

# Characterizing Reactance in Communication Research: A Review of Conceptual and Operational Approaches

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## Abstract

Psychological reactance, or simply reactance, has become a major concept of interest in communication research. Although this spike in scholarly attention has greatly advanced our understanding of reactance as a communication effect, its growing popularity has been accompanied by lack of conceptual and operational precision and agreement. This review characterizes the wide spectrum of approaches to defining, labeling, and examining reactance in communication research, summarizing major areas of variability. The overall landscape suggests that greater methodological consensus is needed, and there is opportunity to build on prior explications to hone the best approaches to measuring this phenomenon. Ideas for future research are offered to help guide (1) refinement and expansion of current prevailing methodologies, (2) development of measures appropriate to a broader range of communication contexts, and (3) use of more precise and consistent reactance terminology in the communication literature.

## Keywords

reactance, freedom threat, resistance, health and/or persuasive messaging, information processing and cognition

Although people resist communicated messages for a number of reasons, communication scholars are increasingly interested in *psychological reactance*, a psychological state triggered by a perceived threat to one's freedom to think or act freely (Brehm, 1966; Brehm & Brehm, 1981). When reactance is aroused by a freedom-threatening

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message, a person is motivated to restore his or her agency by resisting the message (Brehm, 1966). By studying the conditions under which reactance is provoked, communication scholars hope to identify strategies for minimizing (or heightening) reactance in order to increase message effectiveness.

Although originating in the field of social psychology, psychological reactance theory has flourished in communication research. Reactance theory has been widely applied in advertising (e.g., Fitzsimons & Lehmann, 2004), health communication (e.g., Dillard & Shen, 2005), and media psychology (e.g., Moyer-Gusé & Nabi, 2010), and has piqued the interest of other communication subfields, including environmental (Liang, Kee, & Henderson, 2018), political (Hayes & Reineke, 2007), educational (Zhang & Sapp, 2013), science (Song, McComas, & Schuler, 2018), and technology (Moon, Kim, Feeley, & Shin, 2015) communication. This growth has surely contributed to our understanding of reactance in substantial ways; yet its growing popularity has been accompanied by an ever-widening array of conceptual and operational treatments.

Considerable efforts have been made to clarify the nature of reactance and identify suitable methods for measuring it in communication contexts (e.g., Burgoon, Alvaro, Grandpre, & Voulodakis, 2002; Dillard & Shen, 2005; Kim, Levine, & Allen, 2013; Miller, Lane, Deatrick, Young, & Potts, 2007; Quick, 2012; Quick & Stephenson, 2007; Rains, 2013). Despite these significant efforts, a lack of conceptual and operational harmony persists in the literature. The question is, why? And, what does it mean for advancing our understanding of this communication effect?

This review offers a catalog and critical examination of the broad landscape of reactance measures with these questions in mind. Building on prior reactance reviews that summarized theoretical postulates, predominant methodological approaches, and key empirical findings (e.g., Quick, Shen, & Dillard, 2013; Rains, 2013), this article contributes the first extensive overview of approaches to operationalizing reactance in communication research. With this helicopter view, it becomes apparent that the variability not only is a methodological issue but also indicates that we lack a shared conceptual understanding of reactance. Greater consensus is needed in order to meaningfully build and refine our knowledge in this area.

Beyond summarizing inconsistencies and repeating recommendations for well-supported approaches, a second goal of this review is to engage with possible reasons for the ongoing dissonance. Although there is a clear need for more careful and consistent treatment of reactance, as shown herein, the dissonance might also point to room for growth in prevailing conceptualization and methodologies. This review concludes by exploring opportunities to revise or expand our standard approaches, in order to support researchers' widening scope of contextual interests and tap the rich range of ways that reactance theory can be applied in communication research.

## **Psychological Reactance: A Brief Summary of Theory and Measurement**

Reactance theory begins with an assumption that humans are generally motivated to resist control (Brehm, 1966; Brehm & Brehm, 1981), and posits that when a person's

autonomy is threatened—for example, by an attempt to influence his or her thoughts or actions—the person will be motivated to protect or restore a sense of control. This can result in refusal to change one’s mind or actions, or it can push someone in the opposite direction, (i.e., an attitudinal or behavioral boomerang). The underlying psychological state that drives the process, or the manifestation of the motivation to resist control, is termed *reactance* (Brehm, 1966).

Despite over 50 years of study, measurement of reactance as a psychological process is relatively young. The Brehms initially claimed that researchers “cannot measure reactance directly, but hypothesizing its existence allows us to predict a variety of behavioral effects” (Brehm & Brehm, 1981, p. 37). Hence, reactance was captured by its antecedent and outcomes, and the hypothetical intervening variable received sparse explication. Thanks to a growing interest in psychological processes, however, scholars in the past 20 years have moved to bring reactance out of the black box and capture the underlying mechanism. Drawing on persuasion research and the Brehms’ somewhat limited depictions of the underlying construct, Silvia (2006) proposed characterizing it as negative cognitive responses (i.e., counterarguing and low perceived speaker credibility), measurable with self-report scales. Dillard and Shen (2005) suggested the motivational state could also be characterized by affective responses, namely anger, also capturable by self-report.

Dillard and Shen (2005) subjected these possible conceptualizations to model testing, comparing four models representing reactance as anger, as negative thoughts, as both anger and negative thoughts in parallel processes, and as both in a combined process. They concluded reactance was best characterized as both negative thoughts and anger, ideally modeled as a latent composite variable with affect and cognition “intertwined.” The *intertwined reactance model* has been empirically supported in comparisons with alternative models (e.g., Kim et al., 2013; Quick, 2012; Rains & Turner, 2007; for meta-analyses, see Rains, 2013). Because reactance theory holds that reactance begins with a freedom threat, Dillard and Shen (2005) recommended that communication researchers account for all components of the reactance process: freedom threat, intervening psychological response (as anger and negative cognitions), and outcomes. Use of this model has been sporadic, however. Instead, reactance has been studied with a wide variety of components, path models, and measurement approaches.

## Capturing Reactance in Communication

This section presents a catalog of the conceptual and operational treatments of reactance in communication research.<sup>1</sup> Major areas of variation are highlighted here and further engaged in the “Discussion” section.

### *Freedom Threat*

*Conceptual definition.* Freedom threat is considered central to reactance theory and is defined as an actual or implied attempt to influence a person’s thoughts or behaviors

(Brehm, 1966; Brehm & Brehm, 1981). Freedom threats can take various forms in communication contexts, such as language that is commanding or overtly persuasive (Dillard & Shen, 2005; Miller et al., 2007), message delivery that is forceful or intrusive (Edwards, Li, & Lee, 2002), or communicating that an option is inaccessible or will be taken away (Brehm & Brehm, 1981).

*Operationalization.* Freedom threat is typically operationalized as either an intrinsic feature of a message or communication approach, or as self-reported perception of freedom threat. In the first case, message condition serves as the freedom threat variable (e.g., high vs. low threat; see Rains, 2013), and perceived freedom threat is sometimes used as a manipulation check.<sup>2</sup> Many self-report measures used to capture perceptions of freedom threat fall into the following categories.

*Perceived threat to attitudinal/decisional freedom.* Numerous scales assess the extent to which people believe a message tried to persuade, manipulate, or pressure them into adopting an advocated position or choice (e.g., Dillard & Shen, 2005; Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003; Lindsey, 2005; Witte, 1994; see Table 1 for items and varied terminology). Dillard and Shen's *perceived freedom threat* scale has been widely used and adapted for various contexts, such as media psychology (e.g., "the show tried to force its opinions on me"; Moyer-Gusé & Nabi, 2010, p. 36), as well as used to create criteria for coding open-ended responses (Kim et al., 2013).

*Perceived behavioral intrusion.* Scales commonly used in advertising research gauge the extent to which a communication feels threatening to behavioral freedom, such as forced exposure, imposed limitations, or invasion of privacy (i.e., threat to one's ability to avoid being observed; White, Zahay, Thorbjørnsen, & Shavitt, 2008). For instance, Edwards et al. (2002) used a *perceived intrusiveness* scale to examine reactance to pop-up ads that interrupt Internet browsing (Table 1). This scale has been merged with items capturing explicit motivation to resist the message (see below) to study responses to tailored online ads and the concept of "personalization reactance" (Bleier & Eisenbeiss, 2015; White et al., 2008). Outside of advertising, the Reactance to Health Warnings Scale (RHWS), designed to examine smokers' reactions to government-imposed cigarette pack labeling, includes items capturing perceived intrusion (e.g., "This warning is trying to boss me around" and "Smoking is legal, so the government should stop interfering with smokers' freedom"; Hall et al., 2016, p. 739).

*Explicit motivation to protect freedom.* Some measures tap the explicit feeling of being compelled to protect threatened freedom. These are often adapted from trait reactance scales. For example, several measures adapt items from the Hong Psychological Reactance Scale (Hong & Faedda, 1996) to assess whether audiences would feel compelled to resist, ignore, or dismiss a message. White et al. (2008) and Bleier and Eisenbeiss (2015) combined such items in a larger scale that also assessed perceived intrusiveness (Table 1), whereas Ham's (2017) "reactance" scale contained

**Table 1.** Measures Commonly Used to Study Reactance in Communication.

Reactance dimension	Measure (source)	Label	Operationalization
Perceived threat to freedom	Dillard and Shen (2005; scale)	Perceived threat to freedom	Four items assess whether participants believe a message “threatened my freedom to choose,” “tried to make a decision for me,” “tried to manipulate me,” or “tried to pressure me” (p. 153).
	Kim, Levine, and Allen (2013; thought listing)	Perceived freedom threat	Thought examples, suggested based on Dillard and Shen (2005) include “Let people make their own wise/unwise choices especially in college,” “was a little forceful,” and “I think it would make them want to . . . purposely do the opposite of what it suggests” (p. 280).
Negative cognitions	Grandpre, Alvaro, Burgoon, Miller, and Hall (2003; scale)	Negative message evaluation	Three items assess whether participants believe a message was “trying to control their behavior,” “trying to manipulate what they thought,” or “allowed for decisional freedom on their part” (p. 357).
	Witte (1994; scale)	Perceived manipulation	Three items assess whether participants felt “manipulated, exploited, or whether the message ‘deliberately tried to manipulate my feelings’” (p. 122).
	Edwards, Li, and Lee (2002; scale)	Perceived intrusiveness	Seven items assess whether participants found an ad “distracting, disturbing, forced, interfering, intrusive, invasive, and obtrusive” (p. 88).
	White, Zahay, Thorbjørnsen, and Shavitt (2008; scale)	Reactance	Three items assess “the perceived likelihood that Pat would feel compelled to resist, ignore, and dismiss the offer” (p. 43). Usually combined with items from Edwards et al., 2002 to form a larger scale.
	Dillard and Shen (2005; thought listing)	Negative thoughts	Negative thoughts were “defined as responses that expressed disagreement with the message, negative intention to comply with the advocacy, intention to engage in the risky behavior, derogations of the source, etc.” (p. 154).
	Kim et al. (2013; scale)	Perceived argument quality	A four-item scale rates agreement with “The argument of this message is flawed (R),” “The argument of this message is well reasoned,” “The argument of this message is strong,” and “The argument of this message is invalid (R)” (p. 280).
	Kim et al. (2013; thought listing)	Perceived argument quality	Thought-listing examples include the following: + I: “It makes a valid statement about the effects of drinking,” “I agree that binge drinking is wrong.” - I: “This was a one-sided argument,” “It is too scattered, the thoughts aren’t well planned out,” “The message isn’t going to influence very many students not to drink” (p. 280).

(continued)

Table 1. (continued)

Reactance dimension	Measure (source)	Label	Operationalization
	Zhang and Sapp (2013; scale)	Negative cognitive responses	Three items are "I agree with the message," "I have positive thoughts toward the message," and "I intend to comply with the message" (reverse coded; p. 8).
	Witte (1994; scale)	Message minimization	Five items assess whether people thought a message was "distorted," "overblown," "exaggerated," "boring," or "overstated" (p. 122).
	Moyer-Gusé and Nabi (2010; scale)	Counterarguing	Four items include "While watching the program, I sometimes found myself thinking of ways I disagreed with what was being presented" and "I found myself looking for flaws in the way information was presented in the program" (p. 36).
Negative affect	Silvia (2006; scale)	Counterarguing	Three items ask, "Were you criticizing the essay while you were reading it?" "While reading the essay, were you thinking of points that went against the author's arguments?" and "While reading the essay, were you feeling skeptical of the author's arguments?" (p. 677).
	Kim et al. (2013; scale)	Anger	Five items assess whether the message "made me mad," "made me angry," "irritated me," "made me furious," or "made me annoyed" (p. 280; adapted from the State Anger Scale).
	Kim et al. (2013; thought listing) Dillard and Shen (2005; scale)	Anger	Examples of angry thoughts suggested by Kim et al. include "foolish," "ridiculous," "lame," "fanatical," "insulting," and "rude" (p. 280).
Combined	Lindsey (2005; scale)	Anger	Four items ask whether respondents felt "irritated, angry, annoyed, and aggravated" (p. 153).
	RHWS (scale)	Reactance	Four items are "[I am uncomfortable that / I do not like that / I dislike that] I am being told how to feel about bone marrow donation" and "It irritates me that the message told me how to feel about bone marrow donation" (p. 479).
	Brief RHWS (scale)	Reactance	Twenty-seven items assess nine subdimensions: anger, exaggeration, government, manipulation, personal attack, derogation, discounting, self-relevance, and common knowledge (for items, see Hall et al., 2016).
		Reactance	Three items are "This warning is trying to manipulate me," "The health effect on this warning is overblown," and "This warning annoys me" (Hall et al., 2017, p. 526).

Note. Many of these scales were adapted from prior work, and have also been subsequently adapted to fit different topics and communication mediums in reactance research. Not all measures were originally intended as reactance measures. RHWS = Reactance to Health Warnings Scale.

three items assessing the motivation to resist ads personalized via behavior tracking, plus four items capturing anger. In a sense, these scales simultaneously capture perceived freedom threat and motivation to protect the freedom; thus, whether they tap the antecedent or the subsequent motivational state (i.e., reactance), or both, could be debated. These measures are also similar to the Reactance Restoration Scale, which is used as an outcome measure.

### *Freedom Threat: Key Areas of Inconsistency*

There is general agreement in communication research that freedom threat is a central element of the reactance process. Treatment of it varies, however, in several ways.

*Freedom threat as reactance or its antecedent.* Freedom threat is sometimes treated as an antecedent and other times as a measure of reactance itself, reflecting differing conceptualizations of the construct. For example, the widely used Lindsey scale and subsequent adaptation (Reinhart, Marshall, Feeley, & Tutzauer, 2007) are typically labeled a “reactance” scale but considered a measure of freedom threat (e.g., Lindsey, 2005; Quintero Johnson & Sangalang, 2017; Reinhart & Anker, 2012; Reinhart et al., 2007).<sup>3</sup>

*Conceptual overlap/combined measures.* Related to the previous point, some freedom threat measures overlap conceptually with other reactance components (e.g., negative affective or cognitive responses, or outcomes). These are also typically treated as a unified measure of state reactance rather than treating freedom threat as an antecedent. Whereas some scales have distinct subsets of items for each dimension (e.g., Hall et al., 2016; Ham, 2017; White et al., 2008; Witte, 1994) and could thus be separated, others combine reactance elements within items. For example, the Lindsey (2005) scale contains variations of the item “It irritates me that the message told me how to feel about bone marrow donation” (p. 479). In one sense, the items in the Lindsey measure are double barreled, asking respondents whether they feel both freedom threat and anger. In another sense, the items are telling respondents there is a threat and asking how they feel about it. The scale could, therefore, be priming perceived freedom threat, and studies using this measure may capture reactance caused or enhanced by the questionnaire itself.

*No measure.* A number of studies purporting to examine reactance do not manipulate or measure freedom threat at all. Some capture only anger (e.g., Erceg, Hurn, & Steed, 2011) or negative thoughts (e.g., Keer, van den Putte, de Wit, & Neijens, 2013; Rhodes, Ralston, & Bigsby, 2016), or a combination of anger and negative thoughts (e.g., Kim & So, 2018; Niederdeppe, Shapiro, & Porticella, 2011; Xu & Wu, 2017). Some measure reactance only by its outcome (e.g., Campo & Cameron, 2006). This makes it difficult to determine whether these responses were indeed reactance or another type of unfavorable response (see “Discussion” section).

## Intervening Psychological Response

In reactance theory, reactance is the explanatory psychological process that *mediates* the relationship between freedom threat and attitudinal/behavioral outcomes (Brehm, 1966; Brehm & Brehm, 1981). Early theorizing offered little description of its specific features, however, beyond characterizing it as defensive processing with the goal of restoring autonomy. This led to a degree of latitude for studies measuring the intervening response.

## Cognitive Responses

*Conceptual definition.* The cognitive dimension of reactance is sometimes broadly characterized as any negative cognition and at other times as the specific cognitive reaction of *counterarguing*. Although the two terms are sometimes used interchangeably (e.g., Dillard & Shen, 2005; Rains, 2013), *negative cognition* is arguably broader, with counterargument being one type of negative thought. Scholars describe counterarguing as generating reasoned arguments against an advocated position or questioning the credibility of the message (Miller & Baron, 1973). As described below, Hall et al. (2016) and others have suggested that several more types of negative cognitive responses can be considered manifestations of reactance.

*Operationalization.* Variations in operationalization and labeling reflect the range of possible interpretations of “negative cognitive responses.” Different measurement methods also allow for varying amounts of leeway or level of specificity in defining this component. Scales tend to capture one specific type of response (e.g., counterarguing), whereas thought-listing tasks and semantic differential scales capture a wide range of cognitive responses not limited to counterarguing. Commonly used measures can be categorized as follows:

*Negative cognitive responses.* Measures broadly labeled “negative cognitive responses” (or “negative thoughts,” “negative cognitions,” or “critical cognitions”) are often thought-listing tasks designed to capture negatively valenced thoughts. A broad classification approach used in reactance studies, common to persuasion research in general, is to simply categorize thoughts as negative, positive, or neutral (e.g., Quick, LaVoie, Reynolds-Tylus, Martinez-Gonzalez, & Skurka, 2018; Richards & Larsen, 2017; Song et al., 2018). Under the same label, Dillard and Shen (2005) proposed a narrower definition specific to reactance, classifying thoughts as negative if they “expressed disagreement with the message, negative intention to comply with the advocacy, intention to engage in the risky behavior, derogations of the source, etc.” (p. 154). A three-item, reverse-coded scale based on Dillard and Shen’s thought-coding protocol has been used in several studies (e.g., Xu, 2015; Xu & Wu, 2017; Zhang & Sapp, 2013), and similarly captures compliance intention, as well as message agreement (see Table 1).



**Counterarguing.** As an alternative to thought listing, several scales specifically ask whether respondents generated counterarguments during message exposure (e.g., Moyer-Gusé & Nabi, 2010; Silvia, 2006; see Table 1). Such scales often capture both global criticism and refutation of specific points. For example, variations of the Silvia scale asked “Did you criticize the message you just saw while you were reading it?” (*global*; Gardner & Leshner, 2016, p. 743) and “I came up with specific responses to the arguments made in the message” (*specific*; Wong, Harrison, & Harvell, 2015, p. 77). Niederdeppe et al. (2011) used thought listing to capture counterarguing, but took a unique approach: Rather than treat counterarguing as a solely cognitive response, they distinguished between *cognitively* and *emotionally* reactive counterarguments. An example of an emotional counterargument was “people who blame society for their weight are lazy and just making excuses” (p. 319), which conveys irritation or frustration—for example, through use of derogatory terms—rather than a reasoned refutation of the message, unlike a cognitive counterargument (e.g., “lack of sidewalks is not an excuse for not walking,” p. 308).

**Perceived argument quality.** Kim and colleagues (2013) used a perceived argument quality scale to capture the cognitive dimension of reactance, asking participants to report the extent to which they found an argument flawed, invalid, weak, and poorly reasoned. This scale is somewhat similar to counterarguing scales and has elsewhere been labeled “counterarguing” (e.g., Liang et al., 2018) and “negative thoughts” (Kim, Levine, & Allen, 2017).

**Message minimization.** Cognitive reactance is sometimes assessed with Witte’s Message Minimization Scale, which was intended as part of a two-dimensional approach to measuring reactance in fear appeal contexts (the other being perceived manipulation, described previously). The scale captures the degree to which “persons derogated or minimized the message (i.e., their feelings and impressions of the message)” (Witte, 1994, p. 122). Scale items tap whether recipients find a message “exaggerated” (akin to counterarguing) or “boring” (a criticism of message features that could go beyond content, such as design or delivery; Table 1). *Message minimization* is perhaps similar to *global criticism*, which is sometimes captured in counterarguing scales and thought coding. Occasionally, message minimization is considered distinct from cognitive reactance (e.g., Quick et al., 2018). It is also sometimes used as the sole reactance measure (e.g., Keer et al., 2013; Rhodes et al., 2016).

**Message evaluation.** Some studies employ broad “cognitive evaluation” or “message evaluation” scales that are positively or neutrally valenced, with lower scores used to represent cognitive reactance (e.g., Wong et al., 2015). These are based on approaches from Grandpre et al. (2003), who used a semantic differential scale assessing whether participants found a message “good/bad,” “valuable/worthless,” and so forth, and Miller et al. (2007), who used a cognitive evaluation scale to assess whether respondents found a message to be fair, interesting, and relevant to them.

*Source evaluation.* Several studies include source evaluation as part of their reactance measurement, based on early work from Grandpre et al. (2003), Miller et al. (2007), and Silvia (2006). Semantic differential scales are typically used, with negative anchors such as *dishonest*, *untrustworthy*, *stupid*, and *uninformed*. Perceptions of source credibility are also captured in broader measures such as Dillard and Shen's thought-coding protocol, and some researchers consider source derogation or attacking source credibility to represent counterarguing.

## Affective Responses

*Conceptual definition.* According to reactance theory, greater magnitudes of reactance can manifest as hostility or aggression (Brehm, 1966). Hence, reactance is usually considered to have an affective component, typically conceptualized as feelings on an anger continuum, including anger, hostility, frustration, and irritation (Dillard & Shen, 2005; Lindsey, 2005). Despite being sometimes broadly labeled "negative affect" or "affective reactance," this reactance component is not thought to involve any other negative emotion (e.g., fear, anxiety) beyond anger.

*Operationalization.* Considerably less attention has been paid to affect as a defining element of reactance compared with perceived freedom threat and negative cognitions. It is less often measured, but when it is, there is less variation in its measurement.

*Anger.* Anger is almost universally measured with state anger scales that ask the extent to which a message made respondents feel a range of anger-related emotions. The commonly used measure put forth by Dillard and Shen (2005) asks whether respondents feel angry, annoyed, irritated, or aggravated. Other researchers (e.g., Kim et al., 2013, 2017; Liang et al., 2018) have used a similar set of items adapted from the State Anger Scale (see Table 1). Miller et al. (2013) disguised anger measurement within a larger scale that included other positive and negative emotions. Thought listing is rarely used to assess affective reactance, even though thought-listing tasks can capture expressions of anger (e.g., "It makes me mad"; Miller & Baron, 1973; for exceptions, see Niederdeppe et al., 2011, in the previous section, and Kim et al., 2013, in Table 1).

## Intervening Response: Key Areas of Inconsistency

Communication research has predominantly included measurement of the intervening motivational response in reactance studies in the past 15 years, but fine-grained conceptual and operational treatments vary. Notably, a diverse range of cognitive measures, but relatively narrow set of affective measures, is used. Major discrepancies are highlighted below.

*"Counterarguing" versus "negative cognitions".* Whether the cognitive component of reactance should be characterized as *counterarguing* or the broader *negative cognitions* is

unclear. In depictions of the intertwined model, these terms are sometimes used interchangeably (Dillard & Shen, 2005; Rains, 2013). In stark contrast, Moyer-Gusé and Nabi (2010) treated counterarguing as fully distinct from reactance, using a freedom threat measure to represent cognitive reactance and a counterarguing measure to represent an alternate type of resistance. Some narrative persuasion studies follow this approach (e.g., Quintero Johnson & Sangalang, 2017; Tukachinsky & Sangalang, 2016), whereas others use counterarguing scales to capture cognitive reactance (e.g., Kim & So, 2018). Meanwhile, some researchers use separate measures for counterarguing and negative cognitions but consider both to capture reactance (e.g., Miller et al., 2013; Wong et al., 2015). Criteria for coding negative thoughts also typically extend beyond counterarguing (e.g., to include intentions; Dillard & Shen, 2005; Shen, Seung, Andersen, & McNeal, 2017).

*Anger only.* Studies sometimes use only cognitive or affective measures. Although capturing only negative cognitions has been common in persuasion research, researchers have conversely begun to operationalize reactance as a purely emotional response. In some studies, anger does appear to play a larger role in the reactance process than cognitions (e.g., Rains & Turner, 2007, Study 1; Richards & Larsen, 2017; Varava & Quick, 2015). However, the reverse is also often true, where path coefficients or loadings on the reactance variable are larger for negative cognitions. Typically, no justification is offered for only capturing anger (e.g., Moon et al., 2015), or the reason cited is convenience—for example, lack of resources for coding thoughts (e.g., Erceg et al., 2011; Xu, 2015) or for the sake of simplicity when combining reactance with other theories (e.g., Chédotal, Berthe, de Peyrelongue, & Le Gall-Ely, 2017).

*Conceptual overlap/combined measures.* Some measures of the intervening process overlap conceptually with reactance antecedents or outcomes. For instance, perceived freedom threat has been treated as both an antecedent and a negative cognitive response, and certain scales blur perceived threat and motivation to restore freedom, as previously described. There are also sometimes fuzzy boundaries between measures of defensive processing and outcomes. For example, some cognitive reactance measures capture attitudes and intentions (e.g., message agreement, intention to comply; Dillard & Shen, 2005; Zhang & Sapp, 2013; see Table 1). Message minimization has also been used as a variable downstream of reactance (e.g., Quick et al., 2018). In addition, though perhaps not problematic for testing the process, measures such as *affective counterarguing* blend affective and cognitive responses.

*No measure of defensive processing.* Early reactance research often relied solely on indicators of freedom threat or boomerang outcomes. Despite the shift toward capturing evidence of the intervening reactance response, some communication research continues to measure only freedom threat and/or outcomes (e.g., Crano, Alvaro, Tan, & Siegel, 2017; Zemack-Rugar, Moore, & Fitzsimons, 2017).

### *Freedom Restoration (Outcome)*

**Conceptualization.** Given that reactance is a motivational state aroused in an attempt to protect or reestablish a threatened freedom (Brehm & Brehm, 1981), understanding how people attempt to preserve such freedoms—that is, the outcomes of reactance—is often the primary goal of communication researchers. Early reactance theorizing largely focused on boomerang or backfire effects, wherein motivation to restore freedom moves an individual in the opposite than advised (or opposite from their current) direction. Reactance theory has frequently been used to explain why people desire something more when it is forbidden (Brehm, 1966; Brehm & Brehm, 1981), and why people counteract a request or command even when doing so is against their own best interest (Fitzsimons & Lehmann, 2004). Freedom restoration was originally theorized to occur in three primary ways: increased liking of the threatened behavior/option, engaging in the threatened behavior, or engaging in a substitute behavior, in response to the threat. A fourth, less common, hypothesized outcome was getting someone else to engage in the threatened behavior (Brehm, 1966).

While early theorizing associated reactance with boomerang-like outcomes, with a focus on behavior, reactance has been aligned with a broader spectrum of resistant outcomes in the communication literature, including message rejection and message avoidance. Whereas a boomerang response entails actively doing the opposite of a suggestion or command (e.g., wanting to smoke more because of an appeal not to smoke), rejection entails refusal to comply with an appeal (e.g., continuing to smoke), and avoidance entails actively evading exposure to the appeal in the first place (e.g., refusing to read a warning label about smoking). Here, avoidance and message rejection could be considered “failure to move the needle,” whereas a boomerang or backfire effect is “moving the needle further away from the target.” If we define the outcome of reactance as *failed persuasion*, all three such types of outcomes (and perhaps many others) could fall under this umbrella. A cautionary note with this label is that persuasion is not always the goal in freedom-threatening communications (see “Discussion” section). Furthermore, if a communicator’s goal was to provoke reactance (e.g., Miller et al., 2013), this would not be “failed persuasion” at all.

**Operationalization.** Rather than distinguish between message rejection and boomerang outcomes, outcomes of reactance are almost universally assessed in the broader context of failed persuasion. Communication researchers usually measure primary constructs of interest, such as attitudes and behaviors, at a single time point following message exposure.

**Attitudes.** Most studies examine whether attitudes are message consistent, to indicate whether reactance was an obstacle to persuasion. Individuals are often asked to rate their attitudes on semantic differential scales (e.g., “good/bad,” “desirable/undesirable”) toward a choice or behavior being *promoted* (e.g., physical activity; Ratcliff,

Jensen, Scherr, Krakow, & Crossley, 2019) or *withheld* (e.g., NC-17 movies; Varava & Quick, 2015). Other scales assess agreement with the message specifically; for example, “How much do you agree with the author?” (Silvia, 2006, p. 676) and “I agree with what the message recommends” (Shen, 2015, p. 979).

*Intentions.* Studies frequently assess intention in lieu of actual behavior, as this can be measured immediately after message exposure. Measures often ask “how likely” participants are to comply with the appeal (e.g., on a scale from 0-100; Dillard & Shen, 2005; Gardner & Leshner, 2016) or extent of agreement with “I intend to” statements on a Likert-type scale (Kim & So, 2018; Liang et al., 2018; White et al., 2008). The Reactance Restoration Scale assesses boomerang intentions directly, for example, “Right now I am [motivated/unmotivated] to do something totally rebellious” (Quick & Bates, 2010; Quick & Stephenson, 2007). Intentions are often captured with single-item (e.g., Dillard & Shen, 2005) and/or ad hoc measures (e.g., Ratcliff et al., 2019).

*Actual behaviors.* Infrequently, studies assess actual choices or behaviors, which are self-reported or observable by the researcher. For instance, Fitzsimons and Lehmann (2004) measured whether advice recipients’ choices intentionally contradicted product recommendations, and Schüz, Schüz, and Eid (2013) assessed whether skin cancer risk messages led participants to report subsequent, deliberate sun exposure.

*Source appraisal.* Perceptions of the communicator or threat source, such as perceived domineeringness and perceived credibility (expertise and trustworthiness), have also been treated as reactance outcomes (e.g., Miller et al., 2007; Quick & Bates, 2010). Elsewhere, source evaluation has been used as a measure of negative cognitions.

*Perceived message effectiveness (PME).* Recently, studies have used PME as a reactance outcome and proxy for actual effectiveness, such as asking how likely a message would be to influence people not to smoke (Hall et al., 2016, 2017) or the extent to which respondents find a message compelling, believable, reasonable, fair, balanced, biased, or distorted (Keer et al., 2013; Shen, 2015). These resemble some measures used to assess negative cognitions, such as ratings of argument quality and message minimization.

*Selective avoidance.* Self-reported message avoidance is increasingly used as a reactance outcome. For example, in response to forcible messages, Ham (2017) assessed avoidance with items such as “I intentionally ignore ad material delivered by behavioral targeting tactics” (p. 14), and Hall et al. (2016) used items such as “How likely is it that you would try to avoid thinking about the warning on your cigarette packs?” (p. 738). However, other studies (e.g., Clayton, Lang, Leshner, & Quick, 2019) treat avoidance as a type of defensive message processing parallel to reactance.

### *Freedom Restoration: Key Areas of Inconsistency*

In communication studies, reactance is linked to a range of outcomes typical in persuasion research. A few notable variations in measurement are highlighted below.

*Conceptual overlap.* Several measures used as outcomes of reactance are also thought to represent defensive processing itself (e.g., PME, source appraisal, selective avoidance, message minimization). In some cases, similar measures are used for both reactance and outcomes in the same study, such as when combining reactance with fear appeal processing (Quick et al., 2018).

*Only outcome is measured.* Researchers sometimes use only outcomes, usually boomerangs, as evidence reactance occurred (e.g., Campo & Cameron, 2006; Fitzsimons & Lehmann, 2004; Hayes & Reineke, 2007; Schüz et al., 2013). The outcome-only method of measuring reactance appears to be more common in advertising than other areas of communication research.

*Boomerang versus failure to move the needle.* Despite the initial focus of reactance theory on boomerang effects (Brehm, 1966; Brehm & Brehm, 1981; Edwards et al., 2002), communication researchers have typically used reactance to understand failed persuasion more broadly. This is not counter to the theory's predictions, but could be a missed opportunity to illuminate the magnitude of the freedom-restoring responses triggered by different communication features. Pushing people toward a negative attitude or behavior will be worse than not moving them from a prior stance. Some studies do capture premessage attitudes or behaviors to determine whether these truly shifted in response to stimuli (e.g., Dillard, Kim, & Li, 2018; Keer et al., 2013; Kim et al., 2013; Miller et al., 2013). However, use of pretest/posttest measures or controlling for prior attitudes and behaviors in cross-sectional surveys is relatively uncommon in this literature.

## **Discussion**

Psychological reactance theory has become popular in communication research, and communication scholars are increasingly applying it in new contexts and investigating an expanding array of mediating and moderating variables. Yet, advancement of our understanding of reactance and its role in effective communication is likely limited by fundamental disagreements about how to conceptualize and measure the construct. Indeed, the wide variation calls into question whether reactance studies may be measuring slightly (or very) different phenomena.

This review summarized the range of conceptual and operational treatments of reactance in communication research. Outstanding questions for the field are highlighted below, accompanied by suggestions for current practice and opportunities for further research.

### *If Not Captured as a Process, Can We Still Call It Reactance?*

Reactance theory characterizes reactance as a process consisting of three components: a threat to freedom (antecedent), an attempt to reinforce freedom (outcome), and an intervening psychological response (Brehm, 1966; Brehm & Brehm, 1981). Empirically, this characterization has held up well (Dillard & Shen, 2005; Kim et al., 2013, 2017; Quick et al., 2013; Rains, 2013). Yet, not all communication researchers measure the phenomenon in this way. To be sure, capturing the entire reactance process is not always the researcher's goal (e.g., when the aim is to study freedom threat in isolation, as made explicit by Katz, Byrne, & Kent, 2017). Occasionally, however, researchers—while describing reactance as a multistep process or describing the intervening response as both anger and negative thoughts (e.g., in the literature review)—still measure or analyze just one or two components, citing insufficient resources or parsimony, or offering no rationale at all. It is also common for researchers to include fewer elements when merging reactance theory with other theoretical models, as discussed later on. Can we reasonably say reactance has occurred if we have not captured the full process, or done so consistent with the intertwined model? Perhaps the answer depends on which components are excluded. The reasons for this postulation are outlined below.

*Capturing freedom threat.* Reactance theory holds that reactance is a mechanism to defend against control, and this is what distinguishes it from other types of resistance. A person can respond angrily to feeling she is being *patronized* or *shamed*, for example, or she might counterargue to protect herself from *fear* of experiencing a bad outcome. Such cases do not necessarily represent an attempt to restore freedom, however. Measuring or manipulating freedom threat is thus essential to a theory-consistent examination of reactance (Dillard & Shen, 2015; Quick et al., 2013) and to isolating which communication features cause certain types of effects.

*Capturing the intervening response.* With regard to measuring the underlying psychological construct, there may be some latitude. Early theorizing simply described reactance as an intervening psychological response that mediates the relationship between freedom threat and freedom restoration (Brehm, 1966). There is strong theoretical and empirical support for capturing a mediating psychological variable (Brehm & Brehm, 1981) and for characterizing it as anger and negative cognitions (Dillard & Shen, 2005; Rains, 2013). However, Silvia (2006) argued for the possibility of two possible paths: a mediated path and a direct path. He suggested that how the reactance process unfolds likely depends on various factors, including *when* the freedom threat is encountered. His studies supported this hypothesis: Messages with a freedom threat in the opening lines were subjected to participants' resistant message processing (i.e., counterarguing), but messages containing the freedom threat at the end provoked rejection *unmediated* by counterarguing. Even though counterarguing was substantially lower in the latter group, levels of ultimate rejection (i.e., disagreement) were equal in both groups. A test of the intertwined model in the context of framing also

found a direct effect of freedom threat on attitudes but lack of a significant indirect reactance effect (Quick, Kam, Morgan, Montero Liberona, & Smith, 2015). These findings suggest the possibility of an automatic, unmediated oppositional response, perhaps in conjunction with another interesting possibility: that counterarguing, anger, and so forth occur downstream to rationalize knee-jerk resistant attitudes or behaviors. Potentially, biophysiological methods could be useful for testing in real time whether the process unfolds differently under different conditions (see below).

It is also possible that there was a mediating message process undetected in Silvia's studies, in which only cognitive responses were measured, and that this would have been detected with a multidimensional variable—for instance, one that included anger, such as in the intertwined model, or perhaps an even broader range of measures. At the same time, the findings of Silvia (2006), Quick et al. (2015), and others may indicate that even when anger or negative thoughts do not show up as a strong mediating presence in a given study, we can still say reactance has occurred—and, as discussed below, there may be other possible types of intervening responses to explore.

*Capturing outcomes.* Connecting reactance to outcomes is important because it tells us to what extent we should truly be concerned about reactance as a communication effect. Although most reactance studies assess outcomes, few measure pretest attitudes or behaviors, making it sometimes unclear whether outcomes occur because of reactance. Furthermore, few studies measure outcomes over time.<sup>4</sup> This is surprising, given that Brehm and Brehm (1981) stressed the importance of considering “sleeper effects.” The authors theorized that a freedom-threatening communication can be persuasive if freedom is restored, “either directly, or indirectly by the passage of time or change in situation” (p. 144). In fact, a freedom-threatening communication might ultimately be more persuasive than a nonthreatening message, they suggested, because it could be that “when reactance is aroused, the person’s attention to and consideration of the message is enhanced” (p. 144). Because provoking freedom threat is to some extent unavoidable in persuasive messaging, it is crucial to know whether reactance produces lasting consequences or is merely a fleeting reaction that wears off and ultimately allows—perhaps even strengthens—persuasion.

### *Is Reactance Always Anger and Negative Thoughts?*

The evidence is compelling that reactance often manifests as a mediating psychological response that can be captured as a combination of anger and negative thoughts (Rains, 2013). Nonetheless, some researchers argue that affect has greater relative importance than cognitions, or vice versa. An emerging, and perhaps more compelling, perspective is that whether people react more emotionally or cognitively to freedom threats depends on the context, what is being communicated, and the individual. For example, beyond trait reactance predicting whether reactance will occur (Hong & Faedda, 1996), *dispositional anger expression*, or “the degree to which people tend to communicate anger,” could influence how reactance manifests (Richards & Larsen, 2017, p. 1491). Along these lines, Clayton et al. (2019) found that people approached



or actively avoided freedom threats based on individual differences, exhibiting either a *fight* response (anger and negative cognitions) or a *flight* response (feeling arousal and unpleasantness but not anger and negative thoughts). The authors noted that both “yielded the same cognitive, emotional, and physiological responses predicted by the LC4MP as indicators of defensive message processing” (p. 545). Given the above, capturing both anger and negative cognitions affords a more comprehensive evaluation (Dillard & Shen, 2005) and may give researchers a better ability to detect reactance across varied individual and contextual factors. At the same time, strictly defining the intervening response as anger and negative thoughts could be too limiting, as active avoidance appears to be another possible psychological response that follows from freedom threat and results in failed persuasion.

*Expanding the range of negative responses.* Recently, Hall et al. (2016) developed the 27-item RHWS, which uses a broad set of items to capture reactance. The final validated measure represented nine distinct factors: anger, exaggeration, government intrusion, manipulation, personal attack, derogation, discounting, self-relevance, and common knowledge. Although many of the items are similar to existing measures of freedom threat, anger, and negative cognitions, the scale also taps responses not typically used to characterize reactance, such as perceived lack of personal relevance, perceived redundancy (common knowledge or information one already knows), and perceiving that a message is personally insulting. If these other types of judgments follow from freedom threat, they could be useful for expanding current commonly used measures of cognitive and affective reactance (e.g., by including them in thought-listing criteria).

*Combined scales.* A strength of the RHWS is that it is one of few reactance measures to be validated using rigorous psychometric methods. Hall and colleagues (2017) also created and validated a condensed three-item version of the RHWS, with a single item to represent each reactance element (perceived freedom threat, anger, and negative cognitions). Combined scales provide added convenience for researchers. Yet, treating freedom threat as parallel to message processing responses rather than as an antecedent could make it harder to distinguish reactant responses from other types of responses, such as fear provoked by highly graphic warnings used in a study. Quick (2012) noted that lacking the ability to test freedom threat as a distinct construct preceding reactance poses issues of both reliability and validity for combined measures. Whether combined scales can adequately capture reactance as a process and distinguish it from other types of resistance is a subject for further exploration.<sup>5</sup>

*Other contexts.* Reactance was originally theorized to manifest in a variety of scenarios, from social influence (e.g., mass mediated and interpersonal communication) to privacy invasion (Brehm & Brehm, 1981). In communication research, reactance has primarily been studied in the domain of persuasion, especially mass persuasive health communication, in which Dillard and Shen’s (2005) explication was situated. Subsequent tests of the intertwined model and validation of its measures have also largely

been within this specific context. Notably, the intertwined model has not been well tested in advertising research, which examines freedom-threatening communications beyond messaging, such as forced exposure and invasion of privacy. Do we expect the intertwined process to characterize reactance in response to all possible freedom threats in communication? As technological advances enable increasingly personalized content and pervasive communication delivery, reactance may occur in a growing range of settings, including nonpersuasive contexts such as precision medicine (Ratcliff, Kaphingst, & Jensen, 2018). A set of well-tested reactance measures and models for each context may be needed.

*Going beyond negative responses.* Although much of the communication literature has focused on reactance as negatively valenced, the Brehms were interested in how reactance can produce heightened desire for a consumer product or a positive behavior, noting, for instance, that denying a child spinach is a great way to increase its appeal (Brehm & Brehm, 1981). Reactance has been tapped to explain the scarcity principle and “forbidden fruit” effects (Brehm, 1966; Varava & Quick, 2015), where increased desire for limited objects may not always be accompanied by negative feelings (as another example, consider “playing hard to get” in romantic relationships; Brehm & Brehm, 1981). In these cases, the underlying motivational response to restore freedom might sometimes be characterized by emotions such as thrill or excitement, or by counterargument (but which is not necessarily critical) about why someone should have access to the object. Alternative measurement approaches might be required for capturing underlying reactant responses that are positively valenced (e.g., excitement, desire), the development of which might be aided by psychophysiological and neurological measurement techniques.

### *Further Refinement of Reactance Measurement Methods*

The measures and models used to represent reactance vary considerably across the literature. Researchers face several considerations in choosing which approaches to use, and choices are often influenced by practical considerations, such as availability of resources (e.g., for coding thoughts). Scales have become increasingly popular for capturing negative cognitions when a thought-listing task is infeasible, for instance, when using a repeated measures design (Clayton et al., 2019; Gardner & Leshner, 2016) or a phone survey (Quick et al., 2015). To further guide choices, research would be valuable that elucidates under which conditions certain measures (e.g., brief vs. long scales, scale vs. thought listing) or models (e.g., a single vs. multiple measures of the intervening process) are more or less suitable. For example, simulation studies could be used to examine how reactance model stability and statistical power change under different study conditions, such as varying sample size and model complexity.

*Merging reactance with other theories.* Frequently, inconsistency is heightened when reactance is applied in new contexts or integrated with other theoretical models. For instance, many reactance studies that do not measure freedom threat are situated in

narrative persuasion (e.g., Niederdeppe et al., 2011; Rhodes et al., 2016). It is also common for narrative studies to focus on cognitive responses only (e.g., Keer et al., 2013; Moyer-Gusé & Nabi, 2010; Rhodes et al., 2016; for counterexamples, see Quick et al., 2015, and Shen et al., 2017). One explanation offered is that it can be difficult to separate anger toward the underlying appeal from anger toward (or in sympathy with) characters in a story (Moyer-Gusé & Nabi, 2010). Thus, there may be a need for affective reactance measures that work for specific contexts such as narrative communication. Similarly, parsimony when merging models is often offered as a reason for inconsistencies. For example, when examining reactance in the context of guilt appeals, Chédotal et al. (2017) noted, “In the interests of clarity of the conceptual and operational model, we only use irritation [to represent reactance]” (p. 104). In such cases, closed-ended measures of freedom threat and negative cognitions could be utilized for simplicity.

*Biological measurement.* Despite a call for neurological and physiological data to further explicate the nature of reactance (Rains, 2013), few reactance studies have incorporated these methodological tools (Clayton et al., 2019, who measured heart rate change, might be the first). Neurological (e.g., functional magnetic resonance imaging [fMRI] and electroencephalogram [EEG]) and physiological (e.g., facial electromyography [EMG], heart rate, and skin conductance) metrics are currently used in other areas of communication research; for example, Weber, Huskey, Mangus, Westcott-Baker, and Turner (2015) used neuroimaging to study the neural correlates of counterarguing, and Falk, Cascio, and Coronel (2015) showed that neural measures can be used to understand a range of communication-relevant outcomes. For the study of reactance, measuring responses during message exposure might aid investigation of the temporal nature of reactance, help to delineate boundaries between elements of the process (and associated measures), or clarify whether the intervening response manifests differently in different people or contexts.

*Triangulation of measures.* This review found that reactance studies almost exclusively employ self-report measures, especially closed-ended scales. Reactance was originally thought difficult to capture with self-report, however, because individuals consciously or unconsciously hide responses they consider socially undesirable. Brehm (1966) noted that “it would not be surprising to find that a person in whom reactance has been aroused would tend to deny that he was either motivated to restore freedom or upset, and he might even convince himself of this” (p. 9). The potential for people to be unaware of their own reactance highlights the utility of triangulation as a measurement strategy. It may be that a good rule of thumb for reactance research is that a multidimensional measure is better than a single measure, and a multimethod approach (e.g., both closed-ended and human coded responses, or pairing questionnaire tasks with physiological measures) is better than using a single method (Clayton et al., 2019; Kim et al., 2013; Miller et al., 2013).

## *Refining Our Terminology and Reporting*

This review revealed significant variability in how reactance measures are described. In some cases, a wide range of labels is given to the same or similar measures, and in others, diverse measures are lumped under a single label. Narrower and broader terms are frequently used interchangeably (e.g., “negative cognitions” and “counterarguing”; “negative affect” and “anger”). Researchers have also begun referring to the combination of anger and negative cognitions as “intertwined reactance” even when separated from freedom threat. The authors of one reactance study, citing Kim et al. (2013), noted, “[The] intertwined model measure was not used because additional work has found that it is uncertain if it is only reactance that it measures” (Carpenter & Pascual, 2016, p. 105). Although the combined variable proposed by Dillard and Shen (2005) is certainly applicable in other resistance contexts, as Kim et al. (2013, 2017) show, referring to it in isolation as “reactance” appears to cause confusion. It also highlights the larger confusion generated by labeling of both the whole phenomenon and the underlying motivational response as “reactance.” To preserve the connection between reactance and freedom threat, scholars may wish to adopt an alternative label for intertwined anger and negative thoughts when used independently from reactance theory, such as “intertwined resistance.”

There is also a need for greater clarity in methodological reporting. In conducting this review, it was observed that adaptations of established measures are frequent and often inexplicit. In these cases, it is difficult to tell how or why a measure was adapted (e.g., if three items from a four-item freedom threat scale were used, which items were included, and what was the rationale for the adaptation?). Similarly, the justification for measuring (or analyzing/reporting) only parts of the process is not always clear. Transparent reporting and offering a clear rationale for measurement choices will be critical for advancing reactance theory and associated research methods. Greater consistency in measurement and reporting will also improve the potential for meaningful replication and meta-analytic synthesis. Ideally, measures or items will not be dropped during analysis due to not performing optimally, as this withholds information valuable for our understanding of how reactance manifests (or does not) in various conditions. Given the extant theoretical and empirical work on reactance, researchers can usually determine a priori what to include in their study design and analysis, and preregistration (Miguel et al., 2014) could become a helpful practice for improving clarity and consistency in reactance research.

## **Conclusion**

As interest in reactance rapidly grows and spreads into new areas of communication research, now is a critical time to establish agreement about the best ways to define and measure the phenomenon. This review showed a clear need for greater consensus. Nevertheless, it is important to acknowledge current challenges to reaching consensus, such as those encountered in measuring reactance as a process (including conceptual overlap among measures and debate about how best to characterize the intervening

psychological response). This highlights continued opportunity for researchers to build on prior work and hone the best approach(es) to measuring reactance—perhaps through use of biological measures, triangulation, and simulation studies—in order to further clarify the nature of the process and whether it varies under different circumstances. Ultimately, use of precise terminology and careful selection of measures, informed by theory and extant empirical work, will guide our growing knowledge of reactance as a communication effect.

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### Notes

1. This review is based primarily on empirical papers published in communication journals in the past six decades purporting to measure “reactance” or “psychological reactance,” as indexed by Web of Science. The goal was to identify a broad, but not necessarily exhaustive, range of common approaches. Thus, there may be additional examples of methodologies and conceptual treatments of reactance not included in this review. In particular, numerous single-item and ad hoc reactance measures are in use that were not included due to space constraints. Qualitative methods were not examined in this review, but it can be noted that very few examples of qualitative studies explicitly testing reactance theory emerged in the search, highlighting an important space for future research.
2. Manipulating freedom threat may be preferable for measuring causal relationships, especially in model testing (see Dillard & Shen, 2005; Rains, 2013; Silvia, 2006). However, sometimes a goal is to test whether a specific (e.g., naturally occurring) set of messages is freedom threatening. Using perceived freedom threat as the antecedent variable should be acceptable in such cases, given that “threat is not a property of messages, but rather a judgment made by members of the target audience” (Dillard & Shen, 2005, p. 162).
3. Perceived freedom threat is a cognitive perception, and a somewhat inherently negative one. Thus, perceived freedom threat could reasonably be considered a mediating state, and is treated as such by Witte (1994), Moyer-Gusé and Nabi (2010), and others.

4. For a few recent counterexamples, see Hall et al. (2016, 2017), Miller et al. (2013), and Rhodes et al. (2016).
5. Potentially, perception of freedom threat could be considered a negative cognitive response, and studies using combined scales could manipulate freedom threat as the antecedent variable. To date, this does not appear to have been done in studies using the Lindsey (2005) or other combined scales.

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