expressing did not have this interactive effect. A similar interaction between

Table 2. Effects of need to evaluate (NE)-learning on attitudes and behavioural intentions depending on message style from Xu et al. (in press, Study 6).

	Attitudes	Behavioural Intentions
Effect	b	b
NE-Learning X Message Style	.44*	.47**
Simple Effects		
Non-evaluative Message	− .15	− .06
Evaluative Message	.29*	.42**

Reported regression coefficients are unstandardised. *$p < .05$, **$p < .01$.

Message Style and NE-learning was observed when behavioural intentions served as the dependent measure (see Table 2). Again, there were no effects for NE-expressing.

Roles for the need to evaluate motives and future directions

The various NE scales could be expected to impact persuasion differently at different levels of elaboration from a multiple roles perspective. In the first reviewed investigation, it is likely that self-persuasion occurred through a high-elaboration mechanism because participants actively generated and wrote down their own arguments. To those high in NE-expressing, this task likely matched with their evaluative motivation, and that match might have led them to believe that their generated arguments were particularly valid. That is, the relative fluency of the task for those high versus low in NE-expressing could have enhanced confidence in the generated arguments, thereby enhancing persuasion. If so, persuasion through this high-elaboration mechanism might also be expected to predict future behaviour. In cases where one is unable to think deeply about the arguments one is generating, however, one high in NE-expressing might view the mere act of generating arguments as being a positive peripheral cue suggesting that one ought to be persuaded by the arguments one generated.

In the second reviewed study, because effects were observed on behavioural intentions, it is likely that persuasion also occurred via a high-elaboration mechanism capable of producing relatively strong attitudes. Such a high-elaboration effect could emerge if those high (vs. low) in NE-learning see evaluatively-presented arguments as better capturing the central merits of the attitude object than factually-presented arguments. However, a similar pattern of results could also emerge at lower levels of elaboration. If evaluative language matches with the motive to learn about others' opinions, those high in NE-learning might see evaluative language as a positive peripheral cue that a message's arguments are compelling, leading to greater persuasion compared to those low in NE-learning.

Additional research on the separate NE motives could examine how they might determine the level of elaboration given to messages under different circumstances. For example, framing a persuasive message as one that communicates others' attitudes might increase elaboration for those higher in NE-learning but not NE-expressing. Conversely, a message framed as one intended to elicit evaluative responses from the reader might increase elaboration for those high in NE-expressing but not NE-learning.

Implications of NE-expressing and NE-learning for COVID-19 messaging

Consideration of these individual differences could be useful when designing interventions to promote social distancing, mask wearing, and vaccine uptake in the context of COVID-19. For example, encouraging the public to generate their own reasons to get vaccinated could be effective, particularly for those motivated to express their opinions. In contrast, interventions that rely on external messages containing the opinions of others (e.g., normative messages) could benefit from incorporating evaluative language in addition to factual arguments, especially for those motivated to learn about others' attitudes. Overall, COVID-19 messaging might benefit from a mixture of both approaches to ensure that the underlying need to evaluate motives of any given recipient are met.

Impacts of message variables moderated by recipient variables, focusing on value appeals and moralised arguments

Although the findings reviewed up to this point mostly centred on the effects a single variable can play in the persuasion process, there are also instances where variables interact to impact persuasion at a given level of elaboration. For example, we have just seen that the type of message (using evaluative or factual language) interacted with a recipient variable (NE-learning) to impact effectiveness. This type of message by recipient interaction is known as a *matching effect* (Clary et al., 1994). Beyond directly impacting persuasion, matching can serve additional roles, such as changing the amount of processing one puts into a message (Petty & Wegener, 1998b; see Teeny et al., 2021, for an ELM analysis of matching effects). In the following sections, we review research examining interactions between variables related to the source, message, and recipient that can impact persuasion. In this section, we start by discussing several recently identified message x recipient interactions, the persuasion effects they can have, and how this knowledge can be applied to the COVID-19 context.

Matching value appeals to values held by the audience

When framing COVID-19 persuasive messaging, some have suggested that appealing to shared human values will enhance the efficacy of COVID-19

messages in changing behaviour (Wolf et al., 2020). Such recommendations derive from the premise that one's attitudes and related behaviours are connected to one's values. Values are desirable, trans-situational goals that serve as guiding principles in people's lives (Schwartz, 1992 see also Rokeach, 1968). Values play an important role in the formation and change of attitudes, and a primary motivation for holding a particular position on an issue might be because it is linked with a held value (Johnson & Eagly, 1989; Rokeach, 1968).

Therefore, the work reviewed here will focus on the role of values in message-based persuasion, which can have consequences for attitude change and behaviour. More specifically, this section highlights that values vary in their importance, and values can be held with varying levels of certainty, both of which are important considerations for attitude change. In the sections below, we review research examining two roles values can play in the persuasion process. First, we discuss how values can be used to prompt processing of attitude-relevant information, even if the value is not explicitly linked to the issue in question. Second, we review research suggesting that attitudes can be made more susceptible to change by changing belief in related values.

Values can influence the amount of processing of persuasive messages

The power of a value's influence on attitudes is partly driven by the value's perceived importance (Feather, 1988). Considering a persuasive message in light of important rather than unimportant values creates attitudes that better predict behaviour (Bardi & Schwartz, 2003). Additionally, attaching an important value to an issue can also make resulting attitudes more resistant to counter-persuasion attempts (Ostrom & Brock, 1969).

Regarding why this occurs, one possibility is that, consistent with the ELM's multiple roles perspective, consideration of a topic in relation to important values might influence the amount of thought put into any issue-relevant information. Linking a topic to important values might increase perceptions that the topic itself is important or personally relevant (R.E. Petty & Cacioppo, 1990), thus enhancing one's motivation to read and elaborate on a persuasive message related to that topic. As such, even if the resulting attitudes do not come to represent or express the values themselves, the increased processing prompted by the values might make the attitudes more predictive of behaviour and/or resistant to counter-persuasion (Barden & Petty, 2008; Krosnick & Petty, 1995).

To test this possibility, Blankenship and Wegener (2008, Study 5a, N = 261) had participants read a message supporting the inclusion of Taskentistan (a fictitious country) into the European Union. Importantly, some participants read strong arguments favouring inclusion, whereas

others read weak arguments. Manipulating argument quality is a common way of assessing how much participants elaborated on the message (Petty & Cacioppo, 1979; Petty et al., 1981). If elaboration is high, participants are able to detect the quality of the arguments and should be more persuaded by the strong relative to the weak ones. Those not elaborating are not processing the arguments sufficiently to be differentially persuaded based on argument quality. While reading the message, participants were instructed to consider the information in light of values pretested to be unimportant or important. The critical outcome was attitudes towards inclusion in the E.U. As expected, participants considering the message in light of important values engaged in greater message processing as evidenced by more favourable attitudes in response to the strong ($M = 7.06$, $SD = 1.17$) than weak argument message ($M = 5.94$, $SD = 1.36$). For participants who considered the message in light of unimportant values, their attitudes were not affected by argument quality. Additional studies demonstrated that when participants were confronted with information that countered their newly formed attitudes, those who processed the message in light of important values resisted the attack more (changed their opinion less) than participants who processed the message with unimportant values. This indicates that the resulting attitudes were strong, suggesting that they might also be predictive of attitude-relevant behaviour. In a subsequent investigation, mere activation of an important value prior to message exposure increased processing of information about a consumer product (Blankenship & Wegener, 2012), suggesting that actively linking the message content to the value might not be necessary for value effects to occur.

Indirect attitude change can be achieved by changing associated values

The link between attitudes and values also has implications beyond increasing elaboration of value-relevant messages. The most common form of persuasion results from "direct" attempts at attitude change, as when people receive information for a policy that presents positive qualities of the advocated position (see Maio et al., 2019, for a review). Unfortunately, directly attacking one's attitude might lead to no noticeable change or, at times, even boomerang effects where message recipients are even less favourable towards the advocated position than they were without the message (Abelson & Miller, 1967). Such vehement resistance towards behaviours related to the COVID-19 pandemic, such as wearing a mask, has been prevalent in parts of the world, such as within some segments of the American population (Prasad, 2020).

In the values domain, one possible solution to circumvent such resistance is to change the degree to which message recipients hold a given value that is associated with the target attitude, as doing so might make the attitude more susceptible to change. Because values often qualify as "truisms" which are

widely supported and rarely questioned, changing values can be easier than one might assume (Maio & Olson, 1998). As such, value change could serve as a useful indirect route for changing the relevant attitude without attacking it directly.

Blankenship et al. (2012, Study 1, $N = 121$) examined this possibility using the policy of affirmative action as the target issue and the value of equality (pretested to be related to the policy) as the value of interest. Participants read a message attacking the utility of various policies (e.g., hiring), which were similarly relevant to affirmative action and equality. Importantly, for some participants the message was framed as attacking affirmative action (the direct attack), whereas for others the same message was framed as attacking equality (the indirect attack). Results revealed greater change in attitudes towards affirmative action when the message was framed as attacking equality (i.e., an indirect attack on affirmative action, *Mean attitude change* = 1.80, *SD* = 1.42) than directly attacking affirmative action (*M* = .76, *SD* = 1.66). Thus, attacking and changing one's values can indirectly change attitudes associated with those values, and this indirect method can be more effective at changing those associated attitudes than attacking them directly. A second study demonstrated that the indirect attack strategy decreased certainty in the value of equality, and this decrease was associated with changes in attitudes towards the target issue of affirmative action. These studies suggest that, especially when message recipients are inclined to resist change or be susceptible to boomerang effects, indirect methods might be more effective at changing relevant attitudes.

Roles for value appeals and future directions

This research suggests that values can impact persuasion in multiple ways. In the first reviewed study (Blankenship & Wegener, 2008, Study 5a), appealing to values acted to determine the amount of elaboration recipients put into the message. In the second reviewed study (Blankenship et al., 2012, Study 1), participants were not explicitly encouraged to elaborate on the message, so the affirmative action's perceived connection to the value of equality might have acted as a peripheral cue to also lessen support for affirmative action. When elaboration is high, however, indirect change could occur via thinking that reduced endorsement of the value is a strong reason to reconsider associated attitudes. Additionally, following from Blankenship and Wegener (2008), when elaboration is unconstrained, messages attacking values might elicit greater elaboration on the message than messages attacking attitudes directly, especially if the values are perceived as important. Moreover, consistent with the multiple roles perspective, if indirect change occurred under high-elaboration conditions, it would be more likely to be durable and predict behaviour than indirect change under low-elaboration conditions. Finally, high elaboration attitude

change should be more likely to spillover to influence linked attitudes than is low elaboration change.

Implications of value appeals for COVID-19 messaging

Both of the documented roles that value appeals can play in persuasion have implications for COVID-19 messaging. First, considering messages related to COVID-19 information in light of one's values might increase processing of the message, even if those values are unrelated to the pandemic. As such, messages that link themselves to commonly held values might prompt recipients to process the message more deeply. Provided that the arguments within the message are convincing, this enhanced processing can lead to strong favourable attitudes that are predictive of future COVID-19-mitigating behaviour. An additional benefit of creating such strong attitudes is that they might lead people to be more sceptical of future information attacking COVID-19-mitigating behaviour, thereby leading to increased resistance to subsequent attacks.

On the other hand, this research also suggests it might be especially difficult to persuade an audience with strong attitudes against adopting COVID-19-mitigating behaviours. That said, it might be possible to circumvent that resistance by using indirect value appeals, such as reducing belief that values such as freedom, which have been used to justify non-compliance with such behaviours, are universally favourable or relevant to the context (cf. Blankenship et al., 2012). This might allow for attitudes towards behaviours such as mask wearing to be indirectly changed via changes to associated values. An important caveat, however, is that changing views of values is a blunt instrument that could influence a host of associated opinions beyond those desired.

If indirect change via values occurred through a high-thought mechanism, the resulting attitudes could be especially likely to drive behaviour. Likewise, promoting values associated with behaviours such as wearing a mask (e.g., safety, cleanliness) could be used to break down the resistance by instilling confidence in the favourability of those values. Relevant to this possibility, subsequent research suggests that increasing the accessibility of related values can make related attitudes more resistant to attacks (Blankenship et al., 2015). Strengthening such values could also reduce the risk of indirect attacks on mask wearing via attacks on those values. Taken together, value appeals could be used to both increase processing of compelling arguments and to indirectly change resistant attitudes in the COVID-19 context.

Matching moral messages to moralised attitudes

Because appealing to values can impact persuasion, it is useful to consider how appealing to other, similar recipient factors within a message might impact persuasion. An interesting factor to explore is how messages might be better tailored to persuade those who hold moralised attitudes (Skitka et al., 2021). Philipp-Muller et al. (2020) found that the degree to which one believes one's attitude is based on moral conviction loads on the same factor within a factor analysis as the degree to which one believes their attitudes are based on their values more generally. As such, just as appealing to values can have persuasive utility, so might appealing to morality, at least among those whose attitudes are based on morality.

This question seems especially relevant to the COVID-19 pandemic, as public figures, such as American public health official Dr. Anthony Fauci, have used moralised language when appealing to the public to adopt COVID-19-mitigating behaviours (Mascarenhas, 2020). To date, the use of moral messaging in health communication has received relatively little empirical attention. However, some data show that some health campaigns use moral messaging, with behaviours such as organ donation characterised as moral matters (Hansen et al., 2018). We next review research examining whether and when such appeals are effective.

Moral messages can be persuasive if the audience holds moralised attitudes

Past research has found that, broadly speaking, moral messages (compared to non-moral control messages) can have a persuasive advantage (Clifford & Jerit, 2013). Recent work focusing on COVID-19 messaging has similarly found that deontological moral messages encouraging recipients to practice social distancing can be more effective than non-moral controls (Everett et al., 2020). However, the persuasive advantage of moral arguments is not universal. Moral arguments are often no more effective than other types of arguments, and at times they can backfire relative to non-moral arguments (Täuber & van Zomeren, 2013). There is, therefore, mixed evidence regarding the persuasive advantage of moral versus non-moral messages, suggesting that the efficacy of moralised messages is context dependent.

Recent work suggests that the advantage of moral appeals depends on how the audience already thinks about the issue in question. As noted earlier, past research finds that messages are more compelling when matched to some feature of the recipient. Thus, moral appeals might be particularly persuasive for audiences who already see the issue through a moral lens (the "moral matching" hypothesis). Individuals can moralise particular attitudes to different extents (Skitka et al., 2021). For example, some people could oppose mask wearing because they believe it is immoral to restrict personal freedom,

whereas others could oppose mask wearing because they believe it is uncomfortable. Moralisation is thus a personal matter, and virtually any topic can be moralised (Luttrell et al., 2021). Oftentimes, the more someone perceives a moral basis for an attitude, the stronger that attitude is (Luttrell & Sawicki, 2020; Skitka et al., 2021).

Recently, Luttrell et al. (2019) tested the moral matching hypothesis by examining whether people with relatively moralised attitudes about the focal topic are more susceptible to strong counterattitudinal messages that emphasise morality (vs. practicality) than those without moralised attitudes. Support for this view was obtained across two different topics. Furthermore, this moral matching effect was mediated by the thoughts elicited by the messages participants read, with matches producing more pro-message thoughts which then predicted greater attitude change, suggesting a high elaboration process was involved.

Other-focused versus self-focused COVID-19 messages can be more persuasive to those who hold moralised attitudes

Given the importance of matching moral arguments with the correct audience, it is also useful to consider what kinds of arguments are viewed as moral in a health context. One relevant distinction made in health messaging research is the use of "self-focused" versus "other-focused" arguments for adopting a health-behaviour. "Other-focused" arguments appeal to prosocial concerns and emphasise a behaviour's ability to promote the well-being of others. By contrast, "self-focused" arguments appeal to egocentric concerns, emphasising a behaviour's ability to promote one's own well-being. Health communication research has generally found other-focused appeals to be more persuasive. For example, physicians practiced better hand hygiene when presented with arguments focused on protecting patients versus themselves (Grant & Hofmann, 2011). Pertinent to COVID-19, arguments promoting vaccination (Kelly & Hornik, 2016) and avoiding touching one's face (Jordan et al., 2020) were more persuasive when they focused on the societal impact of those behaviours rather than their impact on one's own health.

Research by Luttrell and Petty (2021) extended the "moral matching" pattern to these two types of health messages, examining how moralisation might moderate which type of message is more persuasive. Specifically, these studies aimed to test whether those who moralised public health would be especially likely to recognise the central merits of strong other-focused (vs. self-focused) messages. The research examined whether other-focused (vs. self-focused) messages a) were perceived to be more moral and b) were more effective especially for people who had moralised the topic of public health. In the initial test of these predictions (Study 1, $N = 191$), participants reported the extent to which their public health attitudes were based on

their moral beliefs. They were then presented with either a self-focused or other-focused message promoting social (physical) distancing as a strategy to reduce the spread of COVID-19. The self-focused message urged participants to practice distancing for the sake of their own health, whereas the other-focused message emphasised distancing's ability to prevent the spread of coronavirus to at-risk individuals.

In this study, the other-focused message was perceived as more of a moral argument ($M = 3.85$, $SD = 0.95$) than the self-focused message ($M = 2.87$, $SD = 1.33$). Also, consistent with the moral matching effect, the more participants moralised public health, the more they found the other-focused message to be persuasive. This was not the case for the self-focused message (see Table 3). This effect was replicated in two additional studies, and a third study showed that other-focused messages also increased intentions to practice social distancing. Thus, the more social distancing was seen as a moral issue, the more participants intended to practice social distancing in response to the other- (but not the self-) focused message (see Table 4). Notably, because most individuals generally support physical distancing, the pro-physical distancing messages used in these studies were all proattitudinal. The messages used in the original moral matching work (Luttrell et al., 2019), on the other hand, were all counterattitudinal. Thus, it appears that the persuasive advantage of a moral message for those who have moralised the issue is not limited to either pro or counterattitudinal messages.

Table 3. Effects of moralisation on message persuasiveness depending on message condition from Luttrell and Petty (2021; Study 1).

	b
Moralisation X Message Condition	− .15*
Simple Effects	
Other-Focused Message	.45***
Self-Focused Message	.16

Reported regression coefficients are unstandardised. *$p < .05$, ***$p < .001$.

Table 4. Effects of moralisation on behavioural intentions depending on message condition from Luttrell and Petty (2021; Study 3).

	b
Moralisation X Message Condition	−.08*
Simple Effects	
Other-Focused Message	.22***
Self-Focused Message	.06

Reported regression coefficients are unstandardised. *$p < .05$, ***$p < .001$.

Roles for moral matching and future directions

Moral matching effects can likely occur in multiple ways. For instance, since Luttrell et al. (2019) found that the effect was mediated by thoughts generated in response to the moral messages, the effect was likely due to a high thought process. Because a similar moral matching effect was observed by Luttrell and Petty (2021) and because it was shown to impact behavioural intentions, it is likely that other- vs. self-focused messages had their impacts through high elaboration mechanisms as well for those who saw public health as a moral issue.

Future research could examine whether these effects replicate under low elaboration situations. Past research finds that a match between a feature of a message and the basis of the recipient's attitudes can enhance persuasion when elaboration is low, as that match can serve as a simple cue that one will find the message persuasive (e.g., it matches how I think, so I like it; see Teeny et al., 2021). As such, moral arguments might signal to those with moralised attitudes that the message is compelling without much thinking about the arguments themselves. Persuasion via such a process might be less likely to predict future behaviour, however. Other avenues worth exploring are to examine whether the high elaboration matching effects in the studies reviewed occurred because matching increased elaboration (i.e., a study could vary message quality along with moral matching), whether matching biased interpretation of the arguments in a positive direction, or whether matching leads to enhanced perceptions that the arguments capture the central merits of the focal issue.

Implications of moral matching for COVID-19 messaging

Taken together, the finding that those who moralise the topic are more persuaded by moral (vs. non-moral) messages has broad implications for messaging used to combat COVID-19. Many aspects of COVID-19 are highly related to topics that underlie people's moral beliefs, including themes of harm, healthcare equity, contagion, freedom of choice, and listening to health authorities (see Graham et al., 2009, for common moral foundations). Thus, rather than create blanket statements for all, communicators might instead gauge how much their intended recipients have already moralised the topic and tailor the message accordingly. Such tailoring could take the form of using moralised or other-focused arguments when addressing an audience that likely views COVID-19 mitigation as a moral issue but focusing on practical or self-focused arguments when the audience does not see the issue as being moral. To the extent that tailoring takes advantage of differential perceptions of argument quality that play a key role when elaboration is high, such tailoring might also result in attitudes that are more likely to lead to lasting behaviour change.

Message sidedness in moralised contexts

In addition to moralised or other-focused messaging, there could be additional factors that make a message more persuasive for those who hold moralised attitudes. A question relevant to COVID-19 messaging is whether messages in favour of behaviours such as social distancing should exclusively focus on arguments in favour of distancing, which would constitute a one-sided message, or whether potential negatives of distancing should also be acknowledged, which would constitute a two-sided message (e.g., McGuire, 1964). Past research suggests that two-sided messages can have a persuasive advantage (Hovland et al., 1953), but this depends on recipient factors such as high intelligence and education level (Hovland et al., 1949) and high need for cognition (Cacioppo & Petty, 1982; see Kao, 2011).

Xu and Petty (in press) added to this body of work by examining how two-sided messages might also have a persuasive advantage when recipients base their attitudes on their moral values. When presenting information that is counter to a recipient's attitude, a two-sided message acknowledges the recipient's position whereas a one-sided message does not. Prior research finds that acknowledging a recipient's resistance to a persuasive message (e.g., you may not like this) can enhance agreement with the message (Linn & Knowles, 2002). In addition, based on the social influence principle of reciprocity (Cialdini & Griskevicius, 2010), if the source of the message seems open to the target's position by acknowledging it with respect, the target should reciprocate by being more open to the source's view. Thus, Xu and Petty (in press) reasoned that acknowledging a person's morally based opinion (two-sided message) would produce more reciprocation than acknowledging a non-morally based view or failing to acknowledge the recipient's morally based position (one-sided message) and thus produce greater openness to the counterattitudinal position.

In one study (Xu & Petty, in press, Study 3), the topic of mask wearing in the context of COVID-19 was used to test these ideas. Only participants who showed a negative or slightly positive attitude towards mask wearing prior to the study were eligible to participate ($N = 501$) to ensure that the message presented would not be extremely proattitudinal for them. Participants first rated the extent to which they saw mask wearing as being a moral issue. Next, they were randomly presented with a one or two-sided message arguing that the public should always wear face masks when they leave their homes. After that, participants responded to measures of how open they were to consider the persuasive arguments and their intentions to wear a mask in the future. A two-way interaction between moral bases and message sidedness was obtained both on openness and intentions to wear a mask. When participants saw a two-sided message, the more they based their attitudes on morality, the more open to the persuasive message they were and the more

Table 5. Effects of moral basis on openness to persuasion and behavioural intentions depending on message sidedness from Xu and Petty (in press, Study 3).

	Openness to Persuasion	Behavioural Intentions
Effect	b	b
Moral Basis X Message Sidedness	.48***	.58***
Simple Effects		
One-Sided Message	.30**	.24*
Two-Sided Message	.78***	.82***

Reported regression coefficients are unstandardised. *$p < .05$, **$p < .01$, ***$p < .001$.

they intended to wear a mask in the future. When a one-sided message was seen, the degree to which their attitudes were based on morality did not predict openness or intentions (see Table 5). Additional studies demonstrated that the acknowledgement of the other side inherent to two-sided messages drove these effects, but that disrespectful attempts to acknowledge the other side undermine these effects. Furthermore, two-sided messages were also more impactful than one-sided communications as other attitude strength indicators (e.g., certainty) increased. Therefore, if a message respectfully acknowledges a target's strongly held view, the target will reciprocate by being more open to the side advocated by the message.

Roles for message sidedness and future directions

Two-sided messages could enjoy a persuasive advantage over one-sided messages for those with moralised attitudes through a variety of mechanisms. Given that a global pandemic impacts everyone, in the reviewed study it is likely that participants had some motivation to process the message. Additionally, since behavioural intentions were also impacted, the reviewed effect likely occurred via a thoughtful mechanism. It is possible that, for those generally opposed to mask-wearing for moral reasons, acknowledgement of their position is a necessary precondition before any counterattitudinal argument can be seen as valid or worth processing. Put another way, acknowledgement of the recipient's side might be seen as a compelling reason to consider arguments opposed to one's moral attitudes. If so, persuasion via this mechanism should promote future attitude-behaviour consistency. However, it is also possible that two-sided messages could sometimes act as a positive peripheral cue for those who hold moral attitudes but are not motivated or able to think (e.g., acknowledgement of the recipient's side could be seen as a cue that the message was well thought out). Varying the extent of elaboration along with message sidedness and moral bases could examine these different mechanisms in future work.

Implications of message sidedness for COVID-19 messaging

The reviewed research suggests that presenting a two-sided message can be beneficial when trying to encourage COVID-19-mitigating behaviours. Given that actions and behaviours relevant to the pandemic are often

discussed in moral and/or ethical terms (Bellazzi & Boyneburgk, 2020), many people might base their attitudes towards those behaviours on morality. If so, two-sided messages could be particularly effective at convincing those who oppose COVID-19-mitigating behaviours to adopt more favourable attitudes towards recommended health behaviours. If recipients are encouraged to elaborate by the two-sided message, it might also lead to adoption of these behaviours.

Impacts of message discrepancy moderated by source or recipient variables

For highly politicised topics such as COVID-19, a message advocating for a given position will invariably be in agreement with the attitudes of some recipients (e.g., proattitudinal), but be in disagreement with others' attitudes (i.e. counterattitudinal). Such agreement or disagreement can impact how people respond to persuasive communications, so this factor seemed particularly relevant to the COVID-19 context. The Discrepancy Motives Model (Clark & Wegener, 2013) ties such message discrepancy effects to the potential for counterattitudinal messages to threaten and for proattitudinal messages to bolster the recipient's attitude or sense of self. Effects of message discrepancy have been further moderated by variables associated with the source and the recipient.

Message discrepancy and source credibility impact amount of processing

Past studies suggested that messages receive greater elaboration when they are counterattitudinal rather than proattitudinal (e.g., Cacioppo & Petty, 1979), as counterattitudinal messages pose a greater threat to one's attitude which can prompt greater processing in efforts to defend one's views. Likewise, recipients often process messages more when it is from a credible source rather than a noncredible source for similar reasons (e.g., Tobin & Raymundo, 2009). However, these variables can interact to determine elaboration. If counterattitudinal messages are threatening, a highly credible source could enhance that threat, whereas a low credibility source could reduce it. Yet, when the message is proattitudinal, a highly credible source should be reassuring rather than disconcerting. The message should be perceived as supportive and perhaps redundant with the recipient's existing views. Therefore, the recipient might feel little need to carefully scrutinise the merits of the appeal. In contrast, a communicator who lacks credibility should not be reassuring. Recipients might be concerned that the source will do a poor job of representing their views. Such concerns might motivate more careful message processing.

Table 6. Post-message attitudes as a function of message discrepancy, source expertise, and argument quality from Clark et al. (2012, Study 1).

Counterattitudinal Message		Argument Quality	
		Weak	Strong
	Expert Source	3.39	4.92
	Inexpert Source	4.04	4.62
Proattitudinal Message		Weak	Strong
	Expert Source	6.42	6.66
	Inexpert Source	5.68	6.84

Reported attitude values are predicted values from a multiple regression model that included main effects of message discrepancy, source expertise, and argument quality and all interactions between those variables. Predicted values for counterattitudinal messages were assessed at −1 standard deviation below the mean of the message discrepancy scale, and predicted values for proattitudinal messages were assessed at +1 standard deviation above the mean.

Clark et al. (2012, Study 1, $N = 240$) examined these predictions. When the presented message was relatively counterattitudinal, an expert source led to more processing as indicated by strong arguments being more persuasive than weak arguments when presented by an expert but not when presented by an inexpert. However, when the message was relatively proattitudinal, the reverse occurred, whereby the inexpert led to greater argument quality effects than the expert, resulting in an overall source expertise X argument quality X message position interaction (see Table 6). Clark and Wegener (2009) found comparable effects when the source was perceived to either be capable or incapable of enacting the position they proposed.

Message discrepancy and recipient ambivalence impact amount of processing

Beyond message sources, there could be recipient characteristics that moderate message discrepancy effects on amount of processing. One such factor could be the degree to which one's attitudes are mixed, inconsistent, or conflicted. This experience is referred to as *attitudinal ambivalence* and has been shown to decrease the strength of the associated attitude (Armitage & Conner, 2000). Ambivalence might be expected for some COVID-19-mitigating behaviours, such as social distancing, which could be viewed positively because it reduces the spread of disease, but negatively in that it restricts one's ability to see family and friends. It is uncomfortable to hold ambivalent attitudes (Priester & Petty, 1996), so people are generally motivated to engage in actions promising to reduce this discomfort (for a review, see Van Harreveld et al., 2009).

In service of this goal, people might seek out and process information they believe could provide some resolution between their conflicting evaluations. Early research found that people with ambivalent attitudes on an issue processed a relevant persuasive message more extensively than individuals with relatively univalent attitudes (Maio et al., 1996). However, such effects

might be more likely to occur when the message is perceived as likely to help reduce one's ambivalence compared to when it seen as likely to exacerbate one's ambivalence. Clark et al. (2008, Study 1B, $N = 189$) found support for this prediction. In the context of attitudes towards taxing junk food, ambivalent participants were more likely to carefully process a message (indicated by greater persuasion in response to strong than weak arguments) if it was proattitudinal rather than counterattitudinal (unstandardised $b = .29$). Furthermore, when the message was pro- rather than counterattitudinal, participants reported stronger expectations that the appeal could help them resolve their ambivalence and these perceptions accounted for differences in message processing.

Roles for message discrepancy by source or recipient interactions and future directions

In both reviewed studies, interactions between message discrepancy and source credibility or ambivalence served to determine the amount of thought given to the message. As such, combinations that led to high levels of elaboration would be expected to produce attitudes that are predictive of behaviour. One potentially fruitful future direction would be to examine how defence and bolstering motives could play further roles in other attitude change processes. Under conditions of high elaboration, Clark and Evans (2014) showed that source credibility could differently validate recipients' thoughts in response to pro- versus counterattitudinal messages in ways consistent with the defence and bolstering motives identified by previous research (Clark & Wegener, 2013). These motives might also hold unique effects on persuasion when motivation and ability to think are low. For example, if recipients are unable to process a message due to a lack of cognitive resources, source credibility might be used as a cue in different ways depending on the position of a message. When messages are proattitudinal, recipients might seize on credible rather than noncredible sources as a means to bolster their attitude or beliefs. However, when messages are counter attitudinal, message recipients might seize on low credibility sources as a way to defend their existing views.

Another direction for future inquiry could be to examine how source characteristics might play a role in the effects of attitude ambivalence. For instance, when ambivalence is high, an expert source like Dr. Anthony Fauci (on issues related to infectious disease) could enhance motivation to process a proattitudinal message because of stronger perceptions that the information will be of high quality and likely to resolve ambivalence. However, when a message is counterattitudinal, this same expert might trigger strong expectations that the message would make one feel more conflicted on the issue – thereby decreasing the likelihood of message scrutiny.

Implications of message discrepancy by source or recipient interactions for COVID-19 messaging

These findings suggest the importance of knowing whether one's intended audience is likely to agree or disagree with the message. If disagreement is most likely but one's arguments are relatively strong, the persuasive effort might benefit from emphasising the credibility of the source up front, as that should lead recipients to process the message more deeply. Moreover, that deeper level of processing should help to create attitudes that are likely to last over time, resist further change, and guide related thinking and behaviours. However, if the recipients are likely to already agree with the advocated position, such as conveying pro-vaccine information to a demographic already favourably disposed to being vaccinated against COVID-19, information about the credibility of the source might be better left to the end of the message so as not to discourage elaboration on the message from the start. Another possible benefit of presenting credibility information at the end of the message is that, provided the source was credible, this information could bolster confidence in positive thoughts generated in response to the message, thereby magnifying their impact (Tormala et al., 2006). Therefore, COVID-19 messaging could benefit from considering audience attitudes when determining whether to reveal source information at the beginning or end of a message.

These findings also suggest that those seeking to encourage COVID-19-mitigating behaviours might consider whether their audience likely holds ambivalent attitudes towards those behaviours, as well as whether they are currently in support or opposition to those behaviours. If the audience is likely ambivalent and supportive, emphasising that the information is proattitudinal could prompt deeper processing. If paired with strong arguments, this could lead to persuasion through high-elaboration mechanisms likely to promote behaviour change. If the audience is ambivalent but opposed to the advocated behaviours, framing the message in a more non-confrontational way might help reduce concerns that the information will increase their ambivalence and might allow them to process the message more deeply, which could help induce lasting behaviour change.

Discussion

In this article, we reviewed a variety of persuasion effects created by variables relating to the source, message, recipient, and interactions among those variable types. Though these variables are distinct, their effects can be organised based on the ELM multiple roles framework. For instance, when elaboration is high, it can be expected that a variable such as morally-framed messages could impact persuasion by acting as a central merit to the argument being made (Luttrell et al., 2019), or that perceptions of source bias

could bias processing of ambiguous arguments (Wallace et al., 2020a). When elaboration is relatively moderate, the multiple roles framework suggests that variables will likely influence the amount of processing, such as was observed when important values were paired with a message (Blankenship & Wegener, 2008). When elaboration is relatively low, variables can act as peripheral cues about the strength of the message, as was likely the case when a biased source switched positions (Wallace et al., 2020b).

Not only are these types of effects predictable, but the consequences of these effects can also be anticipated. For instance, the ELM predicts that when an attitude is formed via high-elaboration processes, such as when considering a message in the context of an important value, that attitude should display strength-related outcomes, such as resistance to persuasion (Blankenship & Wegener, 2008), or increasing attitude-consistent behavioural intentions (Luttrell & Petty, 2021; Xu & Petty, in press). Therefore, the reviewed research suggests that a wide variety of seemingly disparate effects can be integrated under one unifying theoretical persuasion framework.

Such a unifying theory is useful in the context of a health crisis such as the COVID-19 pandemic as it allows health communicators to identify variables that are likely to lead to the greatest amount of persuasion depending on whether recipients are likely to process the message deeply. Additionally, it points to variables that facilitate greater message processing, which can lead to more consequential attitudes. Many of the effects, perhaps especially the interactions between persuasion variables, are not specifically predicted by the ELM itself. Rather the model provides a nuanced framework to guide a search for conditions that would facilitate the effects of interest. That nuanced perspective can help when designing persuasive messaging. This perspective is also generative. As discussed above, although some variables have been shown to serve particular roles in the persuasion process, many investigations into the additional roles they can play have yet to be conducted. Therefore, the multiple roles perspective not only allows for existing research to be integrated, but also for generation of novel research questions.

To conclude, the COVID-19 pandemic presents an unprecedented need for effective mass public health persuasion. Variables relating to the source, message, and recipient can all be brought to bear to make such communications more effective. However, care must be given to how these messages are likely to be processed and the effects they are likely to have based on the level of processing. By taking a multi-faceted perspective on persuasion, it is possible to design and target messages to specific contexts and audiences to make them most effective. A one-size-fits-all persuasive solution for this crisis is unlikely, but through meticulous, focused messaging, persuasion that leads to mass behaviour change, one individual at a time, is possible.

ORCID

Richard E. Petty http://orcid.org/0000-0002-2870-8575

References

Abelson, R. P., & Miller, J. C. (1967). Negative persuasion via personal insult. *Journal of Experimental Social Psychology*, *3*(4), 321–333. https://doi.org/10.1016/0022-1031(67)90001-7

Andreoli, V., & Worchel, S. (1978). Effects of media, communicator, and message position on attitude change. *Public Opinion Quarterly*, *42*(1), 59–70. https://doi.org/10.1086/268429

Armitage, C. J., & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin*, *26*(11), 1421–1432. https://doi.org/10.1177/0146167200263009

Barden, J., & Petty, R. E. (2008). The mere perception of elaboration creates attitude certainty: Exploring the thoughtfulness heuristic. *Journal of Personality and Social Psychology*, *95*(3), 489–509. https://doi.org/10.1037/a0012559

Bardi, A., & Schwartz, S. H. (2003). Values and behavior: Strength and structure of relations. *Personality and Social Psychology Bulletin*, *29*(10), 1207–1220. https://doi.org/10.1177/0146167203254602

Bellazzi, F., & Boyneburgk, K. V. (2020). COVID-19 calls for virtue ethics. *Journal of Law and the Biosciences*, *7*(1), 1–8. https://doi.org/10.1093/jlb/lsaa056

Beswick, E. (2020, July 15). *Coronavirus: How the wearing of face masks has exposed a divided Europe*. Euronews. https://www.euronews.com/2020/07/14/coronavirus-how-the-wearing-of-face-masks-has-exposed-a-divided-europe

Blankenship, K. L., & Wegener, D. T. (2008). Opening the mind to close it: Considering a message in light of important values increases message processing and later resistance to change. *Journal of Personality and Social Psychology*, *94*(2), 196–213. https://doi.org/10.1037/0022-3514.94.2.94.2.196

Blankenship, K. L., & Wegener, D. T. (2012). Value activation and processing of persuasive messages. *Social Psychological and Personality Science*, *3*(4), 391–397. https://doi.org/10.1177/1948550611424084

Blankenship, K. L., Wegener, D. T., & Murray, R. A. (2012). Circumventing resistance: Using values to indirectly change attitudes. *Journal of Personality and Social Psychology*, *103*(4), 606. https://doi.org/10.1037/a0029226

Blankenship, K. L., Wegener, D. T., & Murray, R. A. (2012). Circumventing resistance: Using values to indirectly change attitudes. Journal of Personality and Social Psychology, 103(4), 606. https://doi.org/10.1037/a0029226

Blankenship, K. L., Wegener, D. T., & Murray, R. A. (2015). Values, inter-attitudinal structure, and attitude change: Value accessibility can increase a related attitude's resistance to change. *Personality and Social Psychology Bulletin*, *41*(12), 1739–1750. https://doi.org/10.1177/0146167215609063

Bond, S. (2020, August 5). *Twitter, Facebook remove Trump post over false claim about Children and COVID-19*. NPR. https://www.npr.org/2020/08/05/899558311/facebook-removes-trump-post-over-false-claim-about-children-and-covid–19

Brenan, M. (2020, June 29). *As views of pandemic worsen, social distancing plateaus*. Gallup. https://news.gallup.com/poll/313082/views-pandemic-worsen-social-distancing-plateaus.aspx

Briñol, P., & Petty, R. E. (2009). Persuasion: Insights from the self-validation hypothesis. *Advances in Experimental Social Psychology*, *41*, 69–118. https://doi.org/10.1016/S0065-2601(08)00402-4

Briñol, P., Petty, R. E., & Barden, J. (2007). Happiness versus sadness as a determinant of thought confidence in persuasion: A self-validation analysis. *Journal of Personality and Social Psychology*, *93*(5), 711–727. https://doi.org/10.1037/0022-3514.93.5.711

Cacioppo, J. T., & Petty, R. E. (1979). Effects of message repetition and position on cognitive responses, recall, and persuasion. *Journal of Personality and Social Psychology*, *37*(1), 97–109. https://doi.org/10.1037/0022-3514.37.1.97

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, *42*(1), 116–131. https://doi.org/10.1037/0022-3514.42.1.116

Cacioppo, J. T., Petty, R. E., Kao, C. F., & Rodriguez, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology*, *51*(5), 1032. https://doi.org/10.1037/0022-3514.42.1.116

Cathey, L. (2020, October 2). *Trump, downplaying virus, has mocked wearing masks for months*. ABC News. https://abcnews.go.com/Politics/trump-downplaying-virus-mocked-wearing-masks-months/story?id=73392694

Chaiken, S., & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology*, *66*(3), 460. https://doi.org/10.1037/0022-3514.66.3.460

Cialdini, R. B., & Griskevicius, V. (2010). Social influence. In R. F. Baumeister & E. J. Finkel (Eds.), *Advanced social psychology: The state of the science* (pp. 385–417). Oxford University Press.

Clark, J. K., & Evans, A. T. (2014). Source credibility and persuasion: The role of message position in self-validation. *Personality and Social Psychology Bulletin*, *40*(8), 1024–1036. https://doi.org/10.1177/0146167214534733

Clark, J. K., & Wegener, D. T. (2009). Source entitativity and the elaboration of persuasive messages: The roles of perceived efficacy and message discrepancy. *Journal of Personality and Social Psychology*, *97*(1), 42–57. https://doi.org/10.1037/a0015450

Clark, J. K., & Wegener, D. T. (2013). Message position, information processing, and persuasion: The discrepancy motives model. *Advances in Experimental Social Psychology*, *47*, 189–232. https://doi.org/10.1016/B978-0-12-407236-7.00004-8

Clark, J. K., Wegener, D. T., & Fabrigar, L. R. (2008). Attitudinal ambivalence and message-based persuasion: Motivated processing of proattitudinal information and avoidance of counterattitudinal information. *Personality and Social Psychology Bulletin*, *34*(4), 565–577. https://doi.org/10.1177/0146167207312527

Clark, J. K., Wegener, D. T., Habashi, M. M., & Evans, A. T. (2012). Source expertise and persuasion: The effects of perceived opposition or support on message scrutiny. *Personality and Social Psychology Bulletin*, *38*(1), 90–100. https://doi.org/10.1177/0146167211420733

Clary, E. G., Snyder, M., Ridge, R. D., Miene, P. K., & Haugen, J. A. (1994). Matching messages to motives in persuasion: A functional approach to promoting volunteerism. *Journal of Applied Social Psychology*, *24*(13), 1129–1149. https://doi.org/10.1111/j.1559-1816.1994.tb01548.x

Clifford, S., & Jerit, J. (2013). How words do the work of politics: Moral foundations theory and the debate over stem cell research. *The Journal of Politics*, *75*(3), 659–671. https://doi.org/10.1017/S0022381613000492

Cooper, J., Blackman, S. J., & Keller, K. (2016). *The science of attitudes*. Routledge. https://doi.org/10.4324/9781315717319

Everett, J. A. C., Colombatto, C., Chituc, V., Brady, W. J., & Crockett, M. (2020, March 20). The effectiveness of moral messages on public health behavioral intentions during the COVID-19 pandemic. Preprint. https://doi.org/10.31234/osf.io/9yqs8.

Feather, N. T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-valence framework. *Journal of Educational Psychology*, *80*(3), 381–391. https://doi.org/10.1037/0022-0663.80.3.381

Goldstein, N. J., & Cialdini, R. B. (2011). Using social norms as a lever of social influence. In A. R. Pratkanis, Ed. *The science of social influence* (pp. 167–191). Psychology Press.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*(5), 1029–1046. http://dx.doi.org/10.1037/a0015141

Grant, A. M., & Hofmann, D. A. (2011). It's not all about me: Motivating hand hygiene among health care professionals by focusing on patients. *Psychological Science*, *22*(12), 1494–1499. https://doi.org/10.1177/0956797611419172

Hansen, S. L., Eisner, M. I., Pfaller, L., & Schicktanz, S. (2018). "Are you in or are you out□" moral appeals to the public in organ donation poster campaigns: A multimodal and ethical analysis. *Health Communication*, *33*(8), 1020–1034. https://doi.org/10.1080/10410236.2017.1331187

Haugtvedt, C. P., & Petty, R. E. (1992). Personality and persuasion: Need for cognition moderates the persistence and resistance of attitude changes. *Journal of Personality and Social Psychology*, *63*(2), 308–319. https://doi.org/10.1037/0022-3514.63.2.308

Haugtvedt, C. P., & Wegener, D. T. (1994). Message order effects in persuasion: An attitude strength perspective. *Journal of Consumer Research*, *21*(1), 205–218. https://doi.org/10.1086/209393

Horcajo, J., & Luttrell, A. (2016). The effects of elaboration on the strength of doping-related attitudes: Resistance to change and behavioral intentions. *Journal of Sport and Exercise Psychology*, *38*(3), 236–246. https://doi.org/10.1123/jsep.2015-0316

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. Yale University Press.

Hovland, C. I., Lumsdaine, A. A., & Sheffield, F. D. (1949). *Experiments on mass communication*. Studies in social psychology in World War II (Vol. 3). Princeton University Press.

Janis, I. L., & King, B. T. (1954). The influence of role playing on opinion change. *The Journal of Abnormal and Social Psychology*, *49*(2), 211–218. https://doi.org/10.1037/h0056957

Jarvis, W. B. G., & Petty, R. E. (1996). The need to evaluate. *Journal of Personality and Social Psychology*, *70*(1), 172–194. https://doi.org/10.1037/0022-3514.70.1.172

Johnson, B. T., & Eagly, A. H. (1989). Effects of involvement on persuasion: A meta-analysis. *Psychological Bulletin*, *106*(2), 290–314. https://doi.org/10.1037/0033-2909.106.2.290

Jordan, J., Yoeli, E., & Rand, D. (2020). Don't get it or don't spread it? Comparing self-interested versus prosocially framed COVID-19 prevention messaging. Preprint. https://doi.org/10.31234/osf.io/yuq7x

Kao, D. T. (2011). Message sidedness in advertising: The moderating roles of need for cognition and time pressure in persuasion. *Scandinavian Journal of Psychology*, *52* (4), 329–340. https://doi.org/10.1111/j.1467-9450.2011.00882.x

Kelly, B. J., & Hornik, R. C. (2016). Effects of framing health messages in terms of benefits to loved ones or others: An experimental study. *Health Communication*, *31*(10), 1284–1290. https://doi.org/10.1080/10410236.2015.1062976

Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 1–24). Lawrence Erlbaum Associates.

Lasswell, H. D. (1948). The structure and function of communication in society. In L. Bryson (Ed.) *The Communication of Ideas*, (pp. 37-51). New York: Harper and Row.

Lazarus, J. V., Ratazan, S. C., Palayew, A., Gostin, L. O., Harson, H. J., Rabin, K., Kimball, S., & El-Mohandes, A. (2020). A global survey of potential acceptance of a COVID-10 vaccine. *Nature Medicine*, *27*. 225-228. https://doi.org/10.1038/s41591-020-1124-9

Linn, J. A., & Knowles, E. S. (2002). Acknowledging target resistance in persuasive messages. In *Annual meeting of the Midwestern Psychological Association*, Chicago, IL.

Lu, L., Liu, J., Yuan, Y. C., Burns, K. S., Lu, E., & Li, D. (2021). Source trust and COVID-19 information sharing: The mediating roles of emotions and beliefs about sharing. *Health Education & Behavior*, *48*(2), 132–139. https://doi.org/10.1177/1090198120984760

Luttrell, A., & Petty, R. E. (2021). Evaluations of self-focused versus other-focused arguments for social distancing: An extension of moral matching effects. *Social Psychological and Personality Science*, *12*(6), 946–854. https://doi.org/10.1177/1948550620947853

Luttrell, A., Philipp-Muller, A., & Petty, R. E. (2019). Challenging moral attitudes with moral messages. *Psychological Science*, *30*(8), 1136–1150. https://doi.org/10.1177/0956797619854706

Luttrell, A., & Sawicki, V. (2020). Attitude strength: Distinguishing predictors versus defining features. *Social and Personality Psychology Compass*, *14*(8), e12555. https://doi.org/10.1111/spc3.12555

Luttrell, A., Teeny, J., & Petty, R. E. (2021). Morality matters in the marketplace: The role of moral meta-cognition on consumer purchasing. *Social Cognition*, *39*(3), 328–351. https://doi.org/10.1521/soco.2021.39.3.328

Maio, G. R., Bell, D. W., & Esses, V. M. (1996). Ambivalence and persuasion: The processing of messages about immigrant groups. *Journal of Experimental Social Psychology*, *32*(6), 513–536. https://doi.org/10.1006/jesp.1996.0023

Maio, G. R., Haddock, G., & Verplanken, B. (2019). *The psychology of attitudes and attitude change*. Sage.

Maio, G. R., & Olson, J. M. (1998). Values as truisms: Evidence and implications. *Journal of Personality and Social Psychology*, *74*(2), 294–311. https://doi.org/10.1037/0022-3514.74.2.294

Mascarenhas, L. (2020, July 13). *Amid coronavirus surge, health officials urge people to wear masks as a symbol of respect*. CNN. https://www.cnn.com/2020/07/13/health/masks-respect-coronavirus-wellness/index.html

McGuire, W. J. (1964). Inducing resistance to persuasion: Some contemporary approaches L. Berkowitz (Ed.). *Advances in Experimental Social Psychology*, *1*, 191–229. https://doi.org/10.1016/S0065-2601(08)60052-0

Nofal, A. M., Cacciotti, G., Lee, N., & Capraro, V. (2020). Who complies with COVID-19 transmission mitigation behavioral guidelines? *PloS One*, *15*(10), 1–14. https://doi.org/10.1371/journal.pone.0240396

Ostrom, T. M., & Brock, T. C. (1969). Cognitive bonding to central values and resistance to a communication advocating change in policy orientation. *Journal of Experimental Research in Personality*, *4*(1), 42–50.

Petty, R. E. (1977). *A cognitive response analysis of the temporal persistence of attitude changes induced by persuasive communications*. (Publication No. 7731952) [doctoral dissertation, Ohio State University]. ProQuest Dissertations and Theses Global.

Petty, R. E., & Wegener, D. T. (1998a). Attitude change: Multiple roles for persuasion variables. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 323–390). McGraw-Hill.

Petty, R. E., & Briñol, P. (2012). The Elaboration Likelihood Model. In P. A. M. Van Lange, A. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 1, pp. 224–245). Sage. https://doi.org/10.4135/9781446249215.n12

Petty, R. E., Briñol, P., & Tormala, Z. L. (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology*, *82*(5), 722–741. https://doi.org/10.1037/0022-3514.82.5.722

Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, *37*(10), 1915–1926. https://doi.org/10.1037/0022-3514.37.10.1915

Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology*, *46*(1), 69–81. https://doi.org/10.1037/0022-3514.46.1.69

Petty, R. E., & Cacioppo, J. T. (1986). The Elaboration Likelihood Model of persuasion. *Advances in Experimental Social Psychology*, *19*, 123–205. https://doi.org/10.1016/S0065-2601(08)60214-2

Petty, R. E., & Cacioppo, J. T. (1990). Involvement and persuasion: Tradition versus integration. *Psychological Bulletin*, *107*(3), 367–374. https://doi.org/10.1037/0033-2909.107.3.367

Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, *41*(5), 847–855. https://doi.org/10.1037/0022-3514.41.5.847

Petty, R. E., Schumann, D. W., Richman, S. A., & Strathman, A. J. (1993). Positive mood and persuasion: Different roles for affect under high-and low-elaboration conditions. *Journal of Personality and Social Psychology*, *64*(1), 5–20. https://doi.org/10.1037/0022-3514.64.1.5

Petty, R. E., Tormala, Z., Hawkins, C., & Wegener, D. T. (2001). Motivation to think and order effects in persuasion: The moderating role of chunking. *Personality and Social Psychology Bulletin*, *27*(3), 332–344. https://doi.org/10.1177/0146167201273007

Petty, R. E., & Wegener, D. T. (1998b). Matching versus mismatching attitude functions: Implications for scrutiny of persuasive messages. *Personality and*

Social Psychology Bulletin, *24*(3), 227–240. https://doi.org/10.1177/0146167298243001

Pettypiece, S. (2020 October 2). *'This was avoidable': Trump has been downplaying the virus from the start*. NBC News. https://www.nbcnews.com/politics/white-house/was-avoidable-trump-falls-victim-his-own-false-messaging-coronavirus-n1241775

Philipp-Muller, A. Z., Wallace, L. E., & Wegener, D. T. (2020). Where does moral conviction fit?: A factor analytic approach examining antecedents to attitude strength. *Journal of Experimental Social Psychology*, *86*, 103900. https://doi.org/10.1016/j.jesp.2019.103900

Pierro, A., Manetti, L., Kruglanski, A. W., & Sleeth-Keppler, D. (2004). Relevance override: On the reduced impact of cues under high-motivation conditions of persuasion studies. *Journal of Personality and Social Psychology*, *86*(2), 251–264. http://dx.doi.org.proxy.lib.ohio-state.edu/10.1037/0022-3514.86.2.251

Prasad, R. (2020, May 5). *Coronavirus: Why is there a US backlash to masks?* BBC News. https://www.bbc.com/news/world-us-canada–52540015

Priester, J. R., & Petty, R. E. (1995). Source attributions and persuasion: Perceived honesty as a determinant of message scrutiny. *Personality and Social Psychology Bulletin*, *21*(6), 637–654. https://doi.org/10.1177/0146167295216010

Priester, J. R., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating the positive and negative bases of attitudes to subjective ambivalence. *Journal of Personality and Social Psychology*, *71*(3), 431. https://doi.org/10.1037/0022-3514.71.3.431

Rokeach, M. (1968). The role of values in public opinion research. *Public Opinion Quarterly*, *32*(4), 547–559. https://doi.org/10.1086/267645

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In *Advances in experimental social psychology* (Vol. 25, pp. 1–65). Academic Press. http://dx.doi.org/10.1016/S0065-2601(08)60281-6

Shavitt, S., Swan, S., Lowrey, T. M., & Wänke, M. (1994). The interaction of endorser attractiveness and involvement in persuasion depends on the goal that guides message processing. *Journal of Consumer Psychology*, *3*(2), 137–162. https://doi.org/10.1016/S1057-7408(08)80002-2

Skitka, L. J., Hanson, B. E., Morgan, G. S., & Wisneski, D. C. (2021). The psychology of moral conviction. *Annual Review of Psychology*, *72*(1), 347–366. https://doi.org/10.1146/annurev-psych-063020-030612

Smith, S. M., & Shaffer, D. R. (1995). Speed of speech and persuasion: Evidence for multiple effects. *Personality and Social Psychology Bulletin*, *21*(10), 1051–1060. https://doi.org/10.1177/01461672952110006

Täuber, S., & van Zomeren, M. (2013). Outrage towards whom? Threats to moral group status impede striving to improve via out-group-directed outrage. *European Journal of Social Psychology*, *43*(2), 149–159. https://doi.org/10.1002/ejsp.1930

Teeny, J., Siev, J., Briñol, P., Petty, R. E., & Lee, A. (2021). A review and conceptual framework for understanding personalized matching effects in persuasion. *Journal of Consumer Psychology*, *31*(2), 382–414. https://doi.org/10.1002/jcpy.1198

Tobin, S. J., & Raymundo, M. M. (2009). Persuasion by causal arguments: The motivating role of perceived causal expertise. *Social Cognition*, *27*(1), 105–127. https://doi.org/10.1521/soco.2009.27.1.105

Tormala, Z. L., Briñol, P., & Petty, R. E. (2006). When credibility attacks: The reverse impact of source credibility on persuasion. *Journal of Experimental Social Psychology*, *42*(5), 684–691. https://doi.org/10.1016/j.jesp.2005.10.005

Tormala, Z. L., Falces, C., Briñol, P., & Petty, R. E. (2007). Ease of retrieval effects in social judgment: The role of unrequested cognitions. *Journal of Personality and Social Psychology*, *93*(2), 143–157. https://doi.org/10.1037/0022-3514.93.2.143

Van Harreveld, F., Van der Pligt, J., & De Liver, Y. N. (2009). The agony of ambivalence and ways to resolve it: Introducing the MAID model. *Personality and Social Psychology Review*, *13*(1), 45–61. https://doi.org/10.1177/1088868308324518

Wallace, L. E., Wegener, D. T., & Petty, R. E. (2020a). When sources honestly provide their biased opinion: Bias as a distinct source perception with independent effects on credibility and persuasion. *Personality and Social Psychology Bulletin*, *46*(3), 439–453. https://doi.org/10.1177/0146167219858654

Wallace, L. E., Wegener, D. T., & Petty, R. E. (2020b). Influences of source bias that differ from source untrustworthiness: When flip-flopping is more and less surprising. *Journal of Personality and Social Psychology*, *118*(4), 603–616. https://doi.org/10.1037/pspa0000181

Wallace, L. E., Wegener, D. T., Quinn, M. E., & Ross, A. J. (in press). Influences of position justification on perceived bias: Immediate effects and carryover across persuasive messages. *Personality and Social Psychology Bulletin*. https://doi.org/10.1177/0146167220963678

Wolf, L. J., Haddock, G., Manstead, A. S., & Maio, G. R. (2020). The importance of (shared) human values for containing the COVID-19 pandemic. *British Journal of Social Psychology*, *59*(3), 618–627. https://doi.org/10.1111/bjso.12401

Worldometer (2021, July 7). *Coronavirus death toll.* https://www.worldometers.info/coronavirus/coronavirus-death-toll

Xu, M., & Petty, R. E. (in press). Two sided messages promote openness for morally based attitudes. *Personality and Social Psychology Bulletin*. https://doi.org/10.1177/0146167220988371

Xu, M., Petty, R. E., Wright, N., & Briñol, P. (in press). Individual differences in three aspects of evaluation: The motives to have, learn, and express attitudes. *Journal of Personality and Social Psychology*. https://doi.org/10.1037/pspa0000279