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The Uncertainty-Dissuasion Model of Reactance Inhibition

Abstract

This paper introduces the Uncertainty-Dissuasion Model (UDM), a comprehensive framework for effectively persuading individuals without triggering reactance. We contend that the pinnacle of persuasion lies not in attempting persuasion itself but in dissuading individuals from engaging in pro-attitudinal behaviors. Strategically introducing uncertainty at varying stages of the reactance process, targeting distinct cognitive constructs, emerges as a pivotal method for realizing this end. The Uncertainty-Dissuasion Model outlines three pathways for inhibiting reactance: pre-message exposure by generating doubt about pre-existing attitudes, during message exposure by focusing on self-validation processes and anger-related appraisals. We provide examples of techniques that can be applied to inhibit reactance through each pathway. In sum, the Uncertainty-Dissuasion Model represents a novel and integrative framework that expands our understanding of reactance inhibition processes. It encourages further research and exploration into the multifaceted dynamics of persuasion, reactance, and uncertainty, offering a promising avenue for the field of psychology and its real-world applications.

Keywords: reactance; attitudes; uncertainty; persuasion; dissuasion.

The Uncertainty-Dissuasion Model of Reactance Inhibition

“The supreme art of war is to subdue the enemy without fighting.”

— Sun Tzu, *The Art of War*

Psychological Reactance Theory (PRT) posits that when individuals perceive their freedoms as threatened, they experience negative arousal. This triggers a motivational state, termed reactance, prompting them to engage in behaviors aimed at restoring their freedoms (Brehm, 1966). Contemporary research on PRT is vital for understanding not just the process of attitude and behavior formation but also the practical mechanisms that either facilitate or inhibit persuasion. This is particularly pertinent when individuals encounter messages contrary to their attitudes (Quick et al., 2013). In fact, one could say that persuasion is most needed precisely when one’s goal is to influence the attitude or behaviors of people who will be likely to perceive the message prescription as threatening their freedom.

Defined as a means to impose one’s willpower over resistant targets through the use of kinetic force (Clausewitz, 2003), war is perhaps the most intense and consequential threat to one’s personal and collective freedoms. Yet, warfare has never been the focal point of psychological reactance research, although many parallels could be drawn between wartime strategies, tactics and psychological persuasion (see Powers & Altman, 2023). Within the PRT framework, persuasion can be envisioned as the effort to exert one's will over resistant individuals using informational means. In essence then, if *“The supreme art of war is to subdue the enemy without fighting”* (Sun-Tzu, op.cit.), the supreme art of persuasion is to sway the recipient without provoking reactance.

Since the inception of PRT, considerable research has been dedicated to mitigating the negative effects of reactance (Rosenberg & Siegel, 2018). Such studies have found that using

“autonomy supportive” (as opposed to controlling) language in persuasive messages (e.g., Crano et al., 2017), narratives and storytelling (Braddock & Dillard, 2016), self-affirmation (Bélanger et al., 2020), and even leveraging reactance itself to promote health behaviors (Quick et al., 2009) could improve persuasion. These techniques primarily seek to persuade individuals by reducing the magnitude of reactance to a message, or by tempering its repercussions.

In this paper, we will concentrate on techniques that aim not to persuade individuals to act against their attitudes but to dissuade them from acting in accordance with those attitudes. We will delve into how motivational states of uncertainty (Rosenberg & Siegel, 2021) can be harnessed to induce confusion, thereby reducing the likelihood of reactance emerging in the first place. Uncertainty is used to bypass reactance arousal and decrease attitudinal certainty, that is, to dissuade. Dissuasion does not entail persuasion and does not guarantee successful attitude and behavior change in the direction of a message.

Here, we will provide a concise overview of the current state of research on reactance, emphasizing how motivational factors play a role in individual message processing. Following that, we will assess the vast array of empirical evidence suggesting that uncertainty might be a formidable motivational tool to avoid reactance effects. Finally, we will introduce a cohesive model of dissuasion through uncertainty (Uncertainty-Dissuasion Model, UDM) and describe ecological instances of UDM effects, drawing from contemporary propaganda examples. By positing the UDM and offering practical recommendations for its application, we aim to underscore its potential utility in combating fake news and misinformation. Overall, we contend that the UDM presents a framework for both theoretical and applied research in motivational psychology and persuasion, particularly in today’s global backdrop marked by escalating geopolitical tensions and widespread illiberal propaganda (Adam-Troian, 2022).

Psychological Reactance Theory

PRT (Brehm, 1966) emerged from early motivational theories in social psychology related to attitude and behavior change under threat, specifically in the face of threatening inconsistencies (see Rosenberg & Siegel, 2018). Cognitive dissonance theory, for example, highlighted how behavioral or attitudinal change could occur when there were discrepancies between behavior and attitudes (Greenwald & Ronis, 1978). More specifically, cognitive dissonance theory hypothesized that individuals possess a fundamental need to restore cognitive homeostasis, a sense of consistency between one's attitudes and behaviors. This, in turn, motivates a change in either, depending on various contextual and individual difference parameters (see Chapanis & Chapanis, 2017, for a recent review). Likewise, PRT focused on another fundamental motive, the need to maintain behavioral freedom — the sense of being free and in control to choose when and how to behave according to one's will (Brehm, 1966). According to PRT, individuals have a range of behaviors they believe they can do, have done in the past, are currently doing, or plan to do in the future. When one or more of these so-called “free behaviors” are being restricted or threatened, PRT states that individuals will be motivated to restore a sense of freedom. As Rosenberg and Siegel (2018) note, PRT does not posit that individuals desire freedom per se; however, it hypothesizes that the perceived or actual loss of behavioral freedom is a threat that will be motivationally arousing and will trigger proportional compensatory responses aimed at restoring freedom (Brehm & Brehm, 2013).

Within this framework, the process of psychological reactance follows a sequential model consisting of four successive and interconnected components. The first component involves the recognition of (1) free behaviors within an individual's repertoire – behaviors they are aware of and believe they can accomplish. The second step involves exposure to a (2) *threat to freedom*,

which refers to any specific situation or injunction that either totally eliminates or partially impedes the enactment of one or more of individuals' free behaviors. Following the perception of the threat, a phase of (3) *reactance arousal* ensues. Reactance arises due to cognitive appraisals leading to an aversive emotional response, often intertwined with anger (Quick et al., 2013). Reactance arousal is proportional to both the level of threat (i.e., the extent of the restriction, see Rains & Turner, 2007) and the subjective importance of the behavior under threat (see Rosenberg & Siegel, 2018 for more details). Once reactance is aroused, the anger-associated component motivates individuals to take action to (4) *restore a sense of freedom* in the threatened behavioral domain (Sittenthaler et al., 2015). A common response to achieve this is the so-called "boomerang" or "backfire" effect, wherein individuals actually engage in the very behavior under threat (e.g., non-vaccination among anti-vaccine individuals when faced with COVID-19 vaccine mandates, Sprengholz et al., 2021). Additionally, aside from these behavioral aspects, reactance arousal may also lead to cognitive responses, such as increased attraction of the threatened behavior, or a dislike for the threatening message and its source (Miller et al., 2013). If individuals perceive that they cannot restore their sense of freedom through cognitive re-evaluation or behavioral compensation, they may experience a sense of loss of control and helplessness (Rosenberg & Siegel, op. cit.).

Motivational Processes and Reactance

As this brief overview of PRT demonstrates, reactance arousal is a process tightly intertwined with anger, serving as a key driver of cognitive and behavioral reactions aimed at addressing threats to one's perceived freedom. Moreover, reactance arousal involves various components that can influence other motivational states at any stage of the process. Indeed, extensive research has been dedicated to uncovering how different motivations can impact threat

perceptions and behavioral restoration, in addition to directly modulating the intensity of reactance itself. These motivations stem from three main sources: individual predisposition to reactance, social influence, and epistemic processes (including self-affirmation, see Rosenberg & Siegel 2021; Steindl et al., 2015).

The first set of factors that can moderate reactance is associated with individual differences that may influence freedom-related motives. Early PRT research suggested that individuals with higher need for control or sense of urgency could exhibit higher reactance arousal in response to threats, in contrast to individuals low in these characteristics (Brehm, 1993). Likewise, individual predisposition towards reactance, often referred to as trait reactance (Shen & Dillard, 2005), consistently moderates individual responses to freedom threatening messages (see Faveratti et al., 2022). Finally, some studies also suggest that cultural values, such as individualism, can amplify reactance in the face of threats to freedom (Graupmann et al., 2012).

Another set of factors that can moderate reactance pertains to social motives and influence processes at play. In general, there is a negative association between the inclination to conform and psychological reactance (Goldsmith et al., 2005). However, the extent of conformity's impact on reactance can vary depending on the prevailing group norms within the social context. For example, conformity to partisan identity in the US can either amplify or diminish reactance to COVID-19 preventive measures depending on one's affiliation with the Republican or Democratic party (Rains et al., 2022; Young et al., 2022). Similarly, studies show that social influence emanating from expert sources (i.e., scientific consensus) can decrease reactance among reactant individuals (i.e., vaccine skeptics, see Bialek et al., 2023).

Moreover, recent research has emphasized the role of epistemic motives, particularly the influence of uncertainty, in shaping reactance. For instance, Rosenberg & Siegel (2021)

demonstrated that students primed with threatening uncertainty displayed less reactance and more favorable attitudes towards news of a university policy change aimed at restricting class choice. The moderating effect of uncertainty (vs. certainty) on reactance is supported by converging evidence from theories related to uncertainty-identity (Hogg, 2007), compensatory control (Landau et al., 2015) and meaning maintenance (Proulx et al., 2012). These theories collectively suggest that when individuals face threatening uncertainty regarding their identity, control, or meaning, they tend to respond by strengthening their allegiance to ideological and institutional systems that provide a sense of belonging, control, and meaning (see Jonas et al., 2014 for a review). This, in turn, can lower reactance by diminishing the need for freedom.

It must be noted that the above-mentioned types of threats (e.g. rejection, failure, control loss, mortality salience...) do not systematically induce uncertainty, because their nature (controllable vs. uncontrollable, social vs. personal, abstract vs. concrete) may lead to different cognitive appraisals, hence different emotional and behavioral reactions. In contrast, the UDM describes the effects of uncertainty in the circumscribed context of reactance. In line with PRT, this context presupposes that 1) an individual has been exposed to a threatening (i.e. counter-attitudinal) message 2) which triggered freedom threat perceptions 3) generating cognitive appraisals susceptible to induce reactance. In this paper, the term uncertainty refers to *metacognitive* uncertainty (unless qualified otherwise): the feeling of lacking confidence in one's cognitions. Hence, the UDM describes the effects of subjective uncertainty on the different constructs specified by PRT. Importantly, it presupposes a communication situation involving a threatening prescription susceptible to induce reactance *all else being equal*.

Uncertainty: A Key Inhibitor of Reactance?

Theoretical arguments supporting the inhibiting role of uncertainty on reactance can be found across several fields within the behavioral and cognitive sciences. Firstly, research in the realm of cognitive neuroscience (e.g. active inference) has shown how uncertainty can influence exploration and approach tendencies (Constant et al., 2022). Similarly, research in the field of persuasion demonstrates that attitudinal uncertainty can facilitate attitude change in line with a message, whereas uncertainty about one's attitudes can nullify this effect (Tormala & Rucker, 2018). Lastly, emotion research focusing on anger – a key component of reactance – suggests that uncertainty may hinder cognitive appraisals that lead to anger responses, and thus undermine “approach” attempts to restore the freedom under threat (Lambert et al., 2019). As we will explore further, meta-cognitive processes play an important role in shaping responses to persuasion attempts, highlighting the substantial, yet relatively uncharted potential, of uncertainty in gaining a deeper understanding of and circumventing reactance processes.

An essential starting point involves examining the connections between uncertainty and individual motivation. Cognitive neuroscience research demonstrates how noisy, uncertain environments tend to induce withdrawn reactions, avoidant behavior and unwillingness to adopt new decision-making rules (Parr & Friston, 2017; Pezzulo et al., 2019). Conversely, intense forms of uncertainty regarding vital issues (e.g., unpredictable food access) can sometimes stimulate exploration and approach behavior (Anselme, & Güntürkün, 2019). It is worth noting that uncertainty can take on both positive forms, such as surprise, and negative forms such as threat (Rosemberg & Siegel, 2021). Additionally, it can be either specific or unspecific, depending on individuals' motivations (a distinction we will elaborate on later, as discussed in Kruglanski et al., 2020). However, a consequence of active inference processes – which rely on the brain's evaluation of disparities between expected and observed outcomes, is that individuals

tend to react in accordance with their preexisting beliefs (consistency, see Friston, 2018 for a discussion). This aligns with the perspective of PRT, which posits that reactance arises when information from a message or prescription contradicts individuals' preexisting belief that a behavior can be freely performed. Hence, undermining one's certainty about a given behavior (e.g. that the behavior is desirable, that one can freely engage in it...) in the belief that a given behavior is free should reduce the gap between belief and message content, potentially mitigating reactance.

Converging evidence on the inhibiting role of uncertainty on reactance arousal can be found in research investigating attitude change and persuasion processes. Among the strongest predictors of attitude strength and resistance to persuasion is attitude certainty (Tormala & Rucker, 2018). Since uncertainty typically leads to deeper information processing when exposed to a message than certainty does, it has been found to facilitate persuasion (Tormala, 2016). This aligns with the expectation that uncertainty might indeed have an inhibitory effect on reactance. Furthermore, contemporary theories of attitude change emphasize the pivotal role of meta-cognitive processes, particularly judgments about one's appraisal of a message, known as self-validation (Brinol & Petty, 2022). Research indicates that if self-validation (confidence in one's positive thoughts about a message) enhances persuasion, experiences of induced uncertainty can disrupt individuals' reliance on their thoughts (i.e., prior beliefs) when responding to persuasive attempts (Hutsinger et al., 2012; Van Kleef et al., 2015). For example, generating uncertainty about the origins of participants' thoughts (self vs. externally generated) negated the effect of participants' appraisals of various objects (e.g., diet) regardless of their valence (see Gasco et al., 2018). In essence, this line of research demonstrates how uncertainty could potentially inhibit reactance by diminishing the prominence of an individual's attitudes and their effects on message

appraisal (or, in certain cases, even reversing their impact, as observed in Brinol et al., 2007).

This is particularly relevant to reactance, which often arises from counter-attitudinal prescriptions in a message that contradicts an individual's preexisting beliefs.

The significance of appraisals in reactance processes extends beyond individuals' prior beliefs and their subsequent evaluations of a persuasive message. Reactance is fundamentally intertwined with anger (see Kim et al., 2017 for a summary). Anger serves as an internal signal that motivates the organism to engage with (i.e., approach) a stimulus in need of resolution (Frijda, 1986; Van Kleef et al., 2017). Appraisals play a crucial role in the generation of anger (Smith & Kirby, 2004), often taking the form of should-statements (e.g., “X should not be this way”) or perceptions of unfairness and injustice (e.g., “X is not right”). These appraisals then prompt individuals to take action (Carver & Harmon-Jones, 2009; Lambert et al., 2019). This is because anger instills a cognitive sense of certainty in one's attitudes and actions (as discussed in Brinol et al., 2018). Uncertainty can hinder reactance in several ways. For instance, framing an initial threat to freedom as unavoidable can lead to doubt and anxiety instead of anger, hence diffusing reactance before it even has a chance to manifest (see Anderson et al., 2016 for an experimental demonstration). This occurs by preventing the cognitive generation of unfairness appraisals and should-statements. Furthermore, evidence suggests that once anger is experienced, highlighting the unpleasantness of anger can undermine individual's confidence in their anger appraisals, thereby inhibiting the effect of anger on their judgments and behavior (Stavraki et al., 2021). Therefore, uncertainty can also reduce reactance by breaking down the link between anger and attitudes through its impact on cognitive appraisals of anger.

The Uncertainty-Dissuasion Model

As discussed earlier, PRT outlines a sequential four-step process, involving (1) *the presence of free behaviors* (2) *threat to freedom* (3) *reactance arousal*, and (4) *the restoration of a sense of freedom*. While recent developments have shown that PRT could be extended to encompass threats beyond just freedom (e.g., insults and poor arguments; Kim et al., 2017), the fundamental sequence remains intact. In addition, we have reviewed evidence suggesting that uncertainty could inhibit reactance through its effects upon individuals’ (1) *preexisting attitudes* (2) *threatening message appraisals (i.e. self-validation)* and (3) *anger appraisals*. The Uncertainty-Dissuasion Model combines these two sets of theoretical propositions.

In simple terms, the UDM synthesizes the various pathways through which uncertainty can potentially inhibit reactance at each stage of the process described by PRT. Specifically, the UDM introduces additional constructs in the reactance process that could be targeted for intervention. This implies that generating any degree of uncertainty related to these constructs could lead to a reduction in the magnitude and likelihood of reactance. Consequently, the model presents three different pathways to dissuasion through uncertainty, which can be leveraged independently or in combination during persuasive interventions (see figure 1 for an overview of the model).

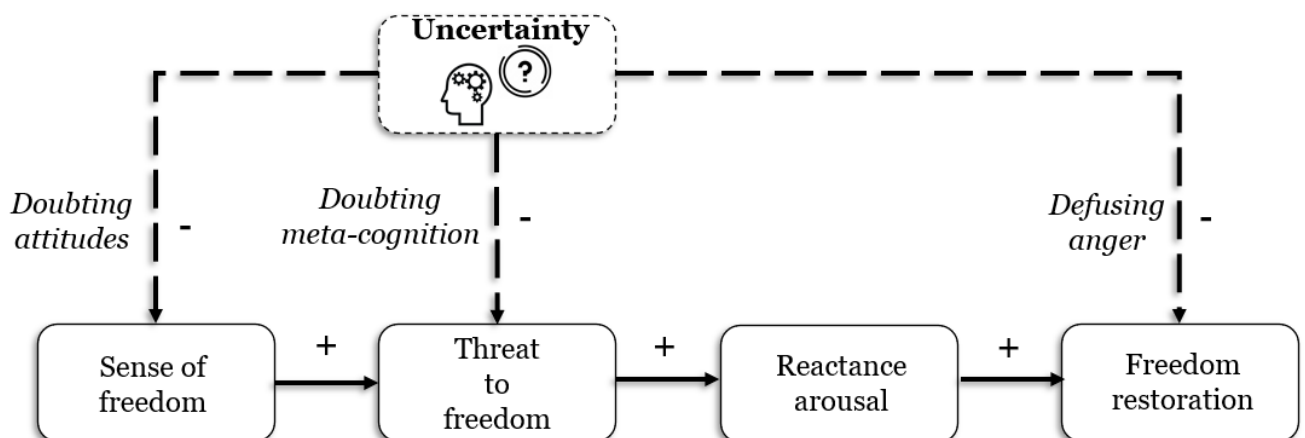


Figure 1. Overview of the Uncertainty-Dissuasion Model. Arrows indicate theoretical pathways of action, + signs indicate a positive (catalyzing) effect, - signs indicate a negative (inhibiting) effect.

Doubting Prior Attitudes

The first pathway for achieving uncertainty-dissuasion effects is to target an individual's sense of freedom before they are exposed to the persuasive message. In line with the research discussed in the previous section, this can be done by undermining individuals' certainty towards the beliefs and attitudes they hold regarding the behavior in question (i.e., the behavior that the message will target). All else being equal, a counter attitudinal message should be perceived as less threatening to one's freedom if one doubts one's attitudes towards a behavior or an issue. In practical terms, there are two ways to activate this pathway.

A cost-effective approach directly targets recipients by including elements that create attitude uncertainty in a preliminary part of the message before introducing counter-attitudinal content. This can be achieved by including questions for the recipients, encouraging them to reflect and deliberate on their attitudes, which can lead to doubt (see Greenberg et al., 2018). Research also shows that leading recipients to formulate absurd conclusions in alignment with their attitudes (i.e., paradoxical thinking, a variation of the "strawman" argument) can effectively depolarize strongly held attitudes (Hameiri et al., 2014). This technique can be seen in pro-Russian writings stating that NATO countries want to "fight until the last Ukrainian" which aim to dissuade (reactant) pro-Ukrainian westerners to support Ukraine's war effort (for an illustration see Bandow, 2022).

While often overlooked by persuasion models, the recipients' informational environment holds significant sway when it comes to in-depth interventions and understanding attitude

changes in real-life situations (Chater & Loewenstein, 2022). As ecological psychologists suggest, to understand behavior one needs to “*ask not what’s inside your head, but what your head’s inside of*” (Mace, 1977, p. 43). Accordingly, one way to inhibit reactance prior to message exposure is to saturate the recipients’ environment with negative information about their national institutions, history, government, and epistemic elites such as scientists and journalists (Adam-Troian, 2022). Ideally, this intervention involves generating chronic exposure to low-intensity informational noise, fostering distrust in one’s national ingroup. This, in turn, diminishes the certainty in ingroup bias and promotes favorable views of foreign nations and governments that recipients might oppose. This technique is the primary mode of intervention for most modern illiberal misinformation targeting Western audiences. They disproportionately emphasize negative news about the West’s economy, history and societal issues to instill a sense of relativism and mitigate pro-Western attitudes that could lead to reactance against Chinese or Russian propaganda efforts (e.g., RT, CGTN, see Elswah & Howard, 2020; Moore & Cooley, 2022).

Doubting meta-cognition

The second pathway for uncertainty-dissuasion revolves around self-validation, which pertains to an individual’s certainty and confidence in their evaluation of the message. In this context, as the message is counter-attitudinal, the model assumes that there are perceptions of threats to one’s freedom, leading to negative thoughts about the message. We will now delve into techniques that can foster uncertainty regarding recipients’ negative assessments of a message. To start, studies on reactance have revealed that a sense of freedom threat can arise from recipients perceiving a message as persuasive (Rosenberg & Siegel, 2018). In essence, individuals will perceive more threat to their freedoms if they feel that a message’s sole purpose is to persuade

them to change their behavior. One technique to undermine recipients' certainty in their evaluations of the message as persuasive is thus to introduce uncertainty in the formulation of the message itself. Accordingly, expressing a position at odds with the message's sources interests for instance, or framing the message source as uncertain of their position (e.g., "I do not claim to be right, but here is my opinion...") has been found effective in generating greater persuasion (Karmakar & Tormala, 2018; see Tormala & Rucker, 2018 for a review). Likewise, another technique in video or face-to-face communications consists in introducing uncertainty regarding the message prescription itself. This is possible by formulating an initial request in an ambiguous way to then express it more clearly in a second request formulation (i.e. *disrupt-to-reframe*, Carpenter & Boster, 2009). Furthermore, research has shown that forewarning recipients of a source's intentions to persuade them is likely to impede persuasion (Benoit, 1998). Hence, emphasizing the non-persuasive nature of a message (e.g., presenting it as a suggestion, advice or tip) could prove useful in inhibiting reactance.

Another method to foster uncertainty towards one's evaluation of a message is by instilling doubt among recipients directly, by leveraging two types of uncertainties. Motivational science distinguishes between specific and unspecific certainty (Kruglanski et al., 2020). Individuals may desire certainty regarding a particular outcome (i.e., *specific* certainty, being right about a particular political issue) or simply seek certainty about obtaining certain information regardless of its implications (i.e., *unspecific* certainty, e.g., time for an appointment). Thus, a first form of *specific* uncertainty may be used to instill doubt regarding the factual nature of one's evaluations towards a message. This type of uncertainty can be manipulated through framing effects and rhetorical styles implemented in the message arguments. For instance, research shows that questions prompting individuals to engage in counter-factual thinking (e.g., "could these events

have happened differently?") embedded in a political speech about terror attacks in Germany can inhibit the negative influence of ideology on attitudes towards immigrants (Winter et al., 2022).

Another way to generate uncertainty about a fact consists in presenting the recipient with alternative facts that do not necessarily contradict the recipients' beliefs but relativize their importance or weight in the informational context at hand. Although used widely by different types of institutions, governments or NGOs, this practice is common among industry lobbyists (and, sometimes, psychology researchers, see Jussim & Honeycutt, 2023). Tobacco-product manufacturers, for instance, specialized in producing epidemiological research findings investigating non-tobacco-related risks factors for cancer (Oreskes & Conway, 2010), to generate doubt and delay action from government regulators by means of fabricated complexity (i.e., to achieve dissuasion, see Bramoullé & Orset, 2018).

In addition, persuasive messages can also leverage *unspecific* uncertainty, and tap into meta-cognition instead of information. In fact, there is direct experimental evidence that individuals in a state of threatening uncertainty (i.e. uncertainty emotionally experienced as negative) display decreased reactance when subsequently exposed to a threatening persuasive message (see Rosenberg & Siegel, 2021). For instance, it is possible to craft a message that does not try to persuade recipients with counterarguments, but instead questions their motives (i.e., whataboutism, Howell, 2023). Whataboutism is used very commonly in political communication and misinformation. For instance, (pro-)Russian propagandists frequently evoke past wars initiated by Western countries (e.g. Iraq) when targeting Western audiences. This rhetorical trick diverts attention away from the initial issue (i.e. Russia's invasion of Ukraine) to a metacognitive focus on recipients' own motives (i.e. to apply double standards of moral judgements against outgroups). Although whataboutism is logically flawed, its persuasive impact may stem from

inducing a sense of hypocrisy among recipients (which is highly effective in changing attitudes and behaviors that might otherwise trigger reactance, see Priolo et al., 2019). This technique is straightforward and appears in numerous forms, with one of its most prominent expressions being competitive victimhood (e.g., “All lives matter” as a response to BLM, see Young & Sullivan, 2016 for a review).

Another method to generate *unspecific* uncertainty is by instilling doubt in recipients regarding their cognitive ability to assess a specific issue at hand. To achieve this effect, one may use relativistic arguments denying the very existence of facts themselves. This type of arguments are often leveraged by conspiracy theorists of all sorts to deny scientific facts about the anthropogenic nature of global warming or the effectiveness of vaccines for instance (see Aspernäs et al., 2023).

In addition, messages to induce unspecific uncertainty can subtly suggest that recipients are biased on an issue due to their group identity or cultural background. As an illustration, Islamist propaganda in the West often uses messages depicting secular or scientific criticism of Islam as “Islamophobic”, even though research shows no correlation between such criticism and prejudice towards Muslims (Adam-Troian, 2021; Imhoff & Recker, 2012). This technique is also used by Islamist groups, such as Turkish State (AKP) propaganda, which depicted France as “Islamophobic” and having a “sinister obsession” for shutting down a mosque harboring radical Islamists in the wake of the 2020 assassination of teacher Samuel Paty (see TRTWorld, 2022). This technique can be likened to a form of “gaslighting” as it incorrectly implies that the recipient lacks the ability to judge an issue or displays bias (Johnson et al., 2021), although it is not necessarily the case.

Defusing anger

The third and final pathway (in chronological order) towards reactance inhibition involves cognitive reappraisals of anger. As mentioned earlier, reactance is closely tied to anger, and anger itself influences judgements about actions and certainty of attitudes (Lambert et al., 2019). One technique focusing on appraisals is the use of specific message frames to present the prescribed behavior in a way that prompts recipients to doubt it. For example, recent research in the context of COVID-19 shows that the anger stemming from a message stating “*You are risking your health and even your life if you [...] refuse to get vaccinated*” was significantly lower for participants under high (vs. low) uncertainty (Huang & Liu, 2022). In this study, uncertainty was induced by asking participants to list their thoughts about what they felt the most uncertain regarding COVID-19 vaccination (the target behavior). Thus, encouraging individuals to contemplate their uncertainties regarding a behavior could potentially reduce anger appraisals toward the message.

Likewise, evidence suggests that a message inciting participants to think about their lack of confidence or unpleasant emotional experience upon exposure could lead to a breakdown of anger certainty and pleasantness appraisals, which could lead to increased persuasion (Stavraki et al., 2021). Despite the theoretical relevance and usefulness of considering message frames that may lead to reappraisal of anger-related cognitions, these are rather complex to operationalize in ecological settings. This is partly because messages that prompt individuals to reflect on their own mental states may be complicated to embed in already counter-attitudinal messages.

As previously discussed, anger is also closely linked to feelings of unfairness and injustice. Research in negotiation contexts, which essentially involve interpersonal persuasion attempts, indicates that separating anger from assessments of unfairness reduces rejections of unfair offers (i.e., reduced reactance, Srivastava et al., 2009). Similarly, another anger-defusing strategy

consists in generating uncertainty about the source of a prescription to prevent appraisals of unfairness from emerging, thus reducing the reactance motivating potential of anger emotions. Studies have shown that such uncertainty can be generated by using linguistic forms that are causally more neutral (Hauser & Schwarz, 2016), and act by “masking” the agency of a message’s source in generating the prescription. For instance, individuals are more likely to infer that a fictional medical condition labelled “*endocrination of abdominal lipid tissue*” is more negative when words to describe its origin state it is “*caused*” rather than when it is said to be “*produced*” (Hauser & Schwarz, 2018; 2023). Accordingly, other studies in applied persuasive contexts demonstrated how using nouns instead of verbs when describing conflict resolution policies generate increased policy support and decrease resistance to the message (e.g., “*I support the division of Jerusalem*” vs. “*I support dividing Jerusalem*”, see Idan et al., 2018). This type of linguistic strategy works by obscuring the source of a prescription, which makes it appear more factual and thus unavoidable, rather than emanating from an agent with intentionality. It is used widely in political communication (e.g., use of euphemisms, Grolleau et al., 2022), advertising but also corporate public relations (where *layoffs* and *dismissals* have disappeared, and employees are now *made redundant*).

Discussion

In the beginning of this theoretical investigation, we defined the supreme art of persuasion as the ability to influence a recipient without triggering reactance. One might even argue that the most effective persuasion attempt is the one that has not been attempted at all. In this paper, we have thus proposed a comprehensive and current model centered on *dissuasion*. This concept entails convincing potentially reactive individuals not to engage in pro-attitudinal behaviors. Although dissuasion is conceptually distinct from attitude or behavior change in the direction of

a message (i.e. persuasion), it can be as valuable in contexts where sustainable persuasion effects cannot be realistically achieved (e.g. violent intergroup contexts). Furthermore, we proposed that the primary goal for dissuasion is to inhibit reactance and sever the link between recipients' attitudes and behavior. We've argued that uncertainty, strategically employed at various stages of the reactance process and targeting different constructs, is the key tool for achieving this goal.

Overall, our Uncertainty-Dissuasion Model outlines three pathways for inhibiting reactance: prior to message exposure by targeting recipients' pre-existing attitudes, during message exposure focusing on self-validation processes and anger-related appraisals. We have also provided examples of techniques that are already being applied or could be applied to inhibit reactance through each pathway. From a theoretical perspective, this model offers an integrative view of several relevant domains crucial for understanding reactance inhibition processes.

However, it doesn't claim to be exhaustive, and the UDM should be seen as an evolving framework designed mainly to generate new hypotheses for testing by researchers in the fields of persuasion and motivation psychology. For instance, can presenting multiple versions of an event (i.e., akin to several "alternative truths") effectively inhibit reactance even among individuals with extensive knowledge of such events? Could counterfactual messages targeting recipients' cognitions about a message neutralize the impact of negative appraisals on attitude or behavior change? How might cognitive-behavioral therapy techniques like cognitive reappraisal be incorporated into persuasive messages (e.g., Halperin & Gross, 2011)? Would those be effective at inhibiting reactance through anger-reduction?

Likewise, several individual difference moderators are susceptible to either catalyze or reverse UDM effects. Such variables may be epistemic motives (i.e., need for cognition, closure, tolerance of uncertainty, see Jost & Kruglanski, 2013), motivational dysfunctions such as

obsessive passion (Bélanger, 2021; Bélanger et al., 2021; 2022) or event emotion-regulation-related constructs such as coping strategies (Stephenson & De Longis, 2020), personality variables (impulsivity, Tomko et al., 2014), and, not least, trait reactance itself (Shen & Dillard, 2005). In addition, the list of candidate mediators of uncertainty's effects through each pathway is as long as that involved in the literatures pertaining to attitude certainty, self-validation and to the meta-cognitive processes involved in persuasion as well as anger and emotion regulation at large.

On a practical note, many of the ecological examples we provided in this paper come from illiberal, authoritarian or obscurantist propaganda sources. However, we wish to emphasize the potential for leveraging UDM effects ethically and in line with the practices of psychology researchers and key actors in liberal democratic contexts. In fact, uncertainty can be harnessed to promote scientifically substantiated health, intergroup and political behaviors, while countering unfounded and harmful beliefs and views (e.g., promoting evidence-based medicine, debunking conspiracy theories, advocating for policies grounded in sound social and economic principles, see Caroti et al., 2022 for an overview). This also includes challenging and violent intergroup contexts.

Indeed, we began this paper by making a reference to war and armed conflicts. The West is currently experiencing a genocidal war against the Ukrainian people (Connolly, 2022) waged by a Russian *de facto* neo-fascist state (Umland & Eichstaett, 2009) and its authoritarian allies (e.g., North Korea, Chinese State). In this conflict marked by attempts on all sides to dominate the informational battlefield and garner support for their war effort, we hope that the UDM offers insights that could help improve western counterpropaganda and bolster the outreach of western propaganda targeting the invading forces (inciting them to surrender for instance) as well as

hostile audiences supporting the aggression of Ukraine and authoritarian ideologies more broadly.

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