



# Nonverbal Behavior of Persuasive Sources: A Multiple Process Analysis

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## Abstract

This article describes the basic mechanisms by which the nonverbal behavior of a communicator can influence recipients' attitudes and persuasion. We review the literature on classic variables related to persuasive sources (e.g., physical attractiveness, credibility, and power), as well as research on mimicry and facial expressions of emotion, and beyond. Using the elaboration likelihood model (ELM) as a framework, we argue that the overt behavior of source variables can affect attitude change by different psychological processes depending on different circumstances. Specifically, we describe the primary and secondary cognitive processes by which nonverbal behaviors of the source (e.g., smiling, nodding, eye contact, and body orientation) affect attitude change. Furthermore, we illustrate how considering the processes outlined by the ELM can help to predict when and why attractive, credible, and powerful communicators can not only increase persuasion but also be detrimental for persuasion.

**Keywords** Nonverbal behavior · Body · Source · Attitudes · Persuasion

## Introduction

Extensive research in social psychology has examined how the nonverbal behavior of a communicator can affect recipients' attitudes and attitude change. For example, studies have shown that eye contact, body orientation, postural shifting, gesticulation, arm and leg openness, and facial expressiveness (whether the source is displaying a smile vs. a frown, or engaged in head nodding vs. shaking) relates to attitude change via their effects on a recipient's perceptions of source credibility, attractiveness, or power (e.g., Aguinis and Henle 2001; Burgoon et al. 1990). Additionally, research has found that attitudes toward a proposal are more positive when the communicators' nonverbal behavior reflects interest and engagement (e.g., leaning forward, approaching, eye contact, smiling, and nodding) as opposed to disinterest and disengagement (e.g., leaning away, little eye contact, frowning,

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and side to side head movements; Burgoon and Dillman 1995; Chaikin 1978). At the broadest level, the goal of this review is to unpack the relationship between various nonverbal behaviors of a communicator and the different underlying psychological processes by which these behaviors can influence the attitudes of a message recipient. More specifically, we will describe how a variety of different nonverbal behaviors of the source can influence persuasion by the same basic mechanisms of attitude change that have been applied to other persuasion variables. We also explain how the mechanism of change can vary based on the situation (e.g., amount of thinking, timing of events, perceived meaning of nonverbal behavior). Although there are important differences among many nonverbal aspects of a speaker (e.g., whether they involve motion, or are processed visually or aurally), they can all affect persuasion through the same basic mechanisms.

Although the ability of a source's nonverbal behavior to influence a recipient's attitude seems to be a well-established phenomenon, most research on this topic has not focused on the psychological mechanisms by which nonverbal features of the source affect recipient's attitudes. In the present review, we argue that understanding these processes is essential in order to predict *whether*, *when*, and *how* attitudes change, as well as predicting whether, when, and how attitudes will be consequential (e.g., affecting subsequent behavior). For example, observing positive behaviors such as smiling and nodding may work as simple cues of trust and agreement, making people more positive and increasing persuasion without much thinking. Alternatively, these positive behaviors may discourage thinking about a message, thus decreasing persuasion if the arguments are strong. Additionally, even when a nonverbal behavior (smiling face) leads to the same outcome in the short-term by a thoughtful versus non-thoughtful mechanism, the long-term consequences associated with that change (e.g., stability over time) can also vary as a function of the underlying mechanism of change.

Importantly, throughout the present review we will highlight the importance of considering the meaning of nonverbal behavior. Depending on the inference a person makes regarding the meaning of a smile, nodding, gazing, and other nonverbal behaviors, the effects will likely differ. For example, smiling can be associated with high validity (positive social sign, positive feeling such as happiness) as well as low validity for some people and in some situations (e.g., when a smile is interpreted as trivializing an idea; or is interpreted as an attempt to feign happiness rather than actually being happy).

## Theoretical Framework

In this review, we rely on the elaboration likelihood model (ELM) of persuasion (Petty and Cacioppo 1986) to organize the fundamental processes of attitude change into a finite set. The ELM specifies several discrete mechanisms of attitude change and holds that these distinct processes operate at different points along an elaboration continuum ranging from little or no thought about the attitude object to careful and extensive thought about the attitude object (see Fig. 1).

One advantage of the ELM is that it has served to organize many of the classic theories of attitude change under a unified framework (Petty and Briñol 2012). Similar to many theories in the nonverbal literature, theories of attitude change can be categorized as reflecting high—and/or low thinking processes. For example, within the domain of attitudes, processes that reflect high-thinking include: message learning-reception processes (Hovland et al. 1953), cognitive responses (Greenwald and Albert 1968), probabilistic models

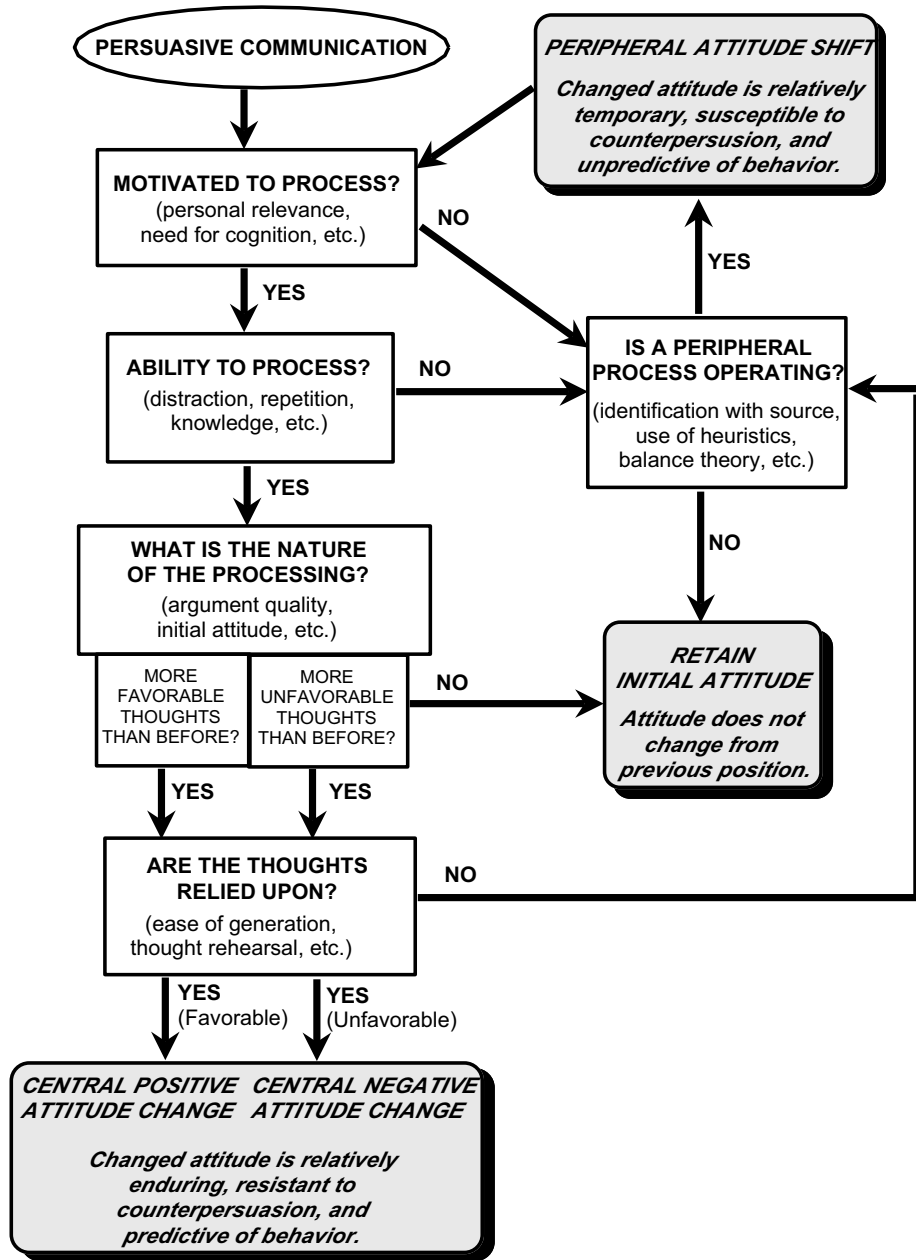


Fig. 1 Schematic depiction of the elaboration likelihood model

(McGuire 1981), expectancy-value processes (Fishbein and Ajzen 1975), information integration processes (Anderson 1971), and cognitive dissonance (Festinger 1957), to name some of the most important ones. Low-thinking processes include classical conditioning (Staats and Staats 1958), affective priming (Murphy and Zajonc 1993), self-perception

theory (Bem 1972), mere exposure (Zajonc 1968), and the use of heuristics (Chaiken 1987).

In the same way that the ELM has been able to organize and integrate numerous classic theories of persuasion under one conceptual framework, we propose that the ELM also can be useful in organizing both low-thinking processes relevant to nonverbal behavior models (e.g., automatic, arousal-driven affective responses, Cappella and Greene 1982; automatic encoding/decoding, Ekman 1999; automatically-activated action schemas, Patterson 1995; and nonconscious judgments from appearance, Ambady and Rosenthal 1992) and high-thinking processes relevant to this particular domain (e.g., cognitive labelling via affect-driven arousal, Burgoon 1978; Patterson 1976; calibrating requirements, expectancies and desires to achieve stability via equilibrium between expected and actual behaviors; Burgoon et al. 1995).<sup>1</sup>

## Overview

In the first section, we describe the fundamental psychological processes by which source nonverbal behavior can influence attitudes and attitude change. These particular processes are important because they constitute a limited set that allow understanding of past, current as well as future nonverbal research. We also specify the circumstances under which each of these processes are most likely to operate, and the long-term consequences associated with each of these mechanisms.

In the second section, we describe how source nonverbal features associated with attractiveness, credibility, and power can influence a message recipient's perceptions of the source, which in turn can influence a recipient's attitude through each of the fundamental psychological cognitive and meta-cognitive processes that vary based on the situation.

The final section examines when people are more or less likely to imitate and reciprocate (e.g., mimicry) versus complement (compensation) the nonverbal behavior of the communicator. Here we discuss how nonverbal behavior can affect not only explicit measures of attitudes but also implicit measures such as automatic associations and attitude strength indicators (e.g., attitude confidence). We conclude this review with a section focused on recent research designed to highlight the importance of considering the meaning associated with nonverbal behaviors.

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<sup>1</sup> In others words, the ELM highlights the fact that changing judgments can be accomplished either with a relatively high degree of thought or a relatively low degree of thought. Specifically, the “elaboration continuum” ranges from low to high. Importantly, the ELM holds that there are numerous specific processes of change that operate along this continuum. For example, automatic encoding/decoding (Ekman, 1999) requires relatively little thought and would operate at the low end of the continuum. In contrast, behavioral changes geared towards achieving stability that involve calibrating one's requirements, expectancies and desires for a given interaction (Burgoon et al. 1995) tends to require higher degrees of thought and thus would operate along the upper end of the continuum. Because of these differences along the continuum, we speculate that in accord with the ELM, these processes could lead to similar attitudes, but with different long-term outcomes.

## Part I: Fundamental Processes of Attitude Change

According to the ELM, nonverbal features of the source, like other variables in persuasion settings, can influence attitudes by the following processes: (1) determine the amount of issue-relevant thinking, (2) serve as simple cues in the absence of issue-relevant thinking, (3) bias the valence of thoughts, (4) be examined as evidence or arguments, and (5) affect what people think about their own thoughts (meta-cognition).

In the middle of the elaboration continuum, when thinking is not constrained to be high or low by other variables (i.e., moderate elaboration), nonverbal behaviors can affect the extent of careful thinking. For example, if a smiling source increases thinking it would enhance persuasion when arguments are strong, but reduce persuasion when arguments are weak. At the low-end of the elaboration continuum (i.e., when motivation and/or ability to think are low), source nonverbal features typically function as simple cues that affect attitudes in the same direction as their valence. Thus, if a smiling source is viewed positively, attitudes will typically be more favorable. At the high-end of the elaboration continuum (i.e., when motivation and ability to think are high), nonverbal features can be examined as evidence (e.g., is a smiling source a good reason to like something), can bias the valence of thoughts (a smiling source can encourage positive message-relevant thoughts if it is seen positively), and can affect thought-reliance (a smiling source might validate one's thoughts). As explained in the following sections, understanding these processes is informative about the immediate and long-term consequences of persuasion. Next, we review each of the mechanisms by which source nonverbal features can affect attitudes according to the ELM.

### Amount of Thinking

A fundamental way that source nonverbal behavior can influence a recipient's attitude is by affecting the amount of effortful/careful thinking people do when making an evaluation.<sup>2</sup> This effect is most likely to occur when a recipient's thinking is not already constrained to be high or low by other variables such as high personal relevance, which increases motivation to think, or high distraction, which reduces ability to think. The more motivated and able a recipient is to think about a message, the more their attitudes are determined by their valenced thoughts about the message. Thus, increased thinking can enhance persuasion in response to strong arguments because more favorable message-relevant thoughts are generated. Alternatively,

<sup>2</sup> In the context of the ELM, "amount of thinking" is conceptualized as a continuum that reflects the degree to which an individual has the ability and the motivation to exert mental effort to carefully scrutinize the merits of information presented in a persuasive message. Thus, a variable can push people to be higher or lower on the continuum depending on whether they increase or decrease motivation or ability to think compared to their absence. The term "elaboration" is used to suggest that people add something of their own to the specific information presented in a persuasive message and are not simply rehearsing or learning the information presented in a verbatim manner (as in the classic learning theories of persuasion). As noted throughout the present review, in the ELM, variations in elaboration (e.g., high vs. low thinking) are consequential. For example, when people are relatively unmotivated or unable to think (i.e., low-thinking conditions), they are more likely to rely on the valence of immediately accessible information that originates either internally (one's attitude) or externally (e.g., the attractiveness of the message source). In contrast, when people are more motivated and able to think (i.e., high-thinking conditions), then their initial reactions and the judgments that follow from their thoughts can be overridden by more complete interpretative analyses. Furthermore, judgments based on high levels of elaboration are more consequential than those based on low levels of elaboration.

increased thinking can reduce persuasion in response to weak arguments because more unfavorable message-relevant thoughts are generated (Petty et al. 1981c). Importantly, according to the ELM, the more an attitude is formed on the basis of effortful processing, the more it should be well articulated and bolstered by supporting information, and therefore be more persistent over time, more resistant to persuasion attempts, and more predictive of behavior (see Petty and Krosnick 1995, for a review).

As an initial example, research on *objectification* has shown that the more people focus on the physical body of a communicator, the less they focus on the communicator's mind (Heflick and Goldenberg 2014). According to this view, when people focus on the physical aspects of a person (e.g., physical appearance, body shape, clothing), they are less likely to focus on that person's more internal, psychological states. This body-mind tradeoff is consequential for many domains, including persuasion. For example, in a recent review, Briñol et al. (2017a) argued that focusing on the physical features of a person can sometimes distract people from what is going on but can also prompt *more* thinking under other circumstances. In fact, as discussed in the present review, Briñol et al. (2017b) argued that focusing on the nonverbal features of people can not only decrease or increase elaboration but can also magnify or attenuate the impact of thoughts depending on the circumstances. These complexities are explained later in this paper.

## Use of Cues

Second, under relatively low-thinking conditions (e.g., high distraction, and/or low personal relevance issue), source nonverbal features can influence attitude change by serving as a simple cue, by affecting the selection of cues, or by influencing which cues would be more effective. Importantly, when source nonverbal behavior features serve as simple cues, the impact on attitudes is consistent with the perceived valence of the nonverbal feature. For example, if a doubtful physical posture of the source (e.g., slumping, shoulders curled forward) is viewed negatively, it would lead the recipient to reject a message as unconvincing (one's negative mood can also be used as a rejection cue; Briñol et al. 2007).

## Type or Direction of Thinking

A third mechanism by which source nonverbal behavior can influence recipients' attitudes is by affecting the valence/direction of thinking. This mechanism is most likely when thinking is already set to be high by other variables in the situation (e.g., high personal relevance of the message; Petty and Cacioppo 1979). Perhaps the most extensively explored direction that thinking can take is whether thinking is aimed at supporting or derogating the content of the information provided. As described in the next section, nonverbal aspects of the communicator such as facial expressions or head movements can elicit either favorable or unfavorable thoughts. For example, people exposed to a smiling speaker are more likely to generate favorable (supporting) message-relevant thoughts, whereas people exposed to a frowning speaker are more likely to do the opposite (Burgoon et al. 1990; Ottati et al. 1997).

## Serving as Arguments

Fourth, when the amount of thinking is high, source nonverbal features can also serve as arguments. That is, when carefully thinking, people may examine a source's nonverbal

behavior, along with any other relevant contextual information, as possible arguments or reasons for favoring or disfavoring the attitude object. Importantly, the same variable (e.g., physical attractiveness) that affected the extent of processing when thinking was unconstrained, or served as a simple cue when thinking was low, or biased thoughts when thinking was high, can itself be scrutinized to evaluate whether it provides a meaningful and logical argument for changing one's attitude (whether for or against the position advocated by the source). For example, whereas an attractive source might increase persuasion under low-elaboration conditions because people have positive associations with attractive individuals, under high-elaboration, people may scrutinize whether source attractiveness is relevant to the advocacy. Under high-thinking conditions, an attractive source will have relatively little impact on persuasion when people view attractiveness as irrelevant to the merits of the advocacy. However, when attractiveness is relevant (the source is advertising a beauty product), physically attractive sources can be more persuasive than unattractive sources by serving as a cogent argument (i.e., providing visual evidence; Petty and Cacioppo 1981, 1984).

### Meta-cognition

Finally, when the amount of thinking is high, source nonverbal features can also influence attitude change by affecting what people think about their own thoughts. That is, in addition to affecting both the number of thoughts and valence of thoughts, nonverbal behaviors can also affect meta-cognitive properties of thoughts, such as how much confidence people have in them, how much they like them, or how biasing they are perceived to be. Judging how valid one's thoughts are or how much one likes them are meta-cognitive judgments because they occur at a second level of cognition and thus involve reflection upon the first-level thoughts (i.e., thinking about one's thinking; Briñol and DeMarree 2012). Thus, the direction and amount of thinking reflect dimensions of primary cognition, whereas confidence and liking of one's thoughts reflect dimensions of secondary cognition.

Meta-cognitive processes have assumed a prominent role in psychology because secondary thoughts can magnify, attenuate, or even reverse the impact of first-order cognition (Petty et al. 2007). As illustrated through the research on self-validation covered in the present review, the key notion of this theory is that generating thoughts is not sufficient for them to have an impact on judgment. Rather, one must also have a sense that one's thoughts are also either valid or likable for these thoughts to influence one's judgments (Briñol and Petty 2009). Thoughts that are not perceived as valid or liked are mentally discarded. As perceived thought validity or likability increases, so does the impact of those thoughts on judgments. For example, people are more likely to rely on their thoughts in response to a persuasive proposal when the message source is described and looks credible (Tormala et al. 2006), and when the source nods rather than shakes their head (Evans 2014). Thus, understanding validation matters in order to predict when nonverbal behaviors of the communicator, such as nodding or smiling, are likely to increase or *decrease* persuasion.

People are more likely to consider the validity of their thoughts under specific conditions, such as when engaged in a relatively high amount of thinking (e.g., for important issues), and when the sense of confidence (cognitive validation) or liking (affective validation) associated with their thoughts follows or accompanies rather than precedes thought generation (Briñol and Petty 2009). Relevant to this distinction between primary and secondary cognition, recent work in the domain of nonverbal behavior has begun to examine meta-cognitive processes in the domain of persuasion. As an illustration, research by Van

Kleef et al. (2015) showed that the facial expressions of emotion displayed by the source of a persuasive message (e.g., smiling vs. frowning) influenced the recipients' attitudes toward the proposal by validating the thoughts initially generated toward the proposal. For recipients generating positive thoughts (in response to positively-framed topics), smiling sources increased persuasion relative to frowning. In contrast, for those generating negative thoughts (in response to negatively-framed topics), smiling (vs. frowning) decreased persuasion. These findings were interpreted in terms of self-validation in which the nonverbal behavior of the source validated whatever thoughts the recipient had generated. Consistent with the notion that meta-cognitive processes require high thinking, this research also demonstrated that the polarization effect of facial expressions on attitudes was more likely to operate under conditions of low cognitive load when participants had the opportunity to consider the validity of their thoughts. Also consistent with the self-validation interpretation, the polarizing effect was found not only for facial expressions of happiness but also when the source expressed anger; which although negative in valence, is still associated with confidence (Briñol et al. 2018).

Finally, if people believe their thoughts are biased in some way, they can adjust their judgments in a direction opposite to the implication of their thoughts (correction processes; Wegener and Petty 1995). These meta-cognitive features of thoughts are most impactful when thinking is high because it is only in such situations that people have a substantial number of issue-relevant thoughts with the potential to shape their attitudes. Importantly, the conditions that foster high-thinking, such as the personal importance of the topic, are also likely to cause a person to care about the usefulness of their thoughts.

### Multiple Roles of Smiling Communicators

The ELM postulates that any communication variable (e.g., a source with a smiling face, attractive appearance, a credible look) can influence a recipient's attitude by affecting one of the five key processes of persuasion just described. As noted, the ELM specifies that some of these processes are more likely to operate when thinking is unconstrained to be either high or low, some are more likely to operate when thinking is low, and others when thinking is high. The ELM also articulates the consequences associated with attitude changes that occur via high versus low-elaboration processes (e.g., degree of resistance to counter-persuasion). In sum, nonverbal aspects of the source can influence persuasion by multiple primary and secondary cognition processes.

Consistent with this possibility, Ottati et al. (1997) found that under moderate elaboration, televised communicators with happy (vs. neutral) facial expressions reduced the information processing of an audience (see also, Bernstein et al. 2016). However, when participants were thinking carefully and perceived the source's facial expression as a biasing factor, no difference between smiling and control conditions emerged, presumably because recipients *corrected* for the perceived influence of the smiling face.

Of course, a smiling (vs. frowning) source can also influence attitudes through other processes under different circumstances. For example, a communicator who is smiling (vs. frowning) can produce more persuasion (Van Kleef et al. 2015) by serving as a simple positive cue (under low-thinking conditions) or by biasing the thoughts generated by the recipient (under high-thinking conditions).

Furthermore, a smile (vs. frown) can validate thoughts in response to a persuasive message when presentation of the communicator's facial expression follows (rather than precedes) thinking, and when elaboration conditions are high. That is, a source's happy



facial expression can also influence persuasion by affecting the confidence and/or liking that recipients have in their thoughts elicited by the message. For example, Briñol et al. (2010) showed participants different facial expressions of emotion on a computer screen after thinking about a persuasive message. As expected, if the source's facial expression influenced thought-confidence, people relied on their thoughts more when exposed to facial expressions depicting emotions associated with confidence (e.g., happiness) than facial expressions depicting emotions associated with doubt (e.g., sadness; see also Paredes et al. 2013).

Taken together, it is important to note that the interpretation (meaning) of the nonverbal behavior matters. Depending on the inference a person makes regarding the meaning of a source's smile, the effects of that smile will likely differ. For example, smiling can be associated with high validity (cooperation, positive social goals) as well as low validity for some people and in some situations (e.g., competition, negative social goals; Crivelli and Fridlund 2018; Krumhuber and Manstead 2009). Smiling can signal other meanings including different social goals. For example, smiling can signal social goals of high validity, such as the desire to affiliate with and/or cooperate with another person (e.g., when smiling indicates agreement with or deference to the other person; Rychlowska et al. 2017). Smiling can also project confidence, communicate romantic interest, help others avoid embarrassment (e.g., when we smile at a bad joke), and provide support and encouragement (e.g., when a smile is used to cheer someone up or reassure them that everything will be ok). However, smiling can sometimes convey social goals associated with low validity (e.g., when serving to camouflage a harmful intention, when cheating, or when trying to humiliate others; Niedenthal et al. 2010).

## Summary

The ELM is a rather complex theory. As illustrated in Fig. 2, it points to multiple processes that operate in different circumstances. It suggests that anyone variable can work in multiple ways and therefore produce different outcomes (e.g., a smiling source leading to more persuasion when it serves as a simple positive cue but to less persuasion when it reduces thinking about strong arguments). It indicates that any one outcome can be produced by different processes (e.g., a smiling source can lead to more persuasion when it serves as a simple positive cue, when it reduces thinking about weak arguments, as well as when it serves as an argument itself, or when it biases the thoughts that are generated in a positive direction, or even when it validates the positive thoughts already generated). And, it postulates that not all judgmental outcomes that look the same on the surface really are the same (e.g., the same extent of attitude change induced by high versus low thinking are differentially persistent over time). As should be clear from the examples reviewed so far, knowing that smiling leads to persuasion is not enough. It is also useful to understand the psychological process by which this apparently simple main effect (or the contrary) occurs.

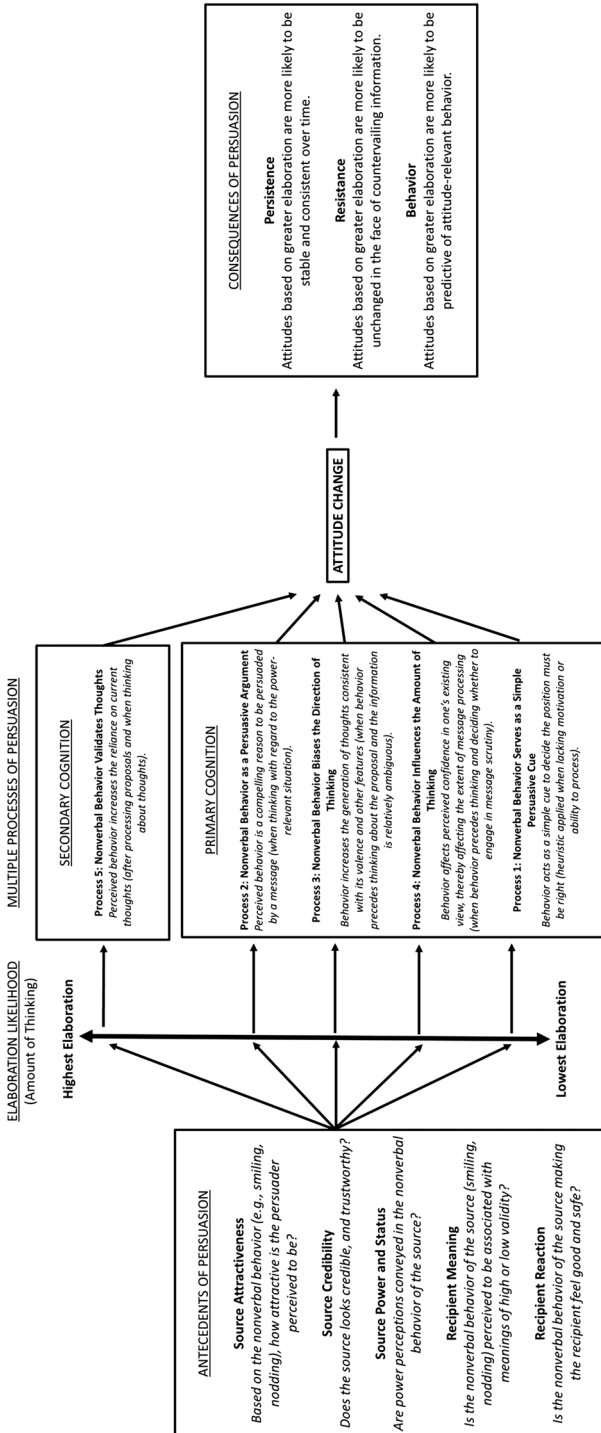


Fig. 2 Main antecedents, processes, and consequences in the extended ELM

## Part II: Fundamental Processes Underlying the Effects of Source Attractiveness, Credibility, and Power

### Source Attractiveness and Processes of Primary Cognition

Under moderate elaboration, attractiveness can either increase or decrease thinking about a message. That is, when a person's ability and motivation to think are left free to vary as a function of the nonverbal features of the source, the pleasantness and certainty elicited in the recipient by nonverbal features such as attractiveness can also influence attitudes in accord with the valence.

For example, in an experiment by Pallak (1983), participants read a message accompanied either by a high-quality, color photograph of an attractive male, or a degraded Xerox copy of the same photograph shown by pretesting to significantly reduce perceptions of source attractiveness. The quality of the arguments in the message was manipulated to be either strong or weak. Manipulating argument quality is a technique that allows researchers to assess the extent to which any feature of the source can influence persuasion based on the amount of thinking about the content of a message (Petty and Cacioppo 1986). For example, if a variable increases careful processing of a message, then the quality of the arguments should have an increased impact on attitudes, thus increasing persuasion if the arguments are strong and decreasing persuasion if the arguments are weak. However, if the argument quality is exerting a relatively weak effect on a person's attitude (i.e., strong and weak arguments produce similar attitudes), this implies that the person must be recruiting more superficial strategies (low-thinking) when evaluating the message.

The results of the Pallak (1983) study indicated that when the photograph of the highly attractive source accompanied the message, argument quality did not differentially influence attitudes as much as when the photo was less attractive, thus implying decreased thinking about the message. That is, the positive valence associated with an attractive source decreased elaboration of the message content and thus reduced the persuasiveness of strong arguments and increased the persuasiveness of weak arguments compared to the less attractive source. These data are consistent with the idea that things that make us feel pleasant and enhance processing fluency (e.g., an attractive source) can reduce careful processing of a message even when *no constraints* are placed on a person's ability and/or motivation to think. Or conversely, the degraded photo may have induced doubt or suspicion, which increased information processing. The same pattern of results emerged in other experiments that also manipulated source attractiveness and argument quality (Dipboye et al. 1977; Watkins and Johnston 2000).

Taken together, attractive sources can reduce careful processing of a message and influence both attitudes and behavioral intentions when *no constraints* are placed on a person's ability and/or motivation to think. These studies illustrate how considering process can help to predict when attractiveness is associated with *more or less* persuasion and to understand why and when a positive nonverbal feature such as attractiveness can actually be detrimental to persuasion.

Thus far we have seen that attractiveness can *reduce* thinking when it elicits responses in the message recipient that range from pleasantness and liking to certainty and fluency. However, when thinking is left free to vary based on nonverbal features of the source, attractiveness can also *increase* thinking if it is associated with unpleasant thoughts or feelings, such as when receiving counter-attitudinal messages that advocate information the recipient may perceive as threatening (see Clark et al. 2012, for a review).

Consider an experiment by Puckett et al. (1983) in which university undergraduates viewed photographs of either a physically attractive or unattractive person (confirmed via pretesting and a manipulation check), that accompanied either strong or weak arguments supporting a counter-attitudinal policy to institute comprehensive final exams as a prerequisite for graduating. When the source was perceived as highly attractive, argument quality differentially influenced participants' attitudes toward comprehensive exams (thus implying greater elaboration). In contrast, argument quality did not affect attitudes when the source was unattractive. Once again, this is important because attractive sources actually produced *less* persuasion under some conditions (i.e., when the message consisted of weak arguments). These data suggest that one context in which attractive sources may stimulate *increased* rather than decreased thinking is when they are associated with personally relevant information that is perceived as threatening (in this case, the requirement to complete comprehensive exams in order to graduate). However, when an attractive source takes a position that is not threatening (e.g., evaluating a hypothetical job candidate), research suggests that attractiveness appears to *reduce* thinking.

These examples show that even when *no constraints* are placed on a person's ability and/or motivation to think (i.e., under moderate elaboration), attractive sources can influence persuasive communications by increasing or decreasing thinking about the message. Furthermore, attractiveness might increase thinking when the goal is to impress the attractive source with a show of understanding and decrease thinking when attractiveness leads to threat because of negative self-other comparisons. As noted, in addition to affecting amount of thinking (when elaboration is moderate), attractiveness can also influence attitudes by other processes under different circumstances.

Under conditions that are not conducive to careful thinking (e.g., distraction, low-involvement, low relevance/responsibility, etc.) and/or for individuals who do not enjoy cognitively demanding tasks (i.e., low need for cognition; Cacioppo and Petty 1982), source nonverbal features can influence attitudes as relatively simple acceptance or rejection cues. One nonverbal feature of the source that has received considerable attention in this context is physical attractiveness. Given that attractiveness is a multifaceted construct, research investigating its role in persuasive communication has manipulated a variety of nonverbal dimensions shown to influence evaluations of attractiveness, including facial features, symmetry, body shape, aurea proportion, familiarity, and so forth (e.g., Reber et al. 2004; Vogel et al. 2010). Whereas some research has found that a configuration of facial features that approximates the population mean is an important component of attractiveness (Rubenstein et al. 2002), other research has shown that faces are perceived as more attractive when they have a particular configuration (e.g., wide cheek bones, narrow cheeks, high eyebrows, wide pupils, and large smiles; Argyle 1988). Empirical evidence has found that manipulations of these, and other nonverbal features of attractiveness (e.g., mature vs. baby-faces, Berry and McArthur 1986), can elicit responses in the message recipient that range from pleasantness and liking to certainty and processing fluency, among others (Reber et al. 2004; see, Zebrowitz and Montepare 2008, for a review). One common feature across each of these inductions is that they imply positivity.

Research has shown that the positivity induced by attractive sources, as well as other nonverbal features of a source, can translate to persuasion by a variety of distinct psychological processes that do not require careful thinking, including classical conditioning (Staats and Staats 1958), the use of heuristics (Chaiken 1987; Schwarz and Clore 1983),

misattribution of one's emotional state to the attitude object (Jones et al. 2009), direct affect transfer (e.g., Murphy and Zajonc 1993), and self-perception (Bem 1972).<sup>3</sup>

The basic logic suggests that when a person is either unable and/or unmotivated to think carefully (i.e., low elaboration conditions), incidental emotions aroused by nonverbal features of the message source are either misattributed to one's attitude (i.e., positive feelings reflect a positive attitude), to the message (i.e., feeling good signals agreement with the message), or to the attitude object (i.e., the object makes me feel good, so I must like it). Although these accounts differ in their explanations regarding the specific object to which positive affect transfers, each agree that when attitudes change under low-thinking, the direction of persuasion is consistent with the valence implied by the nonverbal feature of the source.

The role of source physical attractiveness as a peripheral cue was investigated in the context of an advertisement for a typewriter by Haugtvedt et al. (1988). Participants viewed a series of ads accompanied by pictures of physically attractive or unattractive female endorsers (perceived attractiveness evaluated via pretesting), then reported their attitudes toward the advertisement. Participants also completed the Need for Cognition (NC) scale (Cacioppo and Petty 1982). The NC scale is a well-validated, single-factor, individual-difference measure that assesses an individual's intrinsic enjoyment of thinking.

The data revealed that for low NC participants, the ad featuring the attractive female produced significantly more favorable attitudes toward the typewriter than the ad featuring the unattractive female. However, for high NC participants, endorser attractiveness did not influence attitudes. What this suggests is that in the absence of careful thought (i.e., for low NC participants), source attractiveness served as a simple acceptance or rejection cue and directly affected attitudes toward the product consistent with the direction implied by the valence of the message source (see Haugtvedt et al. 1992, for a replication). The same pattern was found by Petty et al. (1983), who demonstrated that photographs of attractive celebrity endorsers generated more favorable attitudes toward a product (disposable razors) than non-celebrities under conditions of low—but not high-issue involvement.<sup>4</sup>

Beyond affecting the amount of processing when thinking is not constrained to be either high or low, or serving as cue under low thinking conditions, source attractiveness can also play other roles under different circumstances. For example, when a person is able and motivated to carefully consider the merits of an issue (i.e., high-thinking), source attractiveness can bias the valence/direction of thoughts people generate in response to a persuasive message (Chaiken and Maheswaran 1994; Petty and Briñol 2012). For example, source attractiveness can influence the affective (pleasantness, unpleasantness) and cognitive (certainty, doubt) reactions of the recipient, which can bias attitudes in the same direction as their valence. Thus, when an attractive source makes the recipient feel good and/

<sup>3</sup> Persuasive communications using attractive sources can have an especially powerful effect on people's attitudes when they are not carefully thinking about the content of the message because objects perceived as attractive tend to make people feel good, and people are motivated to maintain positive moods (Wegener and Petty 1995). Moreover, attractive sources can also have a powerful effect on attitudes because people have a need to affiliate with attractive others and maintain a positive view of themselves.

<sup>4</sup> When people are carefully processing a message (e.g., high in NC, high-involvement), in some cases they may perceive a nonverbal feature of the source (e.g., attractiveness) as exerting an inappropriate and/or unwanted influence on their thoughts (i.e., a biasing factor), and thus correct for its impact when reporting their attitudes. As previously explained, the underlying psychological processes by which source attractiveness influences attitudes under low-thinking can range from classical conditioning, to direct affect-transfer, to a misattribution of the response generated by the source.

or certain, positive thoughts are more likely to come to mind, whereas when an attractive source makes the recipient feel bad and/or doubtful, negative thoughts are more likely to come to mind. Importantly, the greater the room for interpreting information (e.g., when persuasive information is ambiguous) the more likely it is that any nonverbal feature of the source will bias the *direction* of the thoughts generated. That is, biased thinking is more likely to occur when multiple interpretations of information are possible than when the meaning of the information is very clear.

As an example of how source attractiveness can bias the direction of thinking, Ziegler et al. (2005) showed participants a photograph of either a relatively attractive or unattractive source (confirmed by a manipulation check on perceived attractiveness), alongside either strong, weak, or ambiguous arguments regarding a personal hygiene product. Participants were explicitly told that their evaluation of the product was of critical importance, thus creating a context in which careful elaboration of the content was likely—which was confirmed via subsequent analyses. Consistent with the idea that source attractiveness can bias the direction of thinking, product-relevant thoughts were significantly more favorable when participants viewed the relatively attractive versus unattractive source. Importantly, thought-favorability mediated the impact of attractiveness on attitudes toward the product, but only in the context of ambiguous arguments in which multiple interpretations of the information were possible.

Under high-thinking conditions, source attractiveness can also serve as an issue-relevant argument when it is diagnostic about the merits of the attitude object under consideration (Petty and Cacioppo 1986). That is, people can examine source nonverbal features, in addition to other information from the message, recipient, context, and internally generated information, as possible arguments or reasons for evaluating the attitude object either favorably or unfavorably. For example, if one's goal is to hire a person as a model for a cosmetic product, then that person's appearance is likely an important piece of information relevant to one's evaluation.

In one such test of this proposition, Petty and Cacioppo (1981) showed participants a series of advertisements that included a photograph of either an attractive or unattractive couple (confirmed via pretesting) alongside either strong or weak arguments in favor of a fictitious shampoo (a beauty product). Involvement was also manipulated by either telling participants that the shampoo could be purchased from local businesses (high-involvement) or only in a remote location on a different continent (low-involvement).

As predicted, the attractive couple generated more positive attitudes toward the shampoo than the unattractive couple. No interaction emerged between source attractiveness and issue involvement, indicating that the effect of attractiveness on attitudes was equivalent when comparing participants who were carefully thinking with those who were not. The researchers interpreted this as suggesting that under high-involvement, the attractiveness of the source (particularly their hair), may have served as persuasive visual testimony about the effectiveness of the product (rather than as a thought-direction biasing factor). Thus, under conditions of high thought, nonverbal features of the source can serve as persuasive arguments or reasons for evaluating an attitude object either favorably or unfavorably.

### Source Attractiveness and Processes of Secondary Cognition

Evans and Clark (2012) studied the effects of attractiveness on persuasion through a self-validation process. Participants first received a message advocating a proposal composed of either strong or weak arguments. After listing their thoughts, participants were exposed

either to a communicator portrayed as high in social attractiveness or high in credibility (materials taken from DeBono and Harnish 1988; Kelman 1958). Next, participants indicated their attitude toward the topic, thought-confidence, and thought-valence. Lastly, participants completed measures of self-monitoring (Snyder 1979). Self-monitoring is an individual difference characteristic that captures the extent to which people are either motivated to behave in ways that elicit social approval (high self-monitors) or in ways that are consistent with their internal beliefs and values (low self-monitors). As anticipated, high self-monitors reported more confidence in their thoughts following exposure to an attractive (vs. credible) source. Importantly, when thoughts toward the proposal were favorable, an attractive source increased persuasion relative to a credible source, but when thoughts were unfavorable, an attractive source decreased persuasion compared to the credible source. For low self-monitors, the results were the opposite because for these individuals, more confidence in thoughts followed exposure to the credible than the attractive source.

This study illustrates that different people look for sources of validity in different places. That is, different people are likely to focus on different aspects of source nonverbal behavior when forming their judgments (Briñol and Petty 2018). Specifically, Evans and Clark (2012) showed that thought-confidence increased when the characteristics of the source (attractiveness vs. credibility) matched (vs. mismatched) characteristics of the recipient (high vs. low self-monitoring). Furthermore, as introduced previously, this meta-cognitive role is more likely to occur under relatively high-elaboration conditions and when the match (to information related to the message source) follows message processing.

Finally, if people believe that their thoughts have been biased or in some way inappropriately influenced by a nonverbal feature of the source (e.g., in this case, attractiveness), and they do not want this to occur, they can adjust their judgments in a direction opposite to the unwanted bias (i.e., a correction effect; Wegener and Petty 1995). These corrections can occur in different directions depending on recipients' theories of how the biasing event or stimulus (e.g., an attractive source) is likely to have influenced their thoughts. When people are motivated and able to correct, theory-based corrections can lead to reversals of typical persuasion effects (e.g., an unattractive source is more persuasive than an attractive source if a person "overcorrects" for the influence).

This principle was illustrated in a study by Wegener and Petty (1995), who investigated the extent to which people would correct for the attractiveness of the message source when the potentially biasing aspect of attractiveness was made salient.

Participants were either instructed not to allow their perceptions of the attractive celebrities influence their attitude toward two products endorsed by the celebrities, or given no instructions prior to rating the products. The results indicated that participants liked the products endorsed by the attractive celebrities more when no correction instructions were provided, whereas the effect of attractiveness on product evaluation reversed (i.e., endorsement by attractive sources was detrimental for attitudes) when participants were instructed to correct for attractiveness. These results suggest that an overcorrection took place for the perceived biasing influence of source attractiveness.

### **Multiple Roles for Source Attractiveness (Within the Same Experimental Design)**

The previous section illustrated how nonverbal features of the source associated with attractiveness can influence attitudes by different psychological processes (of primary and secondary cognition) depending on the ability and motivation of the message recipient to think carefully about the content of a persuasive communication, and the timing in which

variables are introduced. A common feature across each of the studies described so far is that they have all illustrated exclusively one role for attractiveness within each experimental design. However, research has shown that more than one role can operate under different circumstances within the same study. Such studies best illustrate the predictive power of the ELM and the complexities it allows.

As one example illustrating the ELM notion of multiple roles, consider how source physical attractiveness can impact the success of a persuasive appeal when thinking is constrained to be either high or low. In a study by Andrews and Shimp (1990), participants were shown a photograph of either an attractive or unattractive couple (confirmed via pretesting) that accompanied an advertisement for low-alcohol beer. The advertisement was manipulated to contain either five strong or weak arguments in favor of the product. Additionally, involvement was manipulated to either increase or decrease thinking by informing participants that the product would be available in their area and they may be selected for a paid interview (high-involvement, high-thinking), or that the product would only be available in a separate area of the country (low-involvement, low-thinking). After viewing the advertisements, all participants listed and rated the favorability of their thoughts, then indicated their attitude toward the low-alcohol beer. Under low-involvement, source attractiveness did not bias thought-favorability but rather directly influenced attitudes as a peripheral cue. That is, attitudes toward the product were more favorable when they were associated with the attractive (vs. unattractive) photo regardless of argument quality. In contrast, under high-involvement, source attractiveness did not directly affect attitudes but instead biased participants' cognitive responses, which then directly influenced attitudes toward the advertisement (for another example of attractiveness in a bias and cue role, see Shavitt et al. 1994). This research conceptually replicated earlier ELM studies in which a person's mood served as a simple cue when thinking was low, but biased thinking when elaboration was high (Petty et al. 1983).

Another way that nonverbal features of the source can influence persuasion under high-thinking is by serving as an issue-relevant argument. Applying this to the notion of multiple roles, Kang and Herr (2006) manipulated both source attractiveness (confirmed via pretesting and a manipulation check) and its relevance to a target in order to show that attractiveness can function as an issue-relevant argument when thinking is high and as a peripheral cue when thinking is low. In their experiment, one group of participants viewed a photograph of an attractive model alongside an advertisement for a razor (a beauty product) and an average-looking model alongside an advertisement for a computer processor (a product irrelevant to attractiveness). The other group of participants viewed the same ads but switched the models for each ad. The authors also manipulated the extent to which participants could think about the ad by requiring half the participants to engage in a secondary task while viewing the ads (low-thinking). After viewing the ads, all participants listed their thoughts then indicated their attitude toward each product.

Consistent with the idea that attractiveness can serve as a peripheral cue under low-thinking, attitudes toward both products were more favorable when the advertisement featured an attractive versus unattractive source. Importantly, source attractiveness did *not* influence (i.e., bias) thought-favorability toward either product when thinking was low. Under high-thinking, attitudes toward the razor were more favorable when the advertisement featured an attractive than unattractive source. However, attitudes were equally favorable toward the computer processor regardless of source attractiveness. This is because source attractiveness is irrelevant to evaluating the merits of a computer processor. Once again, source attractiveness did not bias the favorability of participants' cognitive responses toward either product. This pattern is consistent with the idea that when the



attractiveness of a source is directly relevant to evaluating a product, it can serve as persuasive testimony either advocating for or against the merits of the product.

## Source Credibility

Highly credible individuals are often more influential and produce more attitude change than individuals with low credibility. A person's credibility stems from his or her reputation for having extensive knowledge, expertise, and/or honesty and trustworthiness, and much research has been devoted to the persuasive impact of these attributes (see Briñol and Petty 2009, for a review). Many nonverbal features of the source can influence a message recipient's perceptions of communicator credibility, including a communicator's dominance and physical strength (Toscano et al. 2016), clothing such as uniforms and white coats (e.g., Cialdini 2001), reading glasses (Leder et al. 2011), hoodies (Civile and Obhl 2017), or other physical features such as facial laterality (Okubo et al. 2017), baby-faces versus mature-faces (Brownlow 1992), facial hair, and tattoos (Guido et al. 2014). In this section, we provide some examples that illustrate the process by which source credibility influences persuasion, but focuses on other nonverbal indicators than those listed here.

Like attractiveness, under moderate elaboration, source credibility can influence attitudes by affecting the amount of thinking people do about a persuasive communication. In fact, when people are unsure whether a message warrants scrutiny, they are more likely to think about a message from a knowledgeable looking source than one who lacks knowledge (e.g., Petty et al. 1981b).

When people are unmotivated and/or unable to think, source credibility can operate as a cue through the use of simple heuristics, such as "if an expert says it, it must be true" (Chaiken 1987). For example, Petty et al. (1981a) exposed undergraduate students to a source with either a highly-credible source (professor of education) or low-credible image (local high-school student), who delivered a counter-attitudinal advocacy (implementing comprehensive exams) containing either strong or weak arguments. For some participants, the policy was high in personal relevance (they would be affected because the policy would begin the following year), whereas for others the policy was low in relevance (they would not be affected because changes would take place in 10 years). Attitudes toward the proposal were influenced primarily by the credibility of the source when the policy was low in personal relevance, but by the quality of the arguments when the message was highly relevant. Thus, under low-thinking conditions, rather than diligently considering the issue-relevant arguments, the message recipients accepted the advocacy simply because it was presented by an expert.

Importantly, source credibility does not always operate via simple heuristics, nor does enhanced source credibility always produce a more favorable persuasive outcome. As we illustrated for attractive sources, when motivation and ability to think are high, perceptions of source credibility can bias the direction of a recipient's thoughts to be more or less favorable towards an advocacy. For example, Chaiken and Maheswaran (1994) demonstrated that an expert (vs. non-expert) source had a greater impact on attitudes by affecting the favorability of recipients' thoughts, but only when the message was ambiguous (vs. clearly compelling or specious), and when the personal importance of the topic was high (vs. low). Importantly, research has also shown that if people believe their thoughts have been biased by the source, they can adjust their judgments in a direction opposite to the implication of the biased thoughts (Gruder et al. 1978; *correction processes*; Wegener and Petty 1995). Finally, source credibility can also influence persuasion by affecting the

confidence people have in their thoughts (Briñol et al. 2004), specifically when elaboration is high (Tormala et al. 2006), and when the source information follows rather than precedes the persuasive message (Tormala et al. 2007).

## Powerful Sources

A key perception of a communicator that influences persuasion is power. Social power often involves hierarchical and structural differences between two actors (Galinsky et al. 2015). However, in persuasion, power likely operates through the *perceived power* related to the source or the recipient (Briñol et al. 2017b). That is, regardless of whether or not some induction produces actual structural differences in power, if recipients perceive differences in power between themselves and a communicator to exist, then these perceptions can impact subsequent evaluations. For example, individuals may perceive a source to be either powerful or powerless based on their appearance (Toscano et al. 2016), their body posture (Cashdan 1998), or their nonverbal behavior (Locke and Anderson 2015). That is, experimental evidence suggests that a communicator can be perceived as powerful not only due to actual differences in social power but also based on nonverbal indicators and incidental inductions associated with power, ranging from body postures (i.e., chest out, shoulders back), to eye-gazing, and the use of power-related speech styles (for reviews on various theoretical models of nonverbal indicators of power, see, Burgoon and Dunbar 2006; Schubert et al. 2008).

In addition to varying nonverbal displays to influence perceptions of power, some research has compared communicators who use a message delivery style associated with high power (e.g., confident, dominant, extreme, direct, assertive) with communicators who use relatively powerless marks (e.g., hesitations, interruptions, hedges, and tag questions). Regardless of whether power is manipulated by varying nonverbal behavior or linguistic style, powerful sources often produce more agreement compared to powerless sources (e.g., Festinger and Thibaut 1951; Hosman et al. 2002). Indeed, people are frequently rewarded for behaving in accordance with the opinions, advice, and directives of powerful authority figures. Although this effect is most often attributed to power producing overt compliance rather than internalized attitude change (e.g., see Kelman 1958), the underlying psychological mechanisms responsible for the impact of power on persuasion are the same as those we have outlined already. That is, the ELM suggests that the psychological processes mediating the effects of source power on a recipient's attitude can be organized into the same finite set described for attractiveness and credibility (see Briñol et al. 2017b, for a recent review of those processes as applied to power).

## Body Orientation and Gazing

An important aspect of a communicator's nonverbal behavior is the orientation of their body, head, and gaze. For example, the direction in which a communicator's body is oriented can influence the recipient's focus of attention (e.g., Langton 2000; Langton et al. 2000). Nonverbal behavior can also influence evaluations when it originates from a person who is merely present in the situation, but not the communicator (Boothby et al. 2014). For example, facial expressions (e.g., a smile vs. disgust) of people who are looking at an object can influence a recipient's attitude toward that object even when those people are not the source or communicator (Bayliss et al. 2007). Thus, objects attended to by others

can be evaluated by recipients according to the valence of the facial expression observed in others looking at the object.

As with any other nonverbal variable, the nonverbal orientation of others can influence a recipient's attitude through multiple processes based on the circumstances. For example, when a recipient is aware that others are attending to the same message, they think more carefully about the message, as illustrated by greater argument quality effects (Shteynberg et al. 2016). That is, shared attention made persuasive speeches even more persuasive and relatively less persuasive speeches less persuasive. In fact, merely *thinking* that others are watching the same information at the same time can polarize judgments presumably by increasing elaboration when thinking is not constrained to be high or low, especially if those others belong to the in-group (Shteynberg 2015). Of course, if a recipient interprets the orientation of others as sharing responsibility for listening (vs. sharing attention), then a decrease (vs. increase) in thinking could occur, thus reducing persuasion for strong arguments but increasing persuasion for weak arguments (see Petty et al. 1980). In sum, the body orientation of others present in a persuasive situation can increase or decrease careful processing when thinking is not constrained to be high or low, based on how recipients interpret others' nonverbal behavior. Of course, under different circumstances, the same nonverbal feature (body orientation) of those present in the situation can also influence persuasion through other processes. Also relevant, whether the persuasive proposal appears to be endorsed by a numerical majority or a minority of other people (e.g., are a majority of other audience members applauding the speaker; Axsom et al. 1987) is another important aspect capable of changing attitudes through the same five processes described throughout (for a review of multiple processes by which majority versus minority endorsement can influence attitudes, see Horcajo et al. 2014).

## Interpersonal Distance

Similar to body orientation and gazing, interpersonal distance between a source and a receiver has also been found to affect attitude change, such that moderate distances (4–5 ft.) increase selective attention to the speaker's *message*, whereas at distances that are too close (1–2 ft.) or too far (14–15 ft.), attention is shifted to the *physical appearance of the speaker* (Albert and Dabbs 1970). This is consistent with the idea that at optimal distances from others, people feel comfortable, which can in turn increase attention paid to the message (Hall 1966; Patterson 1976). In contrast, at non-optimal distances, people feel that their personal space is violated, which in turn can reduce attention to the message. This view is also consistent with the early learning models of persuasion (e.g., Hovland et al. 1953), and with the classic dualism between message and source (e.g., Kelman 1958; see Briñol and Petty 2012). In this view, one variable (optimal distance) produces one effect (more persuasion) by one process (reducing discomfort). In our view, one variable can produce multiple effects by multiple processes.

For example, consider how interpersonal distance can impact attitudes according to the multiple processes proposed by ELM. When the likelihood of elaboration is not constrained by other variables (i.e., moderate elaboration), we argue that interpersonal distance can affect the amount of thinking. For example, people may think about messages more when interpersonal distance is moderate (vs. either close or far) because moderate distance is more comfortable. When interpersonal distance increases thinking about the message, it should increase persuasion only to strong arguments (similar to Albert and Dabbs's study) but should decrease persuasion for weak arguments (reversing the original effect).

Importantly, interpersonal distance can operate through different processes if the situation is different. In line with the ELM, under conditions in which the ability and/or motivation to think is low, the comfort/pleasantness (discomfort/unpleasantness) that emerges from optimal (non-optimal) distances can serve as simple associative cues and produce evaluations consistent with their valence. That is, the comfort (discomfort) can simply become associated with the attitude object or serve as input for an “affect heuristic”. Thus, comfort (discomfort) should lead to more favorable (unfavorable) attitudes than discomfort (comfort). Moreover, when thinking is high, a person’s pleasant (unpleasant) feelings can be examined as arguments either in favor of or against the issue under consideration, or bias the thoughts people generate, or even validate thoughts previously generated depending on the circumstances.

### Part III: Reciprocation versus Compensation of Nonverbal Behavior

If the source of a persuasive message smiles, leans forward, or nods his or her head at you, you are likely to reciprocate by smiling, leaning forward, and nodding back (e.g., Chartrand and Bargh 1999; Hale and Burgoon 1984; Niedenthal et al. 2010). In some cases, however, you may be more likely to respond to others’ behavior in a compensatory manner (see Burgoon et al. 1993; Patterson 1982; for reviews on dyadic patterns of nonverbal reciprocity and compensation). For example, if a person looks at you with an angry facial expression, you might react by adopting a submissive posture rather than by mimicking the angry facial expression (Tiedens and Fragale, 200). The first part of this section focuses on contexts in which people imitate what they observe in others, whereas the second part focuses on contexts in which people do the opposite of what they see in others.

#### Matching to the Source’s Behavior

It is important to consider the influence of dynamic versus more static interactions (i.e., face-to-face interactions vs. one-way messages) in understanding the relationships between message sources and recipients. As reviewed so far, the bulk of the literature on persuasion to date has focused on how either an individual source or an individual recipient generates or responds to a persuasive message. However, as research on power has illustrated (Briñol et al. 2017b), one important new direction is to investigate how source and recipient variables interact with each other. Within the nonverbal literature, the Parallel Process Model (Patterson 1995) and Systems Model (Patterson 2018) have both addressed the reciprocal nature of communication—and thus persuasion.

A prime example of the importance of face-to-face interactions between source and recipient comes from research on mimicry showing that a communicator’s nonverbal behavior can prime similar behaviors in the recipient (e.g., Chartrand and Bargh 1999). Extensive research on embodiment has shown that the behavior generated by the recipient in response to the behavior of the source, like any other variable described so far, can lead to persuasion through multiple roles (see, Briñol and Petty 2008, for a review on embodied change).

As previously discussed, merely observing others’ behaviors can produce effects similar to actually performing the behavior, perhaps facilitated by mirror neurons involved in automatic imitation. For example, consistent with classic research on conformity (Asch 1956), it has repeatedly been shown that people tend to imitate and mimic the behaviors

they observe in others in order to facilitate social interaction (e.g., Sherif 1936; Kunecke et al. 2017). In fact, certain brain circuits involved in the production of an organism's motor behavior (i.e., mirror neuron circuits) also become active in response to perceived motor behavior (e.g., Fabbri-Destro and Rizzolatti 2008; Gallese and Goldman 1998; Rizzolatti 2005), suggesting that one way to get people to act (or to stimulate their action representations) is by behaving ourselves in the desired way (e.g., smiling).

Mimicry also occurs in contexts where the source adapts his or her behavior to match the nonverbal behavior of the recipient (Tanner and Chartrand 2006; see Chartrand and Lakin 2013; for a review). Recent research has suggested that even behaviors performed by a computer-controlled digital representation of the person in a virtual environment (i.e., Avatars) can induce subsequent changes in judgment (e.g., Yee et al. 2009). In one illustration, Bailenson and Yee (2005) found that avatars who mimicked participants' head movements were more persuasive than avatars who merely displayed other realistic movements. Of course, there are multiple mechanisms by which these effects can emerge (e.g., mimicking a person's behavior might be a simple cue for compatibility or could enhance thought-confidence, etc.).

### **Matching to the Source Beyond Mimicry (Reciprocation)**

Given that the recipient can adapt his or her behavior to match the nonverbal behavior of the source, consider how people respond to other nonverbal features they observe in a communicator, such as socio-demographic visual information. Fleming and Petty (2000) demonstrated that when the recipient of a persuasive proposal identifies with some nonverbal aspect they perceive in the source (e.g., gender, race, age), this perceived similarity can influence attitudes via multiple processes. As was the case for other variables, identifying with the gender, the race, or any other nonverbal aspect of the message source can influence attitudes (a) by serving as a peripheral cue under low-thinking conditions (b) biasing the direction of the thoughts that come to mind under high-thinking conditions, and (c) increasing the amount of thinking under moderate elaboration conditions. Thus, recipients who highly identify with an in-group source (e.g., a female source if the message recipient is female) are especially likely to process information provided by in-group more than outgroup sources when thinking is not constrained to be very low or high, just as they are more likely to show cue effects under low-thinking and biased processing effects under high-thinking. If the source match is revealed after message processing and thinking is high, it could potentially validate the thoughts in response to the message. Thus, if after thinking about a message, a woman who is highly identified with her gender learns that the speaker is also a woman, a feeling of confidence in one's thoughts should be enhanced relative to conditions in which the recipient learns that the source is a male.

### **Contrasting the Source's Behavior (Compensation)**

Although people sometimes imitate what they see in others, at other times they do the opposite. For example, people sometimes respond to powerful sources by showing powerless displays, and vice versa (Tiedens and Fragale 2003). Of course, the source and recipient are typically interrelated when it comes to the nonverbal behavior displays associated with power: The more powerful the message source behaves, the less powerful the message recipient acts by comparison.

Research on threat provides further examples of this compensation behavior, revealing that exposure to a communicator with a threatening facial expression can elicit fearful facial expressions and feelings in the recipient (Briñol et al. 2015). This complementary nonverbal response to communicators with angry facial expressions is more likely when the source directs their body and gaze toward the recipient versus turning their body and gaze away from the recipient (Parkinson and Manstead 2015). Importantly, whether people match or mismatch the nonverbal behavior of a source, the end result is that the action of the recipient should be capable of affecting attitudes in the multiple ways we have specified (e.g., serving as a simple cue when thinking is low, etc.).

## Part IV: Source Effects on Multiple Measures

### Source Effects on Implicit Measures of Attitudes

In most prior work on source factors, attitude change has been assessed with explicit self-report measures. However, in the last two decades, researchers have developed a variety of instruments to measure automatic attitudes (e.g., evaluative priming; Fazio et al. 1995; implicit association test or IAT, Greenwald et al. 1998), and are beginning to examine how source factors can influence these automatic attitudes. It is now clear that the same source factors described so far can also influence automatic measures of attitudes by multiple processes (Smith et al. 2012).

Perhaps the most obvious role for source factors on implicit measures is as a simple cue. For example, Forehand and Perkins (2005) exposed participants to an advertisement for a product that featured a liked celebrity's voice. Some participants recognized the celebrity whereas others did not. When the liked celebrity was not explicitly recognized, both deliberative and automatic attitudes were affected positively. However, when the celebrity was explicitly identified, only the implicit measure was influenced positively. In fact, under these conditions a reversal effect emerged on the explicit measure, revealing more negative attitudes toward the product endorsed by the liked source. When the celebrity was explicitly recognized, recipients presumably attempted to de-bias their judgments, not wanting to be influenced by this seemingly irrelevant factor. Recall that if people overcorrect their judgments, a reverse effect will be obtained (see Wegener and Petty 1995). The Forehand and Perkins findings suggest that implicit measures are particularly sensitive to the valence of the source of the persuasive treatment, but less so to correction processes.

In another line of research relevant to understanding the impact of nonverbal source factors on automatic attitudes, McConnell et al. (2008) presented participants with either positive or negative behavioral information about a target (e.g., helping the neighborhood children) who also varied in some observable nonverbal physical characteristic (i.e., overweight vs. normal; attractive vs. average vs. unattractive; Black versus White). They found that explicit attitudes toward the target were affected by the explicit verbal behavioral information, but not by the nonverbal physical characteristics. These results are analogous to some of the ELM studies reviewed earlier in which the quality of the substantive verbal arguments impacted explicit attitudes, but simple issue-irrelevant valence cues (e.g., source attractiveness) did not when people were thinking carefully. In contrast to the effects on the explicit measure, automatic attitudes toward the target generally reflected only the observable physical characteristics of the person rather than the explicitly provided behavioral information (see also Rydell and McConnell 2006). For example, when the source was

unattractive, overweight, or Black, automatic attitudes were equally negative regardless of the favorability of the verbally presented behavioral information. This is reminiscent of ELM studies in which simple cues (but not argument quality) affected explicit attitudes when thinking was low. Interestingly, when physical appearance provided no easily processed or particularly positive or negative valence cue (e.g., a white, normal weight target of average attractiveness), then the verbal behavioral information did affect automatic attitudes (see Briñol et al. 2009; Petty and Briñol 2010, for reviews).

Although the McConnell et al. (2008) research suggests that easily processed nonverbal features of people (i.e., race, attractiveness) are especially likely to affect automatic attitudes by serving as simple valence cues, this does not mean that implicit measures cannot be affected by nonverbal features of the source under high-thinking conditions. Under high-thinking conditions, nonverbal source factors could influence automatic measures but would do so by other, more deliberative processes such as by affecting the valence of the thoughts generated (Mann and Ferguson 2016). Indeed, this may be what happened when McConnell et al. (2008) in some conditions presented their participants with behavioral information that was ambiguous rather than clear-cut. Under these conditions, the target physical characteristics did affect automatic evaluations. This finding is therefore similar to research discussed earlier showing that variables such as source credibility are more likely to affect attitudes under high-thinking conditions if the substantive information is ambiguous because the nonverbal feature biases interpretation of the information (see, Chaiken and Maheswaran 1994; Petty et al. 1993).

### Source Effects on Attitude Confidence Rather than Thought-confidence

This review has focused on how source nonverbal features can influence persuasion by affecting processes of primary cognition (e.g., amount of thinking) and secondary cognition (e.g., thought-confidence). When source features influence peoples' confidence in their thoughts, sources influence persuasion. Research on meta-cognition has also shown that source factors can influence attitude confidence directly (even without changing attitudes). Affecting attitude confidence is important because confidently held attitudes are stronger (i.e., more likely to persist over time, resist change, and influence thinking and behavior; see Rucker et al. 2014). For example, Mello et al. (2017) manipulated the physical attractiveness of the source delivering a persuasive message and found that attractiveness reduced attitude confidence as well as undermined subsequent resistance to counter-attitudinal messages, presumably because attractiveness was viewed as an unwanted biasing factor in that context and participants corrected for their perceived influence (e.g., message topic was unrelated to attractiveness).

### Conclusion

This article described the basic mechanisms by which the nonverbal behavior of a communicator can influence a recipient's attitudes and impact persuasion. We have argued that the overt behavior of message sources (smiling, nodding, confident appearance, power displays) can affect attitude change by different processes depending on the circumstances (e.g., depending upon the recipient's ability and/or motivation to carefully process a message). As described throughout, considering process can help to predict when nonverbal aspects of a communicator such as his or her attractiveness, credibility, and power can

increase or decrease persuasion. In addition to explaining why positive nonverbal features such as attractiveness or power can be detrimental to persuasion, we specified the conditions under which that paradoxical outcome is more likely to emerge and whether the resulting attitude change is expected to last over time.

Consideration of the basic processes underlying attitude change has provided an opportunity to expand understanding of the dynamics of many other phenomena relevant to the persuasive effects of source nonverbal behaviors, ranging from source mimicry, and electronic sources (avatars), to threatening and stigmatized sources. Importantly, although this research has focused on examples such as a source's body postures (e.g., slumping), movements (e.g., head nodding, smiling), there are many other features of nonverbal behavior that would be susceptible to the same conceptual analyses, including research on formal clothing, glasses, lab coats, body image, facial symmetry, eye contact, laughter, status symbols, motion, speed of walking, blinking, changes in pupil size, and all kinds of body actions performed by communicators when delivering a message. The key is to understand what inferences people make from these responses (e.g., the source is powerful, or confident, etc.), and where along the elaboration continuum the persuasion is taking place.

Briñol et al. (2018) have recently argued that the *meaning* of any action is important to consider when studying the persuasive impact of nonverbal behavior. For example, head nodding is often associated with agreement, and smiling is typically associated with positive emotions. However, the meaning of these and other behaviors can vary among individuals and situations. For example, although nodding is often associated with high validity (agreement), in certain contexts, nodding can be also associated with low validity (disagreement). Indeed, nodding can be associated with disagreement (and therefore with low validity) when people nod to say “yeah, whatever” or when they mean “yes keep talking as if I care” or when they roll their eyes while nodding. Furthermore, some cultures (e.g., in Bulgaria, Iran, Lebanon, Syria, Turkey, Egypt, Albania, Greece, and Sicily) associate nodding with saying no (low validity) and shaking with saying yes (high validity). Likewise, we already noted that smiling can signal meanings with high validity (when we smile at a bad joke to help others avoid embarrassment, to communicate romantic interest), as well as meanings with low validity (e.g., when showing condescendence and disdain). As another example, observing a communicator pushing his or her chest out can be associated with positive meanings (power, energy, readiness) or with negative meanings, such as a sign of pain or tiredness in the lower back.

In line with Briñol et al. (2018), we argue that if the meaning associated with a behavior changes, the effect of that behavior on subsequent attitudes is also likely to change. In other words, nonverbal behaviors can have opposite effects depending on their meaning. Without considering meaning, one could incorrectly believe that a nonverbal behavior of the communicator will have a positive effect when it may actually have a negative effect. Furthermore, given that meaning is subjective and that it can vary across individuals and settings, we recommend that researchers and practitioners assess this important variable with special emphasis on how the meaning of action relates to validity.

## References

- Aguinis, H., & Henle, C. A. (2001). Effects of nonverbal behavior on perceptions of a female employee's power bases. *The Journal of Social Psychology, 141*, 537–549.
- Albert, S., & Dabbs, J. M. (1970). Physical distance and persuasion. *Journal of Personality and Social Psychology, 15*(3), 265–270.



- Ambady, N., & Rosenthal, R. (1992). Thin slices of behavior as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, *111*, 256–274.
- Anderson, N. H. (1971). Integration theory and attitude change. *Psychological Review*, *78*, 171–206.
- Andrews, J. C., & Shimp, T. A. (1990). Effects of involvement, argument strength, and source characteristics on central and peripheral processing of advertising. *Psychology & Marketing*, *7*(3), 195–214.
- Argyle, M. (1988). *Bodily communication* (2nd ed.). Madison: International Universities Press.
- Asch, S. E. (1956). Studies of independence and conformity: I. A minority of one against a unanimous majority. *Psychological Monographs: General and Applied*, *70*(9), 1–70.
- Axson, D., Yates, S., & Chaiken, S. (1987). Audience response as a heuristic cue in persuasion. *Journal of Personality and Social Psychology*, *53*, 30–40.
- Bailenson, J., & Yee, N. (2005). Digital chameleons: Automatic assimilation of nonverbal gestures in immersive virtual environments. *Psychological Science*, *16*, 814–819.
- Bayliss, A. P., Frischen, A., Fenske, M. J., & Tipper, S. P. (2007). Affective evaluations of objects are influenced by observed gaze direction and emotion expression. *Cognition*, *104*, 644–653.
- Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6, pp. 1–62). New York: Academic Press.
- Bernstein, M. J., Young, S. G., Brown, C. M., Sacco, D. F., & Claypool, H. M. (2016). Adaptive responses to social exclusion: Social rejection improves detection of real and fake smiles. *Psychological Science*, *19*(10), 981–983.
- Berry, D. S., & McArthur, L. Z. (1986). Perceiving character in faces: The impact of age-related craniofacial changes on social perception. *Psychological Bulletin*, *100*, 3–18.
- Boothby, E. J., Clark, M. S., & Bargh, J. A. (2014). Shared experiences are amplified. *Psychological Science*, *25*(12), 2209–2216.
- Briñol, P., & DeMarree, K. G. (Eds.). (2012). *Social metacognition*. New York: Psychology Press.
- Briñol, P., DeMarree, K. G., & Smith, K. R. (2010). The role of embodied change in perceiving and processing facial expressions of others. *Behavioral and Brain Sciences*, *33*, 437–438.
- Briñol, P., & Petty, R. E. (2008). Embodied persuasion: Fundamental processes by which bodily responses can impact attitudes. In G. R. Semin & E. R. Smith (Eds.), *Embodiment grounding: Social, cognitive, affective, and neuroscientific approaches* (pp. 184–207). Cambridge: Cambridge University Press.
- Briñol, P., & Petty, R. E. (2009). Source factors in persuasion: A self-validation approach. *European Review of Social Psychology*, *20*, 49–96.
- Briñol, P., & Petty, R. E. (2012). The history of attitudes and persuasion research. In A. Kruglanski & W. Stroebe (Eds.), *Handbook of the history of social psychology* (pp. 285–320). New York: Psychology Press.
- Briñol, P., & Petty, R. E. (2018). The impact of individual differences on attitudes and attitude change. In D. Albarracín & B. T. Johnson (Eds.), *Handbook of attitudes* (pp. 520–556). New York: Routledge.
- Briñol, P., Petty, R. E., & Barden, J. (2007). Happiness versus sadness as determinants of thought confidence in persuasion: A self-validation analysis. *Journal of Personality and Social Psychology*, *93*, 711–727.
- Briñol, P., Petty, R. E., & Belding, J. (2017a). Objectification of people and thoughts: An attitude change perspective. *British Journal of Social Psychology*, *56*, 233–249.
- Briñol, P., Petty, R. E., & DeMarree, K. G. (2015). Being threatened and being a threat can increase reliance on thoughts: A self-validation approach. In P. J. Carroll, R. M. Arkin, & A. Wichman (Eds.), *Handbook of personal security* (pp. 37–54). New York: Psychology Press.
- Briñol, P., Petty, R. E., Durso, R. O., & Rucker, D. D. (2017b). Power and persuasion: Processes by which perceived power can influence evaluative judgments. *Review of General Psychology*, *21*, 223–241.
- Briñol, P., Petty, R. E., & McCaslin, M. J. (2009). Changing attitudes on implicit versus explicit measures: What is the difference? In R. E. Petty, R. H. Fazio, & P. Briñol (Eds.), *Attitudes: Insights from the new implicit measures* (pp. 285–326). New York: Psychology Press.
- Briñol, P., Petty, R. E., Santos, D., & Mello, J. (2018). Meaning moderates the persuasive effect of physical actions: Buying, selling, touching, carrying, and cleaning thoughts as if they were commercial products. *Journal of the Association for Consumer Research*, *2*, 460–471.
- Briñol, P., Petty, R. E., & Tormala, Z. L. (2004). The self-validation of cognitive responses to advertisements. *Journal of Consumer Research*, *30*, 559–573.
- Brownlow, S. (1992). Seeing is believing: Facial appearance, credibility, and attitude change. *Journal of Nonverbal Behavior*, *16*(2), 101–115.
- Burgoon, J. K. (1978). A communication model of personal space violations: Explication and an initial test. *Human Communication Research*, *4*, 129–142.
- Burgoon, J. K., Birk, T., & Pfau, M. (1990). Nonverbal behaviors, persuasion, and credibility. *Human Communication Research*, *17*(1), 140–169.

- Burgoon, J. K., & Dillman, L. (1995). Gender, immediacy, and nonverbal communication. In P. J. Kalbfleisch & M. J. Cody (Eds.), *Gender, power, and communication in human relationships* (pp. 63–82). Hillsdale: Erlbaum.
- Burgoon, J. K., Dillman, L., & Stern, L. A. (1993). Adaptation in dyadic interaction: Defining and operationalizing patterns of reciprocity and compensation. *Communication Theory*, 3(4), 295–316.
- Burgoon, J. K., & Dunbar, N. E. (2006). Nonverbal expressions of dominance and power in human relationships. In Valerie Manusov & Miles L. Patterson (Eds.), *The SAGE handbook of nonverbal communication* (pp. 279–298). Thousand Oaks: SAGE Publications Inc.
- Burgoon, J. K., Stern, L. A., & Dillman, L. (1995). *Interpersonal adaptation: Dyadic interaction patterns*. New York: Cambridge University Press.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42(1), 116–131.
- Cappella, J. N., & Greene, J. O. (1982). A discrepancy-arousal explanation of mutual influence in expressive behavior for adult and infant-adult interaction. *Communication Monographs*, 49, 89–114.
- Cashdan, E. (1998). Smiles, speech, and body posture: How women and men display sociometric status and power. *Journal of Nonverbal Behavior*, 22(4), 209–228.
- Chaiken, S. (1987). The heuristic model of persuasion. In M. P. Zanna, J. M. Olson, & C. P. Herman (Eds.), *Social influence: The Ontario symposium* (Vol. 5, pp. 3–39). Hillsdale: Erlbaum.
- Chaiken, S., & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology*, 66, 460–473.
- Chaikin, A. (1978). Students' reactions to teachers' physical attractiveness and nonverbal behavior: Two exploratory studies. *Psychology in the Schools*, 15(4), 588–595.
- Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception-behavior link and social interaction. *Journal of Personality and Social Psychology*, 76(6), 893–910.
- Chartrand, T. L., & Lakin, J. L. (2013). The antecedents and consequences of human behavioral mimicry. *Annual Review of Psychology*, 64, 285–308.
- Cialdini, R. (2001). *Influence: Science and practice* (4th ed.). Boston: Allyn & Bacon.
- Civile, C., & Obhl, S. S. (2017). Students wearing police uniforms exhibit biased attention toward individuals wearing hoodies. *Frontiers in Psychology*, 8, 62.
- Clark, J. K., Wegener, D. T., Habashi, M. M., & Evans, A. T. (2012). Source expertise and persuasion: The effects of perceived opposition or support on message scrutiny. *Personality and Social Psychology Bulletin*, 38(1), 90–100.
- Crivelli, C., & Fridlund, A. J. (2018). Facial displays are tools for social influence. *Trends in Cognitive Sciences*, 22, 388–399.
- DeBono, K. G., & Harnish, R. J. (1988). Source expertise, source attractiveness, and the processing of persuasive information: A functional approach. *Journal of Personality and Social Psychology*, 55(4), 541–546.
- Dipboye, R. L., Arvey, R. D., & Terpstra, D. E. (1977). Sex and physical attractiveness of raters and applicants as determinants of resume evaluations. *Journal of Applied Psychology*, 62, 288–294.
- Ekman, P. (1999). Basic emotions. In T. D. T. Power (Ed.), *The handbook of cognition and emotion* (pp. 45–60). Sussex: Wiley.
- Evans, A. T. (2014). *The impact of observed nonverbal cues on message-based persuasion*. Unpublished doctoral dissertation, University of Iowa.
- Evans, A. T., & Clark, J. K. (2012). Source characteristics and persuasion: The role of self-monitoring in self-validation. *Journal of Experimental Social Psychology*, 48, 383–386.
- Fabbri-Destro, M., & Rizzolatti, G. (2008). Mirror neurons and mirror systems in monkeys and humans. *Physiology*, 23(3), 171–179.
- Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology*, 69(6), 1013–1027.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Festinger, L., & Thibaut, J. (1951). Interpersonal communication in small groups. *The Journal of Abnormal and Social Psychology*, 46(1), 92–99.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading: Addison-Wesley.
- Fleming, M. A., & Petty, R. E. (2000). Identity and persuasion: An elaboration likelihood approach. In D. J. Terry & M. A. Hogg (Eds.), *Attitudes, behavior, and social context: The role of norms and group membership* (pp. 171–199). Mahwah: Lawrence Erlbaum.
- Forehand, M. R., & Perkins, A. (2005). Implicit assimilation and explicit contrast: A set/reset model of response to celebrity voice-overs. *Journal of Consumer Research*, 32(3), 435–441.

- Galinsky, A. D., Rucker, D. D., & Magee, J. C. (2015). Power: Past findings, present considerations, and future directions. *APA Handbook of Personality and Social Psychology*, 3, 421–460.
- Gallese, V., & Goldman, A. (1998). Mirror neurons and the simulation theory of mind-reading. *Trends in Cognitive Sciences*, 2(12), 493–501.
- Greenwald, A. G., & Albert, R. D. (1968). Acceptance and recall of improvised arguments. *Journal of Personality and Social Psychology*, 8, 31–34.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, 74(6), 1464–1480.
- Gruder, C. L., Cook, T. D., Hennigan, K. M., Flay, B. R., Alessis, C., & Halamaj, J. (1978). Empirical tests of the absolute sleeper effect predicted from the discounting cue hypothesis. *Journal of Personality and Social Psychology*, 36, 1061–1074.
- Guido, G., Peluso, A. M., & Moffa, V. (2014). Beardedness in advertising: Effects on endorsers' credibility and purchase intentions. *Journal of Marketing Communications*, 17(1), 37–49.
- Hale, J. L., & Burgoon, J. K. (1984). Models of reactions to changes in nonverbal immediacy. *Journal of Nonverbal Behavior*, 8(4), 287–314.
- Hall, E. T. (1966). *Hidden dimension*. Garden City: Doubleday.
- Haugtvedt, C., Petty, R. E., & Cacioppo, J. T. (1992). Need for cognition and advertising: Understanding the role of personality variables in consumer behavior. *Journal of Consumer Psychology*, 1(3), 239–260.
- Haugtvedt, C., Petty, R. E., Cacioppo, J. T., & Steidley, T. (1988). Personality and ad effectiveness: Exploring the utility of need for cognition. *Advances in Consumer Research*, 15, 209–212.
- Heflick, N. A., & Goldenberg, J. L. (2014). Seeing eye to body: The literal objectification of women. *Current Directions in Psychological Science*, 23(3), 225–229.
- Horcajo, J., Briñol, P., & Petty, R. E. (2014). Multiple roles for majority versus minority source status on persuasion when source status follows the message. *Social Influence*, 9, 37–51.
- Hosman, L. A., Huebner, T. M., & Siltanen, S. A. (2002). The impact of power-of-speech style, argument strength, and need for cognition on impression formation, cognitive responses, and persuasion. *Journal of Language and Social Psychology*, 21(4), 361–381.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. New Haven: Yale University Press.
- Jones, C. R., Fazio, R. H., & Olson, M. A. (2009). Implicit misattribution as a mechanism underlying evaluative conditioning. *Journal of Personality and Social Psychology*, 96, 933–948.
- Kang, Y. S., & Herr, P. M. (2006). Beauty and the beholder: Toward an integrative model of communication source effects. *Journal of Consumer Research*, 33(1), 123–130.
- Kelman, H. C. (1958). Compliance, identification and internalization: Three processes of attitude change. *Journal of Conflict Resolution*, 2, 51–60.
- Krumhuber, E. G., & Manstead, A. S. R. (2009). Can Duchenne smiles be feigned? New evidence on felt and false smiles. *Emotion*, 9(6), 807–820.
- Kunecke, J., Wilhelm, O., & Sommer, W. (2017). Emotion recognition in nonverbal face-to-face communication. *Journal of Nonverbal Behavior*, 41(3), 221–238.
- Langton, S. R. H. (2000). The mutual influence of gaze and head orientation in the analysis of social attention direction. *The Quarterly Journal of Experimental Psychology*, 53, 825–845.
- Langton, S. R. H., Watt, R. J., & Bruce, V. (2000). Do the eyes have it? Cues to the direction of social attention. *Trends in Cognitive Sciences*, 4, 50–59.
- Leder, H., Forster, M., & Gerger, G. (2011). The glasses stereotype revisited: Effects of eyeglasses on perception, recognition, and impression of faces. *Swiss Journal of Psychology*, 70(4), 211–222.
- Locke, C. C., & Anderson, C. (2015). The downside of looking like a leader: Power, nonverbal confidence, and participative decision-making. *Journal of Experimental Social Psychology*, 58, 42–47.
- Mann, T. C., & Ferguson, M. J. (2016). Reversing implicit first impressions through reinterpretation after a two-day delay. *Journal of Experimental Social Psychology*, 68, 122–127.
- McConnell, A. R., Rydell, R. J., Strain, L. M., & Mackie, D. M. (2008). Forming implicit and explicit attitudes toward individuals: Social group association cues. *Journal of Personality and Social Psychology*, 94(5), 792–807.
- McGuire, W. J. (1981). The probabilistic model of cognitive structure and attitude change. In R. E. Petty, T. M. Ostrom, & T. C. Brock (Eds.), *Cognitive responses in persuasion*. Hillsdale: Erlbaum.
- Mello, J., Garcia-Marques, T., Briñol, P., Cancela, A., & Petty, R. E. (2017). The effect of self-objectification and perceived physical attractiveness on thought-reliance. In *Presented at the 18th General Meeting of the European Association of Social Psychology*. Granada, Spain.
- Murphy, S. T., & Zajonc, R. B. (1993). Affect, cognition and awareness: Affective priming with optimal and suboptimal exposures. *Journal of Personality and Social Psychology*, 64, 723–739.

- Niedenthal, P. M., Mermillod, M., Maringer, M., & Hess, U. (2010). The Simulation of Smiles (SIMS) model: Embodied simulation and the meaning of facial expression. *Behavioral and Brain Sciences*, *33*, 417–480.
- Okubo, M., Ishikawa, K., Kobayashi, A., & Suzuki, H. (2017). Can I trust you? Laterality of facial trustworthiness in an economic game. *Journal of Nonverbal Behavior*, *41*, 21–34.
- Ottati, V., Terkildsen, N., & Hubbard, C. (1997). Happy faces elicit heuristic processing in a televised impression formation task: A cognitive tuning account. *Personality and Social Psychology Bulletin*, *23*(11), 1144–1156.
- Pallak, S. R. (1983). Salience of a communicator's physical attractiveness and persuasion: A heuristic versus systematic processing interpretation. *Social Cognition*, *2*(2), 158–170.
- Paredes, B., Stavraki, M., Briñol, P., & Petty, R. E. (2013). Smiling after thinking increases reliance on thoughts. *Social Psychology*, *44*, 349–353.
- Parkinson, B., & Manstead, A. S. R. (2015). Current emotion research in social psychology: Thinking about emotions and other people. *Emotion Review*, *7*(4), 371–380.
- Patterson, M. L. (1976). An arousal model of interpersonal intimacy. *Psychological Review*, *83*(3), 235–245.
- Patterson, M. L. (1982). A sequential functional model of nonverbal behavior. *Psychological Review*, *89*(3), 231–249.
- Patterson, M. L. (1995). A parallel process model of nonverbal communication. *Journal of Nonverbal Behavior*, *19*(1), 3–29.
- Patterson, M. L. (2018). A systems model of dyadic nonverbal interaction. *Journal of Nonverbal Behavior*. <https://doi.org/10.1007/s10919-018-00292-w>.
- Petty, R. E., & Briñol, P. (2010). Attitude structure and change: Implications for implicit measures. In B. Gawronski & B. K. Payne (Eds.), *Handbook of implicit social cognition: Measurement, theory, and applications* (pp. 335–352). New York: Guilford Press.
- Petty, R. E., & Briñol, P. (2012). The elaboration likelihood model. In P. A. M. Van Lange, A. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 1, pp. 224–245). London: Sage.
- Petty, R. E., Briñol, P., Tormala, Z. L., & Wegener, D. T. (2007). The role of meta-cognition in social judgment. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: A handbook of basic principles* (2nd ed., pp. 254–284). New York: Guilford Press.
- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, *37*, 1915–1926.
- Petty, R. E., & Cacioppo, J. T. (1981). Issue involvement as a moderator of the effects on attitude of advertising content and context. *Advances in Consumer Research*, *8*, 20–24.
- Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on response to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology*, *46*, 69–81.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to persuasion*. New York: Springer-Verlag.
- Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981a). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, *41*, 847–855.
- Petty, R. E., Cacioppo, J. T., & Heesacker, M. (1981b). The use of rhetorical questions in persuasion: A cognitive response analysis. *Journal of Personality and Social Psychology*, *40*, 432–440.
- Petty, R. E., Cacioppo, J. T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, *10*, 135–146.
- Petty, R. E., Harkins, S. G., & Williams, K. D. (1980). The effects of group diffusion of cognitive effort on attitudes: An information processing view. *Journal of Personality and Social Psychology*, *38*, 81–92.
- Petty, R. E., & Krosnick, J. A. (Eds.). (1995). *Attitude strength: Antecedents and consequences*. Mahwah: Erlbaum Associates.
- Petty, R. E., Ostrom, T. M., & Brock, T. C. (1981c). Historical foundations of the cognitive response approach to attitudes and persuasion. In R. Petty, T. Ostrom, & T. Brock (Eds.), *Cognitive responses in persuasion* (pp. 5–29). Hillsdale: Erlbaum.
- Petty, R. E., Schumann, D. W., Richman, S. A., & Strathman, A. J. (1993). Positive mood and persuasion: Different roles for affect under high and low elaboration conditions. *Journal of Personality and Social Psychology*, *64*, 5–20.
- Puckett, J. M., Petty, R. E., Cacioppo, J. T., & Fisher, D. L. (1983). The relative impact of age and attractiveness stereotypes on persuasion. *Journal of Gerontology*, *38*, 340–343.
- Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience? *Personality and Social Psychology Review*, *8*(4), 364–382.
- Rizzolatti, G. (2005). The mirror neuron system and its function in humans. *Anatomy and Embryology*, *210*(5), 419–421.
- Rubenstein, A. J., Langlois, J. H., & Roggman, L. A. (2002). What makes a face attractive and why: The role of averageness in defining facial beauty. In G. Rhodes & L. A. Zebrowitz (Eds.), *Advances in visual cognition* (Vol. 1, pp. 1–33). Facial attractiveness: Evolutionary, cognitive, and social perspectives. Westport: Ablex Publishing.

- Rucker, D. D., Tormala, Z. L., Petty, R. E., & Briñol, P. (2014). Consumer conviction and commitment: An appraisal-based framework for attitude certainty. *Journal of Consumer Psychology, 24*(1), 119–136.
- Rychlowska, M., Jack, R. E., Garrod, O. G. B., Schyns, P. G., Martin, J. D., & Niedenthal, P. M. (2017). Functional smiles: Tools for love, sympathy, and war. *Psychological Science, 28*(9), 1259–1270.
- Rydell, R. J., & McConnell, A. R. (2006). Understanding implicit and explicit attitude change: A systems of reasoning analysis. *Journal of Personality and Social Psychology, 91*(6), 995–1008.
- Schubert, T. W., Waldzus, S., & Seibt, B. (2008). The embodiment of power and communalism in space and bodily contact. In G. R. Semin & E. R. Smith (Eds.), *Embodied grounding: Social, cognitive, affective, and neuroscientific approaches* (pp. 160–183). Cambridge: Cambridge University Press.
- Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45*, 513–523.
- Shavitt, S., Swan, S., Lowrey, T. M., & Wanke, M. (1994). The interaction of endorser attractiveness and involvement in persuasion depends on the goal that guides message processing. *Journal of Consumer Psychology, 3*(2), 137–162.
- Sherif, M. (1936). *The psychology of social norms*. Oxford: Harper.
- Shteynberg, G. (2015). Shared attention. *Perspectives on Psychological Science, 5*, 579–590.
- Shteynberg, G., Bramlett, J. M., Fles, E. H., & Cameron, J. (2016). The broadcast of shared attention and its impact on political persuasion. *Journal of Personality and Social Psychology, 5*, 665–673.
- Smith, C. T., DeHouwer, J. D., & Nosek, B. A. (2012). Consider the source: Persuasion of implicit evaluations is moderated by source credibility. *Personality and Social Psychology Bulletin, 39*, 193–205.
- Snyder, M. (1979). Self-monitoring processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 12, pp. 85–128). New York: Academic Press.
- Staats, A. W., & Staats, C. K. (1958). Attitudes established by classical conditioning. *Journal of Abnormal and Social Psychology, 57*, 37–40.
- Tanner, R., & Chartrand, T. (2006). The convincing Chameleon: The impact of mimicry on persuasion. *Advances in Consumer Research, 33*, 409–412.
- Tiedens, L. Z., & Fragale, A. R. (2003). Power moves: Complementarity in dominant and submissive nonverbal behavior. *Journal of Personality and Social Psychology, 84*(3), 558–568.
- Tormala, Z. L., Briñol, P., & Petty, R. E. (2006). When credibility attacks: The reverse impact of source credibility on persuasion. *Journal of Experimental Social Psychology, 42*, 684–691.
- Tormala, Z. L., Briñol, P., & Petty, R. E. (2007). Multiple roles for source credibility under high elaboration: It's all in the timing. *Social Cognition, 25*, 536–552.
- Toscano, H., Schubert, T. W., Dotsch, R., Falvello, V., & Todorov, A. (2016). Physical strength as a cue to dominance: A data-driven approach. *Personality and Social Psychology Bulletin, 42*(12), 1603–1616.
- Van Kleef, G. A., van den Berg, H., & Heerdink, M. W. (2015). The persuasive power of emotions: Effects of emotional expressions on attitude formation and change. *Journal of Applied Psychology, 100*(4), 1124–1142.
- Vogel, T., Kutzner, F., Fiedler, K., & Freytag, P. (2010). Exploiting attractiveness in persuasion: Senders' implicit theories about receivers' processing motivation. *Personality and Social Psychology Bulletin, 36*(6), 830–842.
- Watkins, L. M., & Johnston, L. (2000). Screening job applicants: The impact of physical attractiveness and application quality. *International Journal of Selection and Assessment, 8*(2), 76–84.
- Wegener, D. T., & Petty, R. E. (1995). Flexible correction processes in social judgement: The role of naive theories in corrections for perceived bias. *Journal of Personality and Social Psychology, 68*, 36–51.
- Yee, N., Bailenson, J. N., & Ducheneaut, N. (2009). The proteus effect: Implications of transformed digital self-representation on online and offline behavior. *Communication Research, 36*(2), 285–312.
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology, 9*, 1–27.
- Zebrowitz, L. A., & Montepare, J. M. (2008). Social psychological face perception: Why appearance matters. *Social and Personality Psychology Compass, 2*(3), 1497–1517.
- Ziegler, R., von Schwichow, A., & Diehl, M. (2005). Matching the message source to attitude functions: Implications for biased processing. *Journal of Experimental Social Psychology, 41*, 645–653.